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Proceedings of the

20th European Conference on Management, Leadership and Governance

Hosted by Universidade Lusófona, Lisbon, Portugal

14-15 November 2024

Dr. Mafalda Patuleia

Dr Eduardo Tomé

Dr Carlos Rouco

A conference managed by ACI, UK

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Proceedings of the

20th European Conference on Management Leadership and Governance

ECMLG 2024

A Conference Hosted By

Universidade Lusófona

Lisbon, Portugal

14 - 15 November 2024

Edited by Professor Mafalda Patuleia; Professor Eduardo Tomé and Professor Carlos Rouco

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About the 20th European Conference on Management, Leadership and Governance, 2024

The European Conference on Management, Leadership and Governance has evolved significantly over the past 20 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.

- Artificial Intelligence Applied to Management, Leadership and Governance
- The Role of Corporate Governance in a Sustainable Business Environment
- Leadership and Management Beyond Boarders
- Women in Leadership: The Liminal Fluctuating Spaces They Occupy

The programme from the 2024 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 Preface

These proceedings represent the work of contributors to the 20th European Conference on Management Leadership and Governance (ECMLG 2024), hosted by ACI and the Universidade Lusófona, Lisbon, Portugal on 14-15 November 2024. The Conference Chair was Professor Mafalda Patuleia, and the joint Programme Chairs were Professor Eduardo Tomé and Professor José Carlos Dias Rouco, all from Universidade Lusófona.

ECMLG is a well-established event on the academic research calendar and now in its 20th 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 Thomas Garavan from the National College of Ireland, Dublin, who spoke about *Leadership and Organisational Wrongdoing: The Role of Leader and Executive Team Characteristics*. The second day of the conference opened with an address from Professor José Neves from Universidade Nova de Lisboa who discussed *The AED Cluster Approach Towards the Growth of the Portuguese Aeronautics, Space and Defence Ecosystem*.

With an initial submission of 164 abstracts, after the double blind, peer review process there are 75 Academic research papers, 9 PhD research papers, 1 Masters Research papers and 7 work-in-progress papers published in these Conference Proceedings. These papers represent research from Austria, Barbados, Brazil, Canada, Czech Republic, Denmark, France, Germany, India, Ireland, Italy, Morocco, Netherlands, Nigeria, Pakistan, Perú, Poland, Portugal, Romania, South Africa, Spain, Sri Lanka, Sweden, Tunisia, UK, and USA.

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

Mafalda Patuleia, Eduardo Tomé and José Carlos Dias Rouco
Universidade Lusófona, Lisbon,
Portugal
November 2024

Biographies of Chairs and Keynote Speakers

Conference and Programme Chairs

Mafalda Patuleia has a Ph.D. in Tourism from the Faculty of Economics of the University of Algarve. She is the Head of the Tourism Department of the Lusófona University. She is also a researcher at the GOVCOPP - Research Unit on Governance, Competitiveness and Public Policies (Aveiro University) and at the TRIE -Transdisciplinary Research Center of Innovation & Entrepreneurship Ecosystems, with research interests in tourism destinations and hotel management. She has produced research in the field of second homes, lifestyle migration, competitiveness in tourism destinations, and lifestyle entrepreneurs, including book chapters, papers in scientific journals and conference proceedings, case studies, and working papers.

Eduardo Tomé gained is PhD in Economics (2001), with a Thesis on the European Social Fund. Since then he has worked in several Portuguese private universities. He published over 50 papers in peer-reviewed Journals and presented 90 papers in international conferences. He also authored 7 book chapters, He was involved in organising and chairing 12 international Conferences (MSKE, UFHRD, ECKM and TAKE) which he also co-edited the Proceedings and edited four Specials Issues in EJKM, EJTD and IJKBD. Since September 2020 he has worked at Universidade Lusófona in Lisbon, Portugal. His main interests are Intangibles (Human Resources, Knowledge Management and Intellectual Capital), Social Policy and International Economics (globalization and the European Integration).

José Carlos Dias Rouco is an Associate Professor of Human Resource Management in the School of Economic Sciences and Organizations at Lusofóna University. He obtained her PhD from Lusíada University in 2012. He holds a Master's degree in Sports Training Management from Faculty of Human Motricity at Technical University of Lisbon. He has a graduation (5 years) in Military Sciences from the Portuguese Military Academy. Currently, he is the director of the Department of Air Transport and Airports Management, Director of the Bachelor's degree in Aeronautical Management. He teaches courses on crisis management, strategic and leadership, leadership and ethics, strategic marketing, international negotiations, human resource management, development and vocational training and organizational behavior. He has taught and coordinated several intensive leadership courses (internal regime for 5 days) for young university students, entrepreneurs, bankers, and firefighters. Currently, he is a researcher of a research project on Stressense funded by FCT, which was awarded the scientific prize. He is a regular reviewer for many International journals.

Keynote Speakers

Thomas Garavan is Professor of Leadership Practice in CUBS, UCC and Visiting Research Professor, National College of Ireland, Dublin. He is a world leading expert in leadership development, learning and development and HRD. He has published extensively in the leading HRD journals His most recent book publications include Learning and Development in Organizations: A Systems-Informed Model of Effectiveness (Palgrave), Strategic Human Resource Management (Oxford University Press), Handbook of International Human Resource Development (Edward Elgar)

and Global Human Resource Development (Routledge). He is editor-in chief of Human Resource Development Review. He is co-editor of European Journal of Training and Development and Associate Editor of Personnel Review and is a member of the HRDQ, HRDI, HRDR, ADHR, HRMJ, International Journal of Training and Development and International Journal of Human Resource Management. He has extensive teaching experience in addition to executive education and leadership development. He was elected to the Hall of Fame of the Academy of Human Resource Development, USA in 2021 and has won numerous awards for publication and journal editing.

José Neves has a degree in Aerospace Engineering from Instituto Superior Técnico and a postgraduate degree in Management from Universidade Nova de Lisboa. He is Chairman of the Board of Directors of AED, the Portuguese Aeronautics, Space and Defense Cluster, and a member of the Board of Directors of the multinational GMVIS SKYSOFT S.A. José is an expert for the Artificial Intelligence in Aviation Committee, SAE G-34 Standard on the Process for the Development and Certification of Aviation Safety-Related Products Implementing Artificial Intelligence, founder and member of the NATO FAMOS Working Group, which addresses the interoperability of embedded avionics systems, and is also an expert for the European Commission for the Horizon 2020 CleanSky 2 Program for the Small Transport Aircraft and Fast Rotorcraft domains.

Mini Track Chairs

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 publication is Luxury Yachting: Perspectives on Tourism, Practice and Context (Palgrave Macmillan, 2022). Tatiana's currently editing a new book on luxury yachting which will be published in 2024. Dr Gladkikh 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)

Valerie Priscilla Goby, PhD (Business, Finland), PhD (Communication, Australia), FHEA, SFHEA, a professor at Zayed University, Dubai, has published across a range of disciplines including business ethics, leadership, cross-cultural communication, CSR, and gender studies in journals such as Journal of Business Ethics, Leadership and Organisation Development, and Women's Studies International Forum.

Camelia Iuliana Lungu is professor of accounting at the Faculty of Accounting and Management Information Systems and the Director of Doctoral School of Accounting, Bucharest University of Economic Studies. With an experience of more than 20 years in accounting research topics, Dr. Lungu is scientific reviewer of prestigious academic journals (Accounting in Europe, Journal of Organizational Change Management, Renewable and Sustainable Energy Reviews), associate editor of the Journal of Accounting and Management Information Systems, member of scientific

committee of the 14th IAAER World Congress of Accounting Educators and Researchers and member of EAA 2024 Annual Congress Organizing Committee.

Associate Professor Joao Alexandre Lobo Marques Associate Professor, Research Coordinator, Head of the Laboratory of Applied Neurosciences, Head of the Department of Business Administration - University of Saint Joseph/USJ Macau SAR, China. Visiting Associate Professor Chinese Academy of Sciences (CAS) - Shenzhen Institutes of Advanced Technologies (SIAT). Member of the Board of Advisors - Master in Global Marketing Management - Boston University Metropolitan College. Author of 9 books. Research interests: Artificial Intelligence, Data Science, Big Data, Business Analytics, Linear and Nonlinear Time Series Analysis, Signal and Image Processing, Applied Neurosciences.

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Improved Information Exchange as an Advanced Governance Tool

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Abstract: Whereas many organisations focus on the optimal functioning of their processes to achieve their goals, we nowadays see organisational challenges spreading to their functioning within networks. This poses a significant question for management and leadership: Are their decisions shaping or controlling their own or the network partners' functioning? However, modern networks grant partners autonomy to make their choices, believing that the collective outcome of these autonomous decision processes can also yield results. However, cooperative decision-making between network partners is pivotal in today's society. Finding a balance between control over the network, autonomy of the partners and cooperation between them leads to what is often referred to as the emergent behaviour of the network. So, 'context is leading' requires reacting fast and efficiently to become a resilient organisational network. It is becoming evident that the resilience within network functioning lies in the exchange of information and data availability. In current practice, partners often seek solutions by striving for unity of language and/or data dictionaries. Unfortunately, this approach doesn't lead to optimal results in day-to-day practice. We propagate the adoption of a different approach. This article presents a non-invasive perspective on micro-contexts and their emerging information systems. By engaging these systems in their current form through formalised abstractions, we suggest effectively linking information and data sources to enhance information exchange and data availability. Improving information exchange will show itself instantly as an advanced governance tool

Keywords: Managing Uncertainty, Information Management, Adaptive Cycle of Resilience, Governance, Cooperation

1. Introduction

Many organisations still focus on optimising their processes to achieve their goals best. This approach has worked well for decades, but it increasingly appears that it does not support the adequate tackling of today's challenges, which are characterised by the degree of uncertainty and the extent to which they are well—or ill-defined.

Dealing with well-defined challenges usually requires a clear view of the solution's direction and knowing or finding the applicable knowledge when it is unavailable.

However, in modern circumstances, challenges are initiated by disruptive and unforeseeable changes. Forecasting the knowledge necessary to deal with the challenge is impossible. This uncertainty makes the search process difficult, if not impossible. The search process cannot be structured in a traditional way. It must be based on combining different insights without knowing what contribution the knowledge elements will have.

This process is even more complicated when we consider the network of partners we usually work together with, and who also contribute to managing the current challenge. Whether and how the network partners contribute is uncertain upfront.

However, cooperative decision-making between network partners is pivotal in today's society. This leads to a different type of requirements management and leadership will have to deal with. Finding a balance between control over the network, autonomy of the partners, and cooperation between them leads to what is often referred to as the emergent behaviour of the network.

In a complex setting like this, we must know that every network partner works within its context. Given the complexity of contemporary society, combining the different micro-contexts into an integrated valid one appears difficult.

Even though, 'context is leading' requires reacting fast and efficiently for a resilient organisational network. It is becoming evident that resilience within network functioning lies in the exchange of information and data availability.

This leads to a situation where separate micro-contexts exist both in networks and the data models that determine network partners' information systems. Thereby, the underlying assumptions for the design of the organisational information systems and the data models are far from being in line with each other, which is an obstacle to achieving optimal information exchange and data availability between the network partners. In current practice, partners often seek solutions by striving for unity of language and/or data dictionaries. However, this approach doesn't lead to optimal results. We propagate the adoption of a different approach for advancing the information exchange, which we introduce later on. But first, we need to understand organisations' challenges.

2. Challenges and Solutions

In general, management is searching for an agreement on the problem space being close to certainty with processable problems and agreements on dealing with them. In such a setting, they can make power and policy decisions, control the challenges, and predict potential futures based on clear visions and shared insights.

However, as mentioned in the introduction, current-day challenges are often far from certain without agreements on the nature of the problem (see Figure 1). For a better understanding, we must dive deeper into the characteristics of organisations' issues.

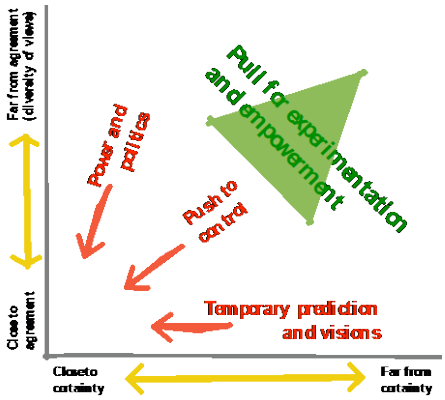

Figure 1: Tensions for restructuring the challenges (Abcouwer, Takács, Schilstra, et al. (2022))

2.1 Well Defined Versus Ill-defined Challenges: the Problem Space

To identify the problem space, we distinguish between well- and ill-defined challenges (see Figure 2).

Well-defined challenges have a well-defined initial state (which is known), a well-defined goal state (the solution is reachable) and a known procedure for solving the problem (solution process) (Jonassen, 1997, 2000; Simon, 1973).

Ill-defined problems, on the other hand, are characterized by conflicting assumptions, evidence, and opinions, which can lead to multiple or even no solutions. They lack a guaranteed procedure for resolution, as well as a standard method for evaluation (Jonassen, 1997, 2000; Kitchner, 1983).

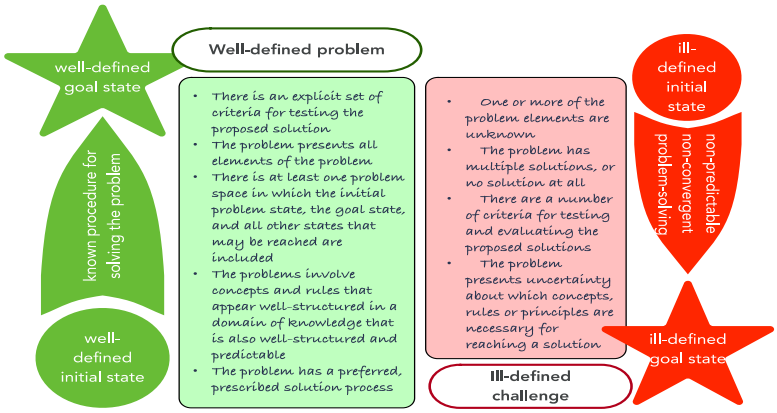

Figure 2: Well-defined problems vs ill-defined challenges (Abcouwer, Takács, Schilstra, et al. (2022))

2.2 Problem Solving in an Ill-defined Context: the Solution Space

Organisations can benefit from classic strategy models and processes in stable settled environments. In such a setting, the initial state of the organisation is known (the IST situation), the target state is known too (the SOLL situation), and the focus is mainly on the process an organisation will have to go through to get from IST to SOLL. Still, knowledge-intensive organisations face a competitive environment with unclear market circumstances and more demanding and knowledgeable customers, where traditional strategy is no longer appropriate. Also, rapid change and technological innovation require flexibility. Another important reason is the dependence on individuals' knowledge working in the system, lacking creative processes and inclusion of individuals that cannot be dealt with adequately in traditional strategy models. Researchers also mention these: Hamel and Heene (1994) highlight the requirement for a proactive rather than reactive approach to competing in competitive spaces.

Mintzberg (2009) says that uncertainties and rapid change mean that a planning approach to strategy does not function in most cases and that the distinction between formulation and implementation is unsustainable. Kanter (2002) suggests that companies that want to overtake the competition throw out "the script" and improvise their way to new strategies. Barney (1991), Collis and Montgomery (1995) emphasise the internal resources for sources of competitive advantage in an uncertain market: competence and other intangible assets such as brands, intellectual property or relationships, where innovation and the ability to propel ideas to market quickly become crucial. Collins and Porras (1996) and Davidson (2004) said that values, beliefs and vision become critical when people are the key value drivers, as they guide and align the behaviours of employees.

Depending on how people create value, the critical role of strategy is to provide a vision and purpose for being, leading to a shared context for decision-making and guidance for employees and managers (Rylander & Peppard, 2003). The challenge lies in balancing stability and flexibility (Lindgren & Bandhold, 2003) or resilience, especially when the challenges which are either well- or ill-defined, can be 'certain', 'risk', or 'uncertain' (Gigerenzer, 2015). In line with Gigerenzer (2015) we can describe Certain, Risk and Uncertain as follow.

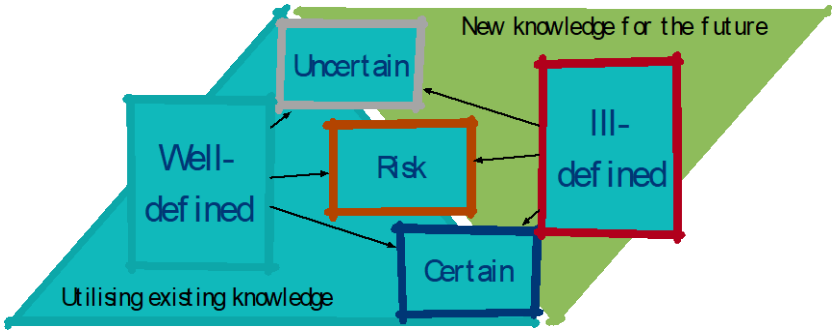

Figure 3: Balancing problem space and solution space (Abcouwer et al. (2018)

In ***Certainty***, the organisation is in a well-defined 'Certain' situation when its goals and knowledge that supports problem-solving are clear. When the Challenge is ill-defined, the objectives and required knowledge can still be clear. The focus is then on accessing it and assuring quality and integration.

Risk occurs when managers and leaders are unaware of or do not entirely know the nature of the problem - the case of an ill-defined challenge - or in a well-defined challenge. The solution might not be available right away, or several solutions are available, and the question of which solution must be chosen is unclear. In such situations, the organisation faces a risk situation.

Uncertainty is when managers and leaders are completely unaware of the nature of the problem or the solution to be chosen; the problem sets can be called a crisis, a state in which the traditional way of problem-solving does not work anymore. Finding new countermeasures is the key for being able to solve problems and requires scenario analysis to the set of opportunities that can facilitate a contingency approach. In this setting, the required knowledge has yet to be known and being experimental might be the only way to deal with the situation. Monitoring and communication will be crucial to identify the necessary knowledge to solve problems.

In the past, the challenges in an organisational context were more well-defined, in many cases related to process optimisation, etc. Still, now we see developments towards ill-defined challenges and/or undefined solution spaces (see Figure 3).

Organisations need to find answers to problems they have yet to learn, and the traditional problem-solving approaches no longer work well - some call it a crisis. Often referred to approaches, like the ***plan-do-check-act*** sequence, assume that the objectives for the change processes and traditional change approaches are leading. Planning and applying the change, checking its effectiveness, and adaptation often leads to a false belief that every problem can be solved. In practice, '*turning the corner at right angles*', necessary when we must let go of the old and insufficient problem-solving approaches, is complicated because the challenges are different and not adequately supported. For example, in the telecom world, a ***plan-do-check-act*** approach, or agile working will never change a Nokia 3310 into an iPhone.

3. Reality and Models: Deciding on Abstractions

When describing the actual state of the system (whether it is an individual, organisation, network, society, etc.), we develop models to reduce the complexity of the context. Reality is too complex to consider everything, so abstracting helps to describe the problems up to a required level of detail (see Figure 4). Abstractions depend on the challenge and the organisation's objectives. The reality must be translated into data and process models by applying necessary abstractions. These data and process models form the basis on which knowledge and information systems are built, where we must consider the capabilities of the applied technology. Given that, a second layer of abstractions must be made. It leads to a situation where the relevant knowledge and information within the organisational context will be two abstraction levels away from the real world. These abstractions in every type of human activity (individual, team, organisational, or societal), are determined based on the micro contexts. One of the biggest problems in information and knowledge management is aligning the systems with the reality they represent.

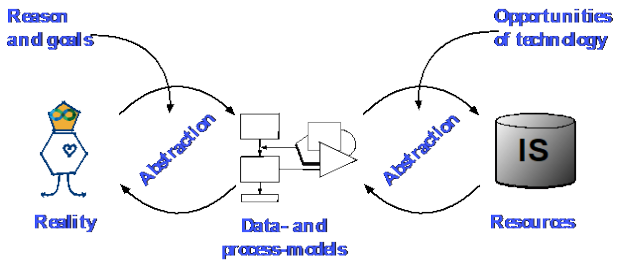

Figure 4: Abstraction of reality (Abcouwer, Takács and Banga (2022))

The model supports abstractions depending on the organisation's micro context and objectives. Based on that, choices regarding the organisation's strategy and structure guide the operations without imposing a direction, such as having strategic objectives first or basing yourself on competencies. Combining the abstraction approach and the strategy-structure-operation dimension leads to the Amsterdam Information Management (AIM) model, which combines the organisational and resource-based approaches (see Figure 5).

However, looking at the information issue in contemporary developments, the reality of current automation shows how difficult it is to align reality and systems, strategy and operations (Abcouwer & Smit, 2015; Chan, 2002; Ciborra, 1997; Coltman et al., 2015; Henderson & Venkatraman, 1993).

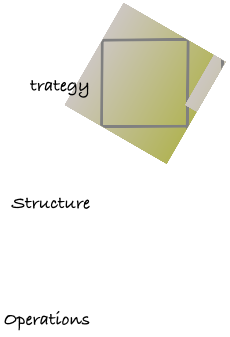

Figure 5: The Amsterdam Information model (Abcouwer, Takács and Banga (2022))

A potential solution in this respect is to develop a method of formalised abstraction where the translation into model and information and knowledge handling is standardised to assure exchangeability. Using a formalised linguistic-based semantic abstraction method, as suggested by Brands (2019) based on a universal ***Who-What-Where-When- (WWWW) approach***, offers the opportunity for automated detection of relationships in the different structured and unstructured data sets being used within the separate micro-contexts. Mind that in this respect only 20% of the data is structured in practice, so 80% is not (Blumberg & Atre, 2003; Mishra & Misra, 2017). The proposed method leads to flexible and resilient adaptive knowledge and information models, assuring that the structured and unstructured data sets can be used for training large language models and artificial intelligence. It is out of scope in the paper to work out this approach in more detail. (Brands, 2019) It also facilitates organisations to understand their own functioning better and allows them to compare their micro-contexts with those of partners they work together within a chain or network. In the next paragraph, we will explore working in a network setting.

4. Working in a Networked Setting

Organisations form a mechanism for coordinating activities based on their objectives/strategies to offer their results for individuals and/or society. In uncertain contexts and rapid changes, organisations should cooperate in networks (Obeng, 2003). While working in networks, the objectives of the network partners are often based on individual interests. Culture, justice, value-and-norm systems, and differences in ethics influence the organisation's behaviour. When many parties work together, the network structures are leading, and in many cases, there is no clear network leader and a common strategy to follow.

From the perspective of an individual network partner, their micro context largely determines how they manage their knowledge and information. Their interests take precedence, as do the two levels of abstraction between reality and knowledge and information systems, which are not automatically harmonised within the network (see Figure 6). This is a key reason why organising information exchange and data availability is daunting. Representing the reality of an individual partner participating in a cooperative context requires the alignment of many specific micro-contexts. Strategy, structure, and operations choices guide the organisation's daily activities within a context. From a network partner, only specific aspects of reality are considered based on the reasoning and – if available - objectives relevant to the partner's micro-context. When a different micro-context representation is made of the same reality, the alignment of reality and representation may not be replaceable. Different abstractions lead to knowledge, information exchange, and data availability problems in these different micro contexts. Specific aspects of reality may be relevant in one micro-context and redundant in another. Systems and channels used in the different micro-contexts cannot automatically exchange knowledge and information. However, it often occurs between the different micro-contexts in networks. Structuring the process of abstraction based on the specific micro-context only, will never lead to the required synergy between the partners. Introducing a formalised approach to describing the different micro-contexts, based on a generic ***Who-What-Where-When approach*** will aid the understanding of complex networks.

Dynamics, the fast-changing context, and the diverse operation fields force society to network/cooperate where limited and unclear mutual interests exist. Higher societal demands push the organisations, irrationality and unpredictability, requiring diverse specialisations. Mutual interdependencies and changing dominant societal and network problems lead the developments in changing directions.

Networks consist of many partners who make rational decisions independently but influence and affect other organisations. Dynamic interactions between partners makes it highly unlikely to view organisational behaviour from a single intra-organisational point of view. This mechanism works in two directions. Inwards the objectives of people match the organisational goals. Outwards, the organisations interact with their partners. The objectives of individuals, organisations and society are equally important here (Scharmer, 2007), we live in an era when a new form of presence power arises. (Scharmer & Yukelson, 2015) identify a development from ego-systems, with a focus on individual partners in the network, to Ecosystems. Ecosystems are special networks. Communities of customers, suppliers, lead producers and other stakeholders interacting with each other with their own specialities, to realize the shared goals. This can be seen as an extension of the classic network-organisation structure, in which organisations cooperate in a network: the stakeholder awareness

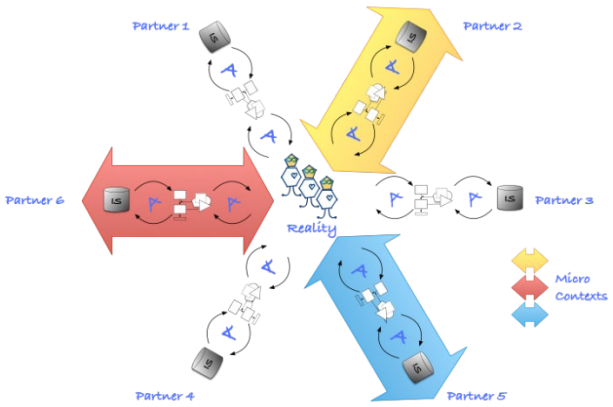

Figure 6: Micro contexts (own source)

Applying ecosystem in nature to an established business or innovation ecosystem, we see that all parties actively cooperate to create a balanced system, maybe even self-regulating. Audretsch et al. (2019) argue that ecosystems are characterized by cooperation and network externalities, demonstrating the relevance of cooperative learning and working in an ecosystem. Working in this context with semantic abstractions may assure the alignment and smooth exchange of knowledge and information. It helps us determine a structured approach for describing an integrated view of the IST and, depending on the degree of well-or ill-defined challenges, on the required SOLL of the network cooperation.

So, defining the different network elements (stakeholders, partners, government, etc.) using the proposed combined approach of the AIM model and the WWWW approach will help to gain a better insight into the reality everyone is facing.

However, partners working in different micro-contexts on complex change processes raise the central question of who leads or combines knowledge and information. With signalling, this immediately becomes a governance issue.

5. Governance and Responsibilities

Human organisations - just like nature again - consist of relationships (Wheatley, 2011). According to Keidel (1995), there are only three ways in which people can relate without conflicts: **Autonomy** (separation), **Control** (subordination) and **Cooperation** (integration), resulting in decentralised, centralised and team-oriented organisational structures (see Fugure 7). **Autonomy** is where everyone strives to fulfil their objectives to the best of their ability.

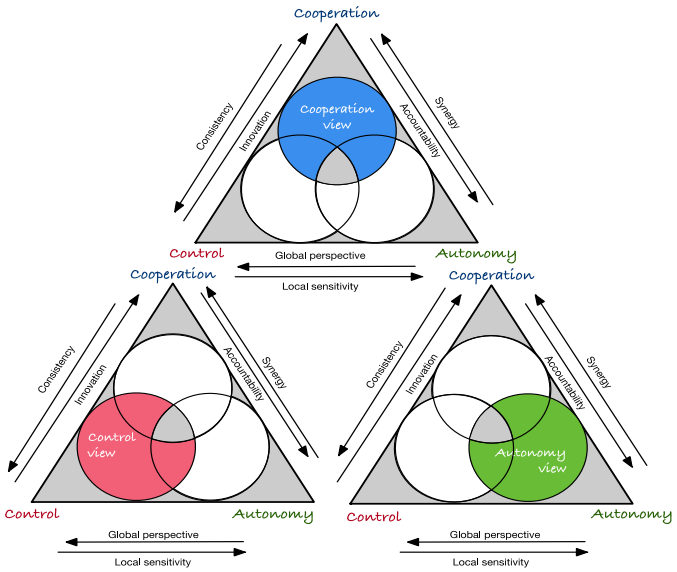

Figure 7 : Autonomy – Control – Cooperation (based on (Keidel, 1995))

Control-based working leads to hierarchical structures where a clear leader takes responsibility for the future behaviour of the community. **Cooperation** takes advantage of the competencies, abilities, and resources available in the community, where everyone contributes their best. In practice, all forms need to be present at an actual organisation. Based on the organisation's context, it is a bias for the direction of the ideal form an organisation is striving for.

An organisation's success factor is how it cooperates within and among organisations. From a societal point of view, the needs of the many determine the way. Aligning all individual needs with societal ones is extremely hard. Individual needs are different and dependent on that individual's specific context. Striving to align those objectives requires a strict hierarchy, a high level of control or a highly developed way of cooperation. In cooperation, the consultation will be the leading principle on which partners agree upon their objectives. Autonomous working is also an approach that can lead to great results. In this case, we assume that everyone can decide what is best for reaching results. This form of working together may lead to emergent behaviour in the organisation. So, cooperation and synchronisation of the activities may be centrally enforced (control), can be based on working together (cooperation), or assume that the participants' autonomous behaviour leads to emerging behaviour of the organisation or network. For success, trust is the principle on which participant base their cooperation.

As a next logical step and returning to the change process related to our challenges, we need to focus on the change process that enables the network to evolve from IST to SOLL. Understanding change in general is crucial to dealing with that specific challenge. The Adaptive Cycle of Resilience can support the change process, which we briefly describe in the next paragraph.

6. The Flow of Change

Over the past decades, numerous change approaches have emerged. Organisations function in an open, dynamic, complex and networked setting. Their starting point is usually a disruption that leads to unforeseen changes. To solve the specific challenge, a process must be chosen to transition the problem to a solution. Continuous change deals with several independent challenges. Many change approaches, like the traditional Plan, Do, Check, and Act approach, are not applicable in such a context. They originate often from Lewin's 'unfreeze-move-refreeze' (Kaminski, 2011; Kritsonis, 2005; Lewin, 1947a, 1947b) to remain effective. It unlocks the old methods and facilitates new approaches to change, move and reach the desired objective, thereby resolving the problem. However, change is not a single event when considering incremental developments. (Kritsonis, 2005; Todnem By, 2005).

Change means we must prepare for solutions. There is a growing need to identify change as a continuous process, while until now, it has been mainly studied from a 'discrete event' way of thinking, thus, as a sequence of single event challenges. Although theories like the Kondratiev cycle (Tinbergen, 1981), Thompson's Organisations in Action approach (Thompson, 1967), Perez's Technological revolution approach (Perez, 2002) etc. exist, ecology stresses the focus on resilience and adaptive organisations (Ensor, 2011; Gunderson & Holling, 2001; Holling, 1996; Holling & Gunderson, 2002; Walker & Salt, 2006) and suggests dealing with disruptions.

The concept of resilience explains how systems deal with disruptions, distinguishing between engineering and ecological resilience. Engineering resilience is the ability to deal with disturbances and bounce back to the old state of equilibrium. If a disturbance is so disruptive that it can no longer return to the initial state, the system will need to find a new way. In societal systems, it is important to understand and guide the necessary change process to influence the desired new state. For this reason – among others - (Ensor, 2011) introduces the concept of social resilience. In further exploring the change processes, a fourth type of resilience is introduced: the ability to deal with a never-ending sequence of disturbances (Chandler, 2014).

The Adaptive Cycle of Resilience (Abcouwer & Parson, 2011; E. Takács & A. W. Abcouwer, 2020) manages change as an ongoing process (see Figure 8). Organisations strive to be in 'Equilibrium' (I), where they know what they want, can and must do, but 'Challenges' (II) can reach the extent when they lose this certainty. They need to find 'New combinations' (III) for 'Operationalisation' (IV) to get a new 'Equilibrium' (I), until a new 'Challenge' (II) appears, and the flow of change starts again.

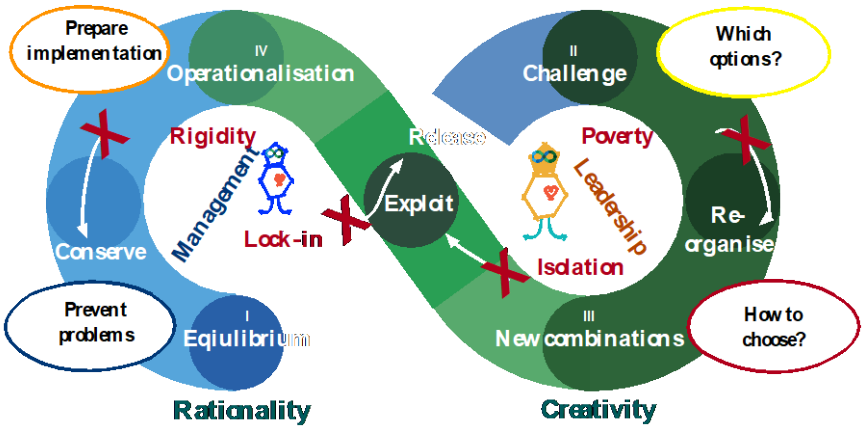

Figure 8: The Adaptive Cycle of Resilience (Source: E. Takács and A. W. Abcouwer (2020))

Managing change requires Management and Leadership skills and knowledge to avoid the traps of ***'Lock-in'*** because of fear of the future missing opportunities and/or withering due to slow response to a challenge. (Scheffer et al., 2022; Scheffer & Westley, 2007), ***'Poverty'*** in finding new solutions is due to a lack of creativity or resources for renewal (Gunderson & Holling, 2001; Holling, 1996), ***'Isolation'***, is due to lacking interconnectedness to implement solutions, inability to deal with the changing environment (E. Takács & A W Abcouwer, 2020) and ***'Rigidity'***, when an organisation encounters a heavy resistance against change (Gunderson et al., 2010).

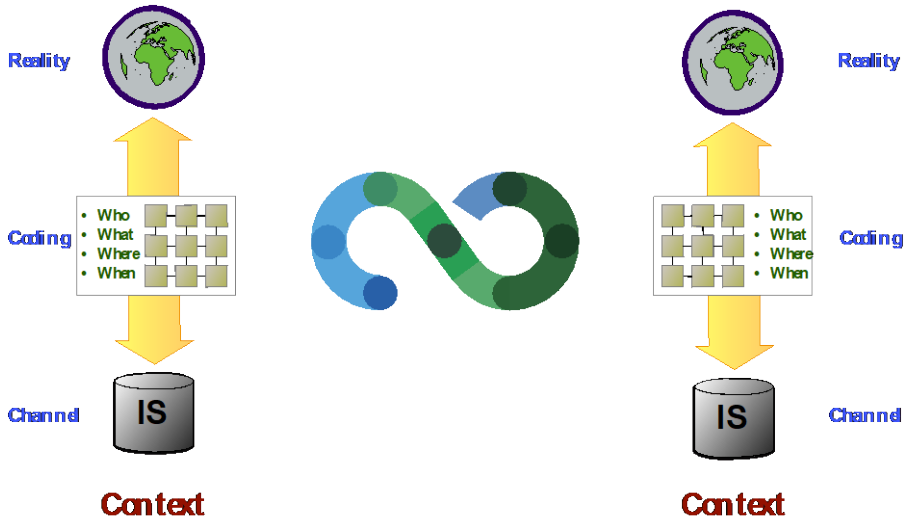

Figure 9: Change and different micro-contexts (own source)

Following the adaptive cycle of resilience, organisations can release from their binding past, reorganise towards new ideas for their future, exploit the best possible intervention, and conserve their stability for their new challenges. However, partners working in different micro-contexts, working on their complex change processes, raise a central question of who leads or combines the knowledge and information. Governance in the network can answer the question of dealing with the knowledge/skills issue.

7. Managing and Applying Knowledge and Skills

The need for knowledge and information is vital to satisfying managers and the participating teams in a network. An intelligent solution can support innovation needs by collecting employees 'knowledge, and offering a platform for information, communication, co-creation and collaboration.

The ACoR model with the method of semantic abstractions (AIM and WWWW) helps to understand disruptions and dynamics in society and that any operationalisation leads to the initiation of a new challenge. This cyclical aspect of consecutive challenges is a reason for flexibility in knowledge management, as learning is also continuous.

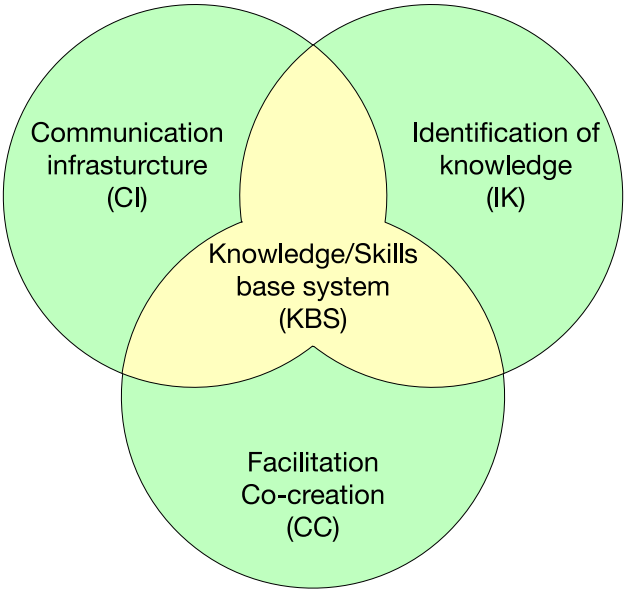

Figure 10: Intelligent solution for managing and applying knowledge and skills (E. Takács and A. W. Abcouwer (2020))

The solution probability can be Certain, Risk, Uncertain. In certainty, finding knowledge and skills for solutions is possible. In risk, there are several possible solutions, and it is hard to choose because of the unpredictability of the effects. In uncertainty, neither the nature of the problem nor the solutions are known, so the necessary knowledge is also unknown. Organisations requirements are different in the consecutive phases of dynamic development, and so are the needed knowledge and skills. Complex and uncertain challenges with various micro-contexts require various knowledge and skills. An intelligent solution is to build a 'Knowledge/Skills base system' (KBS), where the 'Identification of knowledge' (IK) is possible, along with a 'Communication infrastructure' (CI) for the 'Facilitation of Co-creating solutions' (CC). The process of understanding the network reality can be based on structured analysis using the AIM and WWWW approaches.

Using such an intelligent solution may have different sequences depending on the change situation (see Figure 11).

In certainty, the managers know what they want, can and must do, so, first they identify the necessary knowledge or the information source (1), then they use the knowledge and discuss with experts (2) to co-create the best solution to the given problem (3). With clear objectives and available information, identifying and realizing the nature of the problem, categorizing characteristics, and applying appropriate countermeasures is relatively easy. The goal is to reach a new equilibrium state as quickly as possible.

In risk, the managers and leaders are not entirely aware of the nature of the problem, making it difficult to find the perfect solution. The dynamics of the developments require different types of knowledge usage. First, it is necessary to agree on the situation via communication, so they enter the challenge for discussion (1) to identify the relevant knowledge (2) necessary to co-create the solution (3). By trying to identify analogies, we can take advantage of solutions that were previously successful. Entrepreneurship ability and analysis can lead to co-create a solution for the problem.

In uncertainty, when there is no idea how to manage the challenge, so managers and leaders create a solution together (1), that they can discuss and analyse the results (2), so they can identify the (extra) knowledge and skills needed (3) for better managing the challenge.

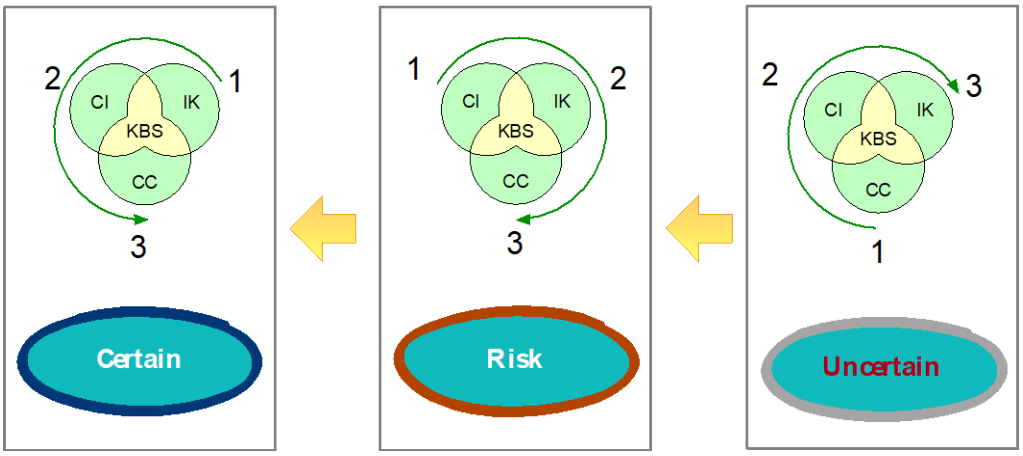

Figure 11: Managing in Certainty, Risk and Uncertainty (own source)

The actual reality of ill-defined challenges and uncertain solution spaces, the propagated approach to information and knowledge handling urges network partners to strive for certainty.

8. Day-to-day Practice

Given the limitations of this article, we can only illustrate the relevance of this approach by discussing a single example. The workings of our proposed worldview are highly relevant in health care. As a case, we briefly highly specialised medical case in Healthcare that was studied recently. The network proves the need for improving information exchange for better governing change. In treating complex health issues, specialised knowledge is necessary. So, the treatment community is organised in networks. Starting at the general practitioners diagnosing the patients, the treatment continues at the local hospitals. The micro-context of a patient for a general practitioner is broader and thus more superficial than the micro-context of a specialist in a regional hospital. But when more complex cases must be treated, we switch to specialised centres in the Netherlands. For example, we have a specialised centre for treating child cancer and the National Cancer Research Institute in the field of oncology. Also, we have specialised centres in other healthcare fields. The different levels of treatment all have their own micro-context in their work. The information the highly specialised Institute requires is too complex and unnecessary for a general practitioner.

But how can a general practitioner treating a high volume of patients stay informed about the new knowledge outside one's practice, make the right decision, and send the patient to the appropriate specialist? Even though there is overlap in the level of detail on the different levels, the exchange of information and data availability is highly helped by applying a formalised way of describing the specific micro-contexts. It facilitates working in resilient networks and enables the exchange of information, data availability, and cooperative decision-making, which, in the end, allows the network partners to react faster and improves the quality of the treatment. In a setting like this, the governance structure identifies the need for coordination between the partners (based on control or cooperation), leaving the autonomy of the different network partners intact. For a patient with a very complex healthcare issue, the highly specialised institutes clearly take the lead, leaving the autonomy of the general practitioners and the local hospitals for the less complex forms of treatment intact. While separate micro-contexts and data models may hinder efficient information exchange and data availability between partners, engaging the systems effectively by linking information and data sources provides practical efficacy and instils confidence in its potential, making it a compelling approach for management, leadership and governance.

9. Concluding Remarks

This discussion paper describes an alternative view of data availability and knowledge/information exchange to support an advanced governance approach. In society's practice, defining unity in language should sufficiently support contemporary reality's complexity, but in practice, it doesn't. That is why we suggest a different approach.

By describing reality in a formalised way of abstraction in different micro contexts, we stimulate the specificity of the different network partners without obstructing their own functioning, aiming to facilitate improved information/knowledge exchange and data availability. The advantage of an approach like this is that it provides a globally unique solution to make all types of data, structured and unstructured, accessible in a flexible and user-friendly way. This method also helps us make the next step in AI by introducing a semantical approach to analyse the different data sources. With this method, we can also provide many services like real-time adaptive summarisation, automated pseudonymisation, integrated sentiment and mood detection and automated identification of key elements in data and documents. In our current research, sentiment analyses, privacy and ethics shed an even more comprehensive light on the complex reality of Information and knowledge exchange. But for now, we consider these topics beyond the scope of this discussion paper.

(Wordcount main text: 4667 words)

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What is the Role of Social Capital in the Innovation Creation Process? Evidence from the European Union

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Abstract: This study empirically analyzes whether social capital has any role in shaping the innovation creation process in 25 members of the European Union over the period 2013-2021. In this context, the innovation model is constructed utilizing balanced panel data and hierarchically estimated with the Poisson Pseudo Maximum Likelihood (PPML) method which is the most appropriate method since the model includes some negative values and count data. The finding strongly supports the encouraging effect of social capital on innovation since it is statistically significant and positive in all model specifications. Besides, the innovation creation process is positively associated with human development, research and development expenditure, population, government effectiveness, and income per capita. When comparatively evaluated estimation results, human development, and social capital lead to forth in terms of contributing more innovation creation process. As a core result of the study, social capital may be considered the workhorse for the innovation creation process since it promotes better coordination of activities through improved interpersonal interactions, increased community trust, and vision-sharing, leading to increased market efficiency and decreased costs. Therefore, it is recommended that these countries develop strategies to enhance their social capital and implement policies to increase especially in bridging and linking social capital, which generates a competitive advantage over their rivals.

Keywords: Social capital, Innovation, European Union, PPML.

1. Introduction

While several academic fields have explored social capital as a research subject, including political science, social psychology, sociology, and economics; social capital has been involved in economic growth sources following the successive emphasis on other capital types such as physical, human, and knowledge capital (Hoff and Stiglitz 2001). Social capital has no single, widely accepted definition; instead, definitions vary widely and are conceptual. Collier (1998) describes social capital as the internal social and cultural coherence of society, norms, and values that direct the interactions among people, and the institutions where the people are embedded. When these interactions produce some externalities and expedite collective action for mutual benefit outside the market, social capital provides an economic payoff. Being a resource that can only be created through social interaction with other people rather than by individuals themselves, social capital may be divided into two pillars; civil social capital and government social capital; the former embodies trust, reciprocity, interpersonal networks, coordination, and cooperation that manage the agents' interactions and yield externalities, and the latter comprises the benefits of law, health, order, education, and good governance. To the degree that social capital cuts down the transaction and information costs and causes more productive physical and human capital, it may be considered a source of total factor productivity.

Social relations provide social capital, which may be used to reach the required resources, connections, or sponsorship. Social capital can be separated into two categories: internal social capital and external social capital; the former refers to the linkages among individuals or groups within the organizations while the latter implies the external linkages to other firms and institutions. In other words, external social capital is the network of connections with outside parties, including customers, suppliers, and public servants. The organization's relationships with outside partners are its external social capital. Businesses with many relations or an external network can obtain vital resources and timely information more quickly, improving performance. Conversely, relationships and networks within a company or department are referred to as internal social capital, which is also necessary to manage the ambiguity and complexity of a project (Cuevas-Rodríguez et al, 2014).

In contrast to conventional capital, social capital is the public good; that is, those who benefit from it can't have this capital. However, similar to other public goods, social capital tends to be provided by private agents, meaning that it is mostly a by-product of social activities. Social capital ordinarily consists of norms, ties, and trust transferable from one social setting to another (Putnam 1993). Wang et al (2021) defined social capital as

a resource in a social network and a basis for creating sustainable competitiveness and advantage for enterprises by way of mainly knowledge transfer that matters for any individual enterprise in terms of achieving competitiveness in the markets. Social capital at the regional or national level is referred to as "societal social capital". It is an explanatory concept that explains resource mobilization, knowledge sharing, and knowledge spillovers and has been found to exist among various informal institutions (Kwon and Arenius 2010). Rutten and Boekema (2007) expressed that social capital differences across countries help to explain the regional economic development differences. Accordingly, regional social capital originates from the embeddedness of firms in regional webs of social relations. The norms, values, and customs of these networks expedite the collaboration for mutual interest. Social capital has the potential to change levels of economic development by playing a role in the creative process of nations. Social capital can produce more and more innovation, and having a significant amount of social capital not only helps societies function well but also fosters innovation in the emerging knowledge economy (Maskell 2001). Social capital increases both quantity and quality of knowledge (Inkpen and Tsang 2005). Zheng (2010) regarded social capital as the bedrock of innovation. Tseng et al (2016) emphasized that knowledge transmission based on closer and tighter connections among businesses and other actors within innovation networks is essential for promoting innovation capability.

Fountain (1998) expressed that social capital is not yet widely understood as a required, enabler of successful public-private partnerships as well as of a new, more collaborative form of innovation policy. The American biotechnology industry's network structure, Silicon Valley, and California's regional industrial system serve as examples of how social capital influences scientific and technological innovation. One of the most well-known instances of an industry network that performs well is the computer sector in Silicon Valley. There is a strong collaborative culture in the workplace. The trust among decision-makers, or enlightened self-interest, that makes collaboration possible, is the glue that holds together the new political economy. Social capital is a long-term competitive advantage that promotes long-term organizational performance and growth. Building stronger ties with the government is the most crucial social capital for fostering long-term organizational performance and growth in China. Government connections and cognitive social capital both support faster rates of innovation, giving businesses an ongoing competitive advantage that leads to long-term organizational performance (Zhang et al, 2019).

Researchers and practitioners have paid close attention to social capital as a result of changes in information technology and competitive strategies. Many scholars such as Inkpen and Tsang (2005), Gupta et al (2007), and Laursen et al (2012) contend that social capital enhances both the quantity and the quality of knowledge; and consequently, it can result in sustainable innovations and advancements. In an early study, Nahapiet and Ghoshal (1998) created a framework to show how social capital affects the transmission of explicit knowledge, tacit knowledge, and the generation of new intellectual capital. Accordingly, the network members' ability to exchange tacit information improves through increased trust, a remarkable component of social capital. Once the trust is spread across the surrounding area, the development process for inventions is shortened, and networking and social interaction in innovation activities are increased (Pucci et al, 2020). Trust also fosters innovation in both inter-organizational environments and intra-organizations by reducing the need for strict rules and increasing freedom, causing an improvement in idea generation, and efficiency because of especially saving time. Thus, creative entrepreneurship and economic expansion are encouraged in high-trust economies (Cho 2021).

Being a measure of a company's ability to seize opportunities, carry out initiatives for the development of new products, and introduce innovations to the market; innovation speed is closely related to sustainable innovation operations, capabilities, and decision-making, all of which are most likely influenced by social capital (Zhang et al, 2019). Dovey (2009) stated that innovation activities rely on collaborative learning, idea creation, and implementation practices depending on most likely stakeholder networks, trust, and other components of social capital. Similarly, Thompson (2018) expressed that social capital positively affects innovation activities.

As mentioned above, many scholars have agreed with the encouraging impact of social capital on the innovation creation process, indirectly leading to economic growth and development. In light of this possible mechanism, this study revisits the association between social capital and innovation in an empirical setting using panel data from European countries. Following the introduction, the study continues with a review of the literature in the second section. The third section explains the data and models and the analysis process including findings, followed by concluding remarks in the fourth section.

2. Literature Review

The existing literature about social capital intensifies the impact of social capital on economic development, more specifically economic growth, like literature regarding other capital forms. In this context, many studies find the driving force of social capital on economic development through various channels. Among these studies, employing variables of trust and civic norms from the World Values Surveys, Knack and Keefer (1997) inferred that social capital matters for the measurable economic performance of 29 market economies. Accordingly, membership in formal groups which is Putnam's measure of social capital has no significant impact on trust or economic performance. However, trust and civic norms are positively associated with higher and more equal incomes. Considering the newly developed social capital index, Beugelsdijk and Van Schaik (2005) investigated the nexus between social capital and economic indicators of 54 countries from Western European Regions. Results strongly refer to the positive relationship of social capital with higher levels of economic development and regional economic growth.

There is a wide range of literature concerning the nexus between social capital and innovation, particularly after the 2000s. Borgatti and Foster (2003) state that the literature on social capital has expanded quickly due to its significance in comprehending the connection between economic and social life. In this literature, various components of social capital are connected with innovative activities. Analyzing the impact of social capital and human capital on innovation in 59 countries, Dakhli and De Clercq (2004) reached evidence indicating a strongly positive relationship between human capital and innovation, but a modest positive relationship between social capital and innovation. As regards to relationship between sub-indicators of social capital and innovation, while a partial positive effect of trust and associational activity on innovation was detected, norms of civic behavior are negatively associated with innovation. Analyzing data from 93 organizations, Subramaniam and Youndt (2005) found that human, organizational, and social capital bring about incremental and radical innovative capabilities. Cainelli et al (2007) stated that research and development (R&D) and social capital/networking come forward as complementary driving forces of innovation outputs. Accordingly, social capital or networking dynamics might positively progress if only the private opportunity cost of R&D investment is reasonably low.

Analyzing data spanning from 1990 to 2002 belonging to 102 European regions, Akçomak and Weel (2009) investigated the interactions among innovation, social capital, and per capita income. According to the results, higher innovation performance is conducive to higher per capita income growth, and social capital indirectly plays an important role in this causality relationship by fostering innovation. Making a comprehensive literature review regarding the social capital and innovation relationship, Zheng (2010) expressed that the structural components of social capital such as ego network size, tie strength, structural holes, and centrality are positively associated with innovation. A similar situation might be observed for relational components of social capital. But then, social capital's cognitive components are not detected to have enough contribution to innovation.

Investigating a wide range of samples, Kwon and Arenius (2010) found evidence that a resident of a country with higher generalized trust and breadth of formal organizational memberships may most likely perceive entrepreneurial opportunities. According to Dutta's (2013) study, social capital increases corporate innovation to a certain extent; in other words, it follows a non-linear relationship with the innovative capability of firms. Addressing the issue from a different window, Laursen et al (2012) investigated the relationship between social capital and investment in foreign markets for goods and technology, using data from 2000 Italian firms. The findings and highlights in the study are fairly interesting and contribute to international business literature since they draw attention to a distinctive aspect of social capital. Accordingly, domestic geography, defined with a localized potential social capital, first, might catalyze individual firms' awareness of business opportunities, including the accessibility of knowledge regarding involvement in the foreign markets for goods and technology, but later, once potential social capital reaches a threshold value, it might act as a trapping element for individual firms, leading to reducing involvement in foreign markets. At this point, it is highlighted that R&D investment might play a moderating role between social capital and involvement in foreign markets. However, this moderating role works positively for the goods markets and negatively for the technology markets.

Developing a "social capital-innovation speed-performance" framework and applying it to 125 Chinese firms, Zhang et al (2019) investigated the mechanism of how different types of social capital influence innovation speed. Results refer to the positive effect of structural social capital on sustainable organizational performance but no significant effect on sustainable innovation speed. On the other hand, relational social capital has no significant effect on sustainable organizational performance while it is negatively associated with innovation speed. Lastly, both cognitive social capital and government ties positively affect not only sustainable organizational performance but also innovation speed. Handling a sample of 1476 firms from China over the

period 2008-2014, Zheng et al (2019) demonstrated that the top management team, an indicator of global social capital, is a driving force of innovation. Using data from the 2005-2008 period for the United States and the 2007-2013 period for Australia, Linder et al (2020) proved the critical role of human and social capital in the survival of enterprises in contrast to the trivial role of overreliance on financial capital. Obtaining 145 samples from Indonesia, Putra et al (2020) empirically tested the impact of social capital, business strategies, and innovation capabilities on business success. As per the results, being a cheap and fast information tool, social capital creates and expands knowledge about customers, raw materials, and competitors, paving the way for the innovation creation process, and ultimately business success. Conducted a survey analysis from 145 firms, Pucci et al (2020) investigated the impact of firms' relationships on their innovation performance represented by R&D effectiveness. Results showed an inverted U-shaped association between relationships within the cluster and innovation effectiveness while a positive association with relationships outside the cluster. Additionally, family involvement has a positive moderation effect in association between local relationships and innovation effectiveness.

Investigating the relationship between social capital and innovation in high-performing East Asian countries, Cho (2021) concluded that social trust among individuals does not encourage innovation. However, other elements of social capital like trust in formal institutions and shared social norms have more important impacts on innovation. Collected 235 questionnaires from China to examine the impact of social capital on innovation performance in construction enterprises, Wang et al (2021) unveiled the significant and encouraging role of structural and cognitive social capital on the innovation performance of these enterprises, however, could not be found a similar result for the relational dimension of social capital. Presutti et al (2022) proposed more investment in social capital as a reliable and profitable resource for born-global companies to become more innovative overseas. Constructing a structural equation model with data from Turkish public hospitals, Ozgun et al (2022) examined the mediation role of social capital in the relationship between innovation activities and the depth of intellectual capital and deduced that social capital plays a vital role in this relationship by boosting social interaction, fostering trust and cooperation.

Gathering data from 197 energy firms in Spain, Sánchez-García et al (2023) questioned the impact of regional specialization on innovation in enterprises by focusing on the mediation effect of cognitive social capital and absorptive capacity. Evidence shows a significant and positive association between the degree of regional specialization and firms' innovative performance. Moreover, cognitive social capital and absorptive capacity act as substantial and positive mediation roles, which confirms the mechanism, moving from cognitive social capital and absorptive capacity toward the innovation creation process through knowledge diffusion. Kobeissi et al (2023) showed that regional social capital is positively associated with the quantity, quality, and novelty of county-level innovation by private enterprises. Besides, regional social capital generates significant spillover effects in accelerating the innovation activities of neighboring countries. Conducted a questionnaire-based survey analysis using data from 295 firms in Türkiye, Ince et al (2023) concluded that entrepreneurial orientation and social capital have positive impacts on innovation performance.

3. Data, Model and Analysis

The study analyzes whether social capital has any role in the innovation creation process in the member countries of the European Union from 2013 through 2021. In the empirical setting, just two countries, Ireland and Slovenia, are excluded from the analysis due to missing data and hence the sample of the study consists of 25 European countries[1]. Here the study period initiates with the year 2013 since data on social capital exists as of 2012 and the last attendance to the European Union occurred in 2013, and ends with the year 2021 because of the missing data. In this context, the study builds the following empirical model:

$$Innov = f\ (SocCap, HumDev, Pop, GDPpc, GovEff, ResDev) \qquad (Eq.\ 1)$$

In Eq. 1, our dependent variable is innovation (Innov) represented by patent applications by residents, retrieved from World Bank-World Development Indicators (2024). The number of patent applications is thought to be a significant indicator of innovation outputs and hence is the most commonly used measure of innovation in the literature since it captures an important aspect of the level of technological activity (see. Dakhli and De Clercq

[1] Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden.

2004; Zheng et al, 2019). Patent applications are worldwide patent applications filed through the Patent Cooperation Treaty procedure or with a national patent office. Our independent variable is social capital (SocCap) which is an important component of the global sustainable competitiveness index consisting of six pillars of equal importance; that is natural capital, resource intensity and efficiency, social capital, intellectual capital, economic sustainability, and governance performance, that is prepared by SolAbility Sustainable Intelligence (2023) as a non-commercial project and consists of five pillars. Accordingly, the social capital of a nation is the sum of the social stability and well-being of the entire population and covers several parameters like health, security, freedom, equality and life satisfaction, facilitating development. Not being a tangible value and thus hard to measure numerically, social capital creates social cohesion and a certain level of consensus, leading to potentially in turn a more stable environment for the economy and less exploited natural resources. The absence or deterioration of social cohesion in turn gives rise to lower productivity (health), rising crime rates, and potentially social unrest, paralyzing economic development and growth. When looking through the global statistics in 2023, the highest value belongs to Finland (65.8) followed by Iceland (64.9), Slovenia (63.7), Japan (63.6), Norway (63.5), and Sweden (62.4) while the lowest value of Afghanistan (26.4) followed by Haiti (26.7), Equatorial Guinea (27.8), Angola (28.6), Djibouti (29.4), and Yemen (29.7).

The study hierarchically includes to the model several control variables, which are human development (HumDev), population (Pop), gross domestic product per capita (GDPpc), government effectiveness (GovEff), and R&D expenditure (ResDev). While data on human development is retrieved from the United Nations Development Program (2024), others are taken from World Bank-World Development Indicators (2024). Measuring as an index spanning from 0 to 1, human development reflects a summary of average achievement in the main components of human development, which are long and healthy life, being knowledgeable, and having a decent standard of living. This index is the geometric mean of normalized indices for each of the three components. Population is in total, GDP per capita is at constant 2015 US dollar, government effectiveness is an indicator of governance quality, and R&D expenditure is expressed as a percent of GDP. All of the variables are transformed into logarithms, except for human development and government effectiveness which are in the index forms. Herewith, econometric model to be estimated is presented below:

$$\ln Innov_{it} = \beta_0 + \beta_1 \ln SocCap_{it} + \beta_2 HumDev_{it} + \beta_3 \ln POP_{it} + \beta_4 \ln GDPpc_{it} + \beta_5 GovEff_{it} + \beta_6 \ln ResDev_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (Eq.\ 2)$$

In Eq. 2, μ_i and λ_t are country-specific and time-specific effects respectively, and ε_{it} is the composite error term. Before passing on to the estimation process, descriptive statistics and correlation matrix are provided in Table 1.

Table 1: Descriptive statistics and correlation matrix

Descriptive Statistics (non-log)							
Statistics	*Innov*	*SocCap*	*HumDev*	*Pop*	*GDPpc*	*GovEff*	*ResDev*
Mean	3589.3	53.7	0.889	17471973.9	30415.5	1.029	1.633
Std. dev.	9251.1	6.4	0.038	22379.4	20977.8	0.568	0.907
Min.	1	40.7	0.796	425967	6700.5	-0.287	0.382
Max.	48480	74.6	0.951	83196078	110425.9	2.182	3.489
Correlation Matrix (log)							
	Innov	*SocCap*	*HumDev*	*Pop*	*GDPpc*	*GovEff*	*ResDev*
Innov	1.000						
SocCap	0.293*	1.000					
HumDev	0.242*	0.408*	1.000				
Pop	0.274*	0.063	-0.005	1.000			
GDPpc	0.259*	0.637*	0.545*	0.025	1.000		
GovEff	0.202*	0.669*	0.581*	0.141*	0.831*	1.000	
ResDev	0.613*	0.567*	0.571*	0.274*	0.656*	0.695*	1.000

Note: * refers to the statistical significance at the level of 5%.

When looking at the statistics in Table 1, quite a big difference among countries in terms of innovation stood out (minimum and maximum values are 1 and 48480, respectively). In this respect, in the study sample, Germany leads to the head while Cyprus ranked last. As for social capital, while the mean value is 53.7, higher than the global average value in 2023 (44); Finland, Denmark, Luxemburg, and Sweden are located at the top of the list. A striking point is that all independent variables have a positive and statistically significant correlation relationship with innovation. Although this gives us an intuitive comprehension of the nexus between innovation and its determinants, it needs to be empirically analyzed to make a clear implication. For this purpose, the econometric model in Eq. 2 is estimated by the Poisson Pseudo Maximum Likelihood (PPML) which is the most appropriate method for especially estimation of models involving count data and/or negative values like here. The study follows a hierarchical estimation technique in order to reach more robust findings. Hierarchical order has been determined by considering correlation coefficients among independent variables. Since our data dimension is not sufficiently long, even a modest correlation relationship among variables matters for getting robust findings. Therefore, in the process of determining variables for model specifications, the variables that have no high or modest correlation relationships are preferred. In this context, table 2 presents the findings from the PPML method.

Table 2: Hierarchical regression analysis results of the innovation model

Variables	(I)	(II)	(III)	(IV)	(V)	(VI)
SocCap	2.018* (0.341)	1.612* (0.381)	1.466** (0.358)	--	--	--
HumDev	--	1.392* (0.479)	1.512* (0.463)	--	--	--
Pop	--	--	0.152* (0.024)	0.154** (0.023)	0.143* (0.023)	0.064* (0.025)
GDPpc	--	--	--	0.333* (0.053)	--	--
GovEff	--	-	--	--	0.101* (0.028)	--
ResDev	--	--	--	--	--	0.813* (0.099)
Constant	-2.482* (0.593)	-3.019* (0.626)	-3.923* (0.637)	-1.523* (0.251)	-0.088 (0.164)	0.426* (0.159)
Wald(X^2)	35.10*	43.70*	79.42*	108.41*	51.82*	134.23
Observations						225

Note: * and ** indicate the statistical significance at the level of 1% and 5%, respectively. Values in parenthesis are the robust standard errors.

According to the hierarchical regression analysis results, social capital has a strongly positive impact on innovation since its coefficient is statistically significant and positive in all model specifications. Additionally, control variables, human development, population, income per capita, government effectiveness, and R&D expenditure are positively associated with the innovation creation process. Yet, it may be deduced that social capital and human development have turned out to be workhorses of the innovation creation process.

4. Concluding Remarks

Social capital has been expected to encourage innovation activities through a variety of channels like knowledge transfer, increased trust, vision-sharing, and saving time. From this strong expectation, here was empirically analyzed whether social capital has any role in shaping the innovation creation process in 25 members of the European Union over the period 2013-2021. The finding strongly supports the encouraging effect of social capital on innovation since it is statistically significant and positive in all model specifications. The innovation creation process is enhanced by social capital's role in fostering an atmosphere where entrepreneurs and capitalists may work out the finest agreements. Besides, the innovation creation process is positively associated with human development, population, income per capita, government effectiveness, and R&D expenditure. As a core result of the study, social capital may be considered the workhorse for the innovation creation process since it promotes better coordination of activities through improved interpersonal interactions, increased community trust, and vision-sharing, leading to increased market efficiency and decreased costs. Therefore, it is recommended that these countries develop strategies to enhance their social capital and implement policies to increase especially in bridging and linking social capital, which generates a competitive advantage over their rivals.

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Impact of Transformational and Transactional Leadership Styles on Affective Organizational Commitment: Analyzing the Conditional Role of Organizational Mission-driven Culture in Qatari Primary Health Care Corporation

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Abstract: Since leadership beliefs differ across cultures, there remains a paucity of evidence on the relationship between leadership styles, organizational culture, and affective organizational commitment. Therefore, this study made an attempt to examine the relationship between leadership styles, organizational mission-driven culture, and affective commitment of Qatari Primary Health Care Corporation (PHCC) employees. Under the lens of implicit leadership theory, the study hypothesized the conditional role of organizational mission-driven culture on the relationship between transactional leadership style and affective organizational commitment. The study also hypothesized the direct relationship between transformational leadership and affective organizational commitment. Data was collected from 23 health care centes, and a total of 1029 valid responses were analyzed via SPSS. Findings of the study revealed that the direct relationship between transformational leadership and affective organizational commitment of employees is positive and significant. Conversely, the direct relationship between transactional leadership and affective organizational commitment of employees is insignificant. Interestingly, the conditional role of mission-driven culture magnifies the relationship between transactional leadership and affective organizational commitment of employees, indicating that to reach a balance between transactional and transformational leadership styles, the role of mission-driven culture is considerable. These findings confirm that leadership beliefs differ across culture and conclude that transformational leaders reinforce organizational culture while transactional leaders work under existing organizational culture.

Keywords: Organizational Mission-driven Culture, Transformational Leadership Style, Transactional Leadership Style, Affective Organizational Commitment

1. Introduction

Healthcare in the Gulf Cooperation Council (GCC) rapidly evolves due to demographic changes, government investments, political dynamics, and technological advancements. In this shifting landscape, it is crucial to understand the leadership characteristics of executives and medical professionals in management roles to improve healthcare services. Effective leadership is essential as it significantly influences organizational commitment and overall organizational performance (Walsh & Arnold, 2020). Leaders are instrumental in guiding employees toward achieving organizational goals, and their leadership styles can either enhance or undermine employee engagement, job satisfaction, and employee commitment (Nguyen et al., 2023; Xu et al., 2022; Kim et al., 2021; Amina et al., 2021; Attia & Hadi, 2020; Waheed et al., 2017; Bejinaru & Băeșu, 2013). Previous studies have shown that positive employee attitudes and organizational commitment are linked to effective leadership (Minhaj et al., 2019; Yiing & Bin Ahmad, 2009). However, the role of organizational mission-driven culture in healthcare has been underexplored (Rathert et al., 2009), and it demands scientific inquiry because the relationship between transformational leadership, transactional leadership, and organizational culture is complex. This is because implicit leadership theories differ across cultures. Due to this, some leaders reinforce organizational culture while others work under existing organizational culture. Therefore, this study made an attempt to explore this phenomenon in Qatari Primary Health Care Corporation (PHCC).

In Qatar, the government prioritizes healthcare as a key component of nation-building, which is reflected in substantial investments in healthcare infrastructure (Bener & Al Mazroei, 2010). However, to maximize the benefits of these investments, there is a pressing need to develop managerial competence among medical leaders. Therefore, the purpose of this study is to investigate the condition under which organizational mission-driven culture and leadership styles (e.g., transformational and transactional leadership styles) impact affective commitment of Qatari Primary Health Care Corporation (PHCC) employees. This study contributes to the

transformational and transactional leadership literature by uncovering the multiplicative effect organizational mission-driven culture and transactional leadership has on organizational affective commitment.

2. Literature Review

2.1 Transformational and Transactional Leadership Styles

Transformational leadership is a supportive, encouraging, and motivating style of leadership to lead subordinates. Transformational leaders possess four attributes: inspirational motivation, individualized consideration, idealized influence, and intellectual stimulation (Al-Thawabiya et al., 2023; Minhaj et al., 2019; Bass & Avolio, 1994, p. 3). These attributes positively influence employees' psychological needs for competence, autonomy, and relatedness, thereby leading to job satisfaction, affective commitment, employee engagement, and psychological empowerment (Northouse, 2021), among others job attitudes. On the other hand, transactional leadership focuses on rewards and punishment to strengthen the relationship between employees and their performance (Burns,1978). These leaders provide performance-based rewards, achieve specific outcomes, work within organizational culture, and are much focused on the here and now (Dong et al., 2023; Yahaya & Ebrahim, 2016; Judge & Piccolo, 2004; Sarros et al., 2002).

2.2 Organizational Culture

Organizational culture is the mental model of an organization Hadi and Sheikh (2024). This model capture the beliefs, norms, shared values, and shared behaviors of the employees (Robbins, 1993; Denison 1996, p. 624). Denison (2006) and Denison and Mishra (1995) emphasized that culture plays a critical role in organizational adaptation and organizational performance. Adaptability requires balancing stability with flexibility to meet evolving needs and to implement changes effectively; therefore, the role of leadership in organizational culture literature needs consideration.

2.3 Affective Organizational Commitment

Organizational commitment is a multidimensional construct (Hadi, 2022; Tahir et al, 2021; Waheed et al., 2017; Meyer & Allen 1990, 1991, 1997), which includes affective organizational commitment, continuance organizational commitment, and normative organizational commitment. Affective commitment stems from emotional and psychological attachments to the organization, while continuance organizational commitment relates to the perceived costs of leaving the organization, and normative organizational commitment reflects a sense of obligation to stay (Tahir et al., 2021; Smith & Taylor, 2019). Employees who perceive supportive organizational culture are more committed to their goals (Amina et al., 2021, p. 152). In the healthcare sector, Johnson et al. (2020) and Shahbaz and Hadi (2021) discovered that hospitals prioritizing patient-centered care, employee well-being, and learning opportunities foster higher nurse commitment. This indicates that a culture valuing both patient outcomes and employee satisfaction enhances OCOM among healthcare professionals. This underscores the role of OC in shaping both employee behavior and their ethical commitment to the organization. Since leadership styles and organizational culture positively and significantly influence emotional and psychological attachments of employees with their organization, we considered affective organizational commitment of employees in the current study.

2.4 Hypotheses Development

Leadership styles within an organization play a crucial role in influencing employee commitment. Transformational leadership, characterized by inspirational vision and individualized consideration, has been found to foster higher levels of organizational commitment and employee performance among employees (Minhaj et al., 2019; Bass, 1998). Transformational leaders who inspire and motivate their team members are more likely to cultivate a sense of commitment and loyalty among employees (Xu et al., 2022; Kim et al., 2021; Peng et al., 2020; Attia & Hadi, 2020; Abasilim et al., 2019). Conversely, the relationship between transactional leadership and employee commitment is inconsistent. For example, studies (Mahfouz et al., 2022; Puni et al., 2021; Mahfouz, 2019, p. 7) found a positive relationship between transactional leadership and employee commitment, whereas Abasilim et al (2019) found an insignificant relationship between transactional leadership and employee commitment. Similarly, leadership style, characterized by a lack of direction and support, can negatively impact employee commitment (Yukl, 2013). Employees who perceive their leaders as disengaged or indifferent are less likely to feel committed to the organization's goals and may become disengaged themselves.

What emerges from this discussion is that transformational leaders have the ability to reinforce "norms" and "behaviors" within organizational culture, thereby suggesting that transformational leadership has a direct impact on organizational culture (Nguyen et al., 2023; Schein, 2017; Kargas et al., 2015; Schein, 2010; Avolio, & Bass, 2002; Bass & Avolio, 1994). On the other hand, leadership beliefs differ across cultures due to implicit leadership theories and transactional leaders' works within the existing beliefs, norms, and rules of organizational culture (Dong et al., 2023, p. 24); thereby, a mission-driven culture may guide transactional leaders. Thus, transactional leaders need to understand the culture within which they works and they also need to understand the expectation of their employees. This way, we develop the following hypotheses:

H1: Transformational leadership positively and significantly influences affective commitment of PHCC employees.

H2: Organizational mission-driven culture moderates the relationship between transactional leadership and affective commitment of PHCC employees.

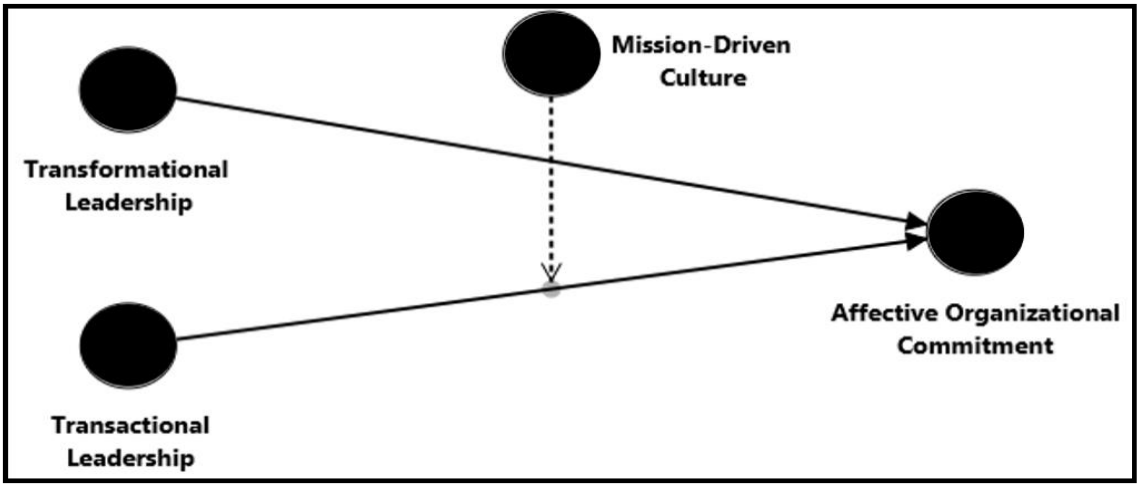

Figure 1: Research Model

Source: authors own compilation

3. Methodology

This study conducted deductive appraoch, therefore the study employs quantitative research to examine the relationship between leadership styles and organizational commitment in Qatar's healthcare system, considering organizational mission-driven culture as a moderating factor. Self-administered questionnaires were employed across 23 PHCC health centers. Out of 1,653 participants, 1,029 questionnaires met the inclusion criteria. The study involved various medical staff, ensuring a representative sample. The high return rate (82.2%) validates the effectiveness of quantitative methods, particularly concerning large target populations like the PHCC. The researcher utilized SPSS version 23 for data analysis, employing descriptive, reliability, and moderation analyses. To understand respondent characteristics, descriptive analysis was conducted, while reliability analysis assessed item consistency using Cronbach Alpha. Hierarchical regression was further executed to examine the moderating role of mission-driven culture on the relationship between transactional leadership style and affective commitment of PHCC employees.

3.1 Demographics Analysis

Regarding demographics, approximately 62.8% of the 1,030 medical staff surveyed in Qatar identified as female. Additionally, a majority of respondents, around 65.1%, answered in English, indicating a predominance of non-Arabic expatriates. The distribution of respondents across age groups showed that the majority, approximately 51.7%, were aged between 31 and 40 years. The majority of respondents, around 71.4%, were married, and the survey captured a diverse range of nationalities, with Indians comprising the largest group at approximately 33.5%.

Regarding respondent designation, nurses constituted the largest group at approximately 41.8%, followed by pharmacists at around 15.6%. A significant proportion of respondents, around 27.5%, had 1 to 5 years of work experience. The educational background of respondents showed that the majority, approximately 76.4%, held

bachelor's degrees, while a small percentage, around 2.9%, held PhDs. Moreover, the majority, approximately 77.0%, earned QR 25,000 or less monthly. Lastly, the distribution of health centers across Northern, Central, and Western Qatar indicated coverage across the entire country.

3.2 Reliability

The reliability of the variables were assessed using the Cronbach Alpha test to ensure the internal consistency of the Likert scale surveys. The results, presented in Table 1, showed high Cronbach Alpha values for all variables, indicating acceptable internal consistency Alpha > 0.7 (Hadi et al., 2016). All the variables exhibited satisfactory reliability with values ranging from 0.729 to 0.940.

Table 1: Reliability statistics

Variables	Cronbach's Alpha Value	N of Items
Transactional leadership	.760	6
Transformational leadership	.791	20
Mission-Driven Culture	.940	11
Affective Commitment	.729	6

3.3 Hypotheses Testing

To test the hypothesized relationships, regression analysis was conducted. The path emanating from transformational leadership to affective organizational commitment posits that transformational leadership is positively related to affective organizational commitment (H1); the results of the study support this hypothesis (β = .534 and p < 0.05) and suggest that fulfillment of employees' psychological needs influences their psychological attachments with their organization. Regarding H2, which claims that organizational mission-driven culture moderates the relationship between transactional leadership and affective organizational commitment, was supported (β = .451 and p < 0.05). This result indicates that the organizational culture influences the behavior of transactional leaders. This results confirm the application of an anthropological view, which proposes that the leader is part of the organizational culture (Smircich, 1983).

Table 2: Moderation of mission-driven culture

Predictor	AC			Sig.
	β	R^2	ΔR^2	
TSF	.534			.001*
TSL	.081	.329	-------	
M	.201			
TSL × M_C	.451	------	.043	.001*

Source: Authors computation

To explore the moderating effect, the study found that the relationship between transactional leadership style and affective organizational commitment of employees is insignificant at low levels (β = .081, t = 1.81, and p > 0.05). This means that no mean differences were found between mission-driven culture and affective organizational commitment at a low level of transactional leadership.

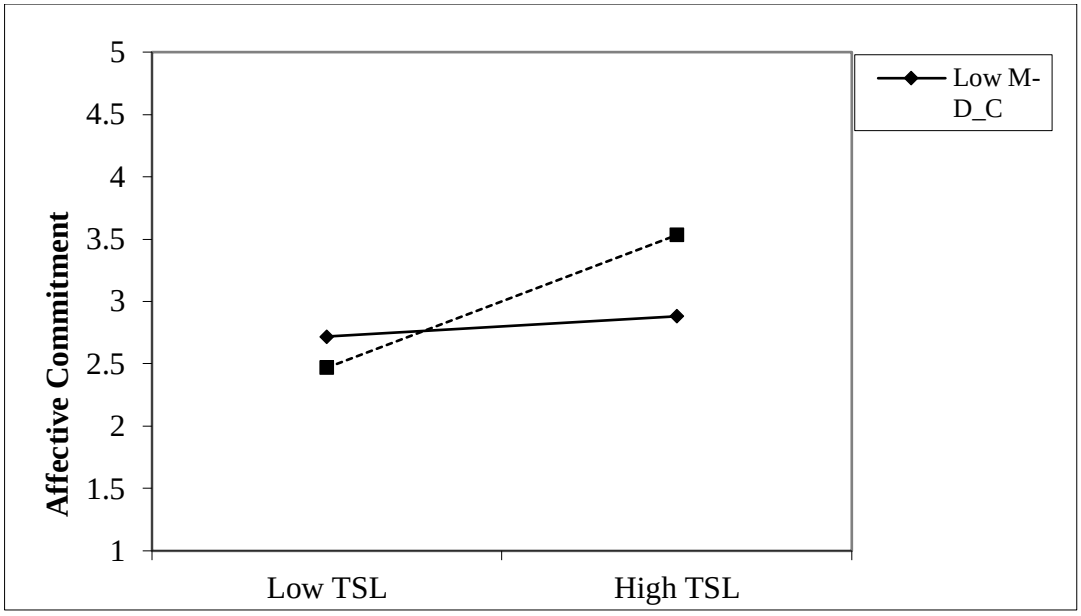

Figure 2: Slope analysis

Source: authors compilation

However, statistically significant differences were found between mission-driven culture and affective organizational commitment at a high level of transactional leadership ((β = .532, t = 4.85, and p < 0.05). This indicates that transactional leadership is influenced by mission-driven culture and high mission-driven culture, and that high transactional leadership positively affects affective organizational commitment of PHCC employees (see Table 2 and Figure 2 for details).

4. Discussion

The research focused on understanding the relationships between leadership styles, organizational mission-driven culture, and affective commitment of Qatari Primary Health Care Corporation employees. Results confirm hypothesis 1, which posits that transformational leadership positively and significantly influences affective commitment of employees. This finding is consistent with that of Shao et al. (2022), Cho et al. (2019), and Allen et al. (2017) who found a positive relationship between transformational leadership style and affective organizational commitment of employees. This result provides theoretical implications that transformational leadership is more important for affective organizational commitment of PHCC employees. With reference to transactional leadership, our findings confirm that transactional leadership positively affects affective organizational commitment in the presence of organizational mission-driven culture, thus supporting H2. This result indicates that transactional leaders working under mission-driven culture are more effective for affective organizational commitment of PHCC employees. This means that transactional leaders' behaviors are influenced by organizational culture, and transactional leaders who meet organizational mission-related needs are successful leaders. It can be argued that transactional leaders must ensure that the mission and culture of their organization don't get lost in chaos; they must achieve a close fit between organization culture, strategies, and practices to be successful leaders. This finding is consistent with the anthropological approach, which proposes that a leader is part of the organizational culture (Smircich, 1983). The finding also agree with Cho et al. (2019) who found statistical differences between transactional and transformational leadership in US and Korean contexts and recommends that transactional leaders must set high expectations and mission-driven goals, and they must link these expectations and mission-driven goals with rewards.

5. Conclusions

This research has focused on the impact of transformational and transactional leadership styles on affective organizational commitment under the conditional role of organizational mission-driven culture, which we founda neglected area, which we found overlooked in Qatari Primary Health Care Corporation. Acquiring theoretical insights from implicit leadership theory, the study hypothesized the conditional role of organizational mission-driven culture on the relationship between transactional leadership style and affective organizational

commitment. Findings of the study revealed that the direct relationship between transformational leadership and affective organizational commitment of employees is positive and significant. Conversely, the direct relationship between transactional leadership and affective organizational commitment of employees is insignificant. Interestingly, the conditional role of mission-driven culture magnifies the relationship between transactional leadership and affective organizational commitment of employees, indicating that to reach a balance between transactional and transformational leadership styles, the role of mission-driven culture is considerable. These findings confirm that leadership beliefs differ across culture and conclude that transformational leaders reinforce organizational culture while transactional leaders work under existing organizational culture.

Findings of the study suggest that a new form of leadership, i.e., ambidextrous leadership (a balance between transformational and transactional leadership), is needed for affective organizational commitment of PHCC employees. Therefore, PHCC managers must invest on ambidextrous leadership to maximize their subordinates' affective commitment or develop a roadmap (transformational leadership skills) to transform transactional leaders into transformational leadership style to achieve PHCC employees' psychological attachment and affection. We strongly suggest future research on the mediating role of organizational culture in the relationship between transformational leadership and affective organizational commitment, and the moderating role of organizational culture on the relationship between transformational leadership and affective organizational commitment, need prompt scholarly attention.

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Evaluating the Conceptual Development of Healthcare Leadership Literature with a Network Approach

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Abstract: Analysis of co-word networks can be used in discovering themes that reflect both the cognitive structure of the scientific field and the gap in the field, besides following the conceptual change in the scientific field. This study aims to reveal the development of the "healthcare leadership" literature, which started to attract more attention with the COVID-19 Pandemic. The authors searched for all articles written in English between 2020 and 2023 in Web of Science Core Collection and Scopus databases with the key phrases “healthcare leadership”, “healthcare leader”, “health care leadership” or “health care leader” as the query to search the following fields within a record: Title, Abstract, and Author Keywords. 134 articles in the Web of Science database and 585 articles in the Scopus database were reached. Duplicate articles (271) were first eliminated, then articles with one keyword (12) were excluded since one keyword is not appropriate for network analysis. Consequently, 1,360 unique keywords of 2,372 keywords from 436 articles were entered into the analysis scope. A network of whole years was constructed based on word frequency co-occurrence matrices with keywords from all years included, besides a network for each year. Descriptive statistics such as network density, connected components, and total number of ties were calculated for the whole network. Centrality measures were calculated for the network of whole years and each year. Network density and number of the connected components were found as 0.012 and 27 respectively. *Leadership*, *COVID-19/Pandemic*, *healthcare*, *healthcare leadership*, *qualitative research*, and *nurse* were the first six concepts with the highest degree centrality, betweenness centrality, and eigenvector centrality for the network of whole years. Thus, it was possible to see both the general view of the cognitive structure of the healthcare leadership literature and conceptual change in the literature over the years. The findings have the potential to provide important clues for trends and future research directions in this field.

Keywords: Healthcare Leadership, Co-word Networks, Co-occurrence Keyword Matrix, Centrality Measures

1. Introduction and Background

Network analysis has been used in the social and behavioral sciences for more than eighty years. However, the increasing popularity of network analysis over the years has also expanded the usage areas of analysis. Disciplines that benefit from the network approach include but are not limited to, anthropology, communication, marketing, political science, organizational research, sociology, as well as clinical, community, and social psychology (Anderson, Wasserman, & Crouch, 1999). Nowadays, network analysis is becoming more important in bibliometric studies (Baskici, Ercil, & Gokmen, 2024).

The definition of bibliometric was first made by (Pritchard, 1969) as "The application of mathematical method to books and other media of communication". With bibliometric studies, it is possible to make predictions about the structure of the scientific field and current areas of interest (Zupic & Čater, 2015). In addition, this approach has the potential to provide more objective results regarding the evolution of the scientific field.

Within the scope of bibliometric study, various analyses are carried out to define the scientific structure using different units including keywords, authors, articles, and journals (Lu & Wolfram, 2012). In a network, these units are represented by the nodes, and the relationships between nodes are represented as edges. It is possible to create different bibliometric networks using the relationships between these units (Cobo, López-Herrera, Herrera-Viedma, & Herrera, 2011). One of the bibliometric networks is a co-word network created based on the co-occurrence of keywords. This study aims to reveal the development of the healthcare leadership literature, which started to attract more attention with the COVID-19 Pandemic by analyzing the co-word networks. The findings have the potential to provide important clues for trends and future research directions in this field. Additionally, this is the first study to evaluate the conceptual development of healthcare leadership literature with a network approach.

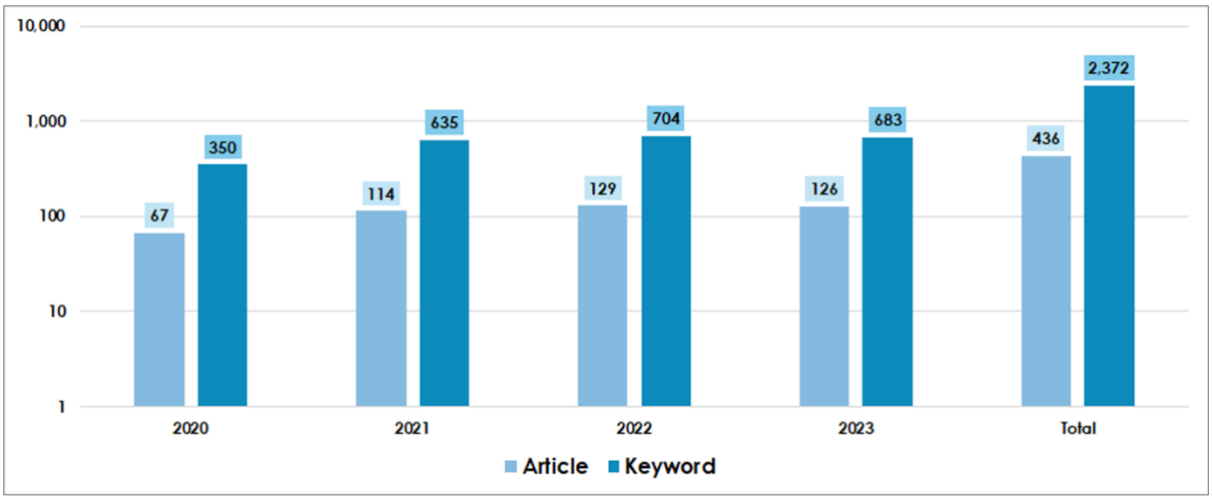
2. Methods

2.1 Analysis of Co-word Networks

In this study, centrality measures were preferred to analyse the co-word networks. These measures were used to interpret the importance of the topics in the network. Among the various centrality measures, this study used degree centrality, betweenness centrality and eigenvector centrality. Degree centrality is the number of direct ties that a node has with other nodes in the network (Ortiz, Hoyos, & López, 2004). Betweenness centrality is an indicator of how much one node lies in the shortest way that links another pair of nodes (Kim, Jeong, & Chung, 2021). If the node appears in many shortest paths, it has a high betweenness centrality (Perez & Germon, 2016). Eigenvector centrality captures the extent to which a node is connected to well-connected other nodes in the network (Basyouni & Parkinson, 2022). The eigenvector centrality suggests the idea that a node is more central as it is connected to important nodes (Bamakan, Nurgaliev, & Qu, 2019). Analysis of the co-word network entails generating a co-occurrence keyword matrix. To create a co-occurrence keyword matrix, two steps were followed: firstly, a keyword pool was created by extracting keywords from the healthcare leadership literature, and then keyword pairs that occur simultaneously in the same paper were identified. Thus, it was able to create a matrix based on the co-occurrence of keywords, and the value of cells in the matrix depended on how many times the two keywords appear together in the same article.

2.2 Retrieval of Articles

The authors searched for all articles written in English between 2020 and 2023 in Web of Science Core Collection and Scopus databases with the key phrases “healthcare leadership”, “healthcare leader”, “health care leadership” or “healthcare leader” as the query to search the following fields within a record: Title, Abstract, and Author Keywords. 134 articles in the Web of Science database and 585 articles in the Scopus database were reached. Duplicate articles (271) were first eliminated, then articles with one keyword (12) were excluded since one keyword is not appropriate for network analysis. Consequently, 1,360 unique keywords of 2,372 from 436 articles were entered into the analysis scope. The numbers of Keywords and Articles related to the period from 2020 to 2023 are presented in Figure 1.



Note: Logarithmic scale is used.

Figure 1: The number of articles and keyword (2020-2023)

As Figure 1 illustrates, there has been a significant surge in healthcare leadership-related articles published in 2021 compared to 2020, which attests to researchers’ growing interest in this area with the COVID-19 Pandemic.

3. Findings

Figure 2 shows the leading 30 keywords with the highest frequency in healthcare leadership literature for each year and the overall study period. Over the last four years, *COVID-19/Pandemic* has been the most frequently (87 times) used keywords in the articles published. Along with *COVID-19/Pandemic* the major top-ranking keywords are *leadership*, *healthcare*, *healthcare leadership*, *qualitative research*, and *management*.

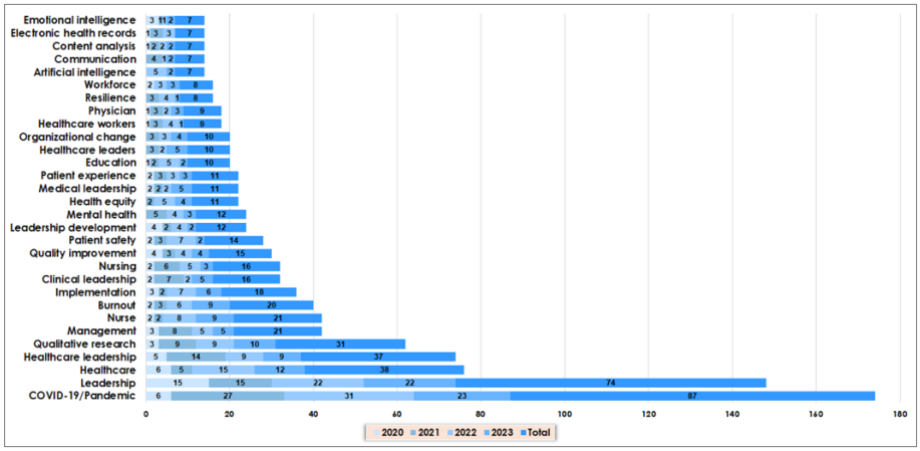


Figure 2: The leading 30 keywords with the highest frequency

Table 1 illustrates the descriptive statistic for whole network. Network density, number of edge and connected components were found respectively 0.012, 10,800 and 27.

Table 1: Descriptive statistic for whole network

Network Statistic	
Network density	0.012
Number of ties	10,800
Number of connected components	27

After finding the results of network measures for each period, the words with the 20 highest network measures scores were sorted and created a new keyword set with their union set. To examine the evolutionary change of the keywords in the created keyword set, graphs showing the scores of network measures (degree centrality, betweenness centrality, and eigenvector centrality) were created in each period.

Figure 3 illustrates the degree of centrality of the 44 keywords for each year. Degree centrality shows how often a word is used together with other words in networks. The higher the centrality of a keyword, the more it proves associated with more keywords in the network (Yu et al., 2022). High-degree centrality keywords have a relatively large number of neighbors, meaning that they appear in various contexts concerning the topic that a group of words represents (Yano, Blandford, Maruyama, & Nakamura, 2018). The degree centrality in Figure 3 shows how the use of these keywords has evolved. For example, *leadership*, *COVID-19/Pandemic*, *healthcare*, *qualitative research*, *burnout*, and *nurse* became core research topics in healthcare leadership fields between 2020-2023. Additionally, although some of the keywords such as *sensemaking*, *safety*, and *compassion* have relatively high degrees of centrality values for some years they disappeared at the end of the period.

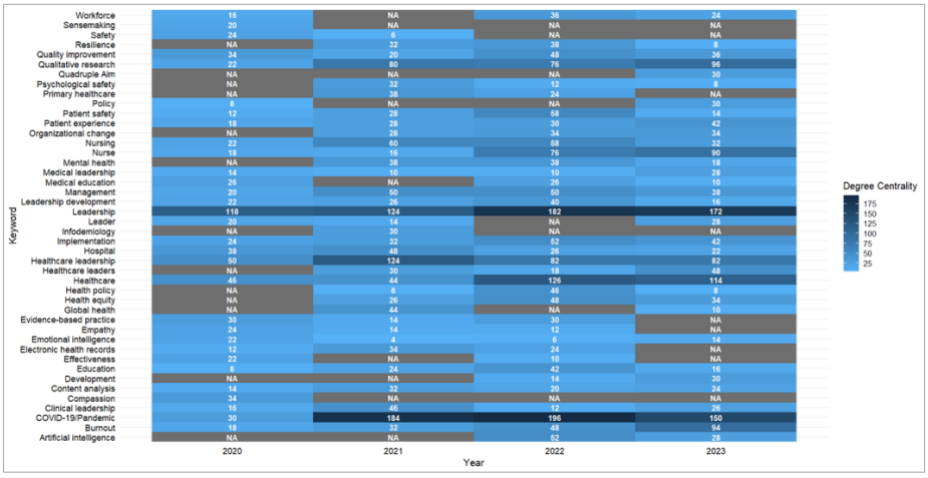
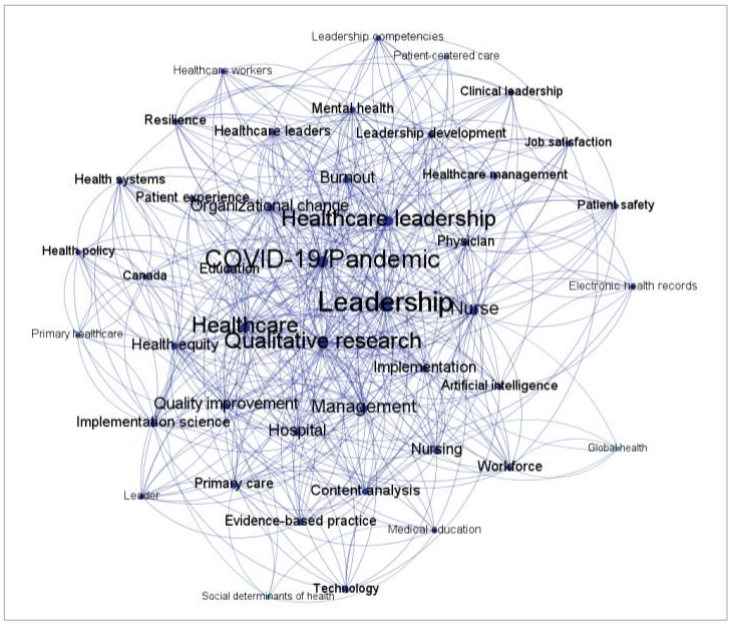


Figure 3: Degree centrality of 44 keywords

Figure 4 shows the network of the keywords with the highest degree centrality ranged between 50 and 514 the retrieved from whole network for more clear visualization. The size of the node in the network was expressed proportionately to the degree centrality. In the figure, *leadership*, *COVID-19/Pandemic*, *healthcare leadership*, *healthcare*, *qualitative research*, *nurse*, *burnout*, *nursing*, *implementation*, and *management* are the first 10 keywords taking over notable positions in healthcare leadership literature for the overall study period.



Note: Degree Centrality is between 50 and 514.

Figure 4: The network of keywords with high degree centrality

Figure 5 illustrates the betweenness centrality of the 49 keywords for each year. Betweenness centrality reflects the bridging effect of keywords. The keywords with high betweenness centrality help to bridge disconnected clusters of keywords into an integrated network (Wanying, Jin, & Kun, 2018). Betweenness centrality takes up a value between 0 and 1. The higher the betweenness centrality value of the keyword, the stronger its bridge spanning role in a network. In Figure 5, keywords with relatively high betweenness centrality such as *leadership* and *COVID-19/Pandemic* played a role as bridges among research topics during 2020-2023. *Sustainability*, *safety, nurse leader, effectiveness* and *compassion* had bridge roles only in 2020. *Quality improvement*, *qualitative research*, *patient safety*, *patient experience*, *nursing*, *nurse*, *management*, *leadership development*, *leadership*, *implementation*, *hospital*, *healthcare leadership*, *healthcare*, *clinical leadership*, *COVID-19/Pandemic*, and *burnout* consistently had bridging effects for the overall study period.

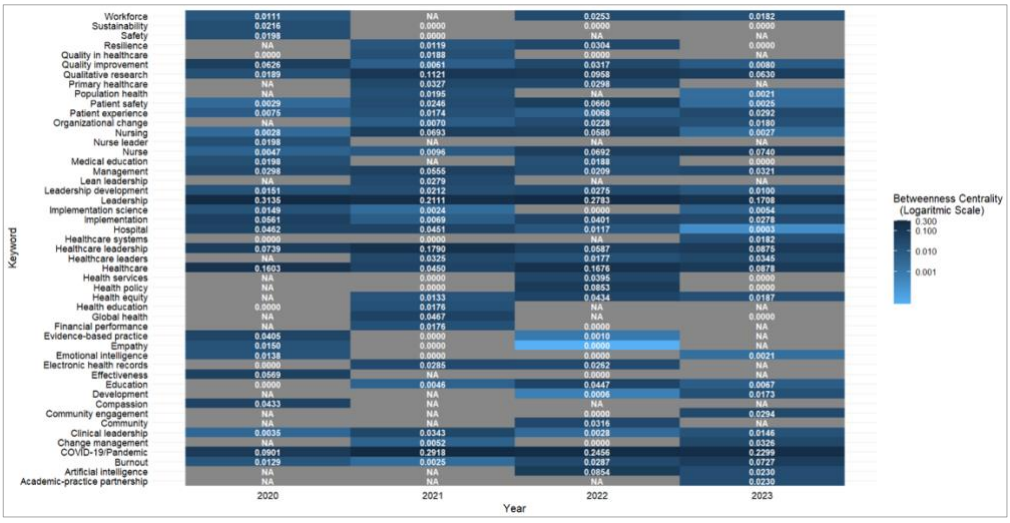
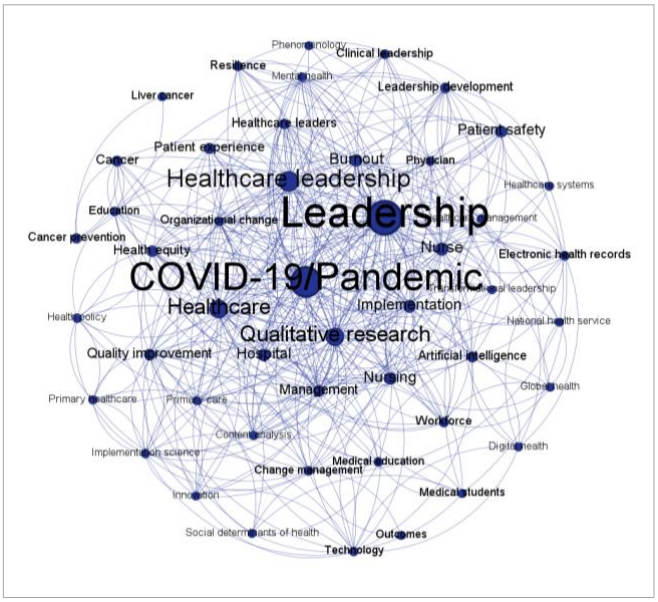


Figure 5: Betweenness centrality of 49 keywords

Figure 6 displays the network of the keywords with the highest betweenness centrality ranged between 0.007693 and 0.219827 retrieved from the whole network for more clear visualization. The size of the node in the network was expressed proportionately to the betweenness centrality. In the figure*, leadership*, *COVID-19/Pandemic*, *healthcare leadership*, *healthcare*, *qualitative research*, *nurse*, *implementation*, hospital, *nursing*, and *burnout* were the first 10 keywords having an important role in bridging disconnected topics in the healthcare leadership literature.



Note: Betweenness centrality is between 0.007693 and 0.219827.

Figure 6: The network of keywords with high betweenness centrality

Figure 7 illustrates the eigenvector centrality of the 52 keywords for each year. Eigenvector centrality gauges a keyword's influence within the network. High eigenvector centrality keywords are essential focal points for networks (Sreenivasan, Suresh, Nedungadi, & R, 2023). Figure 7 shows the keywords' influence within the healthcare leadership literature during 2020-2023. *Quality improvement*, *qualitative research*, *patient experience*, *nursing*, *nurse*, *management*, *leadership*, *implementation*, *hospital*, *healthcare workers*, *healthcare leadership*, *healthcare*, *emotional intelligence*, *education*, *content analysis*, *COVID-19/Pandemic*, *burnout,* and *behavior* consistently had an influence on the healthcare leadership literature at changing level. While the influence of some research topics in literature has decreased over the years, some of them have increased. For example, the influence of *qualitative research* and *nurse* in the healthcare leadership literature have increased significantly in 2023. While *COVID-19/Pandemic* had the most effective concept in 2021 and 2022, *leadership* was the most effective in 2020 and 2023.

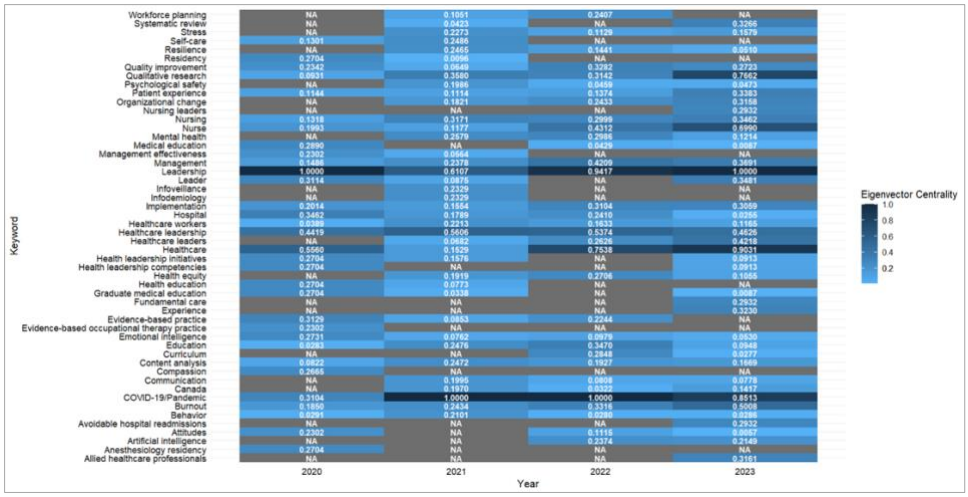
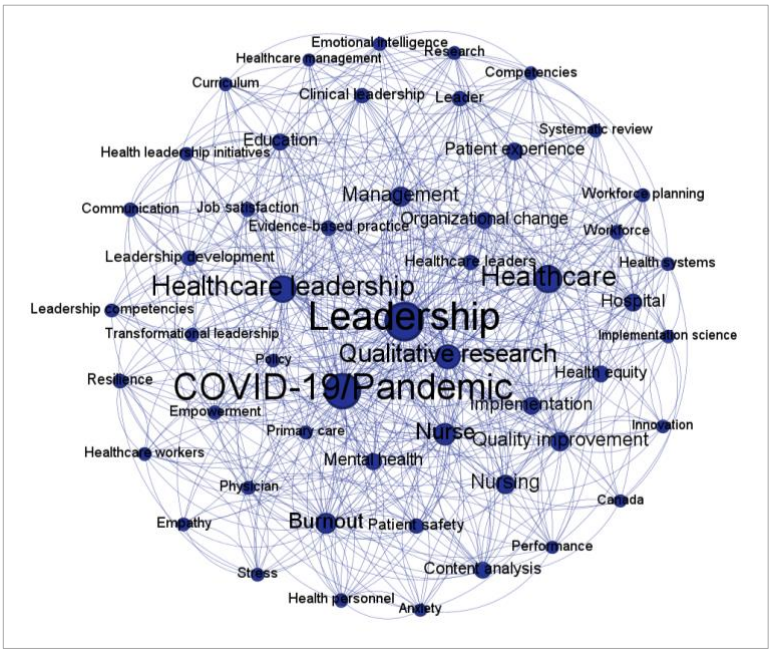


Figure 7: Eigenvector centrality of 52 keywords

Figure 8 displays the network of keywords with eigenvector centrality ranged between 0.143763 and 1 retrieved from the whole network for more clear visualization. The size of the node and label in the network was expressed proportionately to the eigenvector centrality. In the figure, *leadership*, COVID-19/Pandemic, *healthcare*, *healthcare leadership*, *qualitative research*, *nurse*, *burnout*, *management*, *nursing*, and *quality improvement* were the first 10 influential keywords in the healthcare leadership literature.



Note: The score of Eigenvector Centrality is between 0.143763 and 1.

Figure 8: The network of keywords with high eigenvector centrality

4. Discussion and Conclusion

By analyzing the keywords in healthcare leadership research over the last four years, it was possible to see both the general view of the cognitive structure of the healthcare leadership literature and conceptual change in the literature over the years. The most significant findings from this study are as follows. *Leadership*, *COVID-19/Pandemic*, *healthcare*, *healthcare leadership*, *qualitative research*, and *nurse* are the first six keywords that have the highest degree centrality, betweenness centrality, and eigenvector centrality. Thus, it is suggested that all these keywords are the backbone concept in the healthcare leadership literature. Although *communication*, *workforce planning*, *systematic review*, *health personnel*, *empowerment*, *emotional intelligence*, *research*, *transformational leadership, health leadership initiatives, healthcare workers, stress, curriculum, empathy, competencies, performance, policy, anxiety, and innovation* are the keywords that are not in the first 50 keywords list with the highest degree centrality, they are listed in the first 50 keywords with the highest eigenvector centrality. It means that even if they have a lower degree centrality, they are essential focal topics for healthcare leadership literature. These topics offer a productive area for new studies. *Cancer*, *cancer prevention*, *change management*, *liver cancer*, *medical students*, *outcomes, healthcare systems*, *digital health, innovation*, *national health service*, *transformational leadership*, *phenomenology*, and *health education* are the keywords that are not in the 50 keywords list with the highest degree centrality, even so they are listed in the first 50 keywords with the highest betweenness centrality. Although these are not salient concepts, they are important concepts because of having a bridge role between disconnected clusters of topics in healthcare leadership literature. These topics also reveal the interdisciplinary structure of the literature. This study is expected to enlarge existing knowledge of analyzing research trends by reviewing scientific subjects with two aspects, quantitative and relational changes.

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The Impact of Culture and Gender on Leadership Styles

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Abstract: Diversity in leadership remains one of the most influential topics in management research. The socioeconomic changes and globalization make business teams more gender and culturally heterogeneous, which challenges leaders. Gaining a comprehensive knowledge of diversity assists leaders in overcoming such challenges and effectively and efficiently managing their teams. The problems identified by researchers in the area include inconsistent empirical evidence on leadership style (LS) preferences of distinct gender groups, incomprehensive understanding of how leadership functions in Africa and its comparison to traditional Anglo theoretical perspectives. Additionally, there is an incomplete understanding of gender similarities and differences across different cultures. This research investigates these problems and, in turn, helps leaders improve communication, collaboration and organisational performance. The foundation for this quantitative research is a self-administered online survey. Survey participants are culturally and gender-diverse managers, studying in the MBA program at the University of London. Consequently, two dominant cultural groups, Anglo and Sub-Saharan African (SSA), were categorized and detailedly assessed. This research casts light and establishes connections between gender, culture and leadership. The men in the Anglo and SSA clusters are more transformative than women. Additionally, top management is more transformative compared to non-management, low management is more laissez-faire than top management and non-managerial females are more laissez-faire than top-managerial females. However, no significant differences were found between genders independently of their culture, residents and native-born residents of Anglo and SSA clusters. The key implications of this research are that professionally educated leaders, independent of their gender, use similar LSs. However, within cultural clusters, gender differences emerge. No differences between the residents and native-born residents indicate that foreign-born leaders adapt their style to the residing culture.

Keywords: Leadership, Culture, Gender, Sub-Saharan Africa, Anglo

1. Introduction

Diversity in leadership studies plays a far greater role than it was counted by researchers in the past. However, diversity management practices become more recognized and have become an integral part of the skill set of a successful leader. Inadequate diversity management reduces the job satisfaction of employees, yet if managed well, helps to resolve diversity issues (Hooijberg and DiTomaso, 1996).

Despite mounting research on diversity in leadership, the existing literature has gaps.

1. There is a deficiency of empirical evidence on gender preferences for LS (Vieira, Madaleno and Lobao, 2022). Past research overlooks gender differences and focuses on a generalized population group (Hooijberg and DiTomaso, 1996).
2. There is a lack of knowledge on leadership in Africa. In the literature, Africa is mainly examined from the traditional Anglo-American perspective, which lacks universality and applicability in postcolonialism (Iwowo, 2015).
3. There is little understanding of gender differences in leadership across different cultures. Past researchers tend to focus on stereotypical thinking about gender, which was, and to a different degree still is, present in societies (Jonsen, Maznevski and Schneider, 2010).

The general aim of this paper is to explore these gaps and to detect if leaders with the same gender and culture (Anglo and SSA clusters) prefer the same LS. The paper examines the simultaneous relationship of gender and culture to the transformational leadership style (TFLS), transactional leadership style (TALS) and laissez-faire leadership style (LFLS).

The focus of global researchers concentrated on European and North American perspectives. While the research on leadership in Africa lacks a deep insight into the local culture, e.g. effectiveness is known to be an important leadership skill. However, what is implied by effectiveness, depends mainly on the cultural context (Adebayo, 2022; Crede, Jong and Harms, 2019). Currently, natively African researchers are seeking to deepen gender studies, but their research is quite restrained because it often lacks time, finance and/or other resources (Adebayo, 2022).

In the literature, many researchers believe that there are no differences in LS based on gender (Eagly and Johnson, 1990; Manning, 2002). The others are stating that large differences exist (Rohmann and Rowold, 2009; Vecchio, 2002). Regarding culture, the scientific voice is united and argues that LS is culturally contingent (Jonsen, Maznevski and Schneider, 2010; Stoeberl et al., 1998). However, the research on African culture is often conflicting (Yohannes and Wasonga, 2021; Gutterman, 2016; Eustace and Martins, 2014).

The current research objectives are:

4. Discover which style of leadership is preferred by female and male leaders globally.
5. Detect the preferences for the LS of Anglo and SSA cultures.
6. Link gender preferences for the LS within the united Anglo and SSA cultures.
7. Locate gender preferences for the LS across separate Anglo and SSA cultures.

This paper applies a quantitative approach. It examines whether LS are culturally contingent and determines dependencies, which further allows the generalized assumption to be established. The empirical, primary data was gathered through the online survey and the received answers helped to fulfil the descriptive purpose and predict future occurrences.

2. Gender and Leadership Styles

Since 1970, some researchers assumed, that gender does not predict LS preferences (Manning, 2002; Eagly and Johnson, 1990). However, others imply that this view is based on biases in society or a lack of empirical evidence (Vecchio, 2002; Vieira, Madaleno and Lobao, 2022). Women are underrepresented in leadership roles and, as a result, poorly researched (Hooijberg and DiTomaso, 1996). A gender-diverse leader is even more difficult to detect because they do not share their gender self-identification (Ladwig, 2023).

The research of Rohmann and Rowold (2009) confirmed that there is a difference in LS based on gender; e.g. women exceeded men in TFLS. Looking at leadership not only from gender but also from a cultural perspective reveals that women in the Netherlands, Germany and the US have better adaptability. The skill of adaptability belongs to TFLS and aids leaders manage uncertain situations (Haghani et al., 2022; Nahavandi, 2015). However, women in Turkey are more afraid of ambiguous situations, which is why their willingness to lead is only 19% (Sule, 2020). This reveals that the adaptability skill is culturally contingent, which is why the predisposition of women to TFLS is not universal.

3. National Societal Culture

The most comprehensive model that assists in understanding leadership in cross-cultural settings was developed by House in 1991 in the GLOBE project. The model explains that leaders, who behave in line with their culture are the most effective. The GLOBE project reviewed the connection between leadership and 62 different cultures and grouped them into ten cultural clusters (Nahavandi, 2015). Furthermore, we will discuss two of them, the Anglo and SSA clusters.

Demographically the SSA is highly heterogeneous and diverse. The reasons for such diversity include the pre-colonial slave trade, the tropical climate, etc. Such heterogeneity occurred ages ago and is now called homogeneity (Green, 2012). However, the social heterogeneity in the Anglo sector is relatively new, due to immigrant movements, e.g., 45 % of the Australian population are first and second-generation immigrants (Koopmans, 2013). Furthermore, the impact of homogeneous (SSA) and heterogeneous (Anglo) cultures on LS will be looked at.

4. Anglo and SSA Culture and Leadership Styles

Patwardhan et al. (2022) suggest, that leaders for the Anglo cluster use collaborative and humane-oriented behaviours, which together relate to TFLS. Nahavandi (2015) adds, that such leaders are also charismatic but low on team-orientation. Charisma is another element of the TFLS. However, if charismatic leaders are self-centred, it indicates narcissism. Narcissistic leaders use their charisma to reach their goals no matter of ethics (Yukl, 2013). This explains why sometimes TFLS harmful to their team (Homan et al., 2020). In conclusion, TFLS is inherent in the Anglo region, but the charisma of a leader can vary from ethical to unethical.

The research of Fadare (2018) states that leadership in the SSA is high on power distance. This conflicts with the results of Nahavandi (2015), which described it as high on human orientation. Gutterman (2016) underpins that the SSA is high on human orientation, but low on autonomous leadership. Where Yohannes and Wasonga (2021)

discovered that SSA leaders are high on the LFLS (autonomous leadership). To conclude, the SSA cluster requires better research and more consistent findings.

To examine everything discussed, the null hypothesis was applied as a basis for research hypotheses.

H_1: There are no significant differences in preferences for LS by gender independent of culture.

H_2: There are no significant differences in preferences for LS between the residents of Anglo and SSA cultures.

H_3: There are no significant differences in preferences for LS between native-born residents of Anglo and SSA cultures.

H_4: There are no significant differences in preferences for LS within the gender groups of the united cultures of Anglo and SSA.

H_5: There are no significant differences in preferences for LS between and within each gender group of separate Anglo and SSA cultures.

5. Methods and Methodology

All the measurements were carried out following the example of Garcia-Solarte, Garcia-Perez de Lema and Madrid-Guijarro (2018) and performed in SPSS.

5.1 Population Sample and Respondents

MBA students, who represent the leadership elite, were chosen to be a population sample. The number of such students according to AACSB (the biggest accreditation body in the world) accounts for more than 250,000 a year (Byrne, 2022). The selected sample of respondents includes MBA students of the UoL. It is an online educational program, which unites culturally and gender-diverse leaders. The program has prior education, experience and financial requirements (University of London, 2022). Such criteria suit the research needs, which is why the purposive sampling technique was used (Saunders and Lewis, 2012).

5.2 Data collection process

For data collection, an online survey was used (surveyplanet.com). The self-administered questionnaire was distributed through WhatsApp within MBA UoL groups. The data collection process started on the 19th of July till the 13th of August 2023. The survey was sent to 361 respondents and received 146 responses. The 11 respondents were excluded from the analysis because they possess a non-managerial position. Out of the remaining 135 responses, based on GLOBE two biggest cultural clusters were identified: Anglo with 32 responses (24 %), Australia (2), Canada (8), the UK (18), the US (4), and SSA with 39 respondents (29 %), Botswana (1), Cameroon (1), Ghana (5), Guinea (1), Kenya (6), Mauritius (1), Nigeria (2), Sierra Leone (1), South Africa (3), Tanzania (12), Uganda (1), Zambia (3), Zimbabwe (2).

5.3 Measurements

The questions were adapted from the multifactor leadership questionnaire (Form 6-S) developed by Bass and Avolio in 1992 (Vinger and Cilliers, 2006; Garcia-Solarte, Garcia-Perez de Lema and Madrid-Guijarro, 2018). The TFLS was tested by Idealized influence (II), Inspirational motivation (IM), Intellectual stimulation (IS) and Individualized consideration (IC) factors, TALS by Contingent reward (CR) and Management by exception (ME) factors, and LFLS by one factor. Each factor comprises three questions. The respondents weighed the questions on the Likert scale (1 – strongly disagree, 5 – strongly agree).

6. Analysis of Results

6.1 Survey and Sample Characteristics

The correlation matrix (Table 1) illustrates how each of the survey questions correlates with one another, where within-factor correlations are vital. However, factor IM (Q1 to Q2), CR (Q1 to Q2), and ME (Q1 to Q2 and Q2 to Q3) have low correlation.

Table 1: Correlation Matrix for Each Leadership Style Question

Questions	II Q1	II Q2	II Q3	IM Q1	IM Q2	IM Q3	IS Q1	IS Q2	IS Q3	IC Q1	IC Q2	IC Q3
II Q1	1											
II Q2	.251**	1										
II Q3	.346**	.479**	1									
IM Q1	.469**	.148	.267**	1								
IM Q2	.227**	.357**	.323**	.051	1							
IM Q3	.115	.186*	.397**	.179*	.260**	1						
IS Q1	.315**	.188*	.175*	.349**	.235**	.233**	1					
IS Q2	.143	.426**	.286**	.120	.468**	.233**	.319**	1				
IS Q3	.158	.254**	.189*	.156	.297**	.322**	.396**	.390**	1			
IC Q1	.304**	.286**	.229*	.292**	.210*	.316**	.425*	.276**	.162	1		
IC Q2	.212*	.191*	.171*	.164*	.326**	.418**	.251**	.304**	.309**	.338**	1	
IC Q3	.221*	.151	.267**	.375**	.204*	.273**	.190*	.142	.251**	.220**	.285**	1
CR Q1	-.040	.090	.012	-.027	.249**	.201*	.098	.045	.047	.115	.066	.160
CR Q2	.230**	.265**	.172*	.042	.333**	.373**	.235**	.288**	.226**	.264**	.561**	.189*
CR Q3	.138	.218**	.141	.114	.192*	.201*	.059	.137	.103	.179*	.298**	.461**
ME Q1	.088	.011	.067	.174*	.092	.200*	.238**	.113	.081	.292**	.125	.097
ME Q2	.094	-.027	-.014	.012	-.063	-.066	-.065	.042	-.010	-.135	-.078	.049
ME Q3	.054	.112	.044	.179*	.096	.085	.087	-.037	.173*	.151	.162	.347**
LFL Q1	.034	.109	.057	.066	.114	-.069	-.081	-.023	-.024	-.088	.000	.016
LFL Q2	.145	-.051	.155	.225**	.032	-.025	.149	-.032	.047	-.057	-.148	.171*
LFL Q3	.192*	.129	.165*	.119	.036	-.020	.052	.050	.110	-.096	-.014	.070

Table 1 (Continued): Correlation Matrix for Each Leadership Style Question

Questions	CR Q1	CR Q2	CR Q3	ME Q1	ME Q2	ME Q3	LFL Q1	LFL Q2	LFL Q3
II Q1									
II Q2									
II Q3									
IM Q1									
IM Q2									
IM Q3									
IS Q1									
IS Q2									
IS Q3									
IC Q1									
IC Q2									
IC Q3									
CR Q1	1								
CR Q2	.127	1							
CR Q3	.317**	.284**	1						
ME Q1	.277**	.021	.124	1					
ME Q2	.027	-.028	-.041	.136	1				
ME Q3	.222**	.061	.371**	.330*	-.034	1			
LFL Q1	.281**	.055	.133	.062	.383**	.052	1		
LFL Q2	.063	-.138	.066	.046	.381**	.060	.304**	1	
LFL Q3	.166*	-.080	.039	.066	.180*	.072	.295**	.307**	1

Notes: *p < 0.05; **p < 0.01

Table 2 demonstrates that all factors have acceptable reliability except IM and ME, which have Cronbach above

0.5. All factors also passed the validity tests, with the KMO above 0.5 and the Barlett test below 0.05.

The explained variance at 50 %, indicates that the factor explains a minimum of 50 % of the variations and the factor load above 0.4, shows a significant correlation between the question and the factor. Table 2 shows all factors load more than 0.4 and the variation only of IM factor is slightly below.

Table 2: Validity and Reliability Scale

LS	Factor	Questions	Factor Loads	Other
TFLS	II	Q1 I make the people around me feel good	0.6	Cronbach = 0.6
		Q2 Other people have complete faith in me.	0.7	Factorial: 1 factor
		Q3 Other people are proud to be associated with me.	0.6	Explained variance: 58%
				Sig. Bartlett: <0.001
				KMO: 0.6
	IM	Q4 I use simple words to explain what we can and should do.	0.7	Cronbach = 0.4
		Q5 I provide attractive images about what we can do.	0.5	Factorial: 1 factor
		Q6 I help others find meaning in their work.	0.4	Explained variance: 45%
				Sig. Bartlett: 0.002
				KMO: 0.5
	IS	Q7 I allow others to think in new ways to solve old problems.	0.6	Cronbach = 0.6
		Q8 I offer others new ways of seeing complex situations.	0.6	Factorial: 1 factor
		Q.9 I make others rethink ideas that they had not questioned previously.	0.8	Explained variance: 58%
				Sig. Bartlett: <0.001
				KMO: 0.6
	IC	Q10 I help others develop themselves.	0.6	Cronbach = 0.5
		Q11 I provide others with feedback regarding their work.	0.7	Factorial: 1 factor
		Q12 I give personal attention to those who appear to be excluded.	0.7	Explained variance: 52%
				Sig. Bartlett: <0.001
				KMO: 0.6
TALS	CR	Q13 I tell others what to do if they want to be rewarded for their work.	0.7	Cronbach = 0.5
		Q14 I provide recognition/rewards when others achieve their goals.	0.7	Factorial: 1 factor
		Q15 I am attentive to what others can obtain according to their achievements.	0.7	Explained variance: 50%
				Sig. Bartlett: <0.001
				KMO: 0.6
	ME	Q16 I feel satisfied when others comply with the agreed-upon rules.	0.7	Cronbach = 0.3
		Q17 As long as things are working, I do not try to change anything.	0.7	Factorial: 1 factor
		Q18 I tell others about the rules that they must be familiar with to perform their work.	0.6	Explained variance: 79%
				Sig. Bartlett: <0.001
				KMO: 0.6
LFLS	LFLS	Q19 I am content to let others continue working in the same way as always.	0.7	Cronbach = 0.6
		Q20 Whatever others want to do is OK with me.	0.6	Factorial: 1 factor
		Q21 I ask no more of others than what is absolutely essential.	0.5	Explained variance: 54%
				Sig. Bartlett: <0.001
				KMO: 0.6

Table 3 shows the dominance of women in managerial positions, which questions the persistent idea by the researchers that women are underrepresented in leadership (Hooijberg and DiTomaso, 1996). None of the leaders were revealed to have gender-diverse sex.

Table 3: Sample Characteristics by Gender

Continuous Variables	Dichotomous Variables		Total
	Female	Male	
Gender of all managers	63 (47 %)	72 (53 %)	135 (100 %)
Gender of Anglo managers	21 (66 %)	11 (34 %)	32 (100 %)
Gender of SSA managers	23 (59 %)	16 (41 %)	39 (100 %)
Gender of managers from the United Anglo and SSA clusters	44 (62 %)	27 (38 %)	71 (100 %)

Table 4 proves our previous assumption that in its nature the Anglo cluster is heterogeneous, whereas the SSA cluster is homogeneous (Green, 2012; Koopmans, 2013).

Table 4: Country Clusters of Residents and Native-born Residents

Cluster	Number of Residents	Number of Native-born Residents	Native-born Residents %
SSA	39	37	95 %
Anglo	32	13	41 %

6.2 Univariate Analysis

The univariate analysis tests are completed with t-student and U-test. Table 5 displays these tests for the female and male groups while holding all the other variables constant. The threshold of $p < 0.05$ suggests that the difference between the variables is significant. Table 5 shows no significant differences in LS based on gender, therefore the H_1 is supported.

Table 5: Differences in LSs According to Gender Independent of Cultural Cluster

	Total N 135			
LS	Female N 63 Mean (SD)	Male N 72 Mean (SD)	t-test	U-test
TFLS	4.03 (0.37)	4.15 (0.38)	.056	.101
TALS	3.79 (0.39)	3.91 (0.44)	.076	.087
LFLS	2.72 (0.68)	2.88 (0.79)	.211	.407

Table 6 considers the members of Anglo and SAA clusters from the perspective of residentship and native-born residentship. According to the t-test, there are no differences. However, the U-test demonstrates that the residents of the SSA cluster are more transformational. To make the final decision about the H_2 hypothesis a further regression analysis will be performed.

Table 6: Differences in LSs According to Anglo and SSA Cultural Clusters

	Total N 71				Total N 50			
LS	Anglo Residents N 32 Mean (SD)	SSA Residents N 39 Mean (SD)	t-test	U-test	Anglo Native-born Residents N 13 Mean (SD)	SSA Native-born Residents N 37 Mean (SD)	t-test	U-test
TFLS	4.10 (0.45)	4.22 (0.32)	.194	.048*	4.12 (0.50)	4.23 (0.32)	.374	.206
TALS	3.90 (0.42)	3.80 (0.45)	.354	.584	3.87 (0.35)	3.80 (0.46)	.619	.788
LFLS	2.85 (0.84)	2.55 (0.77)	.114	.146	2.69 (0.90)	2.52 (0.75)	.507	.840

Notes: *$p < 0.05$

Table 7 compares the gender of the united Anglo and SSA clusters. Both tests show that the males have TFLS. However, this finding differs from the findings of other researchers, who believe that females score more on TFLS (Khan et al., 2012; Rohmann and Rowold, 2009). However, the mentioned researchers studied different cultures, which could lead to inconsistency. The other explanation is that women often doubt their abilities, which could impact their self-evaluation during the survey (Meehan, 2018). To conclude H_4 is rejected.

Table 7: Differences in LSs Within the Gender Groups of the United Cultural Cluster of Anglo and SSA

	Total N 71			
LS	Females of Anglo and SSA Clusters N 44 Mean (SD)	Males of Anglo and SSA Clusters N 27 Mean (SD)	t-test	U-test
TFLS	4.05 (.34)	4.35 (.38)	<.001**	.001**
TALS	3.82 (.40)	3.88 (.48)	.546	.667
LFLS	2.63 (.69)	2.78 (.99)	.457	.986

Notes: **p < 0.01

6.3 Bivariate Analysis

The bivariate analysis (the ANOVA test) is applicable when there are more than two variables within one group (Kim, 2014). Table 8 presents the ANOVA test for the gender in Anglo and SSA clusters separately. The results suggest that there are differences between the adoption of TFLS. To identify these differences the Games-Howell and Tukey HSD tests were done. The results indicate that males of the SSA and Anglo clusters score higher on TFLS than females. These findings are partially consistent with Eustace and Martins (2014), Nahavandi (2015), and Patwardhan et al. (2022) who said that all Anglo and SSA leaders have TFLS. However, our result only relates to male representatives of both clusters.

Table 8: In Group Differences in LS

Group	TFLS Mean	F	TALS Mean	F	LFLS Mean	F	Sig. level
Gender in Anglo and SSA Clusters Separately	*Total N 71*	4.726**	*Total N 71*	1.179	*Total N 71*	1.153	*p<0.05 **p<0.01
A. Female Anglo	3.96 (n=21)		3.81 (n=21)		2.76 (n=21)		
B. Male Anglo	4.35 (n=11)		4.06 (n=11)		3.03 (n=11)		
C. Female SSA	4.12 (n=23)		3.83 (n=23)		2.51 (n=23)		
D. Male SSA	4.35 (n=16)		3.76 (n=16)		2.60 (n=16)		

6.4 Multivariate Analysis

From Table 9 can be observed that H_4 confirms the differences in TFLS between the two gender groups of united Anglo and SSA clusters ($p < .001$, $F > 2.5$) not only from a univariate but also from a multivariate perspective. The t-value > 2 (as well as the t-value < -2), indicates that differences did not occur by chance. Where R^2 reveals that gender characteristics explain 14.8 % of the variation in TFLS. That means that there are 85.2 % of other reasons, outside gender, that affect the decision of a manager to adopt TFLS. The beta coefficient shows us the strength of the connection between the independent and dependent variables. The increase in the number of male leaders by one standard deviation will lead to an increase in transformational leaders by 0.301.

H_5 was also rejected. Gender in it predicts 9.1 % of the adoption of TFLS in the separately considered Anglo and SSA clusters (Coef.: 0.101).

Tables 9 to 11 confirm the acceptance of the H_1 and H_3 by the linear regression. The significance between residents of Anglo and SSA cultures identified by the U-test in H_2 was not verified by the regression analysis. However, the regression prediction is more reliable, which leads to the decision to approve H_2.

Table 9: Linear Regression that Tests the Hypotheses on Preferences for TFLS

Hypothesis	Impact on TSLS	Beta Coefficient	R^2	F	p-value	t-value	Original Hypothesis Supported
H_1	No	.126	.027	3.720	.056	1.929	Yes
H_2	No	.119	.024	1.724	.194	1.313	Yes
H_3	No	.108	.017	.807	.374	.898	Yes
H_4	Yes	.301	.148	11.960	<.001**	3.458	No
H_5	Yes	.101	.091	6.868	.011*	2.621	No

Notes: *p < 0.05; **p < 0.01

Table 10: Linear Regression that Tests the Hypotheses on Preferences for TALS

Hypothesis	Impact on TALS	Beta Coefficient	R^2	F	p-value	t-value	Original Hypothesis Supported
H_1	No	.129	.023	3.189	.076	3.189	Yes
H_2	No	-.097	.012	.872	.354	-.934	Yes
H_3	No	-.070	.005	.250	.619	-.500	Yes
H_4	No	.065	.005	.367	.546	.606	Yes
H_5	No	-.025	.004	.309	.580	-.556	Yes

Table 11: Linear Regression that Tests the Hypotheses on Preferences for LFLS

Hypothesis	Impact on LFLS	Beta Coefficient	R^2	F	p-value	t-value	Original Hypothesis Supported
H_1	No	.160	.012	1.578	.211	1.256	Yes
H_2	No	-.307	.036	2.569	.114	-1.603	Yes
H_3	No	-.170	.009	.447	.507	-.669	Yes
H_4	No	.149	.008	.559	.457	.457	Yes
H_5	No	-.091	.016	1.142	.289	-1.069	Yes

Notes: *p < 0.05; **p < 0.01

7. Summary

The current research determined that random and non-random relationships between gender, culture and LSs normally occur in real-life settings. The assessment of all respondents recognised that women and men have no specific preferences in the adoption of the LS. Similarly, the residents and native-born residents from Anglo and SSA cultural clusters also did not show any preferences. However, when the data about gender and Anglo and SSA cluster was crossed, some similarities started to manifest, showing that the males of a united Anglo and SSA cluster favour more TFLS. The males from the Anglo and SSA clusters score high on TFLS.

8. Conclusion

In practice, the paper assists in estimating, which LS leaders have, based on their demographic characteristics. This, in turn, will ease the building of better cooperation with their team in the future. However, the research also has more global applications. With the increased globalisation, local companies often acquire or merge with foreign companies (Hooijberg and DiTomaso, 1996). The paper can help leadership teams of local companies to solve cross-cultural issues that could arise during that process.

It is important to underline that the paper explains the LS behaviours of residents of Anglo and SSA clusters, but it does not predict the future behaviour of all leaders in these clusters. For example, the managers who reside in Anglo and SSA clusters, but do not have an MBA education can make different choices in the adoption of the LS.

Despite the achieved aim and significant findings the research also has its limitations. The following research papers should place specific attention to the questions within IM and ME factors, they should be reviewed and improved for better reliability.

Despite the limitations, the current research brings new knowledge to the area. However, the uniqueness of the research is that all these three areas intersect, which very closely resemble real-life situations. Additionally, all the objectives of the research were fulfilled. The paper brings more clarity about the SSA culture and creates a better insight into preferred LS in Africa. The paper also proves that Western theories can be used for non-Western countries and they are especially important when one uses such countries in comparison.

9. Future Research

It would be beneficial to explore and compare not only the gender differences to the certain LS altogether but also examine the preferences of these groups for each separate factor (II, IM, IS, IC, CR, ME or LFLS). For example, Garcia-Solarte, Garcia-Perez de Lema and Madrid-Guijarro (2018) stated that women prefer to use more IC and IM factors. However, by exploring the same group no general preferences for one of the LSs were identified. The deep factor analysis of the Anglo and SSA cluster would disclose smaller gender differences.

Future research can generate further benefits by choosing different sample groups. To make better general conclusions about Anglo and SSA clusters, it would be beneficial to examine a group of not-professionally

educated leaders and compare the results with this study. Any difference identified will reveal the impact of education on leadership.

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Does Corporate Governance Moderate the Relationship Between Earnings Management and Financial Performance?

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Abstract: ***Motivation***: This study aims to fill the gap in the corporate governance literature by examining the moderating role of corporate governance on earnings management and financial performance***. Idea****:* The research is conducted in the light of agency and legitimacy theories, looking through how corporate governance practices moderate the relationship between earnings management and financial performance. ***Data****:* The database consists of an international sample of non-financial companies, for the time frame between 2020 and 2023. The data are collected from Thomson Reuters Eikon, and the analysed period responds to a thorough approach of the topic under problematic circumstances. In line with prior literature, this analysis includes several corporate governance mechanisms such as number of board meetings, board gender diversity, board size, CEO duality, independent board members, and audit committee independence. Among the control variables could be mentioned firm size, financial leverage, and profit or loss. Corporate governance is examined as a key driver in achieving financial performance, maximising the value created by companies and strengthening their connections with stakeholders. ***Tools****:* To test the research hypotheses, investigation is performed through frequency and descriptive statistics, parametric correlations, complemented with panel regression analysis with random effects performed in STATA 18 software. ***Findings****:* According to the results, there is strong evidence that financial performance is impacted by earnings management, at the corporate level. Notably, the main findings suggest that board meetings, board size, and board independence may be underlying factors in reducing the adverse effects of earnings management reflected in financial performance. Likewise, corporate governance may contribute to an effective monitoring of earnings management. Muchmore, the findings are in line with the agency theory, which asserts that corporate governance practices lessen managerial resource exploitation necessary for sustainable development and financial performance. ***Contribution****:* Relevance of the study resides in grounding a comprehensive overview in the earnings management and sustainability literature, examining corporate governance patterns. This research contributes to the debate of influence exerted by earnings management practices on financial performance extended towards a better understanding of corporate governance outcomes.

Keywords: Corporate Governance, Earnings Management, Financial Performance, Regression Analysis, Sustainable Development

1. Introduction

The scientific environment approaches the connection between financial performance and earnings management, in the light of stakeholders' and societies' interests that may be difficult to fulfil for the reason of information asymmetries. To design a comprehensive overview, authors (Adeneye et al, 2024; Boachie & Mensah, 2022) focus on earnings management and financial performance relationship, using financial and non-financial indicators in the background of sustainable development and corporate governance. Findings regarding earnings management-financial performance relationship are mixed, but according to the literature (Akter et al, 2024; Gull et al, 2018), there may be generally perceived that corporate governance is an assembly of effective mechanisms which lead to earnings management mitigate. In these circumstances, the key role of corporate governance may be emphasised in stimulating efficiency and transparency, safeguarding the wealth of minority shareholders, guaranteeing equitable treatment for all shareholders, and enabling the prompt and accurate disclosure of all relevant information (Nguyen, Kim & Ali, 2024).

This paper undertakes a cross-sectional study on the relationship between earnings management and financial performance, within non-financial European companies, using a random effects regression modelling approach for the time frame between 2020 and 2023. Originality may be highlighted based on corporate governance mechanisms analysed as moderating variables. This research contributes to the body of knowledge in the literature, complemented with a theoretical framework, drawing attention to a challenging topic. In this study, the theoretical background is covered by agency and legitimacy theory, to offer a complete understanding of how corporate governance may affect earnings management. This is especially crucial considering the regulatory and sociodemographic diversity of the sample, where a multi-theoretical approach may be able to explain the findings regarding the correlation between earnings management and corporate governance.

The rest of the paper is organised as follows. Section 2 covers the review of the scientific literature and hypotheses development. Section 3 presents research methodology, based on an extended presentation of secondary data collection, processing, and research techniques. Section 4 debates the results in the context of prior scientific literature, while Section 5 discusses the implications of the findings, complemented with limitations and future research horizons.

2. Literature Review and Research Hypotheses

Corporate governance is designed to balance the interests of shareholders with self-interests of managers. The main frameworks that shareholders rely on are covered by legal systems, board characteristics, and subcommittees such as risk, audit, remuneration, and nomination committees. These are considered among the best corporate governance practices, understood as crucial tools that guarantee a satisfactory return on shareholders' investment, reducing agency issues brought about by the separation of ownership and control (Boachie & Mensah, 2022). According to the literature (Akter et al, 2024; Adeneye et al, 2024), earnings management may be used to manipulate financial reports to deceive stakeholders about the company's performance or for contractual agreements. Earnings management also presents a positive financial and economic picture of the reports prepared and disclosed by companies. However, they may lower the quality level of profit information in financial statements, as result of opportunistic short-term strategies. Corporate governance mechanisms are primarily thought to be a useful strategy for reducing earnings management. Furthermore, it is considered that institutional ownership, board of directors and CEO characteristics may influence performance and effectiveness of the company (Nguyen, Kim & Ali, 2024; El Diri et al, 2020). The rationale is to improve company performance, increase investors' confidence, and decrease opportunistic management behaviour associated with earnings manipulation (Boachie & Mensah, 2022).

According to the agency theory, corporate governance reduces information asymmetry among investors and management, improving corporate information transparency (Nguyen, Kim & Ali, 2024). An underdeveloped corporate governance framework may enable the manipulation of reported earnings with the aim of fulfilling performance objectives and obtaining compensation, which are contingent on the company's achievements (Hong et al, 2023). Likewise, effective corporate governance mechanisms should result in greater transparency in financial reporting. Earnings management avoidance may lessen information asymmetry between management and shareholders, leading to the agency conflicts decreasing (Boachie & Mensah, 2022). The legitimacy theory holds that an organisation's activity is given by the society in which it functions through an implicit contract, necessitating that the organisation behaves in a way that satisfies social expectations.

Prior research examines the question of whether corporate governance influences earnings management, and there are mixed results related to this long-discussed topic in the literature. Thus, Bekiris & Doukakis (2011) highlight that studies examine specific corporate governance mechanisms, such as audit committee characteristics or board structure, to identify the influence exerted by these mechanisms on earnings management practices. Kjærland et al (2020) emphasise that between the percentage of independent board members and earnings management there is a positive and statistically significant relationship, while Aleqab & Ighnaim (2021) present that board independence has a negative and statistically significant impact on earnings management.

Moreover, the influence of the audit committee is studied by Almarayeh, Abdullatif & Aibar-Guzman (2021), Mollik et al (2020) and Feng & Huang (2020), who identify that audit committee independence is significantly correlated with lower levels of earnings management. Kjærland et al (2020) demonstrate that the audit committee negatively impacts the occurrence of earnings management. Feng & Huang (2020) focus on board size, suggesting that a larger board size could limit earnings management behaviour of top managers in companies with high levels of earnings management.

Characteristics of the board, as CEO duality, are essential in the mitigation of earnings management, as highlighted by Bouaziz, Salhi & Jarboui (2019), while El Diri, Lambrinoudakis & Alhadab (2020) find that in non-concentrated markets (less competitive, characterised by a higher propensity to employ techniques that inflate their earnings) board attributes are more successful in reducing earnings management than in concentrated markets. Gull et al (2018) analysing French listed companies, for 2001 to 2010, suggest that female directors discourage managing earnings. The findings are in line with those obtained by Mnif & Cherif (2020), who present that the level of earnings management is reduced by female board participation. Moreover, these statements are supported by Zalata et al (2021), who demonstrate that having female directors with relevant financial background increases the quality of earnings.

Likewise, the scientific literature considers ownership structure as a key corporate governance mechanism. For example, Han, Ding & Zhang (2022) draw attention on the connection between foreign ownership and earnings management, considering that foreign investors are crucial in discouraging managers in developing markets from acting opportunistically, while Akter et al (2024) analyse board diversity as a moderating variable in the relationship between earnings management and ownership structure. Their main results show that ownership concentration and managerial ownership have a significant interaction with board diversity, suggesting that board diversity decreases real earnings management.

Muchmore, the topic of earnings management is approached in connection with corporate sustainable development. Chakroun & Amar (2021) study financial performance and earnings management, considering the moderating effect of corporate social responsibility (CSR). The authors show that financial performance is significantly and negatively impacted by earnings management, whereas governance does, in fact, positively moderate the detrimental effects of earnings management on financial performance.

Adeneye et al (2024) approach the moderating effect of corporate governance mechanisms in the light of earnings management connected with non-financial performance. Authors study the role of corporate governance in the relationship between earnings management and environmental, social and governance (ESG) performance. The analysis is performed for the period 2016-2020, with the sample consisting of UK listed companies. Their main findings emphasise that performance is lowered by earnings management, because businesses have poorer ESG performance as earnings management levels rise. Notably, board gender diversity is more significant and successful in reducing the detrimental effects of earnings management on ESG performance. Therefore, getting more women involved on board is relevant to advance ESG performance. Additionally, the effect exerted by earnings management on ESG performance is not significantly mitigated by the number of independent board members, board size and the independent members in the audit committee.

High-quality corporate governance research is also considered in the relationship between earnings management and financial performance. Thus, outcomes presented by Boachie & Mensah (2022) validate the agency theory's prediction about the effective monitoring impact of adhering to best-practice internal governance systems in limiting companies' earnings management practices and consequently improving their performance. The authors use return on assets as measure of financial performance and their research shows that corporate governance mechanisms, analysed within a cohesive framework, together with information disclosure, are successful in limiting companies' earnings management practices, which, in turn, improves firm performance.

Based on this review and considering the variables analysed in prior studies, the research hypotheses are asserted. The first (RH1) is the baseline research hypothesis, highlighting the influence exerted by earnings management on the financial performance accounting measure (ROA). Then, RH2, RH3, and RH4 emphasise the relationship between financial performance and earnings management, considering the moderating effects of corporate governance mechanisms. Hence, hypotheses are presented as follows:

RH1. Earnings management is negatively associated with financial performance.
RH2. Number of board meetings moderates the relationship between earnings management and financial performance.
RH3. Board size moderates the relationship between earnings management and financial performance.
RH4. Board independence moderates the relationship between earnings management and financial performance.

3. Research Methodology

This research aims to analyse the influence exerted by earnings management on financial performance, considering the moderating effects of corporate governance mechanisms represented by the characteristics of the board and audit committee. Furthermore, in the analysis, control variables are included to reflect a comprehensive overview of companies' activities.

3.1 Data Collection and Sample

This study is based on a longitudinal research design, which investigates the changes in the variables of the companies over time, as indicated by the requirement of the panel data structure both for time series (sample time frame) and cross-sectional units (companies). In the analysis, the panel data estimation technique is used. Secondary data collection and processing is performed in *Microsoft Excel*, while for statistical analysis and

regression estimation, *STATA18* software is used. The data source at the company level, both for financial and non-financial information, is represented by Thomson Reuters Eikon database. The sample is constructed for the period between 2020 and 2023. The initial dataset consists of 32,727 observations for 11,733 unique companies. Then, the observations with missing data for financial indicators and corporate governance mechanisms (10,350) are dropped. Similar, non-European (18,424) and then companies which carry out activities in financial business field (728) are eliminated. Thus, the final sample consists of 3,225 observations from 1,160 companies.

3.2 Variables Measurement

Figure 1 summarises the description for all variables included in the analysis, complemented with measurement details. The measure of financial performance is an accounting base indicator, return on assets (ROA), representing the *dependent variable*, selected in accordance with prior literature which focuses on corporate governance topic (Boachie & Mensah, 2022).

Variable	Name	Measurement
Dependent variable		
ROA	Return on Assets	Net Income After Taxes divided by Total Assets
Independent and moderating variables		
DA	Discretionary Accruals	Estimated based on Kothari et al (2005) model
BOARD_MEETINGS	Board Meetings	Total number of board meetings in a year
BOARD_SIZE	Board Size	Total number of board members at the end of reporting period
BOARD_DIVERSITY	Board Gender Diversity	Percentage of women in the board
BOARD_INDEPENDENCE	Board Independence	Percentage of independent board members at the end of reporting period
CEO_DUALITY	CEO Chairman Duality	Equals 1 if the CEO is also the chairman of the board and 0
AC_INDEPENDENCE	Audit Committee Independence	Percentage of independent members in the audit committee
Control variables		
COMPANY_SIZE	Company Size	Natural logarithm of total assets
LEV	Financial Leverage	Total liabilities divided by total assets
LN_EMPLOYEES	Number of Employees	Natural logarithm of total employees
LOSS	Loss	Equals 1 if company have positive net income and 0 otherwise

Figure 1: Variables measurement

The independent variable of interest for this study is discretionary accruals (DA), a measure for earnings management, estimated in accordance with prior research, based on the Kothari, Leone & Wasley (2005) model (Adeneye et al, 2024; Almarayeh et al, 2021; Feng & Huang, 2020; Kjærland et al, 2020). Hence, for earnings management estimation, the following model is used:

$$TA_{it}/A_{it-1} = \alpha_0 + \alpha_1(1/A_{it-1}) + \alpha_2[(\Delta REV_{it} - \Delta TR_{it})/A_{it-1}] + \alpha_3(PPE_{it}/A_{it-1}) + \alpha_4 ROA_{it} + \varepsilon_{it},$$

where TA_{it} is the total accruals for company i in year t, computed as the difference between net income and operating cash flow. A represents total value of the assets in period t, ΔREV_{it} represents the change in revenues, while ΔTR_{it} is measure for the change in receivables. PPE_{it} represents the net value of property, plant, and equipment in year t, and ROA_{it} is computed as net income (after taxes) divided by total assets in period t-1.

Addressing the concerns related to heteroscedasticity, the Kothari, Leone & Wasley (2005) model includes all variables scaled by lagged total assets. The residuals of the model serve as an earnings management proxy for discretionary accruals. Further, the values are winsorized at 1% and 99% before being used in the regression analysis, to smooth the influence of extreme values.

Next, on the one hand, several *independent variables,* considered as potential moderators of the relationship between earnings management and financial performance, are represented by corporate governance mechanisms related to board and audit committee characteristics, collected from Thomson Reuters Eikon database, and selected according to previous research conducted by Nguyen, Kim & Ali (2024); Adeneye et al (2024); Mnif & Cherif (2020); Mollik et al (2020); Kjærland et al (2020); Gull et al (2018). Based on the results of the econometric analysis, number of board meetings, board size, and board independence are chosen as m*oderating variables* used to address the interaction between board characteristics and earnings management (DA), to identify the moderating effects of corporate governance in the relationship between financial performance and the tendency of companies to apply earnings management techniques.

Moreover, the analysis includes a list of *control variables* that have consistently been identified as determinants of financial performance in previous research. Hence, this study includes two measures for company size (natural logarithmic values for total assets and total employees), financial leverage, and a dummy variable that reflects whether companies reported positive or negative net income (LOSS). The variables' list is adapted in line with

Nguyen, Kim & Ali (2024); Adeneye et al (2024); Boachie & Mensah (2022); Han, Ding & Zhang (2022); Gull et al (2018).

3.3 Regression Models

Prior to test the research hypotheses on the relationship between earnings management and financial performance, with the moderating effects of corporate governance, Hausman test is performed, in order to choose between fixed-effects and random-effects regression estimation. Results show that random-effects model is more suitable, since it reduces the unobserved heterogeneity (Nguyen et al, 2024; Gerged et al, 2020).

Three empirical regression models are estimated. The control model is *Model 1*, including the dependent variable related to financial performance (ROA), together with independent control variables (COMPANY_SIZE, LEV, LN_EMPLOYEES, LOSS) and the measure for earnings management (DA), according to the specifics presented in Figure 1. Further, the generic regression model is shown as follows:

$ROA_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 COMPANY_SIZE_{it} + \beta_3 LEV_{it} + \beta_4 LN_EMPLOYEES_{it} + \beta_5 LOSS_{it} + \mu_{it} + \varepsilon_{it}$,

where t represents the time frame, while i represents the company. β_0 is the constant, ε_{it} represents the error term, and μ_{it} reflects the year and the industry fixed-effects.

To validate the relationship between financial performance and earnings management, the baseline model (*Model 2*) is estimated, which stands out through adding the corporate governance mechanisms (BOARD_MEETINGS, BOARD_SIZE, BOARD_DIVERSITY, BOARD_INDEPENDENCE, CEO_DUALITY) and the characteristics regarding independence of the audit committee (AC_INDEPENDENCE). Hence, the second regression model is estimated as follows:

$ROA_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 COMPANY_SIZE_{it} + \beta_3 LEV_{it} + \beta_4 LN_EMPLOYEES_{it} + \beta_5 LOSS_{it} + \beta_6 BOARD_MEETINGS_{it} + \beta_7 BOARD_SIZE_{it} + \beta_8 BOARD_DIVERSITY_{it} + \beta_9 BOARD_INDEPENDENCE_{it} + \beta_{10} CEO_DUALITY_{it} + \beta_{11} AC_INDEPENDENCE + \mu_{it} + \varepsilon_{it}$.

Finally, the moderating effects of corporate governance mechanisms are captured in the third regression model (*Model 3*), as a result of the interaction between earnings management (DA) and BOARD_MEETINGS, BOARD_SIZE and BOARD_INDEPENDENCE, estimated as follows:

$ROA_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 COMPANY_SIZE_{it} + \beta_3 LEV_{it} + \beta_4 LN_EMPLOYEES_{it} + \beta_5 LOSS_{it} + \beta_6 BOARD_MEETINGS_{it} + \beta_7 BOARD_SIZE_{it} + \beta_8 BOARD_DIVERSITY_{it} + \beta_9 BOARD_INDEPENDENCE_{it} + \beta_{10} CEO_DUALITY_{it} + \beta_{11} AC_INDEPENDENCE + \beta_{12} BOARD_MEETINGS_{it} * DA_{it} + \beta_{13} BOARD_SIZE_{it} * DA_{it} + \beta_{14} BOARD_INDEPENDENCE_{it} * DA_{it} + \mu_{it} + \varepsilon_{it}$.

4. Results

4.1 Descriptive Statistics and Correlation Analysis

Figure 2 summarises the descriptive statistics for dependent, independent and control variables, presenting results for the main statistical indicators. Board independence (BOARD_INDEPENDENCE) stands out with an average value of 57.69, other representative values being counted for the number of board meetings (BOARD_MEETINGS), gender diversity (BOARD_DIVERSITY), and the percentage of independent members in the audit committee (AC_INDEPENDENCE). Two dummy variables are included in the sample: one of them is independent (CEO_DUALITY) and indicates if the chairman of the Board and the CEO are the same person, while the other one is a control variable (LOSS), creating a clear picture of companies' profitability, depending on their profit or loss in the reporting period. These results may allow for comparability with prior studies conducted by Adeneye et al (2024), Boachie & Mensah (2022), and Gerged et al (2020).

Variable	Obs.	Mean	Std. Dev.	Min	Max
ROA	3,265	0.0201	0.1117	-0.6818	0.2843
DA	3,251	0.0027	0.072	-0.2931	0.3362
BOARD_MEETINGS	2,921	10.644	5.1547	4.00	33.00
BOARD_SIZE	3,263	9.1848	3.9083	1.00	28.00
BOARD_DIVERSITY	3,263	32.2361	13.7616	0.00	80.00
BOARD_INDEPENDENCE	3,263	57.6853	27.6265	0.00	100
CEO_DUALITY	3,265	0.2493	0.4327	0.00	1.00
AC_INDEPENDENCE	3,000	73.1259	28.4498	0.00	100
COMPANY_SIZE	3,265	21.2819	1.9711	14.4311	27.0583
LEV	3,265	0.5911	0.2173	0.0001	3.6356
LN_EMPLOYEES	3,239	8.1644	2.0582	0.6931	13.4884
LOSS	3,265	0.781	0.4136	0.00	1.00

Figure 2: Descriptive statistics

Figure 3 provides the results for parametric coefficients (Pearson) and their significance at 0.05 level. Negative and significant correlations are identified between ROA and corporate governance mechanisms related to number of board meetings (BOARD_MEETINGS), the percentage of independent members in board (BOARD_INDEPENDENCE), comparable with the values exposed in existing literature (Akter et al, 2024; Gull et al, 2018).

Furthermore, a negative association is found between financial performance (ROA) and earnings management measured by discretionary accruals (DA). The negative association identified for earnings management is in accordance with results highlighted by Adeneye et al (2024), who study the influence exerted by earnings management on ESG performance. Contrary results are showed for board members' number (BOARD_SIZE) and CEO chairman duality (CEO_DUALITY), these variables being positive correlated with financial performance at 0.05 level.

Variable	(1)	(2)	(3)	(4)	(5)	(6)
1. ROA	1.0000					
2. DA	-0.1628**	1.0000				
3. BOARD_MEETINGS	-0.1625**	0.0471**	1.0000			
4. BOARD_SIZE	0.0689**	-0.0288	-0.1289**	1.0000		
5.BOARD_DIVERSITY	0.0218	0.0364**	0.0141	0.2108**	1.0000	
6. BOARD_INDEPENDENCE	-0.0511**	0.0337	0.1888**	-0.1179**	0.1251**	1.0000
7. CEO_DUALITY	0.0700**	-0.0273	-0.0640**	0.1317**	0.1238**	-0.0903**
8. AC_INDEPENDENCE	-0.0222	0.0194	0.1336**	-0.0971**	0.0762**	0.7184**
9. COMPANY_SIZE	0.2664**	-0.0002	-0.1069**	0.6148**	0.2097**	0.0241
10. LEV	-0.1627**	-0.0054	-0.0294	0.1927**	0.0719**	-0.0690**
11. LN_EMPLOYEES	0.2526**	-0.1084**	-0.1801**	0.5408**	0.1837**	-0.0455**
12. LOSS	0.6800**	-0.0212	-0.1360**	0.0522**	0.0657**	-0.0069
Variables						
7. CEO_DUALITY	1.0000					
8. AC_INDEPENDENCE	0.0273	1.0000				
9. COMPANY_SIZE	0.1031**	0.0177	1.0000			
10. LEV	0.0600**	-0.0954**	0.2430**	1.0000		
11. LN_EMPLOYEES	0.1097**	-0.0518**	0.7772**	0.3325**	1.0000	
12. LOSS	0.0449**	0.0009	0.2071**	-0.0944**	0.2087**	1.0000

*** p<0.05*

Figure 3: Correlation matrix

4.2 Multivariate Regression Analysis

The dataset with multilevel structures is used for testing the three research hypotheses, based on multilevel panel regression with random intercept modelling, as mentioned in Section 3.3, fixed-effects for year and industry being considered, similar with Nguyen, Kim & Ali (2024), Boachie & Mensah (2022) and Feng & Huang (2020). Model 1 presents the results for the independent and control variables, while Model 2 is complemented by corporate governance characteristics. Model 3 is further extended with interaction variables between corporate governance mechanisms and earnings management, to emphasise the moderating effects.

Figure 4 summarises the results for multivariate relationship between earnings management and financial performance, with the moderating influence of corporate governance mechanisms. DA is negatively and statistically significant at 0.05 level related to financial performance (ROA), indicating that companies strongly engaged in earnings management techniques reduce their financial performance. Thus, these findings validate the first research hypothesis (RH1). The control model (Model 1) highlights a strong and statistically significant influence of company's characteristics, such as size, number of employees, and profit or loss reported. These results are in line with prior literature conducted by (Akter et al, 2024; Nguyen, Kim & Ali, 2024), while negative influence is identified for financial leverage (LEV), in line with Boachie & Mensah (2022) and contrary to Akter et al (2024), Adeneye et al (2024) and Han, Ding & Zhang (2022).

All extended models confirm the positive and statistically significant influence at 0.01 level of control variables, except for financial leverage (LEV). Moreover, the negative impact of earnings management (DA) on financial performance is maintained in Model 2 and Model 3. Thus, RH1 is supported.

Variable	Model 1		Model 2		Model 3	
Dependent variable: ROA	β	t-stat	β	t-stat	β	t-stat
DA	-0.074***	(-4.472)	-0.086***	(-4.819)	-0.129*	(-1.904)
LEV	-0.129***	(-15.152)	-0.127***	(-12.924)	-0.125***	(-12.726)
COMPANY_SIZE	0.010***	(4.749)	0.011***	(4.737)	0.010***	(4.676)
LN_EMPLOYEES	0.003*	(1.680)	0.005**	(2.265)	0.005**	(2.281)
LOSS	0.116***	(36.278)	0.109***	(32.850)	0.109***	(32.897)
BOARD_MEETINGS			-0.001***	(-5.031)	-0.001***	(-4.898)
BOARD_SIZE			-0.002***	(-3.389)	-0.002***	(-3.351)
BOARD_DIVERSITY			-0.000	(-0.673)	-0.000	(-0.707)
BOARD_INDEPENDENCE			-0.000**	(-2.449)	-0.000**	(-2.480)
CEO_DUALITY			0.005	(1.294)	0.005	(1.340)
AC_INDEPENDENCE			0.000	(0.792)	0.000	(0.810)
BOARD_MEETINGS*TA					0.001	(0.171)
BOARD_SIZE*TA					0.015***	(3.047)
BOARD_INDEPENDENCE*TA					-0.001**	(-2.369)
Constant	-0.221***	(-3.959)	-0.201***	(-3.635)	-0.197***	(-3.608)
Observations	3,225		2,706		2,706	
Number of companies	1,160		1,011		1,011	
R-squared	0.5118		0.5058		0.5121	
Year fixed-effect	Yes		Yes		Yes	
Industry fixed-effect	Yes		Yes		Yes	

**** p<0.01, ** p<0.05*

Figure 4: Multivariate regression results

The relationship between financial performance and corporate governance characteristics is reflected through baseline regression model (Model 2), which illustrates negative influences at 0.01 level (BOARD_MEETINGS, BOARD_SIZE) and 0.05 level (BOARD_INDEPENDENCE). These findings are validated by Model 3 and suggest that financial performance may decrease as the number of board meetings and board members increases. However, research results indicate that there is a lack of a statistically significant impact of the interaction between earnings management and total number of board meetings on financial performance. Hence, RH2 is not supported. The influence exerted by number of board meetings is contrary to Kjærland et al (2020), and Gull et al (2018), while the negative impact of board size is contrary to results highlighted by Adeneye et al (2024), and in line with Feng & Huang (2020).

Furthermore, according to Model 3, the regression estimation emphasises that the moderating influence of board size is significant and positive in the relationship between financial performance and earnings management, while for the interaction between earnings management (DA) and number of independent board members (BOARD_INDEPENDENCE), the impact exerted is negative. Consequently, RH3 and RH4 are supported by the research results, indicating on the one hand, that earnings management techniques tend to be applied in companies that stand out with larger boards. On the other hand, it is suggested that a higher number of independent board members may lead to avoidance of earnings management practices, ensuring financial performance achievement. These findings are contrary to Boachie & Mensah (2022), who found that corporate governance quality has a positive influence on earnings management-financial performance relationship.

5. Conclusion

The role of earnings management in the relationship with financial performance is a long-discussed topic, representing a challenge in the scientific literature. These statements are emphasised by prior research conducted by Ghafran, O'Sullivan & Yasmin (2022); El Diri, Lambrinoudakis & Alhadab (2020). The originality of this research is ensured by including in the analysis corporate governance mechanisms as moderating variables in the relationship between earnings management and financial performance (number of board meetings, board size, and board independence). The theoretical framework is based on agency and legitimacy theories, reflecting that the specifics of entrepreneurial environment may be strongly influenced by the tendency to apply earnings management techniques, complemented by the adoption of several corporate governance mechanisms. Thus, the relationship between financial performance and discretionary accruals may be attributed to several board characteristics, emphasising that shareholders could be more interested in companies that encourage corporate governance quality, being involved in adopting best practices to strengthen their legitimacy in the socio-economic context.

The baseline research hypothesis is validated as a result of the negative influence exerted by earnings management on financial performance maintained in the three regression estimations. Except for financial leverage, the control variables have a positive and significant impact, highlighting that financial performance may be attributed to company size (measured based on the natural logarithms of total assets and number of

employees) and reported information regarding net income (profit/loss). The number of board meetings, board size, and board independence exert a negative and statistically significant influence, highlighting that the achievement of financial performance may be reduced if there are more board meetings in one year, as well as a larger number of members on boards. Board diversity exerts a negative, but not significant influence. Furthermore, the achievement of financial performance is not attributed to CEO duality and audit committee independence. Considering the moderating effects of corporate governance characteristics on the earnings management-financial performance relationship, the findings' summary suggests a stronger tendency to apply earnings management techniques by companies with larger boards. On the contrary, earnings management practices are slashed in companies with a higher number of independent board members.

This study contributes to the scientific literature by extending the debate on earnings management impact on financial performance, considering the moderating effects of corporate governance and controlling for companies' characteristics. Muchmore, this study is a useful resource for regulators and shareholders, who may notice that designing and adopting best practices in corporate governance could be an effective decision to limit the companies' opportunistic earnings management behaviours.

One of the limitations is represented by short time frame analysis (period between 2020 and 2023), together with the scant amount of data reported for the year 2023. Moreover, another limitation may be attributed to the single variable used for financial performance measurement. Due to the limitations, future research horizons may be considered. First, an extended time frame could provide a comprehensive overview of the research topic and may allow comparison analyses between different periods, geographical areas, and industries. Second, in the analysis, complementary variables for the measurement of financial performance could be included, such as return on equity or Tobin's Q ratio. Third, by choosing samples from economies with similar background, a comparative analysis across the countries may be conducted (Akter et al, 2024). Last, but not least, an extended approach of the analysis may offer new insights considering the influence exerted by corporate governance mechanisms such as legal and political systems in the corporate disclosure and earnings management nexus (Gerged et al, 2020).

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Organic Community Leadership: An Integrated Perspective

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Abstract: Community, characterised by reciprocity and mutuality, represents one of the fundamental bases upon which society is built. Community leadership is a distinct leadership style that refers to civic-minded individuals who voluntarily and organically self-organise and devote their efforts towards leading issues of importance within their communities. This organic community leadership is a *'collective relational phenomenon'* that is favoured in dynamic environments; the voluntary action of people within a community can help tackle community challenges at scale, with speed, and result in grassroot innovations. Despite its positive role in society, community leadership faces additional challenges to leadership in organisational settings, including understanding the spatial boundaries of a domain which spans different social fields, fostering linkages among groups where there is no formal authorisation, being receptive to varying ideologies, capabilities, and divergent viewpoints to foster collaboration, and managing unequal power distribution and divergent political agendas. The above opportunities and challenges posed by community leadership has meant that the past few decades have seen growing attention placed on the study of community leadership. Gaps remain in the body of knowledge in supporting the effective execution of community leadership. Authors argue that the leadership literature remains fragmented, many leadership frameworks/models remain agnostic of context, and there is a need for improved understanding of where and by whom leadership is enacted. Most studies to date concentrate on discrete aspects of the community leadership sphere. A more integrated perspective on organic community leadership is needed. Based on a SLR, this paper presents an integrated framework for organic community leadership. The framework emphasises human agency and fostering the collective efficacy of a broad coalition of community stakeholders to work towards a common purpose. It recognises the legitimisation process of emerging leaders and key leader behavioural considerations, framed within the context of fostering an appropriate environment for community cohesion, collaboration, and action. Thus, this paper takes a step towards providing a more holistic stance on the community leadership phenomenon.

Keywords: Community Leadership, Organic Leadership, Community Leadership Framework, Leader Legitimacy, Leadership Environment, Leader Behaviour.

1. Introduction

Emphasis on leadership context (Beer et al, 2019; Davies, 2007; Lind and Ekwerike, 2022; Liu and Han, 2023), reflecting the demands, constraints, and choices a leader is faced with, has consumed much of the leadership literature in the past few decades (Bolden et al, 2020). Leadership is depicted as a relational and dynamic process of influence between people and can be viewed as "*a property of the collective, not the individual*" (Cullen-Lester and Yammarino, 2016). Community leadership, as emphasised in this paper, is an important component of collective leadership and is distinct from other leadership contexts (Ashta and Parekh, 2023; Martiskainen, 2016).

The social institution of community was defined by Wilkinson et al (1991) as "*a process of interrelated actions through which residents express their common interest in local society*". Community, characterised by reciprocity and mutuality (Pigg, 1999), represents one of the fundamental bases upon which modern society is built (Sander and Putnam, 2010). The corner stone of community is not just the physical space the community occupies (Pigg, 1999) but the psychological bonds that bind people together (Lamm et al, 2017) and hence, the concept of community is inseparable from the concept of social capital and the networks and relationships formed among individuals within a community (Arthur, 2022; Ashta and Parekh, 2023). Community leadership refers to those civic-minded individuals – activists, education leaders, religious leaders, voluntary sector leaders, who devote their efforts towards leading issues of importance within their communities (Hambleton, 2015). Such individuals often voluntarily self-organise in response to adverse events or challenges (Lough, 2021). This bottom up voluntary, organic community leadership is a manifestation of place leadership and refers to "*people's relational capacity towards initiating positive change in their communities*" (Cloete and Salazar, 2022).

Voluntary organic community leadership is the favoured leadership style in dynamic environments that call for innovative leadership responses and quick resolution to problems. The voluntary action of large groups of people can help tackle community challenges at scale and with speed and result in grassroot innovations (Martiskainen, 2016; Md Rami et al, 2022). It gives rise to a sense of shared solidarity or one-ness with others, where people can mutually help those they interact with in addressing a community problem in a manner that is more adaptive and responsive to local needs (Lough, 2021). Nonetheless, community leadership faces additional challenges to leadership in traditional organisational settings that have clearly defined boundaries and structures of positional

power (Canfield-Davis and Gardiner, 2017; Md Rami et al, 2022). As opposed to formal authority, leaders must rely on influence exercised through extensive interactions with members of the community, many of whom have different interests and points of view (Castle et al, 2017; Lamm et al, 2017). Hence, leaders need to be receptive to the varying ideologies, capabilities and networks within a community (Davies, 2007) and navigate divergent viewpoints to foster collaboration (Pigg, 1999).

Thus, community leadership has much to offer but is not without some challenges. Gaps remain in the existing body of knowledge in supporting the effective execution of community leadership (Morgan et al, 2024). Bolden et al (2020) suggest that the leadership literature remains fragmented. Ayres (2024) argues that there is a need for improved understanding of where leadership is enacted and by whom it is enacted. Despite recognition of the importance of leadership context, Lamm et al (2017) suggest that many leadership frameworks/models remain agnostic of context. Most studies on community leadership to date concentrate on discrete aspects of the community leadership sphere and hence, a more integrated, holistic view of voluntary, organic community leadership is needed. This paper seeks to address this aim by answering the following research question: *How can the various strands of previous community leadership research be synthesised into a holistic, integrated perspective?*

The structure of this paper is as follows: Section 2 details the research methodology which is based on undertaking a systematic literature review (SLR) in order to identify the key community leadership concepts in the existing literature. Section 3 presents results of this SLR conceptualised into a holistic, integrated framework. Section 4 discusses the key components of this framework in light of the current literature, while section 5 draws the paper to a conclusion.

2. Research Methodology

The approach of this study involved a concept-centric examination of the existing community leadership literature. These key concepts were identified through following a systematic literature review (SLR) approach. The SLR adhered to the 8 steps proposed by Okoli (2015).

Table 1: Research methodology

SLR steps	Approach adopted
1) *Purpose of the literature review*	Identify relevant community leadership concepts in the literature.
2) *Protocol and training*	Conduct focused, systematic literature search supported by development of a concept matrix (Webster and Watson, 2002).
3) *Searching for the literature*	Search for articles containing the term 'community leadership' in paper title and abstract in scholarly peer reviewed journal articles (2014-2024).
4) *Practical screen*	Read identified papers to verify relevance. Analyse references of those papers to identify additional seminal sources (85 papers selected).
5) *Quality appraisal*	Evaluate eligible papers in terms of quality.
6) *Data extraction*	Isolate relevant material to help answer the research question; extract all concepts pertaining to community leadership.
7) *Synthesis of studies*	Undertake content analysis of material extracted. Use a concept matrix to create a high-level categorisation of leadership themes, classify concepts accordingly, and conceptualise into an integrated framework (Figure 1).
8) *Writing the review*	Write up of review detailed in section 4, presented as a discussion of framework components.

3. SLR Results – a Holistic Integrated Conceptual Framework

Figure 1 presents the holistic, integrated conceptual framework derived from the key concepts uncovered during the SLR and the author's high-level categorisation of these concepts into a series of community leadership themes. The framework reflects upon the perceived legitimacy of community leaders based on their personal actions and attributes, sources of power, and navigation of political agendas. The fostering of an environment of interconnectedness and interdependence, grounded in relationship building, boundary spanning, teamwork,

empowerment, collaboration, cohesiveness, and collegiality is pivotal in accomplishing the community vision and goals, in uniting the community as a collective, and in creating positive psychosocial experiences that motivate community members towards the common purpose. This environment is the context in which community leaders exercise key task and relation behaviours to drive transformation and change at the community level.

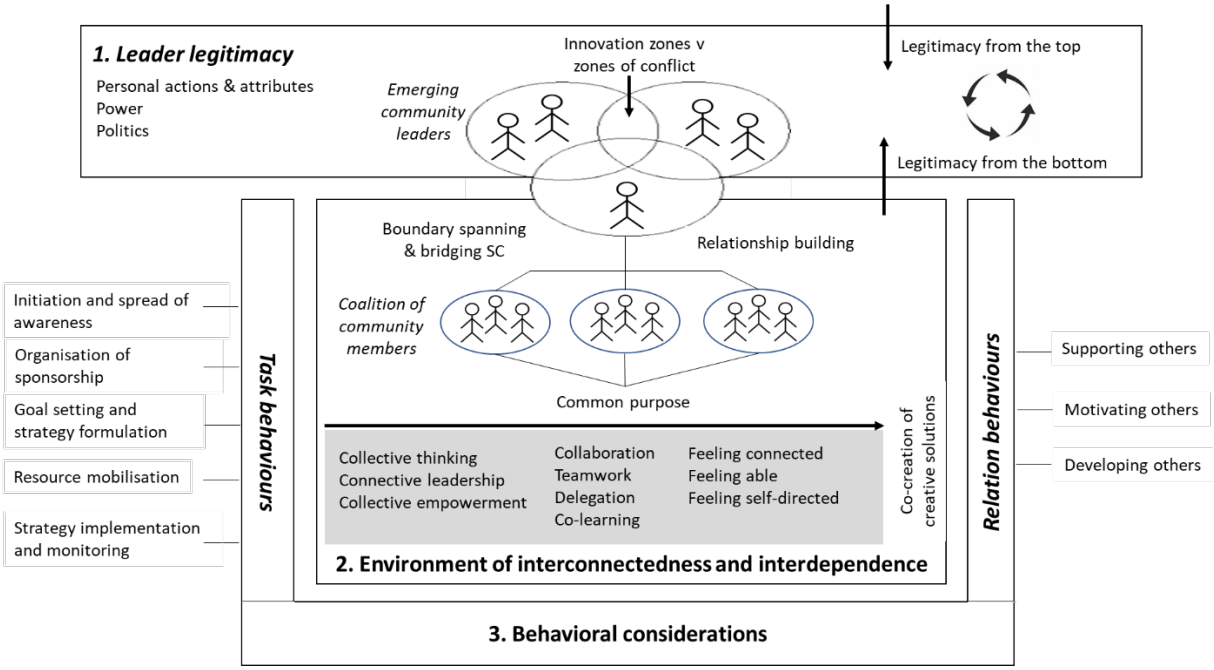

Figure 1: Holistic, integrated conceptual framework on voluntary organic community leadership

4. Framework Discussion

4.1 Component 1 – Leader Legitimacy

Based on literature analysis, perceived leader legitimacy can be regarded as a function of personal actions and attributes that inspire the collective; power; and politics.

Personal actions and attributes: Much recent thinking suggests that community leadership emerges based on social, relational, and contextual dynamics that reflect community members' ongoing interactions, shared experiences, emerging relationships, and collective practice. While this emphasis diverts attention away from individuals, individual actions are still required to bring this type of leadership to fruition (Cloete and Salazar, 2022). Certain individuals may be more predisposed to positions as leaders based on their personal experiences such as early childhood socialisation to leadership, gradual life transitions, or impactful life turning points (Morgan et al, 2024). In line with Banyai's (2009) insights, community leadership is evolutionary – specific individuals "*start to take action, facilitate growth of community capacity which fosters more leadership initiatives*". Thus, individuals are the initial starting point who ultimately inspire others (Cloete and Salazar, 2022), and in order to do so, these community leaders must possess a credible reputation (Liu and Han, 2023). The literature suggests that the most prolific community leaders are 'change agents' (Ashta and Parekh, 2023; Ayres, 2024) or 'catalysts' (Wu, 2021) who 'lead by example' (Liu and Han, 2023). In doing so, leaders must be guided by values such as truthfulness, empathy, respect, fairness, humility, authenticity, and self-discipline, and demonstrate ethical and moral behaviour to inspire others to do the same (Liu and Han, 2023; Rhinesmith et al, 2022). They require high self-awareness, persuasion, judgement, and adaptive capacity, the courage to act in a manner that is sensitive to political agendas, and accountability for their actions. These personal attributes and qualities are regarded as an 'entry condition' in order to be perceived as legitimate leaders (Lamm et al, 2016; Ridzuan et al, 2019).

Power: Community leaders require a capability to influence others and therefore access to various sources of power is an important determinant in what community leaders can accomplish (Beer et al, 2019; Lind and Ekwerike, 2022; Sotarauta, 2016). Sotarauta (2009) regards power as a latent resource that must be freed by

people exercising their social skills to persuade others to do things they may not ordinarily do. In exercising power, Huxham and Vangen (2020) regard leader behaviour as a form of manipulation whereby leaders use their power to shape collaborative activities and produce intended effects. These effects may include, for example, leaders' abilities to pull together a fragmented group of community members and influence them to embrace reciprocity and mutuality in working towards a common purpose (Pigg, 1999; Sotarauta, 2009). Power dynamics within a community can pose a considerable impact on the engagement of community members, hence a focus on building collective power can better serve the common good (Lind and Ekwerike, 2022; Nel, 2018). According to Canfield-Davis and Gardiner (2022), "*the creative use of power by abdicating power builds capacity for action*". Overall, influence needs to be judiciously exercised cognisant of the broader contextual factors that may be at play (Mumford et al, 2000).

Politics: Due to the potential to influence social change, the issue of politics is pivotal to the enactment of community leadership (Grocke et al, 2022). Benit-Gbaffou and Katsaura (2014) express it nicely when they discuss the need to understand "*what shapes and frames community leaders' actions and choices, and what their 'room for manoeuvre' is in the complex and constrained political terrain they both evolve in and contribute to shaping*". Hambleton and Howard (2013) discuss three overlapping aspects of leadership in a locality which reflect different sources of legitimacy: 1) political leadership reflecting people formally elected by citizens; 2) managerial/professional leadership reflecting public servants; and 3) community and business leadership reflecting civic-minded individuals who voluntarily give their energy to community leadership activities. Politics are important across all three of these aspects. The overlap between these groups may become 'innovation zones' that can foster creative problem solving through effectively amalgamating different perspectives or may become 'zones of conflict' where disputes between alternative viewpoints and power struggles between competing interests abound (Hambleton and Howard, 2013).

Thus, community leaders can be regarded as a type of political leader who have established their political legitimacy and act as brokers or intermediaries between different groups. This legitimacy is dependent on the political capital leaders have accumulated, as demonstrated by their political skills, ability to negotiate, debate, and so on. But because of the informal nature of their role, and because of the potential for antagonism, community leaders need to constantly reassert their political legitimacy both from the bottom and the top. Legitimacy from the bottom refers to that provided by civil society - their constituencies/followers who provide leaders with an informal mandate, while legitimacy from the top refers to that provided by the institutions from which resources will be derived or power will be gained to shape specific local projects (Benit-Gbaffou and Katsaura, 2014). Legitimacies from the bottom and the top can be both mutually reinforcing but tensions or contradictions can arise between leaders' loyalties. In these instances, leaders may engage in '*double dealings*' (Bourdieu, 1991) to conciliate their allegiances to both bottom and top.

4.2 Component 2 – Environment of Interconnectedness and Interdependency

Inspired by principles of the African leadership practice of Ubuntu, in communities, goals are realised as a result of the interconnections and interdependencies forged with others and the will for collective efforts towards a common purpose (Adomah-Afari, 2015; Setlhodi, 2019). Community leadership may be regarded as a collective process of social construction (Bencke et al, 2020); it recognises the importance of social dynamics, emotional connections, and building relationships, trust, and reciprocity (Arthur, 2022; Ashta and Parekh, 2023; Cloete and Salazar, 2022; Lind and Ekwerike, 2022). Weaving "*webs of interaction*" across new and existing networks and strengthening those connections is at the core of community leadership (Cloete and Salazar, 2022). Effective relationship building, through for example networking and interacting, supports the creation of a coalition of community members who are willing to participate and work towards a common purpose through collective social processes and behaviours (Adomah-Afari, 2015; Bolden et al, 2020; Cullen-Lester and Yammarino, 2016; Majee et al, 2017). A critical aspect of this is what Kirk and Shutte (2004) refer to as '*leading change through dialogue*'. Effective dialogue or '*collective thinking*' helps to develop a field of genuine inquiry that is conducive to sustained collaboration. Focus is placed on exploring creative ways of thinking and doing where diversity is embraced, where individuals are respectful and sensitive of cultural differences, and where different voices and diverse points of view can be heard (Huxham and Vangen, 2020; Kirk and Shutte, 2004; Setlhodi, 2019).

The nurturing of such an environment requires community leaders to act as boundary spanners in facilitating individuals from different social groups in coming together to tackle a shared issue/challenge (Bolden et al, 2020; Uhl-Bien and Arena, 2018). In their role as boundary spanners, community leaders reach out to others in order to foster community support, mobilise community expertise, and leverage the legitimacy of others for the benefit of the community cause (Beer et al 2019). The emphasis is less on controlling and directing and more on

enabling and stimulating community members to take ownership and responsibility as co-creators of solutions. Leaders create adaptive spaces where they and different community groups can navigate through conflict and forge new partnerships and ways of working (Bolden et al, 2020; Canfield-Davis and Gardiner, 2017; Uhl-Bien and Arena, 2018). Through dialogue, conflict between different individuals is aired, defensive interactions are reduced, and understanding is fostered (Kirk and Shutte, 2004). This bridge building and boundary spanning is a key enabler of the concept of '*connective leadership*' (Kirk and Shutte, 2004) which is focused on fostering effective team work, cooperation, and cohesiveness and enabling individuals to connect with and collaboratively pursue their common goals (Kirk and Shutte, 2004; Liu and Han, 2023; Lough, 2021).

Individuals relate to others interdependently when exercising their roles and community leaders need to empower this collective to act on their own initiative (Arthur, 2022; Lamm et al, 2017). '*Collective empowerment*' (Kirk and Shutte, 2004) helps individuals to "*find their place, their role, their identity and their voice in the system*" (Kirk and Shutte, 2004) and is achieved through delegating and sharing leadership responsibility, and fostering co-learning environments (Huxham and Vangen, 2020) where others in the community are enabled to act. This again has undercurrents of the African concept of Ubuntu in that a "*person can only be a person through others*" (Kirk and Shutte, 2004).

The importance of fostering an interconnected and interdependent environment is discussed by Aked (2015). His framework's contribution on volunteer relationships is important in the community leadership space, where the actions of many are voluntary in nature. In an interconnected and interdependent environment, people appreciate the importance of working together (Hambleton and Howard, 2013) and have the freedom to develop responses that are apposite to the issues faced (Kirk and Shutte, 2004). The sense of a collective outlook, shared identity, and inclusivity promotes collegiality, team spirit and a sense of social responsibility and emotional connection (Arthur, 2022; Martiskainen, 2016; Setlhodi, 2019). There is a sense of feeling connected and a willingness to engage in socially meaningful change, feeling able through the act of doing together, and feeling self-directed where network reciprocity encourages people to maintain autonomy in how they interact with others (Aked, 2015).

4.3 Component 3 – Behavioural Considerations

In the context of an environment of interconnectedness and interdependence, leaders engage in a range of task and relation behaviours (Yukl et al, 2002) to foster and sustain that environment and to drive change and transformation.

***Task behaviours*:** The task behaviours that underpin effective community leadership are categorised according to a refinement of Lamm et al's (2016) theoretically-based model of community leadership and their expansion upon Pigg's (1999) five primary activities to task accomplishment. They include:

- ***Initiation and spread of awareness*:** Community leadership typically emerges when individuals take initiative and spread interest around an issue of particular relevance to a community (Bencke et al, 2020; Ridzuan et al, 2019). Dialogue and analysis of the root causes of the community challenge are encouraged (Cloete and Salazar, 2022). Skills in listening, seeking, processing, and clarifying information pertaining to the issue and in selecting appropriate communication channels are required in order to stimulate other community members to take an interest (Lamm et al, 2016).
- ***Organisation of sponsorship*:** Organising sponsorship of and buy in to the issue requires that prolific community leaders have a clear purpose, and provide clarity and structure around the identified issue through coherent planning and organisation (Yukl, 2002, Pigg, 1999). Effective community leaders tolerate uncertainty surrounding the issue and use their reputation to inspire the involvement of others (Lamm et al, 2017; Van Wart, 2003).
- ***Goal setting and strategy formulation*:** Community leaders create a shared vision (Ashta and Parekh, 2023; Cloete and Salazar, 2022), set appropriate goals (Lamm et al, 2017; Mumford et al, 2000), and formulate an appropriate strategy to achieve these (Wu, 2021). Group outcomes take priority over individual goals or private interests, and decision-making is inclusive and reflective of multiple perspectives (Ncube, 2010; Pigg, 1999). A "*massification process of the vision*" (Bencke et al, 2020) inspires a sense of follower loyalty, commitment, and responsibility, and provides meaning and optimism in working towards a common aspiration.
- ***Resource mobilisation*:** Resource co-ordination and mobilisation require an understanding of how to best utilise resources to accomplish established goals but in the community context this is more challenging; the leader needs to act as a group representative who is accepting of member freedom,

rather than as a positional leader who can directly manage members (Ashta and Parekh, 2023; Liu and Han, 2023; Pigg, 1999). Role analysis seeks to connect individual goals with those of the broader community and select the personal behaviours and actions that helps contribute to goal attainment. It is a process of "*role finding, role making, and role taking*" (Kirk and Shutte, 2004), whereby individuals draw on their personal experiences, skills, values, and power when they exercise leadership in their role.

- ***Strategy implementation and monitoring*:** The implementation of strategy requires community leaders to build final consensus among the group (Bencke et al, 2020; Cloete and Salazar, 2022). Trust building, sense of community, and sensitivity to community politics are key aspects of this journey. Significant personal resources in the form of commitment, skill, and energy to championing the cause are required by community leaders. Huxham and Vangen (2020) state "*it is paradoxical that the single-mindedness of leaders appears to be central to collaborative success*". The actual implementation phase requires appropriate environmental trend monitoring, goal monitoring, progress checking, and action taking to ensure a successful outcome (Majee et al, 2017). Commitment is demonstrated through, for example, management of conflict (Lin et al, 2017) and responsiveness to external environmental influences (Mumford et al., 2000).

***Relation behaviours* -** The relation behaviours that underpin effective community leadership are categorised according to Lamm et al's (2016) three core leadership functions.

- ***Supporting others*:** Supporting community members, whether through providing ongoing encouragement or assistance in problem solving is one of the core responsibilities of a leader (Lamm et al, 2016; Yukl et al, 2002). Leader consideration, that is understanding, respecting, and caring for followers and providing individualised support, is almost universally valued. Community members are deemed to be more content when they are led in a manner that shows sensitivity for their personal concerns (Lamm et al, 2016). These supporting actions are critical in fostering and maintaining good relationships and in managing conflict, as discussed previously. Overuse of support, however, can result in follower responsibilities being deferred to their leaders (Lamm et al, 2016).
- ***Motivating others***: Motivation is an important catalyst in steering community members towards their common objectives (Md Rami et al, 2022). In itself, the shared vision inspires community member loyalty and optimism and leaders who espouse this shared vision are viewed as "*visionary heros*" (Lamm et al, 2016). The setting, aligning, and articulating of goals, while applying an appropriate level of pressure to ensure goal attainment is a well-researched mechanism for motivating others (Kouzes and Posner, 2002). The fostering of an appropriate environment for community leadership also has a motivating effect whereby delegation of leader responsibilities and community member empowerment fosters greater perceptions of partnership, co-learning, and collective decision-making (Adomah-Afari, 2015; Lamm et al, 2016).
- ***Developing others***: Leader and community member capacity building opportunities help individuals to develop the skills needed for participating in collective decision-making (Arthur, 2022; Morgan et al, 2024). Learning is critical for all aspects of leadership, whether through benchmarking, communities of practice, experience learning, informal learning, learning by doing or by interacting (Bencke et al, 2020). Effective community leaders play an enabling role in nurturing growth. They provide various developmental mechanisms including, for example, mentoring, coaching, counselling, training, feedback, and advise (Cloete and Salazar, 2022; Lamm et al, 2017). Community leaders also provide intellectual stimulation and influence their followers to think creatively "outside the box". Recognising and praising the contributions of community members and noting significant achievements can have a great developmental impact (Lamm et al, 2016), influencing positive personal change.

5. Conclusion

This paper presents an integrated perspective on community leadership derived based on a SLR of the expansive community leadership literature to date. It draws together the various strands of existing research to explain community leadership under three thematic categories. Across the framework, the emphasis is on human agency and fostering the collective efficacy of a broad range of community stakeholders to work towards a common purpose. Thus, this paper takes a step towards providing a more holistic stance on the community leadership phenomenon. The author encourages other researchers to test and refine this conceptual framework through empirical examination in community settings.

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The Legal Regime of Portuguese Higher Education Institutions: Contributions for Future Changes

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Abstract: The Portuguese higher education system is binary, divided into two subsystems, university and polytechnic, being regulated, since 2007, by the so-called RJIES (Legal Regime of Higher Education Institutions). The RJIES regulates the organic structure of the higher education institutions (HEIs) as well as the competencies of mandatory bodies, such as the general council, which is also given the power to elect the rector/president, another of the mandatory bodies. The RJIES, in place for 17 years, has not been revised since 2007 despite being subject of criticism and claim for changes. This paper presents a reflection for future changes to this RJIES regarding the process of electing the rector/president. This is noted and complained about by a wide range of the academic community – teachers, students, and non-teaching academic staff, in addition to other interested parties in universities and polytechnic institutes. Therefore, we present a brief review of the literature related to this topic, the results of survey and interviews carried out with top managers of Portuguese Higher Education Institutions (HEIs).The survey was completed online by a wide range of public HEIs managers (rectors and directors, presidents, vice-rectors and vice-presidents, pro-rectors and pro-presidents) and their *stakeholders* (teaching and non-teaching workers and students, through their representative structures, unions and student unions, and other leaders of professional and business associations). Interviews were also carried out in 2021, which remain completely current, given the fact that legal changes have not occurred so far. The results that will be presented indicate that changes should be made. Brief conclusions and a proposal for amendments to the current legislation, covering the rector/president election process, will be presented. It is advocated a new model of election of rector/president, the intervention of two different bodies, one of them being the general and supervisory council (new designation defended), with a composition mainly of external members, selected in a different way in relation to the current one.

Keywords: Higher Education; Portuguese Heis; Governance; Leadership; Legal Regime.

1. Introduction

The Portuguese Higher education system is binary, composed of universities and polytechnic institutes, both public and private, with more than 400000 students enrolled, which represents a huge increase of students since 1974. The analysis of the literature, particularly that resulting from the publication by Taylor, Ferreira, Machado, Santiago, & Brites Ferreira (2008), points out a clear demonstration of the existence of a diversity of higher education models. Nevertheless, from very early on (2012), criticism was raised against the organic model, particularly with regard to the general council (see, for all, Pedrosa, Santos, Mano, & Gaspar, 2012) and Amaral, Nazaré, Mourato, Sarrico, Cunha Serra, Redondo, Cabilhas, & Rodrigues (2023), which in general remained even though the legislative branch has not even attempted to change it, at least until 2022.

In 2021, as part of the expanded investigation, an extensive survey and fifteen interviews were carried out with various HEIs *stakeholders*, which are perfectly current as no changes have yet been introduced to the regulatory legislation. The results obtained then, regarding the organization of the HEIs, namely the general council, are presented. This paper seeks to analyse the current legal regime regarding one of the mandatory bodies – the general council – which assumes important functions in public HEIs (PHEIs), namely, and first of all, the election of the rector of the universities/president of the polytechnics.

In the conclusions, are summarized the proposals, regarding the process of electing the rector/president, regarding future legislative changes. It is important to mention that about a year ago the government at the time announced an independent commission to analyse and propose modifications, in consultation with all those involved and the defended model.

2. The Government System Resulting From Law No. 62/2007, of September 10 (RJIES)

The governance of PHEIs is now ruled by RJIES approved by the Law No. 62/2007, of September 10. This law came to standardize, although not completely, the Portuguese HEIs governance system (Bilau, 2011), (Oliveira, Peixoto, & Silva, 2014), (Lourenço, 2017). It is now up to the general council to elect the rector/president, as well

to approve changes to the statutes, powers that, until the entry into force of this new law, were responsibility of the university assembly or an assembly specifically elected for that purpose. In universities, many of the functions of the previous senate were transferred to the new general council and in polytechnic institutes there was a strengthening of the powers of this body, which was clearly reinforced. It is especially worth highlighting the fact that, as of the entry into force of this law, the role of the president of the general council and the rector/president no longer coincides. In fact, certainly resulting from the new functions that became the responsibility of the general council, namely the election of the rector/president, the legislator's option was to assign the presidency of the general council to one of the external members, elected by all and to whom the law attributed specific powers.

About the higher education institution, it can be seen that little has changed: the rector at the universities or president in the case of a polytechnic institute, the director, president or board of directors, in the case of other higher education establishments, the scientific council (or technical-scientific for polytechnics) and the pedagogical council, continue to be the bodies whose existence is mandatory. Also, namely the way in which the rector/president of PHEIs is elected, it should be noted that already in 2012 Pedrosa *et al* analysed these issues, presenting changes and suggestions. Nevertheless, in 2023, in the report commissioned by the government, the independent Commission chaired by Professor Alberto Amaral (Amaral et al., 2023) made several proposals regarding the election of the rector/president.

Here is a small summary of the most important from these reports:

a. Pedrosa et al.(2012), cite the presidents of the general councils and stated that the greatest importance of this body is manifested in the election of the rector/president, having suggested changes to the regime, such as the immediate suspension of the mandate of councillors candidate for rector/president, the articulation, in temporal terms, between the mandates of the rector/president and the general council, and protection from possible problems and conflicts between the general council and the rector/president.

b. Amaral et al. (2023), from the survey they also carried out, highlight that the majority of the respondents have a frankly negative opinion, not only in relation to the management and government model implemented by RJIES, but also in relation to the general councils and the form of election of the rector/president, where there is a huge majority (80%) in favour of his election by an extended assembly/college and that he be elected from among members of the institution, therefore registering that they are in favour of changing the current model.

3. The Survey of PHEIs *Stakeholders*, Interviews With Directors of HEIs and Reports

In this article, is presented, data collected from:

- A survey with a wide range of HEIs *stakeholders*;
- Interviews with fifteen former and current rectors/vice-rectors/pro-rectors/presidents/vice-presidents, ten of whom were nationals and five foreigners, even though, regarding the issue under discussion, only the nationals had answered;
- Reports analyses on Portugal from the OECD (OECD, 2019), CHEPS/CCISP (File, Weert, & Vossensteyn, 2013) and EUA/CRUP (Blattler, Rapp, Solà, Davies, & Teixeira, 2013) were analysed.

The proposed changes are therefore based on the conclusions of the survey, interviews and the aforementioned reports, as well as the authors' extensive experience in managing HEIs.

3.1 Survey

The survey carried out in 2021 and around 472 responses were received (using *Limesurvey*). This survey, answered online by a wide range of people responsible for PHEIs (rectors and presidents, vice-rectors and vice-presidents, pro-rectors and pro-presidents) and their *stakeholders* (academic, non-academic staff and students, through their representative structures, unions and student associations, and other leaders of professional and business associations), maintaining its relevance and, in part, confirmed by the survey also produced in 2023, by the Independent Evaluation Commission (Amaral et al., 2023).

Regarding the method of electing the rector/president, the following result was found:

Table 1: Legal constraints that affect the activities of PHEIs

Legal constraints that you experience, or that you understand to exist, that most affect the activity of HEIs	Disagree	Indifferent	Agree	Total
The responsibilities of the Rector/President provided for in the Legal Regime of HEIs (RJIES) are inadequate for the proper performance of the position	25.5	42.9	31.6	100.0

In other words, 31.6% agree that the responsibilities of the Rector/President provided for in the RJIES are inadequate for the good exercise of the position, a matter that is indifferent to 42.9%, so only 25.5% of respondents disagree with the statement in cause. Interestingly, the survey did not record, with regard to the process of electing the rector/president, any further position taken with real impact.

3.2 Interviews With ten top Directors of National HEIs

Regarding the interviews carried out and regarding agreement with the method of election/appointment of the rector/president, as can be seen from the following graph of the ten national directors interviewed, seven of the directors do not agree, two agree and one does not respond.

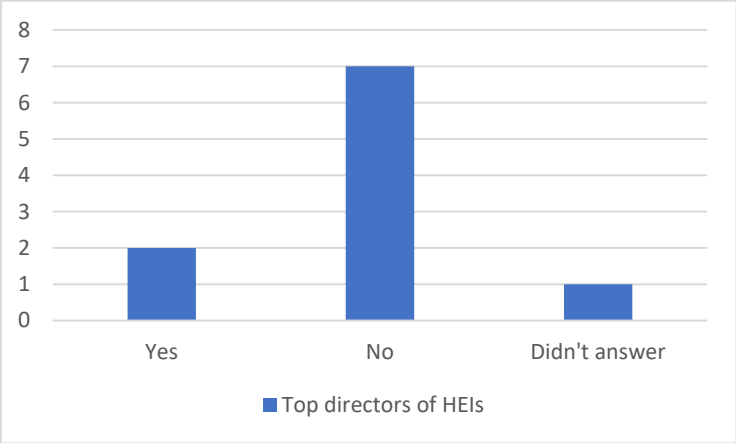

Figure 1: Agreement regarding the method of election/appointment of the rector/president

3.3 Review of the OECD, CHEPS/CCISP and EUA/CRUP REPORTS

Regarding the reports, particularly in the parts on who defend changes in the councils of HEIs, the following should be highlighted:

i) OECD – This report does not provide a detailed assessment of the powers of the HEIs management bodies, particularly those that the RJIES establishes as mandatory, much less whether they are adequate for the institution to carry out its mission with the greatest efficiency. Therefore, the report does not seek a concrete proposal to change the power of one or some of them. The assessments made are mainly in relation to the degree of autonomy of the institutions, including what the RJIES came to consecrate on what was called "organizational principles of the higher education system", on governance structures, new or revised, with participation significantly increased external resources (minimum 30%) in a General Council of 15 to 35 people (the highest decision-making body), designed to provide greater diversity in the organizational form and legal status of public institutions (namely the option of universities public institutions and polytechnics to become public foundations under private law), and also provided for the creation of consortia of institutions. Moreover, it is mentioned that RJIES changed the appointment procedures for university rectors and polytechnic presidents, who are elected in secret ballot for a four-year term (renewable once) by the general council (which is chaired by a member external) through a public call and public hearings, with the vacancy being open to candidates from outside the institution, and in the case of rectors, academics from other universities (inside or outside Portugal), and in the case of presidents also candidates from outside the University education. Finally, it is highlighted that RJIES aimed:

- to move the higher education system from elected to selected leadership;
- intended to simplify internal governance in terms of levels and structures;
- to reduce the size of key governance bodies;

- significantly increase the participation of external *stakeholders*;
- to increase institutional autonomy;
- to place universities and polytechnics under the same general regime and potentially crucially, offering the opportunity for universities and polytechnics to apply to become public foundations under private law – which would significantly expand their flexibility in managing human resources, spending non-public resources and disposing of assets (OECD, 2019, p. 140).

ii) CHEPS/CCISP – with regard to this report, the same thing happens as with the previous one, that is, the report does not provide a detailed assessment of the powers of the HEIs management bodies. In fact, in the seven possible public policy interventions aimed at strengthening the Portuguese polytechnic subsystem that *Conselho Coordenador dos Institutos Superiores Politécnicos* (CCISP) identified, there is none that deals with the optimization of management bodies. This study analysed a series of binary systems that have faced/are facing similar challenges and identified the main trends related to the seven CCISP policy issues previously mentioned File, Weert, & Vossensteyn (2013, p.123/124).

iii) EUA/CRUP – regarding the latter, it does not differ from what has already been mentioned with the other reports analysed here. It also does not specifically comment on the management bodies of HEIs, either in terms of It concerns commenting on how its functioning could be optimized, or proposing organic changes that could improve it. However, it appears that it pronounces on the degree of autonomy, as already seen, and on the review of the RJIES in which, specifically, to allow the implementation and incorporation of major reforms, they considered that the RJIES should not be reviewed until the next scheduled review date (2017). Moreover,, if changes to the legal framework are planned in the meantime, the degree of autonomy enshrined in current legislation should be maintained and reinforced (Blattler et al, 2013, p. 8). It was also recommended that the autonomies granted by RJIES by the government for a further period of five years, so that viable strategic planning could take place at institutional, regional and national levels, and that due impact assessment and wide consultation take place before any changes to the law were made, as well as the government commit to maintaining a stable legal framework which includes the existence of Foundations.

4. Proposed Recommendations for Changes of the RJIES

None of the results presented in the previous section surprise us either. In fact, for example, over time, the method of election/appointment of the rector/president has never been peaceful, namely whether it should be the result of a broad election, directly by the entire community, or indirectly, in this case by a greater or lesser number of participants. There have always been defenders of both solutions. In view of all these results, in addition to the perception that we have been building over the years and the importance of finding a solution that is feasible and easily accepted by HEIs, we believe it is necessary to propose the following recommendations regarding changes to the organization of institutions:

i) As a first principle, the PHEIs (of an associative or foundational nature) must be left to choose the organization they best consider adopting to pursue the purposes of that specific institution, simply defining "minimums", becoming recognised as such the bodies of the HEIs for auditing (until now already existing, but not included in the organic structure;

ii) In these "minimums" there will be a deliberation, control and supervision body (general and supervisory council) with a legally established maximum and minimum number of members, just as in associative-type PHEIs there will be an assembly, as opposed to the board of trustees existing in PHEIs foundation type, maximum bodies guaranteeing the greater autonomy that is sought to be granted to the HEIs and which assume powers hither to held by the responsible minister, and it is established that the election of members of the different bodies, whether representing or not, must be done by single-member election and not by lists;

iii) The rector/president body must be maintained for HEIs either a university or polytechnic nature, respectively, and the law does not provide for any further differences between university and polytechnic HEIs, other than those that may arise from the statutory autonomy of the institutions;

iv) External elements must be a majority in the bodies in which they participate, under penalty of seeing their role diminished or even neutralized, and the current form of co-optation must be changed, as well as ensuring that they are "true" external, it is that is, from outside the higher education system and are not linked to any national legislative body;

v) Finally to put an end to the current distortion of the general council, which is practically elected/chosen thinking about the personality to be elected as rector/president, this process must require the intervention of two bodies, one of which is responsible for proposing, through a selection process , a maximum of three names from among the candidates and at the end approve the election (assembly or board of trustees, which has the same powers as the first) and the other (general and supervisory council) who is responsible for electing/nominating from among the names proposed (a solution that is can be observed in countries such as Austria (Pedrosa et al, 2012), (Krüger, Parellada, Samoilovich, & Sursock, 2018).

In Table 2, recommendations for change are proposed, with regard to the election of the rector/president:

Table 2: Recommendations for changes of the RJIES

Article 80-B Competence of the assembly 1 – The assembly is responsible for, among other powers assigned by the institution's statutes: a) Approve the public announcement for the recruitment of the rector, director or president, prepared by the general and supervisory council, with precise rules regarding deadlines and procedures, and prepare the recruitment and selection process from the list of up to three candidates to be elected by the general and supervisory council; b) Approve the deliberations of the general and supervisory council on the election and dismissal of the rector, director or president. (…)
Section III (formerly Section II) General and supervisory council
Article 82 Competence of the general and supervisory council 1 — The general and supervisory council, among other powers assigned by the statutes of the higher education institution, is responsible for: (…) d) Elect the rector or president, in accordance with the law, statutes and applicable regulations, from among the names presented to him by the assembly, resulting from the selection process, as well as approve his dismissal, in accordance with the law and regulations statutes; (…)
Section IV (formerly Section III) Rector and President Article 85 […] 1 — The rector of the university or university institute or the president of the polytechnic university or polytechnic institute is the highest governing and external representation body of the respective institution. 2 — The rector or president is the body that conducts the institution's policy and presides over the collegiate executive body.
Article 86 Selection and election process 1 — The rector or president is elected by the general and supervisory council from among the candidates selected by the assembly, under the terms established by the statutes of each institution and according to the procedure set out in the competent regulations. 2 — The selection and election process include, in particular: a) The public announcement of the opening of applications; b) The methods used by the assembly to evaluate applications; c) Submission of applications; d) A pre-selection by the assembly of the higher education institution, within which up to three candidates must be selected;

e) The public hearing, by the general and supervisory council, of the candidates selected by the assembly, with presentation and discussion of their action program;

f) The final vote of the general and supervisory council, by majority, by secret vote;

g) The repetition, at the same meeting, of the final vote of the general and supervisory council, by secret vote, if none of the candidates manages to reach the majority of votes stipulated in the statutes to be elected.

3 — In order to evaluate the applications, the assembly assigns a specially designated committee to prepare an evaluation report.

4 – The methods used to evaluate applications are approved by the assembly, following a proposal from the committee specially designated for evaluating applications.

5 — Prior to evaluating the applications, the committee referred to in the previous paragraph examines the admission requirements for the selection and election process, excluding candidates who do not meet them.

6 — Appeals may be appealed against decisions to exclude the candidature assessment committee, with suspensive effect, to be lodged with the assembly, within two working days and to be decided, by an absolute majority of its members in full office, within ten working days.

7 — For the purposes of evaluating applications, the committee referred to in the previous paragraph must consider:

a) Analysis of each candidate's curriculum vitae, particularly for the purposes of assessing their relevance to the exercise of the functions of rector/president and their merit;

b) Analysis of the action program proposed by the candidate.

8 — After assessing the elements referred to in the previous paragraph, the commission prepares an evaluation report on the candidates, which is presented to the assembly, justifying, for each one, the reasons that recommend or not recommend their election.

9 — Without prejudice to the expression of an evaluative judgment on the applications under consideration, the committee cannot, in the report provided for in the previous paragraph, rank the candidates.

10 — The commission may consider in the evaluation report that none of the candidates meets the conditions to be elected.

11 – After delivering the evaluation report to the assembly, it carries out its discussion and assessment and proceeds, by secret vote, to choose the three names to be proposed to the general and supervisory council, which will be the three candidates with the most votes.

12 – If there are only three candidates or less, they will all be proposed to the general and supervisory council, with voting taking place only to determine the number of votes obtained by the candidates or by the single candidate.

13 – If there are more than three candidates and there is a tie in the votes that determines the choice, a new vote will be held immediately to break the tie and, if this persists, the chairman of the assembly will cast the tie-breaking vote.

14 — Rectors of a university or presidents of a polytechnic university or a polytechnic institute may be elected:

a) Professors and researchers from the institution itself or from other institutions, national or foreign, of higher education or research;

b) Individuals of recognized merit and relevant professional experience.

15 — The following cannot be elected rector or president:

a) Anyone who is retired;

b) Anyone who has been convicted of a disciplinary, financial or criminal infraction while carrying out public or professional functions, within four years of serving the sentence;

c) Anyone who incurs other ineligibility or incompatibilities provided for by law.

16 – If none of the candidates meets the majority of the general and supervisory council, provided for in the statutes, to be considered elected, a new electoral process will restart after a second final vote and if this majority is not reached again.

17 — The assembly may only refuse to approve the election of the rector or president based on ineligibility, illegality of the election process or violation of the general rules and principles of the Code of Administrative Procedure.

5. Conclusions

According to the literature, (please see Taylor et al.,2008), there is an evidence of a clear demonstration of the existence of a diversity of higher education models results. On the other hand, analysing the answers to the questions formulated within the scope of the survey and the interviews carried out, as well the reports prepared by Pedrosa et al (2012) and Amaral et al. (2023), it seems that the Portuguese HEIs have a model for electing the rector/president which, at the very least, is not consensual and which interferes with the very choice of members of the general council, particularly its external members. The survey shows that 31.6% agree that the

competencies/duties of the Rector/President provided for in the RJIES are inadequate for the good exercise of the position, a matter that is indifferent to 42.9%. Only 25.5% of respondents are in disagreement with the statement in question, with no further stance being taken with real impact regarding the process of electing the rector/president.

We can conclude from the interviews with the top directors of the HEIs, there is clearly no agreement with the method of electing the rector/president, as of the ten national directors interviewed, seven of the directors do not agree, two agree and one does not respond.

Analysing the reports of the OECD, CHEPS/CCISP and EUA/CRUP there is no great importance attributed to the process of electing the rector/president, and the OECD report highlights the changes introduced by the RJIES to this process and which, according to they say, intended to create the conditions for the selection of personalities from outside the HEIs.

Therefore, recommendations for changes regarding the process of election/appointment of the rector/president are presented:

i. The election of the rector/president changes and takes place before two different bodies of the PHEIs, the assembly or board of trustees, on the one hand, and the general and supervisory council, on the other;

ii. The aim is, this way, to put an end to the enormous dependence that currently exists on the election/choice of members of the general council, almost always linked to the subsequent election of the rector/president, which some intend to ensure in advance, through the election/choice of certain members, particularly external ones, who are almost exclusively chosen based on the guarantees they give of voting for a particular candidate;

iii. In this new process it will then be up to the university or polytechnic institute assembly, or the board of trustees in the case of foundational HEIs, to approve the public advertisement for the recruitment of the rector/president, prepared by the general and supervisory council, with precise rules regarding deadlines and procedures, and prepare the process of recruitment and selection of the list of up to three candidates to be elected by the general and supervisory council, as well as, subsequently, approve the deliberations of the general election (and dismissal) council of the rector/president;

iv. The general and supervisory council elects the rector/president, in accordance with the law, statutes and applicable regulations, from among the names presented to it by the assembly or board of trustees, resulting from the selection process, as well as approving his or her dismissal, in accordance with the law and statutes;

v. Therefore, it should be noted that the assembly or the board of trustees is responsible for a committee, specially designated for this purpose, to prepare an evaluation report using the methods approved by the assembly, on the proposal of that committee, and is responsible, prior to the assessment of the applications, examine the admission requirements for the selection and election process, excluding candidates who do not meet them;

vi. In this evaluation report of the candidates, which is presented to the assembly, the reasons for which or not to recommend their election are based, for each one, and, without prejudice to the expression of an evaluative judgment on the candidacies under consideration, the commission cannot, in this report, rank the candidates, but may consider that none of them meets the conditions to be elected. After delivering the evaluation report to the assembly, it carries out its discussion and assessment and proceeds, by secret vote, to choose the three names to be proposed to the general and supervisory council, which will be the three candidates with the most votes or the existing candidates if fewer in number;

vii. It is then on the names on this list that the general and supervisory council will vote, and if none of the candidates meets the majority foreseen in the statutes, to be considered elected, a new electoral process will restart after a second final voting.

The change in the legal regime for electing the rector/president proposed here aims to eliminate what many identify as a constraint in the functioning of the general council, having opted for the solution of two different bodies to the detriment of the direct election, desired by many, as it is understood that the election of someone external to the institution may have merit in some situations, which, if a direct election were chosen, would remain a mere academic hypothesis, very difficult to implement.

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Economic Resilience: Fiscal Policy, Tourism, and ICT in COVID-19

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Abstract: The COVID-19 pandemic crisis has brought about unprecedented economic and social consequences worldwide. The implementation of isolation measures, including national and international travel restrictions, significantly affected contact-intensive sectors such as tourism. Information and Communication Technology (ICT) was crucial during this lockdown period in maintaining connectivity and enabling remote activities. Governments worldwide implemented discretionary measures to mitigate the crisis's adverse effects on economic activity. This paper aims to analyse whether the level of ICT adoption and the importance of tourism influence the fiscal policy efforts pursued by governments. Based on the results of a linear regression analysis for 154 countries, the findings suggest that governments had to promote higher fiscal stimulus in countries with higher international tourism receipts. At the same time, ICT development diminished the efforts of the fiscal policy response to the crisis since it facilitated economic resilience. The findings of this study can contribute to understanding how governments responded to the pandemic crisis and the factors that influenced their fiscal policy decisions.

Keywords: Fiscal Stimulus, Tourism, ICT

1. Introduction

COVD-19 highly impacted the world´s society and economy. In 2020, according to the World Development Indicators (WDI) database, GDP decreased by 4%, and imports and exports by 8.8% and 8.7%, respectively. Imposed isolation measures impacted especially high-contact activities, such as hospitality and tourism, recreation and personal services. In 2019, the Travel and Tourism sector, representing 10.4% of global GDP and 7% of global trade (WTTC, 2021) saw its contribution to GDP fall by 49.1% in 2020 due to the pandemic (UNWTO, 2023; WTTC, 2021). However, this impact was almost null in other activities "that facilitate non-contact activities, like ICT support or delivery of services" (European Commission, 2021, p. 1).

Many response policies have been implemented by the authorities, to address the impact of the crisis and alleviate it, namely fiscal, monetary and financial measures, specially oriented through the healthcare, business and household sectors (Elgin, Basbug and Yalaman, 2020). To assist families, workers and businesses, fiscal policies such as tax cuts, direct cash transfers, and subsidies were implemented by governments (Haroutunian, Osterloh and Sławińska, 2021; International Monetary Fund (IMF), 2023).

Some authors argue that the policy response to the COVID-19 crisis can be influenced by specific characteristics of the country, such as the dimension of intensive contact sectors like tourism, the level of ICT adoption that had an essential role during the pandemic crisis, the healthcare policy, and pandemic-related variables (Elgin, Basbug and Yalaman, 2020; Khalid, Okafor and Burzynska, 2021; Shafiullah, Khalid and Chaudhry, 2021; Okafor, Khalid and Burzynska, 2022; Okafor, Khalid and Gama, 2022). Although during the COVID-19 pandemic, many governments worldwide increased their focus on ICT to address challenges posed by the pandemic, recognizing the importance of technology in healthcare, education, remote work, and communication during lockdowns and social distancing measures, economies with higher ICT development may not need higher fiscal policy efforts to reinforce its vital role in enhancing economic resilience. These factors can play a crucial role in shaping the strategies and approaches adopted by governments worldwide, but very few studies analyse the determinants of the fiscal policy response. This paper aims to analyse whether the adoption of ICT and tourism levels influence fiscal policies' response to the economic pandemic crises. While several studies have explored the influence of ICT and tourism on fiscal policies, there remains limited comprehensive analysis assessing their combined impact across a diverse set of countries. Additionally, the study fills a gap in the limited research on the determinants of fiscal policy responses during the pandemic, advancing understanding in this critical area.

2. Literature Review

The COVID-19 was first identified in the city of Wuhan, China, in December 2019. In early 2020 it spread all over the world and in March was considered a pandemic demanding international Public Health Emergency measures, namely by restricting interaction among people and mobility of individuals. These constraints led to

a big negative impact on the economy, reduced demand and interrupted supply chain, obliged funding, and a decline in business and consumer confidence (IMF, 2020). Authorities have implemented various policies to mitigate economic effects, including fiscal policies. These fiscal policies aimed to align output with potential production, reducing the output gap, and for income redistribution. And several policy objectives were concerning the pandemic. In addition to automatic stabilizers that reduce the size of the output gap, governments have implemented various discretionary measures to slow down the spread of the disease, help businesses, support families, and sustain jobs (IMF, 2020; OECD, 2020), and according to OECD (2020), the readiness to act helped to boost confidence. "At the global level, spending and revenue measures amount to $3.3 trillion, and loans, equity injections, and guarantees total $4.5 trillion" (FMI, 2020, p. 1).

Intensive-contact industries such as travel, tourism, and hospitality were hit the hardest by the pandemic (Rather, 2021; Chen et al., 2023). Conversely, industries that support non-contact activities, such as ICT, have experienced a surge in global demand (Sharma et al., 2021). In 2020, ICT service exports as a percentage of total service exports increased by about 3.7 percentage points, and ICT goods exports as a percentage of total goods exports increased by 1.5 percentage points (World Bank, 2023).

The pandemic has brought about profound changes in social organisation and ICT has been key to fostering social stability in an adverse environment (Yang et al., 2020; Mishna et al., 2022). ICTs were already presented in daily life, but the pandemic triggered it globally (Sharma et al., 2021; Mishna et al., 2022; Kim et al., 2023). Management decisions were supported by data in real-time, combining collection with analysis, tracking and dissemination (Alghamdi and Alghamdi, 2022; Kim et al., 2023). The use of digital technology was identified as a strategic method to reduce the transmission of the pandemic (Watts, 2020; Whitelaw et al., 2022). Instead of traditional in-person consultations, remote appointments were utilized. This allowed for effective real-time communication and consequently led to more efficient and responsive governance (Alghamdi and Alghamdi, 2022).

During the time when schools closed, ICT offered solutions for learning, such as online methods, virtual classrooms, online resources, and interactive platforms (König, Jäger-Biela and Glutsch, 2020; Yang et al., 2020; Sevillano-Monje, Martín-Gutiérrez and Hervás-Gómez, 2022; Kim et al., 2023).

In the business world, there was a greater reliance on remote work due to mobility restrictions, which led to the need to sustain business (Eurostat, 2022). The ability to facilitate remote access to an enterprise's resources, such as email and other ICT systems, enabled employees to maintain their tasks, ensuring the continuity of business activities. Additionally, the use of video conferencing, collaborative platforms, and cloud-based technologies enabled continuous internal communication within enterprises and interactions with external entities (Eurostat, 2022; Rachmawati et al., 2021). This not only preserved economic activities but also demonstrated the adaptability of ICTs to ensure business continuity. In 2020, many enterprises in the European Union (EU) experienced changes in their remote work practices. About 33% increased staff access to company e-mail or other ICT systems, and 91% of those enhancing e-mail access attributed it partly to the impact of COVID-19. Similarly, 94% of enterprises increasing remote access to broader ICT systems cited COVID-19 as a contributing factor. Additionally, half of EU enterprises increased remote meetings, with 97% of these changes linked, at least in part, to the effects of the COVID-19 pandemic (Eurostat, 2022).

Despite the evident benefits, the advancement of digital transformation faces obstacles due to limited resources. In some countries, a significant proportion of the population still lacks ICT tools. Consequently, during the pandemic, governments are inclined to invest in enhancing digital technologies (Okafor, Khalid and Gama, 2022). Okafor, Khalid and Gama (2022) analysed the effect of the level of digitalization on the economic response by governments and found a negative impact when interacting with the level of income. According to the authors, governmental responses through assertive fiscal or monetary policy interventions may be attenuated when most households and businesses possess adequate technological infrastructure to conduct their daily operations in an online base seamlessly. Enhanced digital capabilities and resources dispersed among the population in select developing nations could facilitate the uninterrupted continuation of routine activities.

Tourism, a global industry, is very vulnerable to crises, either health or economic. In the last years several health crises (such as Severe Acute Respiratory Syndrome (SARS-CoV), the H1N1 influenza vírus, the Ebola vírus or the Zika vírus) emerged as a disruptor with large consequences on the tourism industry. The vulnerability to health crisis results on the reliance on the mobility of people, and travel restrictions, the closure of borders and other rigorous health and safety measures implemented by governments, as had happened during the COVID-19 pandemic, contributed to a profound negative impact on tourism. In the short term, cancellations of bookings,

a significant decline in tourist arrivals, and economic losses for tourism businesses in the travel and hospitality sector were expected.

To address the emergency, many regions have implemented policies (WNWTO, 2020). A study published by the UNWTO (2020) in June indicates that "undeniably tourism" is "one of the most directly affected" sectors of the 220 countries analyzed (p. 6). According to this report, fiscal stimulus measures primarily involved actions such as waiving or delaying Value Added Tax (VAT) and corporate income tax, establishing emergency economic funds, providing financial assistance to support small and medium enterprises and self-employed individuals, and implementing investment programs designed to alleviate the immediate impacts of the pandemic.

Okafor, Khalid and Gama (2022) conducted a comprehensive investigation involving 118 countries, wherein they observed a positive correlation between the magnitude of the travel and tourism industry and the level of economic policy endeavours undertaken to address the adverse repercussions of the COVID-19 pandemic. The study revealed that as the scale of the travel and tourism sector increased, there was a concurrent increase in the intensity of economic policy measures implemented to mitigate the deleterious effects of the pandemic. The empirical results derived from the investigation by Khalid, Okafor and Burzynska (2021) also indicated a positive correlation between the importance of the tourism sector within a destination country and the implementation of an economic stimulus package designed to alleviate the adverse repercussions of the COVID-19 pandemic. More expansive economic stimulus measures were adopted when nations rely more on the tourism industry.

Chen et al. (2023) simulated the impact of tax reduction and financial subsidies to mitigate the effects of COVID-19 in Macau, a region reliant on gambling and working to diversify its economy. Their findings indicated that more than these measures were needed for a rapid post-pandemic economic recovery. They suggested that these fiscal interventions should be complemented with supply-side policies, including measures to support employment and the capital chain to accelerate economic recovery.

3. Methodology

To study the influence of the level of tourism activity and the degree of ICT adoption on the dimension of the fiscal policy response to the crisis, it was estimated the following model, where *i* represents the country:

$$Fiscal\ Stimulus\ i = \beta o + \beta 1\ Tourism\ i + \beta 2\ ICT\ i + \beta 3\ Health\ expenditures\ i + \beta 4\ Ageing\ population\ i + \beta 5\ Mortality\ rate\ COVID\text{-}19\ i + \varepsilon\ i \quad (1)$$

Fiscal Stimulus is the fiscal policy response to the pandemic to stimulate economic activity and was proxied by the measures “above the line” using the Fiscal Monitor database developed by IMF (IMF, 2021). These measures include additional spending, capital grants and targeted transfers, tax measures, and tax deferrals (IMF, 2020, p.20; IMF, 2021). The choice of this variable was motivated by its relevance in capturing direct government interventions that aim to mitigate the economic impact of the pandemic.

Tourism was proxied by the international tourism receipts in 2019 in constant 2010 US$ (log-transformed) and calculated by deflating current prices. The international tourism receipts series at current prices and the Price Index were gathered from the World Development Indicators (WDI) database of the World Bank.

The number of individuals using the Internet as a percentage of the population in 2019 (WDI) was used to measure ICT adoption. The rationale behind including this variable is that a higher degree of ICT adoption could facilitate remote work, e-commerce, and digital services, potentially mitigating the negative economic impacts of the pandemic.

The remaining variables included in the model correspond to control variables selected according to the literature review. The health care policy was measured by the level of current health expenditure expressed as a percentage of GDP. The health expenditure includes healthcare goods and services (but “does not include capital health expenditures such as buildings, machinery, IT and stocks of vaccines for emergency or outbreaks”, World Bank, 2023). Data refers to 2019 and were gathered from the WDI database. Population ageing was assessed by the share of the population aged 65 or older in the total population in 2019 and obtained from the WDI. For the variables related to COVID-19, it was used the mortality rate by COVID-19, calculated by the ratio between the cumulative deaths and the cumulative cases. Data was obtained from the World Health Organization.

The sample consists of 154 countries for which the necessary information was available.

4. Results

4.1 Sample Descriptive Analysis

Table 1 reports the descriptive statistics of the variables under examination. The fiscal stimulus exhibits considerable variation across the sampled countries, ranging from a minimum of 0.09% of GDP in LAO People's Democratic Republic to a maximum of 30.66% in Timor-Leste. This country adopted a strong package to mitigate the impact of COVID-19, and according to Francis et al. (2023), Timor-Leste exemplified the impact of effective leadership and pragmatic policy decision-making during the COVID-19 pandemic. While high-income countries implemented fiscal policy measures in response to the pandemic crisis, amounting to approximately 8.17% of GDP, low-income countries allocated less than half (3.63%) (Figure 1). The Kruskal-Wallis test results suggest statistically significant differences in the fiscal stimulus countries implement according to their income level ($\chi^2_{df=3}$=22.905, p<0.001). Pairwise comparisons indicate significant statistical differences between high-income countries and low-income (p*=0.006), upper middle income (p*=0.036), and with lower middle income (p*=0.000), where p* is the level of significance adjusted by Bonferroni correction. Some outliers are observed, particularly in low-middle-income countries, such as Timor-Leste (the country with the highest fiscal stimulus value in the sample), Mongolia, Kiribati, and Indonesia. Also, the United States is an outlier in the observed fiscal stimulus distribution in high-income countries.

International tourism receipts have the lowest value in South Sudan and the maximum in the United States. The average value is 7,192.8 million US$ with a standard deviation of 19,485.0 million US$.

Regarding internet usage, the sample indicates an average of 60.43% of the population accessing the internet. More than 99% of the population in Bahrain, Qatar, Kuwait, and the United Arab Emirates use the internet. At the same time, Burundi, South Sudan, Uganda, Congo Republic, and Burkina Faso have less than 10% internet access.

Table 1: Descriptive statistics

	Mean	Median	SD	Min	Max
Fiscal Stimulus (% of GDP)	5.54	4.12	4.91	0.09	30.66
International tourism receipts (constant 2010 US$, millions)	7192.8	1122.4	19485.0	0.1	204229.3
Individuals using the Internet (% of the population)	60.43	67.95	27.24	2.73	99.70
Health expenditure (% of GDP)	6.45	6.15	2.95	1.80	23.96
Population ages 65 and above (% of total population)	8.99	6.53	6.48	1.17	29.28
Mortality rate by COVID-19	1.86	1.60	1.49	0.00	9.44

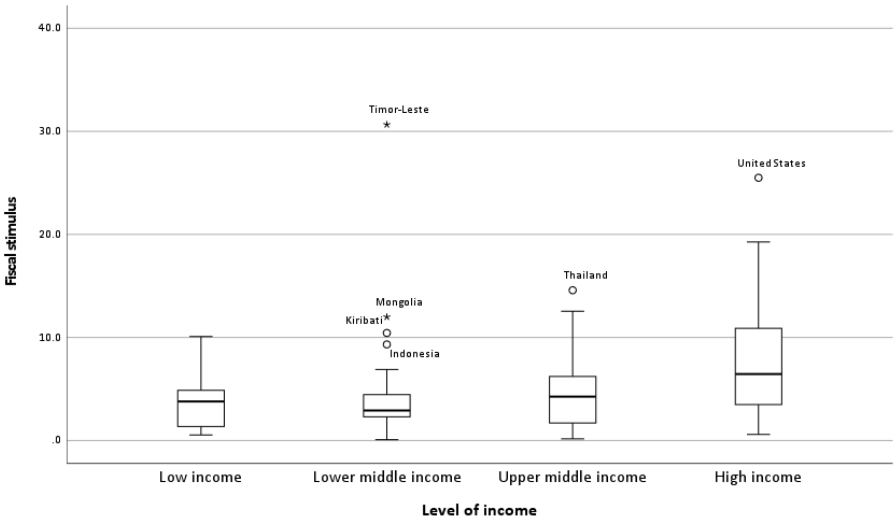

Figure 1: Fiscal stimulus by level of income

Current health expenditure as a percentage of GDP ranges from 1.8% of GDP in Djibouti (a lower middle-income country) to 23.96% in Tuvalu, an upper-middle income, with an average value in the sample of 6.45%. Although high-income countries spend more on healthcare as a percentage of GDP (7.78%), followed by upper-middle-income countries (7.04%), low-income countries spend more (5.72%) than lower-middle-income countries (4.79%).

While there are countries with ageing population problems, such as Japan, Italy, Finland, Portugal, Bulgaria, Greece, Germany, Croatia, France, and Serbia (more than 20% of the population is 65 years old or above), among others, in Qatar, United Arab Emirates, and Uganda less than 2% falls into the 65 years and above category.

The mortality rate attributed to COVID-19 was between 5% and 10% in México, Peru, Sudan and Egypt. By geographical area, Latin America and the Caribbean recorded an average of 2.74% deaths of total cases, followed by Sub-Saharan Africa (2.06%), Europe Central Asia (1.94%), North America (1.82%), Middle East North Africa (1.62%), South Asia (1.34%), and East Asia & Pacific (0.82%). The mortality rate by COVID-19 does not exhibit significant differences between low-income countries (2.25%), upper middle income (2.09%), lower middle income (1.74%) and high-income (1.63%) ($\chi^2_{df=3}$=1.046, p=0.79) (Figure 2).

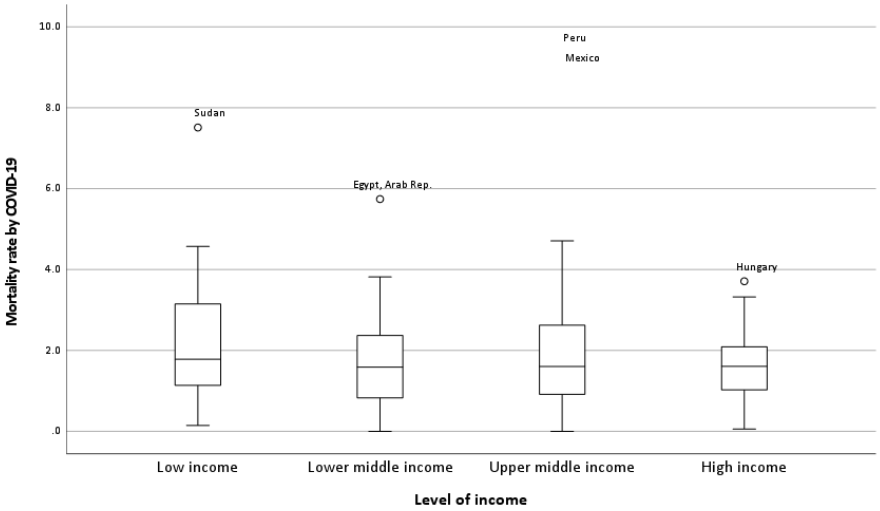

Figure 2: Mortality rate by COVID-19 by level of income

4.2 Regression Analysis: Results and Discussion

The model was estimated using the Ordinary Least Squared method. Table 2 reports the correlation coefficients among the variables, all below 0.75. The Variance Inflation Factors (VIF) values were analysed, revealing values consistently below 10, indicating no evidence of multicollinearity. The Breusch-Pagan test ($\chi^2_{df=5}$=24.52, p=0.0002) concludes that heteroskedasticity is present in the regression model. Heteroskedasticity-robust standard errors were used to address this problem. The results are presented in Table 3.

Table 2: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Fiscal Stimulus	1					
(2) International tourism receipts	0.320**	1				
(3) Individuals using the Internet	0.281**	0.685**				
(4) Current health expenditure	0.485**	0.158	0.287**	1		
(5) Population ages 65 and above	0.466**	0.581**	0.639**	0.494**	1	
(6) Mortality rate by COVID-19	-0.096	0.100	-0.091	0.001	0.071	1

**. The correlation is significant at the 1% level.

The model is statistically significant (F=13.38; p<0.001), and the variables included explain 32.2% (Adjusted R-squared) of the variance in fiscal stimulus. All the variables included are significant in explaining the variance in fiscal stimulus at levels of significance of 1%, 5%, and 10%.

Table 3: Estimated results

Dependent variable: *Fiscal stimulus*

	Coefficient	95% Conf. interval	Std. Error	t-ratio	p-value	VIF
Constant	−7.2255	[-14.4750, 0.0240]	3.6683	−1.970	0.0508	
ln International tourism receipts	0.4695	[0.1113, 0.8277]	0.1813	2.59	0.0106	2.136
Use of Internet	−0.0296	[-0.0593, 9.361e-005]	0.015	−1.970	0.0507	2.392
Health expenditures	0.6269	[0.3108, 0.9429]	0.1599	3.92	0.0001	1.388
Mortality rate COVID-19	−0.5184	[-1.0711, 0.0343]	0.2797	−1.854	0.0658	1.072
Ageing Population	0.1966	[0.0631, 0.3301]	0.0675	2.911	0.0042	2.332

Mean dependent var	5.525473	S.D. dependent var	4.920535
Sum squared resid	2412.039	S.E. of regression	4.050732
R-squared	0.344585	Adjusted R-squared	0.322292
F(5, 147)	13.37609	P-value(F)	9.52e-11
Log-likelihood	−428.0685	Akaike criterion	868.1371
Schwarz criterion	886.3197	Hannan-Quinn	875.5231

The estimated coefficient for ln international tourism receipts stands at 0.4695 with a t-statistic=2.59, indicating a positive relationship between international tourism receipts and the fiscal effort undertaken by governments. In other words, the higher the international tourism receipts, the greater the fiscal effort made by governments. Given that the tourism industry has experienced one of the most significant declines in demand, governments have introduced a set of fiscal policy measures, and these incentives have played a key role in overcoming the short-term shocks faced by enterprises and workers (Sengel, 2022). These findings align with previous studies in the literature, which have also found a positive correlation between tourism and the level of economic stimulus by authorities (Khalid, Okafor and Burzynska, 2021; Okafor, Khalid and Burzynska, 2022).

By contrast, the fiscal stimulus required is less in countries where internet use is more widespread. An increase of 1 percentage point in internet use decreases the fiscal stimulus by 0.0296 percentage points. To Yang et al. (2020), ICTs were the "best chance to maintain social order during a pandemic" (p. 1). In Okafor, Khalid and Gama's (2022) investigation, although internet use negatively impacts the economic response to COVID-19, the coefficient is insignificant. However, when the authors estimate the interaction between internet use and income level, its effect becomes negative and statistically significant. Policymakers may need to leverage digital technologies for effective crisis management.

The estimate of the coefficient of the mortality rate by COVID-19 is negative but statistically significant only at a 10% significance level. This may be explained by the fact that countries with higher mortality rates may have faced significant challenges in managing the spread of the virus, limiting the resources available for fiscal stimulus.

Countries that spend more on health adopted broader fiscal policy packages. This may be related to the greater financial capacity of these countries (Khalid, Okafor and Burzynska, 2021; Okafor, Khalid and Burzynska, 2022).

Furthermore, the results also suggest a positive and statistically significant association (at a 1% level of statistical significance) between the ageing population and fiscal stimulus. This result is in line with the research of Elgin,

Basbug and Yalaman (2020), concluding that the median age positively influences economic stimulus, meaning that countries with higher levels of elderly populations implemented broader economic stimulus packages.

5. Conclusions

The COVID-19 pandemic brought big challenges worldwide. It impacted, among others, health, economy, education, supply chain, and social structures. Globally, governments responded with fiscal policies to mitigate the profound crisis generated in public health and economy. On the economic level, the more affected industries were the ones related to contact-intensive, as a way to prevent the spread of the disease, namely tourism and hospitality. However, this global pandemic can also be viewed as a sudden disturbance stimulating digital development, making digital technology a vital force in people's lives and workplaces.

This research aimed to analyse whether the level of effort in fiscal policy was influenced by the level of digital development and the size of the tourism industry. The results reveal that countries exhibiting higher levels of internet penetration tended to adopt comparatively lower fiscal policy measures. This inverse association suggests that countries with more significant digital development would be better prepared to face the challenges arising from the pandemic, which would lead to less financial effort by governments. The findings also suggest a positive correlation between fiscal policy efforts and the importance of the tourism industry within a nation. Countries that rely more on tourism demonstrated a propensity for strengthening fiscal policy interventions. This aligns with the economic vulnerability of the tourism sector, necessitating more substantial government support to offset the severe impact of travel restrictions and reduced tourism activities.

The COVID-19 pandemic brought big changes in human life, challenges and way of being. The role of the digital during the pandemic has emphasised the centrality of technology in the post-pandemic era. Governments contemplating fiscal interventions should recognise the interconnection between digital development, economic dependencies, and the nature of the industries affected.

This research suggests that nations with less robust digital development need to prioritize fiscal policies that not only stimulate immediate economic recovery but also promote long-term investments in digital technologies. Governments could consider directing stimulus funds towards expanding broadband access, enhancing digital literacy, and supporting tech startups. Countries such as Estonia and South Korea successfully used strong digital infrastructures during the pandemic to sustain economic activity, showing how integrating digital strategies into fiscal policies can enhance resilience for future crises. Conversely, countries heavily reliant on tourism may find merit in implementing more substantial fiscal measures to leverage a sector crucial to their economic fabric.

This research thus contributes to the debate on effective policy responses for sustainable recovery during unprecedented global crisis, emphasizing the importance of context-specific strategies that consider both digital and industry compositions.

The investigation is limited by the use of proxy variables that may not fully capture the underlying concepts. For example, international tourism receipts may not fully reflect the total economic impact of tourism, and the percentage of internet users may not encompass the quality or accessibility of ICT infrastructure in each country. Additionally, unobserved factors like political stability and governance quality could influence fiscal policy responses, potentially introducing bias into the results. Future research should focus on sector-specific impacts of fiscal policies, particularly beyond tourism, to better understand effective measures. Investigating governance quality and its influence on fiscal responses could provide key insights. Longitudinal studies on the long-term effects of pandemic-era policies and the benefits of digital investments and diversification are also needed. Additionally, examining the social impacts of fiscal policies, particularly on inequality, could help design more equitable and inclusive future strategies.

Acknowledgments

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Technological Unemployment in Terms of Global Labor Market Imbalances: A Bibliometric Analysis

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Abstract: The current society, known as the supersmart society or Society 5.0, emerged in response to the Fourth Industrial Revolution. also known as Industry 4.0 (I4.0), which arose with the development of different technologies such as the Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML), and Big Data Analytics (BDA), among others. Based on the report "Future of Jobs Report 2023" the most affectin g macro trend in driving business transformation is the increased adoption of new and frontier technologies with an 86.2% rate. I4.0 significantly changed production processes and manufacturing systems, transforming firms into smart factories. One of the consequences of the I4.0 revolution is technological unemployment (TU). This paper aims to conduct a comprehensive evaluation of the literature on Industry 4.0 (I4.0) and Technological Unemployment (TU) within the 2015-2024 timeframe, with a particular focus on their impact on labor market imbalances (LMI). Through a bibliometric analysis, the study will assess performance metrics, including the publication and citation performance of authors, institutions, countries, and journals. Additionally, the research will visualize and critically examine bibliometric citation outcomes, including cited references. To achieve this, we adopted a quantitative approach and employed a confirmatory-explicative research method to elucidate Technological Unemployment (TU) within the context of Industry 4.0 (I4.0) transformations and confirm its implications on Labor Market Imbalances (LMI). Bibliometric analysis was used to discern data patterns, trends, and relationships within the literature. Our findings revealed several significant trends, notably job polarization, income inequality, and TU. We determined that the effects of I4.0 on employment are not universally negative; in some cases, technological investments enhance employment rates by creating new professions and job opportunities. Our analysis also indicated that occupations requiring human judgment, decision-making, creativity, and innovation exhibit resilience to technological advancements.

Keywords: Technological Unemployment, Labor Market Imbalances, Industry 4.0, Performance Analysis, Bibliometric Analysis.

1. Introduction

I4.0 is a subject that interests many people, particularly industrial and IT (Information Technology) specialists and business managers. Innovative businesses can benefit greatly from these changes, but those who are unable to adapt quickly and effectively risk suffering serious consequences. Job automation and job computerization are the focus areas from a human resources standpoint. Therefore, new positions and specializations with new knowledge sets and expertise are being elevated due to the impact of advanced digital technologies (Stachová et al., 2019).

Businesses are facing challenges due to the rapid changes of the fourth industrial revolution, which presents both risks and opportunities (Roblek et al., 2016; Strandhagen et al., 2017; Liboni et al., 2019). To adapt to Industry 4.0, companies must focus on human development and new practices (Stachová et al., 2019). John Maynard Keynes predicted in 1930 that technological advancements would lead to abundance but also to technological unemployment (TU) (Bertani et al., 2020). The McKinsey Global Institute forecasts that automation could displace 75-375 million workers by 2030, reflecting Keynes' concerns and supporting findings that rapid technological progress tends to increase unemployment (Bertani et al., 2020).

2. Literature Review

2.1 Industry 4.0 and Technological Unemployment:

The history of mankind in terms of social evolution consists of five different societies (1-the hunting society; 2-the agricultural society; 3-the industrial society; 4-the information society; 5-and the supersmart society (Society 5.0), which is currently emerging with I4.0) (Kurt, 2019). The 18th century saw a shift from human labor to machine power with the advent of steam, leading to reduced production costs and standardized, high-quality goods. Industry 2.0 and 3.0 introduced electricity and information technologies (Lasi et al., 2014; Li et al., 2017). Industry 4.0 builds on this with advanced technologies such as the Internet of Things (IoT), Cyber-Physical Systems (CPS), and additional innovations including cloud computing, big data analytics, AI, machine learning, cybersecurity, digital twins, augmented reality, additive manufacturing, and autonomous robots (Kerin & Pham,

2019).2011's Hannover Fair marked the debut of the phrase "I4.0" when Robert Bosch and Kagermann formed a working group to propose the fourth industrial revolution to the German Federal Government (Kurt, 2019; Sony & Naik, 2019). The I4.0 is now referred to in different ways, such as Society 5.0 in Japan, I4.0 in Germany and Turkey, and the Internet of Things in the US.

I4.0 describes various modifications to manufacturing systems that are primarily IT-driven (Lasi et al., 2014). Such as the progress in gene sequencing, nanotechnology, artificial intelligence, and renewable energy sources (Kurt, 2019). Therefore, I4.0 refers to the process of transforming organizations into smart factories. By using a wide range of technologies (Sony & Naik, 2019), These changes are also referred to as the Internet of Things (IoT), Internet of Services (IoS), Internet of People (IoP) (Zezulka et al., 2016), and internet of energy (IoE) (Khan et al., 2017). In addition, I4.0 significantly affects the nature of work, the identity of employees, and the relationship between employees and employers due to the intensive human-machine interaction (Kurt, 2019). These changes in the labor market and production processes are reducing the numbers of employed workers especially those in the working class (Kurt, 2019), resulting in large unemployment rates (Liboni et al., 2019).

TU is a negative consequence of automation (Lima et al., 2021), and the level of this latter is influenced by the digitalization strategy of each nation and the speed of its implementation, as well as the readiness of a particular country's education system to retrain susceptible groups in the labor market (Szabó-Szentgróti et al., 2021). Therefore, TU degrees differ from one country to another, and from small towns to large cities. Considering TU as a long-term economic shift, workers need to acquire new skills to meet the new occupations' needs (Lima et al., 2021). As mentioned by Autor (2022), At the top of the labor market, an increasing number of high-education, high-wage jobs provide promising career paths, rising lifetime wages, and considerable job stability.

3. Design & Method

3.1 Research Objectives and Questions

This study intends to conduct an in-depth review of the literature on I4.0 and TU and to explore their impacts on the LMI. To achieve this, we have established the following research questions:

- RQ1: how does the impact of I4.0 on the labor market differ from one country to another?
- RQ2: what are the intrinsic changes that occurred to the labor market in response to technological progress in the period of (2015-2024)?
- RQ3: what occupations remain resilient in the face of technological advancements?
- RQ4: on what basics does TU vary from one sector to another?
- RQ5: what are the anticipated impacts of TU on the LMI in the future?
- RQ6: what are the possible positive aspects of I4.0 on the labor market?

3.2 Data Collection

According to Noyons (2001), key elements commonly analyzed in bibliographic records are authors, their affiliations, keywords, publication year, and the source or journal. Our study focuses on keyword-based data, and the following table displays the keyword groups used to search for relevant articles in the Dimensions database.

Table 1: keyword groups used in the research

Groups	Keywords	Publication Years	Dimensions Database
Grp 1	("Industry 4.0" AND "technological unemployment")	2015 2016 2017 2018 2019 2020 2021 2022 2023 2024	92
Grp 2	("industry 4.0" AND "labor market")		54
Grp 3	("industry 4.0" AND "technological unemployment" AND "labor market")		68
Grp 4	("labor market" AND "technological unemployment")		231
Grp 5	(("industry 4.0" OR "technological advancement" OR "technological progress") AND ("technological unemployment" OR "unemployment") AND ("labor market" OR "labor market imbalances"))		389
Total	/	/	834

Source: Adapted from Dimensions database

This study uses the Dimensions database to gather bibliographic information on "Industry 4.0, technological unemployment, and labor market imbalances." With over 137 million publications and 209,000 source titles, the database offers extensive bibliographic and citation data. From the period 2015-2024, we identified 834 relevant publications. After removing duplicates with Zotero software and excluding non-English papers, 637 publications remained. Table 02 details the inclusion criteria used to filter and select the most pertinent research papers from the Dimensions database.

Table 2: Inclusion Criteria

	Search Type	Publication Years	Publication Type	Fields of Research	Journal List
Grp 1	Full data	2015 2016 2017 2018 2019 2020 2021 2022 2023 2024	Article, Edited Book, Chapter	Commerce, Management, Tourism and Services Strategy, Management and Organisational Behaviour Human Resources and Industrial Relations	DOAH ERIH PLUS ERA 2023
Grp 2	Title and Abstract		Article, Edited Book, Chapter	Commerce, Management, Tourism and Services Strategy, Management and Organisational Behaviour Human Resources and Industrial Relations	DOAH ERIH PLUS ERA 2023
Grp 3	Full Data		Article, Edited Book, Chapter	Commerce, Management, Tourism and Services Strategy, Management and Organisational Behaviour Human Resources and Industrial Relations	DOAH ERIH PLUS ERA 2023
Grp 4	Full Data		Article, Edited Book, Chapter	Commerce, Management, Tourism and Services Strategy, Management and Organisational Behaviour Human Resources and Industrial Relations	DOAH ERIH PLUS ERA 2023
Grp 5	Full Data		Article	Human Resources and Industrial Relations	DOAH ERIH PLUS ERA 2023

Source: Adapted from Dimensions database

4. Bibliometric Analysis

In the next phase of our research, we reviewed the titles and abstracts of the collected papers to verify their relevance. We excluded 197 articles that were either irrelevant or duplicates. After a thorough examination of the remaining 637 papers, 28 articles were selected for the final qualitative assessment. For details on our methodological approach, refer to Fig 01.

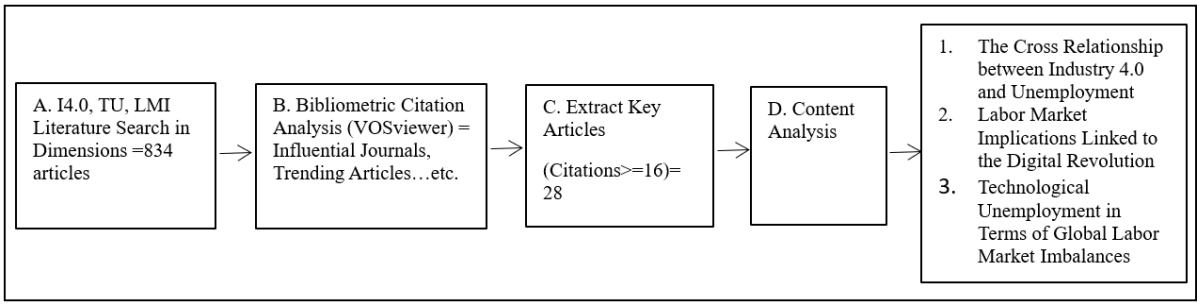

Figure 1: Methodological approach.

Source: Prepared by researchers

We utilized analytical visualization software (VOSviewer) to identify the citation linkages of the 637 identified papers. VOSviewer is a tool of data analytics that can be used to analyze and visualize direct and indirect citation relationships between articles by simply revealing who cited whom (Pasadeos et al., 1998).

4.1 Most Influential Papers in the Literature of "I4.0, TU, and LMI"

In this part, we conducted a performance analysis, by evaluating the "publication" and "citation" performances of authors, institutions/universities, countries, and journals (Öztürk et al., 2024) to determine whether our

dataset is effective in the relevant field or not. To set the scientific value of the papers, scholars have used various bibliographic analyses, for instance, the methodology of Alon et al. (2018) was to identify the total global citation (TGC) and the total local citation (TLC) of their sample. TGC indicates how often an article has been cited according to the full count in the ISI Web of Science database.

4.1.1 Institutions and Universities

Technological advancements, particularly in Industry 4.0, have primarily originated in developed countries with advanced industries. To understand the impact on the labor market and technological unemployment, we began by examining the institutions and countries associated with our sample papers. Our analysis focuses on the influence of research from various countries, with the table highlighting the most cited institutions, such as Old Dominion University (809 citations), University of Colorado Boulder (561), University of Colorado Denver (561), and Catholic University of the Sacred Heart (491), among others.

Table 3: Most influential institutions.

Organizations	Documents	Citations	Citation per document
Auckland University of Technology	4	470	117.5
Catholic University of the Sacred Heart	12	491	40.9
Institute for the Study of Labor	10	366	36.6
Institute of Economics Agriculture, Volgina, Belgrade, Serbia	1	376	376
Massey University	6	400	66.6
Old Dominion University	2	809	404.5
Ovidius University	1	376	376
Petroleum & Gas University of Ploieşti	1	376	376
Sant'anna School of Advanced Studies	6	289	48.2
United Nations University – Maastricht Economic and Social Research Institute on Innovation and Technology	6	329	54.8
University of Colorado Boulder	1	561	561
University of Colorado Denver	1	561	561

Source: Adapted from the VOSviewer software

In our analysis of institutional contributions to Industry 4.0, the United States led with the highest number of papers (88), followed by the United Kingdom (60), Italy (52), China (42), Germany (41), Australia (35), India (31), Poland (27), and both the Netherlands and Spain (25 each). When evaluating the quality of contributions based on citations, the United States also had the greatest impact with 3417 citations, followed by the United Kingdom (1370), Italy (1301), Germany (1205), and the Netherlands (1004).

Table 4: Most influential international contributions.

Country	Documents	Citations
Australia	35	959
China	42	583
Germany	41	1205
India	31	317
Italy	52	1301
Netherlands	25	1004
Poland	27	267
Spain	25	335
United Kingdom	60	1370
United States	88	3417

Source: Adapted from the VOSviewer software

4.1.2 Influential Journals

Among the 336 journals in our sample, six have published 10 or more articles related to Industry 4.0 and technological unemployment between 2015 and 2024 (see Table 5).

Table 5: Most influential journals in terms of published documents (>=10 documents).

Source	Abbreviations	Documents	Citations
International Journal of Environmental Research and Public Health	IJERPH	15	349
International Journal of Manpower	IJM	17	206
International Labour Review	ILR	14	109
New Technology Work and Employment	NTWE	12	504
Sustainability	-	32	889
Technological Forecasting and Social Change	TFSC	15	1351

Source: Adapted from the VOSviewer software

Among the 336 journals, 12 journals surpassed the threshold of 200 citations (see Table 6). When merging both criteria of the number of documents (D) and citations (C) of each journal, we found that five journals have the most influence over the literature of I4.0 and TU, which are IJERPH (15D., 349C.), IJM (17D., 206C.), NTWE (12D., 504C.), Sustainability (32D., 889C.), and TFSC (15D., 1351C.). Our analysis indicates that the Sustainability journal is the most influential in the I4.0 and TU studies due to its high focus (Documents=32), while TFSC has the highest impact on this literature set (Citations=1351).

Table 6: Most influential journals in terms of document quality (>= 200 citations).

Source	Abbreviations	Documents	Citations
Annual Review of Organizational Psychology and Organizational Behavior		1	561
International Journal of Environmental Research and Public Health	IJERPH	15	349
International Journal of Manpower	IJM	17	206
Journal of Economic Surveys	JES	4	300
Journal of Management & Organization	JMO	1	343
Journal of Vocational Behavior	JVB	5	306
New Technology Work and Employment	NTWE	12	504
Research Policy	RP	9	326
Sustainability	-	32	889
Technological Forecasting and Social Change	TFSC	15	1351
The Economic and Labour Relations Review	TELRR	4	220
Work and Occupations	WO	4	255

Source: Adapted from the VOSviewer software

4.1.3 Influential Research Papers

To understand the development of the I4.0 and TU literature, it is important to identify the most influential works. We analyzed citation trends to highlight the key articles that have shaped this field. Table 07 presents the top 10 most impactful articles, with the most influential being Li (2018), followed by Cascio (2016), Sima (2020), Brougham (2017), and Stanford (2017) for the period 2015-2024.

Table 7: Most influential articles in the I4.0 and employment.

Author and Year	Citations	Article Title
Stanford (2017)	196	The resurgence of gig work: Historical and theoretical perspectives
Pfeiffer (2016)	155	Robots, Industry 4.0 and Humans, or Why Assembly Work Is More than Routine Work
Brougham (2017)	343	Smart Technology, Artificial Intelligence, Robotics, and Algorithms (STARA): Employees' perceptions of our future workplace
Dachs (2019)	157	Bringing it all back home? Backshoring of manufacturing activities and the adoption of Industry 4.0 technologies
Cascio (2016)	561	How Technology Is Changing Work and Organizations
Dengler (2018)	193	The impacts of digital transformation on the labor market: Substitution potentials of occupations in Germany
Sima (2020)	376	Influences of the Industry 4.0 Revolution on Human Capital Development and Consumer Behavior: A Systematic Review
Fleming (2018)	177	Robots and Organization Studies: Why Robots Might Not Want to Steal Your Job
Liboni (2019)	176	Smart industry and the pathways to HRM 4.0: implications for SCM
Li (2018)	770	China's manufacturing locus in 2025: With a comparison of "Made-in-China 2025" and "Industry 4.0"

Source: Adapted from the VOSviewer software

4.2 Visualization and Examination of Bibliometric Citation Outcomes

In this section, we employed data analytics visualization and co-citation mapping to analyze our sample of articles, uncovering the evolution of research in I4.0, TU, and the labor market by highlighting key concepts from highly cited papers. Co-citation mapping revealed development trends, main theories, and key topics through citation patterns. We concentrated on articles cited at least 16 times from 2015 to 2024. A content analysis of the 28 most cited articles was performed by two researchers to ensure reliable results and identify key research streams (Alon et al., 2018; Gaur & Kumar, 2018).

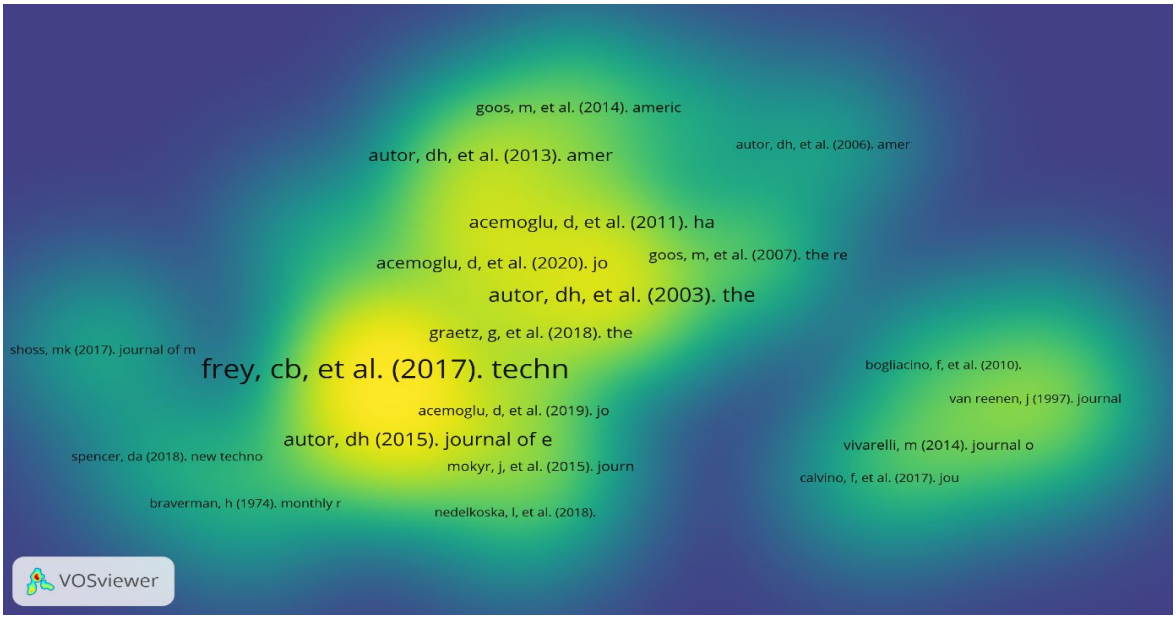

Figure 2: Density visualization

Source: Adapted from the VOSviewer software

4.2.1 Industry 4.0 and Unemployment: Unraveling the Cross-Relationship, Labor Market Dynamics and Global Imbalances in the Digital Revolution

I4.0 technologies, encompassing AI, robotics, nanotechnologies, 3D printing, and bioengineering, are reshaping industries and labor markets worldwide. While these advancements create new job sectors, they also render traditional roles obsolete, contributing to TU (Bogliacino et al., 2012; Hall, 2001). Automation leads to job polarization, where high-skill and low-skill jobs increase while middle-skill positions decline, exacerbating wage inequality and labor market disparities, particularly in advanced economies (Acemoglu & Autor, 2011; Frey & Osborne, 2017). Despite demographic and financial motivations driving automation adoption, there's a heightened risk of job displacement, especially for lower-skilled workers, underscoring the necessity for lifelong learning policies to mitigate these challenges (Pouliakas, n.d.; Acemoglu & Restrepo, 2017).

The impact of I4.0 on employment varies across countries and sectors, influenced by differences in robot adoption rates and the intricate interplay between automation and labor demand (Vivarelli, 2014; Graetz & Michaels, 2018). While technological progress contributes to wage inequality and job polarization, it also presents opportunities for job creation through product innovations and enhanced productivity (Calvino & Virgillito, 2018; Spencer, 2018). To counterbalance the negative effects of labor-saving technologies, new technologies must create fresh occupations, enhance productivity, and complement human workers, thus stimulating labor demand (Arntz et al., 2017). Adaptable education systems, vocational training, and robust social policies are essential for economies to adjust to these shifts and maintain employment levels (Arntz et al., 2017; Mokyr et al., 2015; Hall, 2001).

While technological advancements have led to job creation, efficiency gains, and skill enhancement, they've also spurred job polarization and income inequality (Van Reenen, 1997; Autor et al., 2006). The rise of high-skill and low-skill jobs at the expense of middle-skill positions has reshaped employment structures within and between industries, exacerbating income disparities (Goos et al., 2014). Moreover, the digital revolution, characterized by AI and robotics, has led to job displacement, particularly affecting low-skilled workers while benefiting high-

skilled ones (Spencer, 2018; Harrison et al., 2014). This has underscored the importance of investing in education, skills training, and adaptable labor market regulations to address the evolving demands of the digital era (Acemoglu & Restrepo, 2019; Hall, 2001).

TU, driven by automation and AI, poses significant challenges to global labor markets, intensifying imbalances and disproportionately affecting middle- and low-skilled jobs (Arntz et al., 2017). Historical economic theories highlight how technological innovation while stimulating economic growth, can also lead to unemployment (Spencer, 2018). The impact of these innovations varies by country, with some experiencing substantial reductions in labor demand while others face less severe effects (Harrison et al., 2014). To mitigate these challenges and address global labor imbalances, policy interventions such as adaptive education, vocational training, and robust social security measures are imperative (Arntz et al., 2017; Pouliakas, n.d.). These interventions aim to balance automation with job creation and ensure a smooth transition for workers in the face of technological disruptions (Acemoglu & Restrepo, 2017; Autor, 2015).

5. Discussion

Over the past decade, technological progress has significantly impacted the labor market. Automation and AI have displaced routine jobs while increasing the demand for digital skills. The gig economy and remote work have expanded due to advances in communication technologies, changing traditional employment patterns. Job polarization has occurred, with a decline in middle-skill jobs and growth in low-skill and high-skill roles. There has been a stronger emphasis on upskilling and reskilling to adapt to new technologies, and job creation has shifted towards tech-driven and innovative industries. Additionally, AI has become increasingly important in workforce management and decision-making.

I4.0 has various effects on the labor market across countries due to differences in economic development, workforce skills, government policies, sectoral composition, and cultural attitudes towards technology. Advanced economies with strong education systems and proactive policies, like Germany and Singapore, are better positioned to benefit from I4.0, experiencing growth in high-tech jobs and smoother transitions. In contrast, developing countries or those with less strategic planning may face challenges such as job displacement and a widening skills gap, leading to more disruptive effects on their labor markets.

The impact of automation, as highlighted by Graetz & Michaels (2018) and Spencer (2018), varies significantly across different sectors—some experience labor substitution, while others see labor complemented by technology. Therefore, TU varies by sector due to differences like tasks' nature, the degree of automation feasibility, adoption rates, skill requirements, investment levels, and market dynamics. For instance, I4.0 has led to a decline in routine-intensive jobs due to routine-biased technological change (RBTC), increasing unemployment in these sectors.

Technological advancements in I4.0 raise concerns about unemployment, even for high-skilled workers, highlighting the need for new technologies to create jobs, boost productivity, and complement human labor. The Future of Jobs 2023 report predicts significant employment shifts from 2023 to 2027, with growth in roles like Agricultural Equipment Operators, Heavy Truck and Bus Drivers, and Vocational Education Teachers. In contrast, jobs such as Data Entry Clerks, Administrative Secretaries, and Accounting Clerks are expected to decline, accounting for over half of the projected job losses.

Substantially, the technological advancements in I4.0 offer numerous positive impacts, including the potential for extensive job creation, increased efficiency, and enhanced skills. Innovations, especially in artificial intelligence, are driving employment growth by boosting productivity, introducing new decision-making tasks and job roles, and creating demand for labor in related fields. As a result, the labor force is adapting to higher levels of education to meet evolving skill requirements, thereby reshaping the future workforce landscape (Agrawal et al., 2019).

6. Conclusion and Future Directions

The impact of technological transitions on labor markets reveals both opportunities and challenges. I4.0 advancements, such as artificial intelligence and automation, promise increased productivity and new job sectors but also raise concerns about job displacement, inequality, and TU. This complex landscape underscores the need for adaptive policies and workforce strategies, emphasizing the importance of lifelong learning and adaptable education systems. While technological change may disrupt traditional employment, it also offers potential for economic growth and innovation. Effective collaboration among policymakers, businesses, and

individuals, along with strategic investments in education and social security, is crucial to ensure inclusive growth and mitigate adverse impacts, ultimately shaping a future where technological progress benefits all.

Like other research efforts, this study has limitations that could be improved upon in future research. By utilizing additional research databases such as Scopus, Web of Science, Microsoft Academic, and SpringerLink, among others, might provide a more varied dataset related to I4.0, TU, and LMI, thereby improving the quality of the findings. Furthermore, combining databases (e.g., WoS and Scopus) could enhance the sample size and the overall quality of the research outputs, making the results more applicable. In addition, it is possible to investigate the impact of I4.0 on TU among sectors/countries, besides their implications on the Labor market globally/nationally.

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Automation and the Importance of Reskilling Workers: A Case Study in the Automotive Industry

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Abstract: Rapid technological developments, especially the spread of automation and artificial intelligence (AI), have been transforming the world of work, raising some concerns about the future of employment. Automation presents both opportunities and challenges for the labor market. While we can expect productivity to grow with automation, and with-it economic growth, the fear of job loss linked to automation is also present. This paper aims to study the impact of automation on employment, with a special focus on the automotive industry, which stands out as one of the sectors most affected by automation. A second objective is to examine the reskilling procedures implemented by companies in this context, with a view to identifying effective strategies that bring benefits to both the employer and the workforce. To analyze the implications of automation in the automotive industry and the strategies adopted by companies to face these implications, we carried out an exploratory case study, using interviews, with the participation of four companies located in the districts of Minho, in the North of Portugal. The results show that, considering the impact of automation on employment, there is no negative impact since the destruction of some jobs was compensated by the creation of new ones. As for the reskilling procedures implemented by companies, results indicate that reskilling and upskilling are important strategies to prepare workers to transition to new jobs and tasks. Automation has been present in the automotive sector for many years and it has been gaining greater relevance over time. Businesses gain from several benefits provided by automation, including improved value for money, increased productivity, and increased worker safety. At the same time, they also face some challenges, such as high investment costs and workers' apprehension about transforming workplaces. Nonetheless, the investment pays off since companies invest heavily in reskilling their employees, and thus have a more qualified workforce that is prepared for any change that may arise. This paper contributes to a deeper understanding of the implications of automation in the labour market in the automotive sector and highlights the importance of workforce reskilling for the sustainability of companies. These findings are relevant for both employers and employees.

Keywords: Automation, Artificial Intelligence, Automotive Industry, Reskilling

1. Introduction

Recent years have witnessed rapid technological evolution, highlighting advances in automation and AI, which have the potential to significantly transform the workplace landscape. It is estimated that, by 2030, Europe could automate up to 22% of work activities (Smit *et al*., 2020). Automation presents both opportunities and challenges for the labor market. On the one hand, it can increase productivity and boost economic growth; on the other hand, it can reduce the demand for human labor in highly mechanized activities, raising concerns about unemployment, however, upskilling and reskilling the workforce can mitigate these impacts, enabling the transition to roles that require specific human skills (Manyika et al., 2017).

The aim of the paper is twofold: (i) to study the impact of automation on employment, with special focus on the automotive industry in Portugal, which stands out as one of the sectors most affected by automation and (ii) to examine the reskilling procedures implemented by the companies, to identify effective strategies that bring benefits to both the employer and the workforce.

This paper contributes to a deeper understanding of the implications of automation in the labour market in the automotive sector, and to highlight the importance of workforce reskilling for the sustainability of companies. For this purpose, an exploratory case study was carried out, using interviews, with the participation of four companies in the automotive sector located in the districts of Minho.

The paper is divided in three sections. First, a literature review is carried out on automation and its relationship with the level of employment, as well as on the requalification of workers. The following section presents the methodology used in the empirical work, the case study, with a qualitative approach carried out through

interviews with companies in the automotive industry in the Minho region. Finally, results are analyzed and discussed.

2. Literature Review

According to Groover (2002), automation can be defined as technology that performs tasks and processes without human assistance, through the application of mechanical and electronic systems. Its purpose is to increase productivity, reduce costs and improve product quality.

The term AI was coined by John McCarthy in 1956 to describe the science of manufacturing intelligent machines. However, progress in this area has been slower and it was not until the 1990s that there was significant development (Jiang et al., 2022). AI seeks to create intelligent machines capable of learning, reasoning, and making decisions autonomously.

The process of robotization is the implementation of automated systems that involves the use of robots, and it can combine automation and AI to allow robots to perform tasks independently. Robotization makes it possible to speed up work processes, reducing the workforce and minimizing errors (Lakshmi and Bahli, 2020).

Automation is part of a new concept, Industry 4.0, and the next production revolution (Squicciarini and Staccioli, 2022). The concept of Industry 4.0 was first introduced in 2011 by the German government, initially as a technological development strategy, later it was used to define the fourth Industrial Revolution (IR). According to Smit et al. (2016, p. 20), "Industry 4.0 highlights the organization of production processes of the entire value chain, based on technology and autonomous communication mechanisms". Currently, with the positive impacts and limitations of Industry 4.0, there are already references to the fifth IR, or Industry 5.0. The concept is still evolving; however, the aim is to achieve sustainable development for production processes, creating a balance between machine and human (Leng et al., 2022).

In professional terms, automation implies the replacement of human labor with machines or another form of automation technology, which leads to the displacement of workers from easily automated tasks (Acemoglu and Restrepo, 2018).

According to the study carried out by Nova SBE and CIP in 2019, Portugal is positioned in second place as the country with the greatest automation potential in the world, which means that the impact of this process should happen soon, contrary to what Manyika et al. (2017) say, ensuring that the impact of automation is not immediate. This potential for automation that the country presents is due to the excess of repetitive work activities in the industrial sector, especially in the automotive sector and in the textile sector (Nova SBE and CIP, 2019). While all sectors feel the consequences of automation, not all feel them in the same proportions (Milosevic., Ilic and Popovic, 2022).

In view of the difference between countries and regions, there is still a large difference between the educational level of workers and their age group. Middle- and low-skilled workers or older workers are at greater risk of automation, as they tend to occupy jobs with simpler, more repetitive functions. On the other hand, highly skilled or younger workers will adapt more easily to the changes caused by automation (Groshen and Holzer, 2019).

Nova SBE and CIP (2019) also add that the evolution in the phenomenon of automation in symbiosis with the reskilling of the workforce is an added value for both workers and companies since the change from low to high value-added tasks increases the productivity of both.

According to the Eurofound (2021), the implementation of automation in the labour market has implications for working conditions as well as employment. It is generally associated with job losses, i.e. the replacement of workers by machinery and equipment. However, automation also promotes the creation of new jobs, particularly in the technological field.

Frey and Osborne (2017), in a study on the susceptibility of work to automation, concluded that about 47% of jobs in the U.S. are at high risk of being replaced by automation in the next 10 to 20 years, namely in the transportation, logistics and manufacturing sectors, along with the bulk of office work and administrative support. Nedelkoska and Quintini (2018) consider that significant risk comprises an automation risk value between 50% and 70% and high risk assumes a value greater than 70%. In practical terms, according to Frey and Osborne (2017), 47% of jobs in the U.S. face an automation risk of more than 70%.

At the same time, Arntz et al. (2016) considered the heterogeneity of the countries studied, which means that the percentage of jobs at risk of being automated varies by country. Germany and Austria have a higher figure of 12%, while South Korea and Estonia have a lower figure of 6%. However, they have a common feature, that low-skilled and low-wage workers are mostly those who face a high risk of automation (Arntz et al., 2016). For Arntz et al. (2016) it is unlikely that automation will modify occupations on a large scale, but rather tasks inherent to certain occupations.

Borjas and Freeman (2019), cited by Groshen and Holzer (2019), estimate that each robot displaces about four to five workers from their workstations. However, Acemoglu and Restrepo (2020) estimated a lower figure of 3.3 workers displaced by each additional robot per thousand workers. These estimates were based only on the analysis of the industrial and manufacturing sector, where practically all industrial robots are implemented so far, but will be disseminated in the other sectors over time. According to Acemoglu and Restrepo (2020), the automotive industry employs the highest percentage of robots, followed by the electronics industry, with 38% and 15%, respectively.

AI and robotics are driving the creation of new jobs. However, most of these new jobs are a result of the overall increase in productivity that these technologies bring, which generate additional demand for labor (Hawksworth, Berriman and Goel, 2018).

The reskilling of workers becomes important so that they can develop new skills and acquire new knowledge for the future of work and to prevent unemployment caused by the phenomenon of automation. The WEF and PricewaterhouseCoopers (2021) also add that the focus on reskilling and upskilling people allows them to be active in economic development, reducing inequalities and improving social stability.

The skill level of workers, according to Nedelkoska and Quintini (2018), shows a pattern regarding automation, indicating that a higher skill level means a lower risk of automation. This means that the commitment to the requalification of the workforce is an important factor in avoiding the extinction of jobs.

In Portugal, the percentage of the population with a low level of education is quite high and considering that only one third of the population has digital skills above the basic level, according to Eurostat data from 2019, a reform of the vocational education and training system is necessary (OECD, 2021).

Choosing to lay off and hire people instead of going down the path of reskilling is the easiest way to respond to the transformations that are happening in the labour market. This is because companies see reskilling as a cost rather than a long-term investment. Hiring also entails its costs, which can sometimes be as high as the training that could have been given to obsolete employees (Weber, 2019).

The challenges of reskilling, presented in the Nova SBE and CIP report (2019), are, specifically, on the part of the government, the lack of centralization and coordination of public policies, on the part of workers, low qualification, on the part of the employer, the lack of financial incentives and, on the part of the labor market, many consider the investment made by companies in requalification to be a challenge. Since it does not present a direct return for them, this is because workers may eventually migrate to competition, also the lack of knowledge of workers is a challenge as it can sometimes limit their options and opportunities, and finally, the investment in retraining is considered lower than expected, which leads to state intervention to correct this market failure.

Arntz et al. (2016) identify low-skilled workers as being the most disadvantaged, as they mostly perform potentially automatable tasks, and if complementary tasks with automation become more complex and demanding, workers do not have the skills, nor qualifications, to keep up with change. Even resorting to reskilling can be difficult since the speed of the current revolution is much higher than previous revolutions.

However, according to Beaudry et al. (2013), cited in Frey and Osborne (2017), there has been a decline in the demand for qualified personnel in the last decade, even as the supply of workers with higher education continues to grow. What has happened in the labor market is that high-skilled workers have taken over occupations traditionally performed by low-skilled workers, which has caused low-skilled workers to perform occupations even further down the occupational ladder and may even drop out of the labor force. This raises the question of whether it will be possible to win the race against technology through education.

Governments have a key role to play in ensuring the correct use of the benefits of automation and mitigating the harm caused by automation to displaced workers (Groshen and Holzer, 2019).

Legislative, business and educational actions are needed at all levels to address the challenges of the new labour market (Moraliyska, 2021). Namely, investing in education and training, implementing legislation to protect workers' rights, among others.

According to Groshen and Holzer (2019), the creation of public policies to encourage employers to provide on-the-job training is quite important, especially for workers at risk of being displaced by automation.

In 2020, Portugal presented an Action Plan for the Digital Transition (PATD) based on three fundamental pillars: the empowerment and digital inclusion of people, the digital transformation of the business fabric and the digitalisation of the State.

One of the measures presented to promote employment in the digital area was the creation of models for the retraining of employed or unemployed workers. The PATD highlights that digital skills are increasingly important for the exercise of functions in different sectors of activity. Therefore, it intends to ensure this component at the different levels of qualification, that is, from initial training to higher education, not leaving aside training aimed at the unemployed population, intending to facilitate their re-entry into the labour market.

For the population in the labour market, the plan provides for a training programme in digital technologies to meet the needs of companies in terms of digital ascension.

Digital transformation is also one of the main pillars of the Recovery and Resilience Plan (RRP), which provides for reforms and investments to ensure the digital transition in Portugal (Portugal Digital, 2022).

In the Portugal 2030 strategy, it is intended to continue the public policies developed within the scope of the digital transition in the PATD and in the components of the RRP.

3. Methodology

To analyze the impact of technological innovations and automation in the automotive sector in the districts of Minho in Portugal, as well as the human capital reskilling processes adopted by companies to deal with these changes, the methodology used is the case study, using a qualitative approach through interviews. This approach allows us to gain a direct understanding of the perspectives and experiences of the individuals most affected by automation. Interviews are conducted in a way that fosters genuine dialogue, allowing interviewees to express themselves authentically and in-depth while achieving the objectives of the study (Quivy and Campenhoudt, 1992). The interview script[1] is divided into the following topics: the characterization of the company, the situation of the automotive sector, the situation of the company, employability, the reskilling of workers and, finally, the future of the automotive sector and automation.

3.1 Characterization of the Automotive Industry in Portugal

The automotive sector in Portugal encompasses both the manufacture and trade of automobiles. According to data from Banco de Portugal (2023), in 2022, there were a total of 18,028 companies in the sector, with a turnover of €33,589 million and 130,388 people employed. Automotive manufacturing, the subject of this study, represents 2.68% of the number of enterprises, 34.95% of turnover and employs 35.79% of people (Banco de Portugal, 2023).

In chronological terms, the automotive industry has followed a linear progression, with the exception of 2020, marked by the pandemic, which resulted in a significant decrease in turnover and the number of employees. After a fall in 2020, there was a recovery in subsequent years, although the number of manufacturers decreased in 2022, possibly due to the post-pandemic consequences, with the closure of 17 companies (Banco de Portugal, 2023).

3.2 Characterization of the Interviewed Companies

Four companies in the automotive sector in the districts of Minho participated in the study, as shown in Table 1. The interviews were conducted between September 29, 2023 and October 18, 2023.

[1] The interview guide may be obtained from the authors upon request.

Table 1: Characterization of the interviewed companies

Company	Location	Year of start	Activity	Number of employees	Turnover (million euros)
A	Lanheses – Viana do Castelo	2011	Exhaust gas recirculation systems	1400	264 (2022)
B	Lanheses – Viana do Castelo	2020	Paintings of decorative parts in plastic, aluminium and steel	84	4,5 (2023)
C	Arcos de Valdevez	2015	Light metal die casting	120	No data available
D	Vila Nova de Famalicão	1990	Production of tyres for cars and specialist tyres	2600	> 1000 (2022)

4. Results

The analysis of the interviews was structured and divided into the topics present in the interview script, to facilitate the analysis of the content of the interviews.

The results obtained through the content analysis were as follows:

4.1 The Situation in the Automotive Sector

The automotive sector is considered by the 4 companies under study as one of the sectors that is at the forefront in terms of their exposure to automation. This perception is based on the constant technological evolution that characterizes the automotive industry, as well as the increasing integration of automated systems in its production process (Anzolin, 2021). The interviewee from company D says: "I recognise that it has always been, from a historical point of view, perhaps the automotive industry has been at the forefront of development for a long time". The interviewee believes that the automotive sector is overtaken by other areas, however, he mentions that it is one of the main industries that takes advantage of these automation technologies for its development. The dynamics of the sector, according to the interviewees, is not restricted only to the automobile, but can extend to other industrial areas. In particular, sectors such as healthcare, where automation can improve clinical and diagnostic processes, the military industry, through the development of robotic systems and drones and autonomous vehicles, and the aeronautical industry, where automation contributes to operational efficiency and safety, stand out. Thus, the convergent view of the companies under study highlights that automation is a phenomenon capable of reshaping not only the automotive sector, but also other sectors. This highlights the need to look for strategies to deal with challenges and take advantage of opportunities that automation promotes.

4.2 The Company's Situation

Automation has brought significant benefits to businesses, including increased operational efficiency, better value for money, and increased worker safety.

Some companies, such as the case of Company B, are advanced in automating specific production processes, but are still far behind in terms of the potential of AI in production processes, "We don't have AI, it's a complicated area in the painting area. I know that there are experiences in this regard, there are factories in Germany trying to do a little application of these technologies, but it is still not very easy, especially for the detection of defects."

The Covid-19 pandemic has caused uncertainties and delays in the implementation of new automation processes, affecting companies' production and business.

Challenges include the substantial investment required, worker resilience and uncertainty regarding technological change, as well as unpredictable external factors that can impact the implementation of automation, such as political and public health crises.

4.3 Employability

In Company A, automation has been implemented gradually over time, which has not led to a reduction in the number of workers. New jobs have been created related not only to automation but also to business transition, and reskilling and upskilling strategies are adopted to train workers for new areas, "we cannot relate it to the

introduction of automation and new processes, it is related to this whole business transition, and it is through the business transition and new products with new ways of producing and skills that are needed".

In Company B, although automation did not lead to job losses, it also did not result in the creation of new ones. However, the factory director notes that if it weren't for automation, more workers would be needed in certain roles, "instead of a robot it would have to have two or three people 8 hours a day."

In Company C, where production is already highly automated, labor is reabsorbed into other areas or functions when new automation processes are implemented. Turnover strategies are used to ensure that workers acquire various skills, "people in logistics who are qualified to work with a melting furnace, we have people in machining qualified to work on an injection molding machine or to work on a CNC machine."

At Company D, despite the continuous growth in the number of employees over the years, automation has resulted in the disappearance of some jobs, but also in the creation of others, especially in the maintenance area, "because in some situations we will have to reinforce because we will start to have many more machines and equipment." Reskilling and upskilling strategies are also adopted to raise the skills of the workforce and minimize the impact of staff replacements.

None of the companies studied contributed to the increase in unemployment due to automation.

4.4 The Reskilling of Workers

Every company values reskilling as a key tool to keep its workforce prepared for the ever-changing challenges of the marketplace, regardless of the impact of automation.

Company A points out: "we don't just look at the current moment, but what is the next career step and how can we best qualify and prepare the person".

Company B highlights the need for training: "In the North it has not been very easy to find people with knowledge, some have knowledge of horizontal painting, more or less automated.

Company C highlights the importance of qualifying more people, proving that "we have absenteeism, although it is not very high, it exists, and therefore, we have to have the ability to move people from this to that position". This practice reflects the company's view that reskilling is a constant opportunity for improvement and development.

For company D, training "continues to be a significant slice of what is the budget that we have from the point of view of people management" every year.

4.5 The Future of Automotive and Automation

Company A believes that automation will replace repetitive tasks but is seen as an opportunity for workers to focus on more creative tasks. The company sees technological evolution as necessary for progress and highlights the importance of adaptation and learning. Regulation is considered crucial to ensure a controlled and safe environment in the world of work, "At work it will have to be regulated like anything else that is disruptive".

At Company B, although there have been advances in automation, challenges persist, especially in minute manual tasks such as checking for defects. The company sees automation as a way to improve the quality of life for workers.

In Company C, it is believed that some Human Resources functions will not be easily replaced by automation due to their emotional and human nature. The company anticipates a significant increase in the use of automation and AI across the board, with both challenges and opportunities for workers.

Company D sees automation as a necessary strategy to improve efficiency, especially in manual and repetitive tasks. The company emphasizes the importance of reskilling workers to stay relevant in the ever-evolving market.

Globally, the companies surveyed acknowledge that automation is inevitable for the future of the automotive industry but highlight the importance of regulation to protect workers' rights and ensure a safe and ethical work environment. In addition, the reskilling of workers is seen as key to meeting the challenges and seizing the opportunities brought about by technological evolution.

5. Conclusions

Automation is well established in the automotive industry, but it has evolved to encompass complex tasks beyond simple and repetitive ones. While businesses benefit from automation in terms of cost, productivity, and worker safety, there are challenges such as investment costs and worker adaptation to change.

The aim of this paper was (i) to analyze the impact of automation on employment, focusing on the automotive sector in the districts of Minho in Portugal, and (ii) to understand the importance of workforce reskilling for companies in the sector. The adoption of AI technologies is at an early stage in the automotive sector in the North of Portugal. Some companies have already taken their first steps by adopting small AI systems, while others have not yet made progress in this regard. The results indicate that (i) automation has no negative impact on employment, since the destruction of some jobs was compensated by the creation of new ones and (ii) reskilling and upskilling are important strategies implemented by firms to prepare workers for the transition to new jobs and tasks.

Companies have invested in in-house training to reskill their workforce and mitigate the potential impact of mass layoffs. Automation has shifted workers to control and supervisory tasks but has not shown significant implications for employment to date.

The study also highlights the lack of specific guidelines for automation and AI in Portugal, suggesting the need for regulation.

Although the findings are based on a limited sample, it represents a significant portion of the automotive turnover in Portugal. Thus, it is suggested, for future research, to expand the sample to other companies in the automotive sector and to apply the study in other sectors, such as health. In summary, the article offers a detailed overview of the interactions between automation, employment, and reskilling in the automotive sector in the Minho districts of Portugal.

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Exploring the Contents of Leader Identity Development Across Life Domains

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Abstract: The way an individual self-identifies as a leader (leader identity) is a critical component of the leader development process (Day and Harrison, 2007). Since this recognition, the field has experienced increased attention (Epitropaki *et al.*, 2017). In this way, the *development* of a leader identity naturally becomes a topic of importance given that organizations are interested in more effective leaders, considering the 60 billion dollars spent on leadership development programs by global organizations every year (Future Market Insights, 2024). However, despite some recent advances in understanding leader identity development, the discussion is often limited to a single life domain, most commonly work (Lanka *et al.*, 2020) when leadership is understood to transcend a formal role or context (DeRue, Ashford and Cotton, 2009). The present investigation draws on theory of leader development across life domains (Hammond, Clapp-Smith and Palanski, 2017) to explore factors that promote and hamper self-identification as a leader. Through a thematic analysis (Braun and Clarke, 2006), 25 in-depth interviews focused on three different life arenas revealed four factors promoting leader identity development: being conceded responsibility, taking initiative, having an expanded understanding of leadership, and having a sense of purpose. Additionally, two factors served as obstacles: a feeling of incapacity, and self-focus. Implications for practice and theory are discussed. Specifically, the section distinguishes between internally- and externally driven leader identity, how leader identity can be developed before and during the course of a research interview, and the role of purpose. On the obstacles side, the findings are firstly linked to the impact of leadership stereotypes (Epitropaki and Martin, 2004). Also, foundational works such as social identity theory (Tajfel and Turner, 1986) and job demands-resources theory (Bakker, Demerouti and Sanz-Vergel, 2014) are incorporated in terms of how they may justify obstruction of positive change in leader identity.

Keywords: Leader Identity; Leader Identity Development; Multi-domain; In-depth Interviews

1. Literature Review

Leader identity refers to how one thinks of oneself as a leader (Day and Harrison, 2007). The importance of developing leadership beyond the typical focus on skills and behaviors was highlighted by Lord and Hall (2005), who recognized the role of deeper development, namely cognition and identity. Those conceptual ideas were further advanced by Day and Harrison (2007) who promote the use of identity as a developmental lever to accelerate leader (the individual) and leadership (the collective) development (Day, 2000).

Komives *et al.* (2005) was one of the first to bring to light a process of leader identity development ranging from awareness about leadership to integration through daily leadership actions. This developmental path is similar to other leader identity development proposals (e.g., Ibarra *et al.*, 2010; Zheng and Muir, 2015) in the sense that there is usually some sort of divergent movement (e.g., understanding, exploring) followed by a convergent movement (e.g., synthesis, internalization).

It is also suggested that the development of identity and skills work in a mutually reinforcing way for an individual, like a spiral (Day *et al.*, 2009). In practice and over time, this would mean that the more one identifies as a leader, the more motivated one would be to develop leadership skills, an act that further strengthens leader identity. The opposite, a negative spiral, is also argued to be true.

A complementary view is offered by Derue and Ashford (2010), who proposed that leadership identity is co-constructed in organizations through claiming and granting acts to lead or to follow. For instance, one can claim leadership through an action (e.g., volunteering to find a work solution) that can be granted or not by others. Over time, this ongoing claiming-granting social mechanism leads to the formation of leader and follower identities.

More recently, leader identity was theorized to develop in four dimensions: meaning, the understanding of leadership an individual holds; strength, the extent to which a person identifies as a leader; levels, a range that goes from individual to relational to collective; and integration, the extent to which a leader identity is integrated within a global self-concept (Hammond, Clapp-Smith and Palanski, 2017).

Regarding how leader identity evolves in terms of its trajectory, it was found that it develops in a curvilinear way based on seven measurement points with graduate students who were participants in a leadership program (Miscenko, Guenter and Day, 2017). Kwok, Shen and Brown (2021) also observed a quadratic trajectory of leader

identity with military cadets. Within the organizational context, it was found that leader identity develops in a linear and positive way across four measurement points with high-potential leaders (Kragt and Day, 2020) and across 12 measurement points with senior leaders (Middleton, Walker and Reichard, 2019).

Increases in leader identity have been observed by scholars and this impact is linked to psychological detachment from work after hours (Lanaj, Gabriel and Jennings, 2023), mentoring, not only from the perspective of mentees (Muir, 2014), but also mentors (Ayoobzadeh and Boies, 2020), learning goal orientation and motivation to lead through a leadership intervention (Kwok, Shen and Brown, 2021) and through many types of leadership intervention programs (Middleton, Walker and Reichard, 2019; Kragt and Day, 2020). Exploratory studies also highlight what can catalyze leader identity development, for instance, role models, mentors, negative role models, feedback, and crystallizing events (Lanka, Topakas and Patterson, 2020).

Less is known about what negatively impacts the leader identity of individuals, but rumination after work hours was found to play that role (Lanaj, Gabriel and Jennings, 2023). Similarly, Lanka *et al.* (2020) identified that barriers to leader identity construction include organizational structures, identity rejection, and identity uncertainty.

Alternative views to develop leader identity include play (Ibarra and Petriglieri, 2010; Kark, 2011), having a transitional time and space (Ibarra, Snook and Ramo, 2010), and development across life domains (Hammond, Clapp-Smith and Palanski, 2017) through sensemaking (Weick, 1995). Considering what was discussed so far, the research question is expressed below:

RQ: What factors facilitate the process of an individual self-identifying as a leader (or not) through an exploration of different life domains?

2. Methodology

A narrative inquiry research strategy was employed, a methodological approach that refers to the exploration of a story or the shaping and ordering of past experience through retrospective meaning making (Chase, 2018). The choice is aligned with the aim of this study as narratives and life histories are seen as an essential source of knowledge about how individuals experience and make sense of themselves and their social contexts through speech (Musson, 2004).

This broader methodological frame was operationalized through in-depth interviews. First, interviewing is a basic means of inquiring about narratives (Seidman, 1992). Also, they are a way of learning about the meanings of participants' thoughts and actions and go beyond commonsense explanations by exploring boundaries of experience that can uncover hidden insights (Johnson and Rowlands, 2012), and the emergence of unknown leader identity facilitating factors is a critical part of this investigation.

Participants (n = 25) were members of an international community focused on meaningful discussion events around intellectual topics. In total, 12 women and 13 men with an average age of 45 years old agreed to participate.

Interviewees were obtained either by direct recruitment by the first author of this study or by referral, categorizing a snowball approach to collecting data. Upon invitation, participants were informed that the conversation would be around the concept of leader identity. No incentive was offered, all participants joined voluntarily.

Interviews took place from September of 2023 to February of 2024. On average, they lasted 45 minutes and were conducted in English and virtually. Additional demographic data was collected through an online questionnaire. Three pilot interviews were conducted for learning purposes.

Given the in-depth approach to interviewing, known as friendly, intimate, and aimed at collecting "deep" knowledge (Johnson and Rowlands, 2012), the interviews were purposefully centered around only one question, leaving significant space for organic follow ups as digressions are likely to be productive and "going with the flow" is encouraged when conducting in-depth interviews (Johnson and Rowlands, 2012). The main question being referred to was "generally speaking, do you think of yourself as a leader?" and the follow up questions were organically framed throughout the course of the interview having three different life domains in mind: family, work, and community. The choice for the main question stems from the definition of leader identity itself, which is how one thinks of oneself as a leader (Day and Harrison, 2007).

Thematic analysis was used to arrive at the results, a technique that involves identifying, analyzing and reporting themes that emerged from data (Braun and Clarke, 2006). This analytical approach not only effectively answers the exploratory research question presented earlier, but it also shows to be appropriate to investigate leader identity development as it has been used in recent publications (e.g., Lanka *et al.*, 2020; Ryan *et al.*, 2024).

The present study follows the six steps of the thematic analysis process: familiarization with the data, producing initial codes, seeking themes, reviewing themes, defining and naming themes, and writing the report (Braun and Clarke, 2006). The qualitative data was processed using the MAXQDA software.

3. Results

3.1 Promoters of Self-identification as a Leader Across Life Domains

3.1.1 Being Conceded Responsibility

According to the data, being conceded responsibility refers to being formally assigned a responsibility or role to lead one or more initiatives. It is observed that when leadership is formally conceded to individuals, they will consequently self-identify as a leader more easily. After saying that she generally identifies as a leader, participant 14 expands on her reasons: *"Because I've had to take leadership roles in a unit or in an office. So, by nature, that was my role"*. So, having a leadership role was clearly impactful to her leader identity. She went on to illustrate that the role was assigned to her, instead of pursued by choice:

> *Well, I suppose since I started to take those leadership positions, it was not really a question, you are either a good leader, a bad leader, a mediocre leader, but that was, in a way, a role prescribed to you. And you may have people, let's say, in an office or unit who would be looking at you as a leader and expecting you to play that role. So, it's not really by choice, but it was a responsibility.*

What is also noticeable from the quote above, is a feeling of necessity to be a leader that emerges after being assigned responsibility. Similarly, participant 19 indicates an equivalent process when it comes to his leader identity. He confidently identified as a leader and reported the fact that he "was thrown into relatively responsible roles early on" as a main reason. Again, the terminology used ("was thrown") signals that being a leader was not a choice, but externally driven.

3.1.2 Taking Initiative

The data suggests that taking initiative refers to voluntarily or proactively taking the lead with a task or event that involves lower or higher stakes. Participant 16 who strongly identifies as a leader, exemplifies a high-stakes situation where he takes a sizable responsibility by bringing his recently bankrupt family in search of a better life to the United States against his father's will:

> *I took the role of a leader early, when we became refugees. We'd lost everything and I decided that I will come to America and do something for the family, even though my father said 'no, you're going to fail, you have no money'. So, if you look at those three categories, I guess I never thought of it, that I was playing the role of a leader, but now, if you define those three categories, looking back, I would say I was acting as a leader in my family.*

Compared to being conceded responsibility, the previous theme categorized by externally-driven leader self-identification, leader identity was a result of an internal drive or willingness to take the lead.

It is also interesting how participant 16 can point out exactly when he became a leader according to different life domains and how those moments are all related with taking some sort of initiative:

> *Work wise it happened when I built, when I started building my company and I started helping immigrants move. And then community wise, it happened also in my 40s, I got involved at a church, at the church council. I got involved in many other communities, the city, with the city I lived in, I've served on the development committee.*

Participant 24, who identifies as a leader, endorses those ideas as the shared an example of how she is the one who leads certain family activities.

3.1.3 Having an Expanded Understanding of Leadership

It was noticed that some research participants held a broad and flexible definition of leadership, exemplified by the idea that "we are all leaders" as pointed by participant 3 and elaborated by participant 25:

> *I think everyone is a leader in one way or the other. Not everyone is a good leader. And not everyone's mandate is like a company with like 100,000 employees or something. But you're leading, you know, if you're a parent, if you're a spouse, if you're a son or daughter, like, even the simplest of settings.*

This way of conceptualizing leadership may impact individuals' capacity to identify as a leader. The line of thinking portrayed above raises the suspicion that the more expanded one's definition of leadership is, the easier it is to fit oneself into it and therefore self-identify as a leader. Linking back to the main interview question voluntarily, participant 25 illustrates this "If I pretty much see any everyone as a leader, then I don't see myself as an exception to that question."

It was also noticed during some conversations that this expansion of a leadership understanding can happen during the interview itself. Participant 11 demonstrates part of the referred expansion happening in practice.

> *Because I have this idea of what a leader is, when I think of a leader, I don't immediately think of myself as a leader because I'm not that, right? But if I start thinking about what leader means, yes, sometimes I can be a leader in a group of friends or at work. Or, you know, even in my Pilates class I can be a leader, like bringing people along to do something, for instance.*

Lastly, the expansion of one's leadership understanding may not only happen during the interview, but the mere invitation for an interview about leader identity can be a contributing factor, as described by participant 8:

> *Well, before you asked me to be part of this [the interview], I would have never thought, but since it's been a while since you first asked me and then it [the topic] starts living in my head, you know, like this thing has been put there. And in a way, I started seeing the ways I am a bit of a leader. Well, first of all, I organized this meet ups in Sevilla for the first time and that's, like, quite an obvious way of being a leader, like nobody else organizes, so I have to do it and I am capable of doing that.*

To summarize, the current theme has diverse characteristics. Individuals can have an expanded definition of leadership pre-interview, they can expand it during the course of an interview through conversation, and even the invitation for an interview on leader identity serves as a developmental lever since participants naturally start to think about the concept and their future responses.

3.1.4 Having a Sense of Purpose and Vision

A sense of purpose, vision or drive was observed in some participants as influential factors to their leader identity. Participant 16 shared his particular belief: "I have this bias and this belief, right or wrong, that you're born for a purpose. I have just... I've always, always believed that". He then elaborates on the impact of having a purpose on big life decisions that relate to being a leader:

> *I didn't have to take a chance to go to America, […] but there was a direction, there was a drive that came from, I don't know where, and that that fed into, 'oh, I could do this, I could do that'. And once I got my family settled, I said 'you know, maybe I can help hundreds of other families', and we did.*

Another perspective is given by participant 8 who talks about wanting to be "the example or the inspiration" to people so they can heal themselves through her video contents published online. She referred to this project as "the gift" she wants to offer. Taking a more objective approach, participant 3 also talks about his desire to lead: "Many years ago I created a vision board. I think maybe I learned it in some workshop. So, I have a vision board, it's called 'to-be list' and I have, like, pictures of my ideal self and I think I mention that I want to be a leader."

In summary, similar terms like purpose and vision have been used to describe how a sense of direction in life can facilitate the development of a leader identity.

3.2 Obstacles to Self-identification as a Leader Across Life Domains

3.2.1 Feeling of Incapacity

The data shows that this theme refers to a feeling of incapacity guided by self-perceptions of lack of confidence/assertiveness or not having the right personality/nature. Often during conversations, participants

used these factors as a justification for not seeing themselves as leaders. After expressing that she does not think of herself as a leader, participant 15 elaborated on her reasons:

> *When I think of a leader, I'm thinking of someone that's more assertive and that is something that I struggle with in my life, like being able to seek my boundaries and reinforce it all the time.*

As observed, due to the central importance she places on assertiveness and given the perception that she lacks this quality, participant 15 is unable to label herself a leader after being explicitly asked about it.

The lack of confidence can be observed when participant 17 speaks about her difficulty to take initiative in social settings and her tendency to overthink:

> *I am not the person that, in a group, tends to immediately… I don't step forward immediately. No, I don't think so. In that sense, I always try to listen from… maybe I balance too much every opinion.*

The data also reveals that the belief of not having the right personality or nature to be a leader functioned as a barrier to self-identification as a leader. Participant 4, for instance, talks about the impossibility of changing her "default personality" because of how she would start shaking every time she held the microphone before giving her testimony at church despite wanting to participate. Participant 15 endorsed this belief "I feel like you should have a certain personality to be able to do that [be a leader]. Well, yeah, I'm more of a quiet thinker."

3.2.2 Self-focus

Another theme that emerged as an obstacle to self-identifying as a leader is having a stronger self-focus. This was manifested in many ways, for instance, being more interested in one's free time and hobbies as illustrated by participant 18:

> *I'm not the person who wants to be a leader for one reason, I'm a person who has a private life. I like my hobbies. I don't want to be fully colonized by work. So, I want to have my free time. I go to work, I do the work, I go home, and I want to break any connection with work while I'm home.*

This self-focus can also be observed through a desire to improve one's own skills. In describing an invitation to play a role in a community she is a part of, participant 4 expresses her "selfish" reasons after accepting to help:

> *I was just really interested in the events and I thought that it would be nice to help, but mostly, like I said, for selfish reasons. I want to improve myself, like, I want to speak better. I want to be able to... I want to be a better listener.*

4. Discussion

The first theme of this study, being conceded responsibility, highlights the importance of being given a formal role to the development of a leader identity. This finding is supported by theory on claiming and granting leadership (Derue and Ashford, 2010), where being conceded formal responsibility is equivalent to being granted leadership, an important social event for leader identity construction. Based on the data, being conceded responsibility was associated with a feeling of necessity to be a leader. A possible justification is that formal roles are likely to induce a sense of responsibility (Tost, 2015). Perhaps because of the social nature of leadership, a significant social recognition of one's leadership will lead to a "pressure" to perform well, an effect that is suspected to be catalyzed when the individual holds a modest leader identity self-view. The data indicates that the role of responsibility is critical for leader identity development, and the current study contributes to the body of knowledge suggesting the same, but through a unique multi-domain approach. In the artistic world, for instance, having responsibility is associated with increased leader identity (Elstad and Jansson, 2020). In the educational sphere, responsibility is part of a student leader identity development model (Komives *et al.*, 2006), and having a sense of responsibility was found to be instrumental in the process of developing a leader identity in teachers (Quaisley *et al.*, 2023). It is noticeable, however, how overlooked the impact of responsibility on leader identity is to organizational scholars. So, the present multi-domain work brings this discussion to new contexts.

The theme "taking initiative" represents that being proactive to take the lead also contributes to an individual's leader identity. Both smaller (e.g., organizing a family outing) and bigger (e.g., building a company) efforts are shown to be related to a sense of identity as a leader. As opposed to a feeling of necessity (linked to the previous theme), the present theme is associated with *willingness* to be a leader. This idea is similar to the concept of motivation to lead (Chan and Drasgow, 2001), which means an individual desire for leadership. In aggregation,

the first two themes of this study highlight the importance of having some degree of responsibility, either taken or given, for a leader identity to be developed.

The third promoting theme refers to having an expanded understanding of leadership. This concerns the meaning and integration dimensions of multi-domain leader identity (Hammond, Clapp-Smith and Palanski, 2017). It was found that this expanded understanding comes in various ways, for instance, holding a belief pre-interview that "we are all leaders" is connected to seeing oneself as a leader as explained by one participant. The expanded understanding of leadership was also something that developed during the course of the interviews through dialogue, or even after receiving the formal invitation to be interviewed as this subsequently motivated participants to engage in self-reflection about leader identity. These findings not only offer support to works indicating that leader identity can be discursively constructed through research interviews (Clifton and Dai, 2020) and through redefining leadership (Zheng and Muir, 2015), but also extend the discussion as a mere invitation to be interviewed catalyzed self-reflection that served as a means to amplify own definitions and perceptions of leadership.

Lastly, having a sense of purpose was found to play a role in developing a leader identity. To justify their positions, some participants who thought of themselves as leaders referred to purpose-related subjects such as having a direction to be followed in life, believing to be born for a purpose, and keeping a vision board. Even though research on purpose and leader identity is scarce, other aspirational variables have been positively connected to leader identity, including learning goal orientation (Middleton, Walker and Reichard, 2019) and motivation to lead (Kwok, Shen and Brown, 2021). The concept of purpose is argued to be so connected to leadership that it's almost always taken for granted and subsumed by research (Kempster, Jackson and Conroy, 2011). Maybe because of that the current theme does not initially come across as unique, but, in fact, purpose and leader identity represent a novel link, categorizing a contribution to knowledge by this study.

Beyond promoters, obstacles to leader identity development were also observed. Lack of confidence/assertiveness and not having the right personality/nature, for instance, emerged as relevant themes. Both themes seem to represent a feeling of incapacity in light of an idealized leadership image. Since stereotypes of leadership include traits such as intelligence, tyranny, masculinity, dynamism (Epitropaki and Martin, 2004), then it is likely that individuals unable to acknowledge those traits in themselves probably had difficulties in this self-identification process. While this research only entails self-views, identities are inherently social (Mead, 1934). So, from a leadership development perspective, even though some individuals do not see themselves as leaders, other people could see the opposite, categorizing an incongruent leader identity (leader under-identification) (Bartels and Wellman, 2023). Given that social endorsement contributes to a self-internalized sense of identity as a leader (Palanski *et al.*, 2021), this incongruence can potentially be bridged by individuals with feedback mechanisms, for instance.

The theme of having a stronger self-focus was also found to hamper leader identity. Through stories, some participants demonstrated no interest in labeling themselves as leaders. Data points to many explanations, but potential reasons include wanting more time for personal hobbies, free time, and liking to do things on one's own. In reviewing some interview conversations, thoughts such as "I'm not a person who wants to be a leader for one reason: I'm a person who has a private life, I like my hobbies, I don't want to be fully colonized by work, so I want to have my free time" could be further explored with social exchange theory (Homans, 1958) as some individuals may see social endeavors like leadership to have costs that outweigh benefits.

Further interview excerpts such as "let's be frank, a leader is someone, at least in our society, who probably has to work *a lot*… They have to have a very work-oriented life, and I'm a person who's trying to skip work all the time" could mean an unhealthy relationship with work that could be better understood through the lenses of job demands-resources theory (Bakker, Demerouti and Sanz-Vergel, 2014) in the sense that demands (e.g., workload) exceed resources (e.g., autonomy). One additional interpretative lens for this phenomenon could be supported by social identity theory (Tajfel and Turner, 1986) as individuals derive a sense of identity based on their group memberships and negative job experiences could lead to disengagement, blocking leader identity positive change.

Considering this discussion and given the strongly held positions observed in some participants when it comes to not identifying as leaders in the present or future, it is also suspected how biological or cognitive factors (e.g. cognitive biases) help explain leader identity development incapacity. For instance, would confirmation bias matter? Would availability bias matter? These seem to be relevant questions.

5. Limitations and Future Research

Like most qualitative studies, the generalizability of the results presented here may be limited, so caution needs to be exercised when extrapolating insights. Also, identity is considered to be inherently social (Mead, 1934) and the current research is restricted to self-views, categorizing another potential liability. Therefore, multilevel research is encouraged in future studies.

Moreover, the present data can be classified as cross-sectional and even though this approach is helpful, the leadership development field is seen as longitudinal by nature (Day, 2011), therefore, despite the difficulties involved in collecting qualitative data over time, obtaining multiple waves of data can increase the level of insights on how leader identities are developed.

Despite the relative diversity observed in the participants of this study, it is difficult to guarantee sampling bias immunity, which generally means relying on samples that are convenient and less representative in developmental psychology (Nielsen *et al.*, 2017). Therefore, it is recommended that more systematic sampling techniques are used when studying leader identity.

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What Does Green Logistics Bring to the Circular Economy? An Exploratory Study to Connect the Dots

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Abstract: The world population has increased, and consumerist trends have intensified the need for initiatives to minimize industrial activities' environmental and social impacts. Companies and governments are increasingly recognizing the relevance of these initiatives, yet many firms still follow resource extraction models that hinder sustainability efforts. While previous studies have explored the link between green logistics and the circular economy, gaps remain in understanding how these practices can be leveraged to achieve a competitive advantage in different international contexts. This research aims to fill these gaps by exploring the role of green logistics in promoting the circular economy, using a quantitative approach based on Brazilian and Portuguese companies. The study, therefore, focuses on how logistics practices can support the adoption of circular economy initiatives, minimize environmental impacts, and contribute to competitive advantage. The findings from linear regression analysis indicate that green logistics significantly enhances the implementation of circular economy practices, providing both environmental benefits and strategic advantages in the market. This empirical evidence advances the literature by demonstrating that green logistics is not only crucial for circular economy adoption but also for gaining a competitive edge. Our insights are particularly valuable for academia, businesses, and policymakers seeking to promote sustainable practices that are both environmentally responsible and economically viable.

Keywords: Green Logistics, Circular Economy, Sustainability, Closed-loop Supply Chain, Regression Analysis

1. Introduction

The global economy has experienced substantial growth in recent years, driven by a significant increase in population and a corresponding rise in consumerism across several sectors, including technology, furniture, clothing, and food. While this economic expansion is generally seen as positive, the production and distribution of these goods have significantly contributed to environmental degradation (Eionet, 2016). This has led to an urgent need for sustainable practices, particularly in the logistics sector, which plays a crucial role in the circular economy by ensuring the efficient flow of products, materials, and information.

Logistics activities, often associated primarily with transportation, include a broad range of activities such as supplier management, warehousing, and distribution. The rapid expansion of online commerce has further amplified the logistics sector's contribution to worldwide environmental impacts (Popescu *et al*., 2024). In this context, increasing concerns about the negative impacts of logistics have prompted companies to leverage these activities for future development trends within the framework of a circular economy. This approach aims to support companies in the reverse waste collection process between customers and industries (Blanco and Sheffi, 2024). However, despite the critical role of logistics in the circular economy, existing literature has not fully explored how sustainable logistics practices can be leveraged to achieve a competitive advantage, particularly in different international contexts.

Considering the contribution of linking the dots, this research explores the role of green logistics in promoting the circular economy and reducing environmental impact. More importantly, we investigate whether these sustainable logistics practices can confer a competitive advantage, a topic that has been underexplored in extant literature. Previous studies, such as those by Ly (2021) and Brogi and Menichini (2024), have highlighted the potential for circular economy practices to enhance competitiveness, but have not specifically focused on the logistics sector.

Similarly, sustainable supply chain management (SSCM) and the transition towards a circular economy are increasingly recognized as key drivers of competitive advantage. As highlighted by Genovese *et al.* (2017), SSCM facilitates the shift towards a circular economy by integrating environmental considerations into supply chain operations. This integration leads to the more efficient use of resources, reduction in waste, and the creation of closed-loop systems where materials are continuously reused and recycled. These practices not only contribute

to environmental sustainability but also offer significant economic benefits, such as cost savings through reduced material consumption and waste management expenses.

In light of the above, the research developed by Genovese *et al*. (2017) provides empirical evidence that companies transitioning towards circular economy models often experience improved brand reputation and customer loyalty, as consumers increasingly prefer companies that demonstrate environmental responsibility. This reputational advantage can translate into higher market share and profitability, thus reinforcing the competitive advantage. Accordingly, the dual focus on sustainability and competitiveness is particularly important as companies seek to align their operations with sustainable development goals (SDGs) while maintaining their market position.

The contributions of this paper are twofold. Firstly, it provides empirical evidence that green logistics can significantly enhance the adoption of circular economy practices. Secondly, it demonstrates that these practices not only contribute to environmental sustainability but also offer strategic advantages in the market. These findings are especially relevant for companies aiming to integrate circular economy principles into their operations as a means of achieving long-term competitiveness.

The remainder of this paper is organized as follows: section 2 highlights the importance of logistics and its link with circular economy and sustainability. Section 3 outlines the research path considered for this research, including the construction of the model and variables used as instruments in this research, followed by the analysis used. Section 4 presents the results of the analysis conducted. The paper ends by presenting the main conclusions and policy implications of this research.

2. Theoretical Background

Sustainable logistics, also known as green logistics, is defined as "*supply chain management practices and strategies that reduce the ecological and energy footprints of the distribution of goods, focusing on material handling, waste management, packaging, and transport*" (Seroka-Stolka and Ociepa-Kubicka, 2019, p. 472). Companies in the logistics sector are increasingly adopting sustainable practices to mitigate their contributions to environmental degradation, including carbon emissions, noise pollution, and resource depletion. Consequently, existing research largely focuses on Green Logistics (GL) practices, examining their benefits, barriers, indicators, drivers, and relationship to sustainability performance (Singh *et al*., 2022).

Logistics, as a crucial activity that facilitates the circulation of goods, plays a pivotal role in the supply chain and significantly contributes to environmental impacts, including air pollution (De Souza *et al*., 2022). Transportation, one of the core operations within logistics, is responsible for 24% of global carbon emissions (Ritchie, 2020). Implementing GL practices is essential for reducing emissions and conserving resources in support of a circular economy (Seroka-Stolka and Ociepa-Kubicka, 2019). Several scholars have identified GL practices across various categories aimed at these objectives (e.g., Evangelista *et al*., 2017). These practices have a substantial impact on a firm's environmental performance, which, in turn, contributes to creating environmental value as a fundamental pillar of the circular economy (Jayarathna *et al*., 2023).

GL practices also directly influence economic performance (De Souza *et al*., 2022). For example, reducing energy consumption through modal shifts, eco-driving, the use of alternative energy sources, and fleet management can lead to significant cost savings (Sureeyatanapas *et al*., 2018). Although the implementation of sustainable practices requires substantial financial investment, it enhances financial performance in the long term by providing cost-effective services and attracting more customers, which in turn increases market size, sales, and profitability (Agyabeng-Mensah *et al*., 2020). Additionally, firms anticipate gaining a competitive advantage by adopting green practices (Vachon and Klassen, 2008).

In addition to economic and environmental benefits, GL practices also contribute to social benefits, positively impacting the well-being of employees and other stakeholders, including customers, suppliers, and society (Makov and Newman, 2016). Social practices such as health and safety measures, employee training and development, diversity initiatives, improving working conditions, and supporting community projects contribute to social performance (Kumar and Anbanandam, 2022). These practices play a crucial role in creating social value by fostering human and social capital, essential components of a circular economy (Padilla-Rivera *et al*., 2020).

The concept of the circular economy was first introduced in Boulding's (1966) book "*The Economics of the Coming Spaceship Earth"*. Boulding conceptualized *Earth* as a closed economic system in which the economy and environment are interlinked in a circular relationship. He argued that a linear economic system, characterized by resource extraction, production, and consumption, could be transformed into a circular

economy through waste recycling. This concept was further developed by Pearce and Turner (1990) in their book "*Economics of Natural Resources and the Environment*", which illustrated the economic and ecological functions involved. Pearce and Turner (1990, p. 35) emphasized that "*if we ignore the environment, then the economy appears to be a linear system*". In this linear system, every stage – resource extraction, production, and consumption – generates waste, some of which can be recycled, while much of it is discarded into the environment. They further highlighted that missed opportunities for recycling often result from a failure to create value within the supply chain.

In this context, closed-loop supply chains play a key role in fulfilling circular economy goals. A closed-loop supply chain is a circular supply chain model where traditional activities are integrated with reverse logistics processes to enhance operational efficiency and minimize waste generation (Zarbakhshnia *et al.*, 2023). By embedding the principles of the circular economy, which emphasizes the restoration and regeneration of resources, a closed-loop supply chain can enhance environmental performance by facilitating the return of products to producers and minimizing waste. Accordingly, the significance of logistics management in a supply chain network is becoming clearer (Zarbakhshnia *et al.*, 2023). To achieve the objectives of the circular economy through a closed-loop supply chain, firms must prioritize logistics operations in both forward and reverse flows (Figure 1).

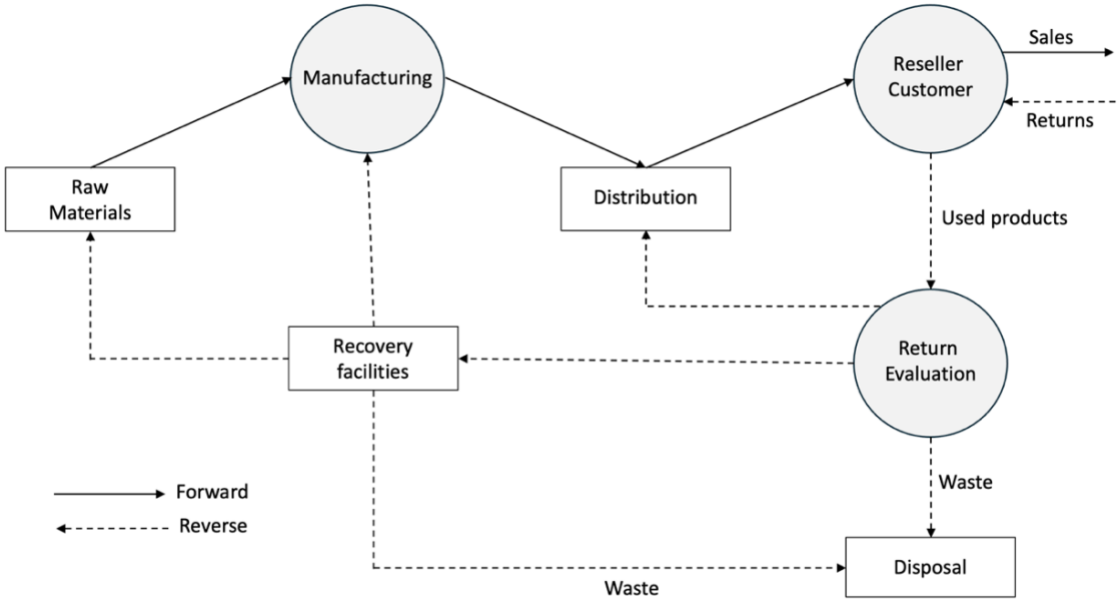

Figure 1: An overview of a closed-loop supply chain (adapted from Zarbakhshnia *et al.*, 2023)

As presented in Figure 1, recycling and disposal are the most significant activities of GL practices in the closed-loop supply chain. This is the main reason why several researchers believe that logistics operations can also be a sustainable and environmentally friendly strategy that allows achieving competitive advantage for companies but also accomplishing the purposes of circular economy and sustainable development (e.g., Sharma *et al.*, 2021). The concept and implementation of green GL practices and closed-loop supply chains contribute to reducing production costs and ultimately lowering final prices for consumers (Lima *et al.*, 2022). By using this strategy, not only the costs and usage of resources will be reduced, but also the environment will be protected (De Souza *et al.*, 2022). The current research thus included the following hypothesis:

Hypothesis (H): *Sustainable logistics has a positive effect on the adoption of circular economy practices.*

3. Methodology

3.1 Data Collection and Sample

In this research, a convenience sample technique was used to distribute the survey between July and December 2023 through the Google Forms platform. The use of this technique was primarily due to the accessibility of participants and the practical constraints associated with reaching a broader sample. While convenience sampling may limit the representativeness of the sample, it was deemed appropriate for this exploratory study.

The selection of Brazilian and Portuguese companies was based on their willingness to participate and their relevance to the study's focus on sustainable logistics and circular economy practices.

Brazil, as an emerging economy with significant industrial and agricultural sectors, presents a unique context where green logistics could play a crucial role in mitigating environmental impacts. On the other hand, Portugal, as a European Union (EU) member with a growing emphasis on sustainability and circular economy initiatives, offers a contrasting yet complementary context for examining these practices. This dual focus allows the study to explore sustainable logistics in diverse economic and regulatory environments, potentially revealing different challenges and opportunities.

By the end of the data collection period, the sample included answers from 14 Brazilian and Portuguese companies. This sample consists of small firms (between 10 and 50 employees; 14.29%) and medium-sized enterprises (between 50 and 250 employees; 85.71%). In this regard, it is worthwhile noting that the sample size is admittedly limited. While this small sample allows for an in-depth examination of the companies' practices, it also challenges the generalizability of the findings. Despite this limitation, the insights gained from this study are still valuable, particularly as an exploratory analysis in the field of sustainable logistics and circular economy practices.

To mitigate common method bias, well-tested scales were employed, and respondent confidentiality and anonymity were ensured. This bias, as outlined by Podsakoff *et al.* (2003), can occur when data is collected from the same source at a single time, leading to variance from the measurement method rather than the constructs being measured. To address this, Harman's single-factor test was conducted, and the results indicated that no single factor accounted for the majority of the variance, suggesting that common method bias was not a significant concern in this study.

3.2 Variables

The questionnaire used in this research was adapted from guidelines provided by the European Commission (2018), ensuring alignment with established standards for sustainability and circular economy practices, and it included three sections. The first contains general questions about the characterization of the companies, such as number of employees, sector of activity, and turnover. The second and third ones comprise six attributes for sustainable logistics and eight questions related to circular economy practices (see Table 1).

Table 1: Measures of sustainable logistics and circular economy practices

Latent Variable	Observed Variable
Sustainable Logistics	LOG1. Identification of new partners within the supply chain who prioritize environmental responsibility or use renewable resources.
	LOG2. Identification of by-products in supply chain processes to reduce waste and promote resource efficiency.
	LOG3. Identification of partners who use by-products or waste materials from the supply chain.
	LOG4. Improvement of transportation and work management.
	LOG5. Promotion of initiatives to stimulate the rational reuse of raw materials.
	LOG6. Adoption of new initiatives that include reverse cycle.
Circular Economy	CE1. Practices for reducing waste generation in the processes.
	CE2. Reuse of resources within the company's production.
	CE3. Sale of resources for reuse by other companies.
	CE4. Recycling conducted by the company itself.
	CE5. Recycling conducted by others.
	CE6. Organic valorization.
	CE7. Energy valorization.
	CE8. Landfill disposal.

The questionnaire asked respondents to express their level of agreement with statements related to the implementation of circular economy and sustainable logistics practices within their companies using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Notably, the level of agreement reflected

the extent to which the companies adopted these practices, rather than merely the perceived relevance or importance of these practices. This distinction is crucial as it directly relates to the study's objective of assessing the real-world implementation of these practices.

The survey also targeted key decision-makers and stakeholders within the participating companies directly involved in or responsible for sustainability and logistics operations. Specifically, the respondents included middle managers and production managers. These individuals were selected because of their comprehensive understanding of the company's operational practices and ability to provide informed insights into adopting circular economy and sustainable logistics practices.

4. Main Findings

4.1 Preliminary Analysis

Table 2 presents the descriptive analysis, including minimum, maximum, mean, standard deviation, skewness, and kurtosis for each item. The descriptive statistics indicate that the responses covered the full range of the scale, suggesting a reasonable diversity of responses. Additionally, a conservative approach was adopted to achieve variables with an approximately normal distribution. This approach considered skewness and kurtosis values, adhering to reference thresholds such as a skewness value less than |3| and a kurtosis value less than |8|, as recommended by Kline (2011).

Table 2: Descriptive statistics

Latent Variable	Observed Variable	Min	Max	Mean	St. Dev	Sk.	Kurt.
Sustainable	LOG1	1	5	4.214	1.081	-2.013	4.785
Logistics	LOG2	1	5	3.929	1.163	-1.376	1.627
	LOG3	1	5	4.000	1.195	-1.411	1.536
	LOG4	1	5	4.000	1.134	-1.322	1.904
	LOG5	1	5	4.143	1.125	-1.672	3.064
	LOG6	1	5	4.143	1.125	-1.672	3.064
Circular Economy	CE1	1	5	4.643	0.610	-1.687	2.214
	CE2	1	5	4.351	0.811	-0.829	-1.017
	CE3	1	5	4.071	1.033	-0.598	-1.160
	CE4	1	5	3.857	1.125	-0.359	-1.456
	CE5	1	5	4.286	0.958	-1.218	0.521
	CE6	1	5	4.071	1.033	-0.598	-1.160
	CE7	1	5	4.357	1.172	-2.009	3.751
	CE8	1	5	3.357	1.172	-0.211	-0.474

4.2 Factor Analysis

To determine the extent to which the observed variables explained the relevant attributes (latent variables), exploratory factor analysis (EFA) was conducted using IBM SPSS Statistics 29 software. The results of the EFA are presented in Table 3. Principal component analysis (PCA), a factorial model that derives factors based on total variance, was employed. It is essential to assess the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and to conduct Bartlett's sphericity test when performing PCA. The KMO measure compares the magnitude of correlations with partial correlations; in this analysis, KMO values of 0.712 and 0.752 were obtained, indicating a moderate degree of adequacy for the PCA (Marôco, 2014). Bartlett's sphericity test confirmed that the correlation matrix was not an identity matrix, with a chi-square statistic significant at $p < 0.001$, indicating the presence of correlations among the items.

Furthermore, the diagonal of the anti-image matrix contains the measures of sample adequacy (MSA) for the observed correlations, where all variables should exhibit MSA values above 0.50 (Hair *et al*., 1999). The results indicated that the observed variables CE6, CE7, and CE8 had MSA values below 0.50 and were consequently removed from the analysis. The communalities, representing the proportion of total variance explained by the

common factors, were above 0.50 for most variables, suggesting adequate factor extraction (Hair *et al*., 1999). Although CE3 and CE5 demonstrated lower common variability (less than 0.50), they were retained in the analysis because their MSA values exceeded 0.50 (see Table 3). The total variance explained also met the criterion of being greater than 0.50 (Hair *et al.*, 1999).

Table 3: Factor analysis

Latent variable	Observed variable	MSA	Communalities	Total variance explained (%)	Component matrix	KMO and Bartlett's test	Cronbach's alpha (α)
Sustainable Logistics	LOG1	0.676	0.900	86.392	0.949	KMO = 0.712	0.968
	LOG2	0.598	0.743		0.862		
	LOG3	0.761	0.865		0.930	Chi-square = 120.210	
	LOG4	0.804	0.807		0.898	df = 15	
	LOG5	0.855	0.970		0.985	sig < 0.001	
	LOG6	0.627	0.898		0.948		
Circular Economy	CE1	0.880	0.748	65.172	0.865	KMO = 0.752	0.861
	CE2	0.684	0.861		0.928		
	CE3	0.626	0.443		0.665	Chi-square = 31.301	
	CE4	0.747	0.735		0.857	df = 10	
	CE5	0.897	0.472		0.687	sig < 0.001	

Following the identification of the observed variables constituting the latent variables through EFA, the next step involved conducting a confirmatory factor analysis (CFA) to evaluate the internal consistency of the constructs. The Cronbach's alpha (α) values for sustainable logistics and circular economy practices were 0.968 and 0.861, respectively, both exceeding the established threshold of 0.70 (Marôco, 2014).

4.3 Multiple Regression Analysis

A multiple regression analysis was used to predict the effect of sustainable logistics (independent variable) on the adoption of circular economy practices (dependent variable). To deal with unobserved heterogeneity, we also controlled for the effect of both supply and value chain alignment with the circular economy practices. The supply chain alignment with the circular economy was defined as the extent to which a company's supply chain activities support circular economy principles based on supplier engagement, material sourcing, and waste management practices. Likewise, the value chain alignment with circular economy refers to the arrangement of a firm's value-adding activities with circular economy objectives including product design, customer engagement, and internal processes. Respondents were asked to rate their firm's supply chain and value chain alignment using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree").

The analysis was therefore conducted in IBM SPSS Statistics 29 software by adopting the forward method in which variables are introduced one by one. The first variable to be introduced is the one with the highest correlation coefficient with the dependent variable (Marôco, 2014). The ANOVA test displays a p-value below the significance level of 10%, suggesting that, at least, one of the predictor variables has a considerable effect on the adoption of circular economy practices (Table 4).

Table 4: ANOVA test

Model	Sum of Squares	df	Mean Square	F	Sig
Regression	6.624	3	2.208	3.463	0.059
Residual	6.376	10	0.638		
Total	13.000	13			

Predictors: (constant), sustainable logistics, value chain, supply chain

We also performed a collinearity analysis to assess its potential impact on the estimated coefficients (Table 5). Since the variance inflation factor (VIF) values are below the recommended threshold of 5 (Marôco, 2014), we

concluded that collinearity does not pose a significant issue. The results presented in Table 5 indicate that sustainable logistics has a positive and significant impact on the adoption of circular economy practices (β = 0.577; p < 0.05), thereby supporting our hypothesis. Additionally, we observed a positive and significant effect of value chain alignment with the circular economy on the implementation of these practices (β = 0.647; p < 0.05). Conversely, the alignment of the supply chain with the circular economy does not significantly affect the introduction of such initiatives (β = -0.457; p = 0.106).

Table 5: Model coefficients

Model	Unstandardized coefficients		Standardized coefficients	t	Sig	Collinearity Statistics	
	B	Std. Error	B			Tolerance	VIF
(Constant)	-2.079	1.243		-1.673	0.125		
Sustainable logistics	0.577	0.240	0.577	2.407	0.037	0.854	1.171
Supply chain	-0.392	0.220	-0.457	-1.777	0.106	0.741	1.350
Value chain	0.891	0.371	0.647	2.404	0.037	0.676	1.478

Dependent variable: circular economy practices

The analysis of the summary for the multiple regression analysis allows to us conclude that $Ra^2 = 0.362$, thus, approximately, 36.2% of the circular economy practices' adoption is explained by the variables included in our research model (Table 6).

Table 6: Model summary

R	R square	Adjusted R square	Std. error estimate	Durbin-Watson
0.714	0.510	0.362	0.798	2.110

Predictors: (constant), sustainable logistics, value chain, supply chain

4.3.1 Testing the Assumptions of Multiple Regression Analysis

To validate the assumptions of the multiple linear regression model, a residual analysis was conducted. Following the guidelines provided by Marôco (2014), we examined whether the residuals followed a normal distribution and were independent. The Durbin-Watson test yielded a value of 2.110 (approximately 2), indicating that the residuals are not correlated (Table 6; Marôco, 2014). Additionally, the standardized predicted and residual values exhibited approximate maximum and minimum values; however, they were not proportional (Table 7).

Table 7: Residual statistics

Model	Minimum	Maximum	Mean	Std. deviation	n
Predicted value	-1.041	1.025	0.000	0.714	14
Residual	-1.101	1.245	0.000	0.700	14
Std. predicted value	-1.459	1.435	0.000	1.000	14
Std. residual	-1.379	1.560	0.000	0.877	14

Dependent variable: circular economy practices

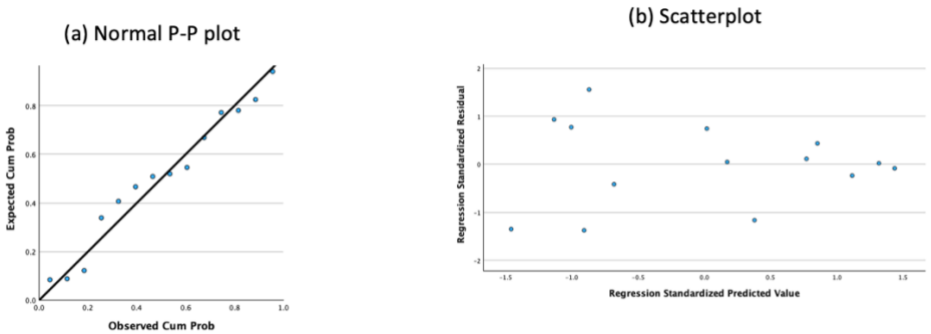

Figure 2: Residuals analysis

Additionally, the normal P-P plot of the regression standardized residual allows us to conclude that the points are relatively close to the diagonal (Figure 3a), thus the residuals follow an approximately normal distribution (Marôco, 2014). The analysis of the scatterplot corroborates this conclusion, namely by showing that the dispersion of residuals around the mean value (zero) is somehow random, with residual variances appearing to be relatively homogenous (Figure 3b; Marôco, 2014).

While the findings indicate that the research model is statistically significant and provides evidence that supports the validity of our conclusions, several limitations must be acknowledged. The low R-squared value ($Ra^2 = 0.362$) indicates that approximately 63.8% of the variance in the adoption of circular economy practices remains unexplained. This suggests that other relevant factors, which were not included in the model, may significantly influence the dependent variable. Additionally, the relatively small sample size (n = 14) may limit the generalizability of our findings. While the insights gained from this research are valuable, caution should be exercised when applying these conclusions to broader contexts.

5. Discussion

From the analysis conducted, the results showed that sustainable logistics leads to increased levels of implementation of circular economy practices in the consulted firms. The environmental impact of logistics has been the target of several types of research (e.g., Butt *et al.*, 2023; Cheng *et al.*, 2023; Zarbakhshnia *et al.*, 2023). The fact that sustainable logistics was positive and significant directly aligns the study's findings with the proposition of the natural resource-based view – NRBV (Barney, 1986). The NRBV posits that adopting sustainable practices, such as green logistics, mitigates environmental pollution and safeguards natural resources by retrieving obsolete and damaged products for remanufacturing (Cheng *et al.,* 2023). The circular economy is characterized by being restorative and regenerative, designing the process of production or service in ways that conserve natural resources (Jayarathna *et al.*, 2023).

However, the observed R-squared value of 0.362 suggests that while a significant portion of the variance in circular economy practices can be explained by sustainable logistics, a substantial amount remains unaccounted for. This observation warrants further discussion regarding the complexity of the factors driving the adoption of circular economy practices. Previous research has indicated that several antecedents can influence these practices, including organizational culture, regulatory frameworks, market pressures, and technological advancements (Genovese *et al*., 2017; Ly, 2021). In this regard, Ly (2021) discussed the multifaceted nature of competitive advantage in circular economy models, emphasizing that contextual factors – such as industry type and geographical location – play critical roles in shaping adoption levels. This reinforces the idea that our model, while informative, is just one part of a broader landscape of influences affecting circular economy practices.

The connection between our findings and the Sustainable Development Goals (SDGs) also deserves further exploration. Specifically, our study aligns with SDG 12 (Responsible Consumption and Production) and SDG 13 (Climate Action), as sustainable logistics practices can lead to more efficient resource use and reduced environmental impacts. Building on the work of Raman *et al.* (2023), we propose that enhancing green logistics not only supports the circular economy but also contributes to broader sustainability objectives by minimizing waste and promoting resource recovery. Additionally, Kumar *et al.* (2023) emphasize the challenges of adopting circular economy practices in supply chains, particularly in sectors like food where logistical efficiency is crucial. Our study reinforces these challenges, highlighting the need for a systemic approach that integrates sustainable logistics with circular economy principles to overcome barriers to implementation.

6. Conclusion

This study addressed the recent call of Burt *et al.* (2023) who emphasized the importance of establishing the missing link between logistics and its integration into circular economy practices, representing a pioneering approach to highlight the significance for academia, industry, and policymakers of promoting GL operations to advance circular economy initiatives.

Our findings have theoretical implications highlighting that forward flows should complement return flows, thereby eliminating waste from the initial product design phase and enhancing the product's recyclability. This holistic view supports closed-loop supply chain frameworks (e.g., Butt *et al.*, 2023; Zarbakhshnia *et al.*, 2023), reinforcing the cyclical flow of materials and the role of logistics in optimizing resources used and minimizing waste. This research also underpins the relevance of sustainable supply chain management by demonstrating

how logistics operations can facilitate the transition from linear to circular economy models, effecting a systemic transformation in supply chain operations to achieve SDGs.

The obtained results might also be of most relevance to decision-makers and managers who aim to introduce a circular economy business model. Enhancing sustainable logistics operations is essential for supporting circular economy principles, requiring managers to integrate GL practices – such as green transportation, eco-friendly packaging, and efficient waste management – into supply chain operations to optimize resource use and reduce environmental impact. Additionally, leveraging strategic partnerships within the supply chain, particularly with firms specializing in recycling or repurposing materials, is crucial for closing the loop in the supply chain and turning waste into valuable inputs. Implementing return flow systems, including robust reverse logistics, is also vital to ensure materials are recirculated rather than wasted. Thus, aligning corporate strategies with sustainability goals, particularly the SDGs, is necessary for companies to effectively transition to a circular economy, requiring clear sustainability objectives and regular assessments of progress.

Organizations concerned with economic, environmental, and social issues can equally influence governments to legislate robust laws compelling manufacturers to prioritize sustainable development, particularly through adopting circular economy principles and reverse logistics strategies. The circular economy aims to redefine development by emphasizing positive, comprehensive benefits rather than the current extractive industrial model characterized by the take–make–waste approach. This transformation will occur if efforts are made to decouple economic activity from the consumption of limited resources and to eliminate systemic waste. Yet, policymakers must establish and legislate policies and regulations to ensure the implementation of a circular economy. The findings of this study can assist policymakers in creating and disseminating the necessary standards and then defining the mandatory timeframes for achieving compliance targets.

Despite the abovementioned contributions, this research is not exempt from limitations. The research design's reliance on voluntary participation in the survey can introduce selection bias. Moreover, the convenience sampling, pertaining to the sample size and the characterization of Brazilian and Portuguese firms, limits the scope of our analysis. Future research should replicate this study in other countries, increasing the sample size and employing alternative sampling methods to ascertain whether the current findings are applicable in different contexts. Another limitation to be addressed is the cross-sectional research design, which cannot fully capture the evolution of GL operations and circular economy practices over time. Hence, future research should consider longitudinal data collection at multiple time intervals.

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Change-oriented Leadership in the Context of Transitioning to Strategic Autonomy

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Abstract: Growing geopolitical tensions have transformed the business landscape , driving domestic firms toward an era of strategic independence (Yale School of Management, 2024). This research examines a well-known Eastern European consulting firm that, after transitioning to an independent entity, was confronted with a new personnel assessment system. This shift necessitates a comprehensive understanding of employee readiness and resistance — fundamental concepts in change management literature (Armenakis et al., 1993). Our study incorporated quantitative methods to divide employees according to their readiness for the new system (k-means clustering, factor analysis, and discriminant analysis). At the same time, it employed qualitative research methods to explore motives and attitudes behind employee resistance or readiness (Choi & Ruona, 2011). Based on their adaptability to the new system, we identified three distinct clusters of employees: "Active Supporters," "Cautious Appraisers," and "Conservative Skeptics," allowing us to pinpoint specific non-readiness factors and formulate tailored strategies to address them. The findings suggest that emotional involvement, openness to change, and previous experiences with similar practices significantly influence employee readiness. To mitigate these issues, the paper proposes a strategy rooted in psychological safety and differentiated error management, as advocated by Edmondson (2023), to enhance the organization's learning capability and adaptability. Our results align with previous research indicating that stronger attitudes, often based on personal experience, significantly predict behavior (Eagly & Chaiken, 1993). We found that the initial uncertainty of organizational changes served as a major stressor, underscoring the importance of understanding and conceptualizing changes (Kramer, 2015). Unlike Schwartz (1994), the value orientation of "Tradition" did not exert significant influence, but values of "Autonomy," "Stimulation," "Achievement" (consistent with Sortheix & Lönnqvist, 2014), "Hedonism," and "Power" positively impacted employee openness to changes. The implications of this study extend to other Eastern European companies undergoing similar transitions, providing guidance on how change can be managed effectively in the context of transitioning to strategic autonomy.

Keywords: Strategic Leadership, Change-oriented leadership; Attitude Towards Change, Readiness for Change, Management Buyout

1. Introduction

In 2022, many international companies withdrew from the Russian market, transforming their Russian divisions into independent entities (Yale School of Management, 2024). This study focuses on a major consulting firm in the Russian commercial real estate market, which was an integral part of a global American company before this transitional period.

The subject of organizational change remains a concern for both managers and the academic research community in organizational psychology. Recent change management literature has focused on not only overcoming employees' resistance but also cultivating psychological readiness for change (Stroh, 2021).

The accelerating rate of change in organizational contexts has spurred research interest in the study of cultivating readiness for organizational change. Most studies on readiness for change focus on identifying the antecedents and factors that make employees ready for change, which include individual characteristics, organizational culture, and leadership style (Vakola et al., 2004; Choi, 2011; Holt et al., 2007; Rafferty et al., 2013; Bagrationi, Thurner, & Gordienko, 2021; Aksiutin et al., 2021; Bagrationi, Thurner, & Gordienko, 2022). Research has also shown that organizational learning is positively related to readiness for change (Maimone & Sinclair, 2014; Imran et al., 2016). Recent research suggests that an organization's ability to learn from various experiences, including failures, significantly impacts employees' readiness for change (Talaja & Dumanić, 2023). Currently, further research is needed to understand the impact of different types of failures—such as intellectual, basic, and complex failures—on employees' attitudes toward change.

This study aims to fill this gap by linking employees' readiness for change with their learning experiences from different types of failures. The detailed approach proposed by Edmondson (2023), which examines how organizations can benefit from failures to enhance employees' adaptability to change, merits further exploration.

2. Literature Review

Organizational changes can occur at the individual, group, and organizational/institutional levels (Vacola, 2013), with the context of these changes constantly evolving due to the necessity for businesses to adapt to external factors, technological advancements, and organizational goals.

According to the theory of planned behavior, an individual's behavior is influenced by their attitude toward change, social norms, perceived behavioral control, and intention to change behavior (Ajzen, 1991). This framework helps predict and enhance employees' readiness for change by considering attitudes, perceived norms, and control over behavior (Fishbein & Ajzen, 2011).

As these organizational changes occur at the individual, group, and organizational—or even system—levels, the context in which they take place is always changing (Vacola, 2013). Rapid changes at both internal and external levels often leave employees unprepared for transformation (Madsen et al., 2005). Businesses must constantly adapt to external factors, technological developments, and company goals. The concept of readiness for change is a significant topic in organizational psychology, as it determines employees' initial approval of these changes (Armenakis et al., 1993; Armenakis et al., 2000).

Readiness for organizational change is influenced by employees' perceptions and attitudes about their ability to perform the proposed change, whether the change is correct for the organization or organization members as a whole, and whether their leaders support new changes (Holt et al., 2007; Bagrationi, 2023). Furthermore, readiness can be understood as one of the six main types of employees' attitudes toward change (Bouckenooghe, 2010). Thus, unwillingness to accept change can be viewed as a particular case of employees' attitudes toward change in general that manifests itself in such a way.

The theory of planned behavior postulates that people's behavior is a result of their attitudes toward change, the social norms that shape those behaviors, perceived behavioral control, and intention to change behavior (Ajzen, 1991).

Furthermore, psychological readiness aligns with Lewin's concept of "unfreezing, changing, and refreezing" (Choi & Ruona, 2011). Effective communication about the discrepancy between the current state and the desired future state of changes, along with reinforcing employees' confidence in their ability to handle new job requirements, is key to creating readiness for change (Armenakis et al., 1993). Appropriate and up-to-date information reduces employees' anxiety and makes them more ready to get involved (Kramer, 2015). Involvement in planning and carrying out organizational changes also mitigates negative attitudes among employees toward transformations (Iverson, 1996; Olafsen et al., 2021).

Psychological attitudes involve an individual's favorable or unfavorable evaluation of performing a particular action, which is influenced by beliefs about the consequences of that behavior (Ajzen, 1991). Attitude theory suggests that beliefs, feelings, and behavioral intentions are formed mostly by direct experience, social learning, and conditioning (Eagly & Chaiken, 1993). Stronger attitudes, based on personal experience and significant for an individual's life, are better predictors of behavior (Eagly & Chaiken, 1993).

Pressure and social norms can weaken the relationship between attitudes and behavior so that people act contrary to their own beliefs to avoid violating those of their group (Fishbein & Ajzen, 2011). Poznyakov's theory of psychological attitudes (Poznyakov, 2017) describes four elements: cognitive, emotional, behavioral, and evaluative (value-based). Each component depends on understanding the objectives and potential outcomes of changes, readiness to act, emotional experiences related to change situations, and personal value-oriented subjective evaluative judgments.

Schwartz's value theory further enriches this by analyzing the fundamental values that affect behavior, attitudes, and relationships (Schwartz, 1992). Values like Tradition, Conformity, and Security are linked to greater resistance to change (Schwartz, 1994; Bagrationi & Thurner, 2023), whereas Self-Direction, Stimulation, and Achievement are associated with readiness for change (Sortheix & Lönnqvist, 2014).

Employee maturity levels have a significant impact on the organizational change process. According to Hersey and Blanchard's situational leadership model (Hersey & Blanchard, 1969), it is necessary to adapt leadership styles depending on employee maturity levels. Leadership styles must be adjusted from directing, democratic participation, or even abdication to gain maximum performance and enthusiasm from those involved in an enterprise. According to Hall (2002), employees with higher professional maturity adapt readily to new procedures and technologies, demonstrating resilience during transformations (Hall, 2002).

The use of knowledge to improve performance in organizations is known as organizational learning (Fiol & Lyles, 1985). In organizations that foster learning, employees are more satisfied and ready to accept change (Lin & Huang, 2021; Maimone & Sinclair, 2014). Psychological safety, a key element in organizational learning, creates an environment where mistakes are perceived as opportunities for learning and can lead to improvements or new experiments at any moment (Edmondson & Mogelof, 2006). Psychological safety reduces the fear of punishment and allows subordinates to voice their opinions and admit mistakes (Edmondson, 1999).

Mistakes may take several forms: simple, complex, and intellectual mistakes. In cultures that embrace learning through execution, taking risks for the sake of experience makes intellectual errors necessary for learning (Edmondson, 2023). Such an environment is novel, team-oriented, and flexible, rather than conventional, while problem-solving is focused on active innovation instead of passive ad hominem attacks (Edmondson, 2012). In contrast, execution as efficiency emphasizes strict compliance with processes for maximum output and may therefore suppress creativity and innovation (Edmondson, 2012).

3. The Company Case

This paper focuses on a leading consulting firm in the Russian commercial real estate market. Until May 2022, it was part of an international American company ranked among the top five global real estate consultants. However, due to geopolitical factors, that international company decided to exit the Russian market. Thereafter, the local management acquired 100% ownership, thus transforming the Russian division into an independent entity.

At present, the company is carrying out a project to develop and implement a new personnel evaluation system. Previously, evaluation procedures were managed from London by the head office of the European division. Since the company became independent by renaming itself and ceasing to be part of an international network, just one pilot evaluation stage has been implemented in early 2024.

Interviews with the company's HR staff, especially the Change Manager, revealed plans for annual and semi-annual evaluations that would also inform decisions about employee training, promotions, and career development. Furthermore, the 360-degree feedback system is being gradually implemented as well.

The company had not conducted personnel evaluation for a year and a half due to the need to stabilize its business operations and to establish team composition following their independence. The Change Manager emphasized that it was important first to stabilize the business before focusing on evaluations and goal-setting.

The organization operates under a Management by Objectives (MBO) goal-setting model requiring measurable, achievable, and realistic targets for assessment. Previously, evaluations were conducted through an internal global CRM system where employees set goals in three categories: Gross, Clients, and People, which were later assessed by their supervisors.

According to the Change Manager, the evaluation system was previously seen as a compulsory but ineffective exercise because it was not adapted to the Russian market, and there were no clear instructions provided for HR staff. In this context, the new evaluation system aims to be an integral component of the motivation and development systems by providing a more complex picture of employees' performance and potential. However, there were varying reactions among employees to the new evaluation system. Some saw it as a clear and useful tool for their own performance recognition, while others expressed doubts or reluctance due to limited information or past negative experiences.

These different attitudes were vividly illustrated by interviews conducted within the company. One interviewed Line manager remains suspicious as to whether the new system will be effective or not, reflecting his deeply ingrained mistrust from previous experiences where personal prejudice influenced appraisals. Concerns were also raised about the psychological impact of being evaluated by superiors, highlighting apprehensions about bias or dishonesty in assessment.

However, a department head who joined the company after its change of ownership considered the new evaluation system both essential and beneficial. She highlighted its importance for setting clear tasks for new employees and enhancing transparency and corporate culture. This outlook indicates her readiness for change based on an understanding of the long-term benefits not only for the business but also for the employees.

4. Methodology

This study employs both quantitative and qualitative research methods. To analyze the context, we used participant observation, document analysis, semi-structured in-depth interviews, and a case study.

To determine the reasons for employees' unreadiness to implement a new personnel assessment system, a questionnaire containing 98 questions was developed, which was then completed by 40 employees of the consulting company under study.

The questionnaire "Readiness for organizational change" (D. Holt and A. Armenakis in adaptation by Naumtseva), the Schwartz values questionnaire (in adaptation by Karandashev), as well as two custom questionnaires developed by the authors to study the attitude of employees toward the introduction of a new personnel assessment system were used, based on Poznyakov's theory of psychological attitudes (Poznyakov, 2017) and the maturity level of employees based on the Hersey and Blanchard approach (Hersey & Blanchard, 1969).

To ensure the content validity of the authors' questionnaires, the Content Validity Ratio (CVR) was calculated using Lawshe's method (Lawshe, 1975). We recruited eight experts from different backgrounds, including demographers, organizational psychologists, and HR specialists, to independently evaluate each item in the questionnaires as "Essential," "Useful but not essential," or "Unnecessary." The CVR for the questionnaire based on Poznyakov's theory was 0.7917, and for the one based on Hersey and Blanchard's approach it was 0.8393—both exceeding the threshold, indicating high content validity (Ayre & Scally, 2014). The number of experts who rated each item as "Essential" or "Useful but not essential" was higher or equal to the threshold value (Wilson, 2012; Ayre, 2014).

Using Statistica analytic software and SPSS Amos, we analyzed the qualitative interview material. K-means clustering analysis was employed to identify statistically significant groups of employees based on their readiness for the implementation of the new personnel evaluation system. This analysis revealed latent factors underlying the observed data set patterns through factor analysis. Following that, discriminant analysis was carried out to identify predictors that reflect an individual's cluster membership, providing insights into the characteristics that differentiate groups of employees regarding their readiness for change.

The participants of this study came from all departments of the company. The response rate was 52%. Although a small sample size is a limitation of this study, the qualitative methods employed compensated for this, namely, the semi-structured in-depth interviews designed to explore the impact of different types of previous failures on employees' readiness for change. The qualitative data enriched the understanding of the factors identified through quantitative methods, offering a comprehensive view of the challenges and opportunities involved in implementing the new personnel evaluation system.

5. Findings

K-means cluster analysis identified three distinct groups of employees as depicted in Figure 1 below.

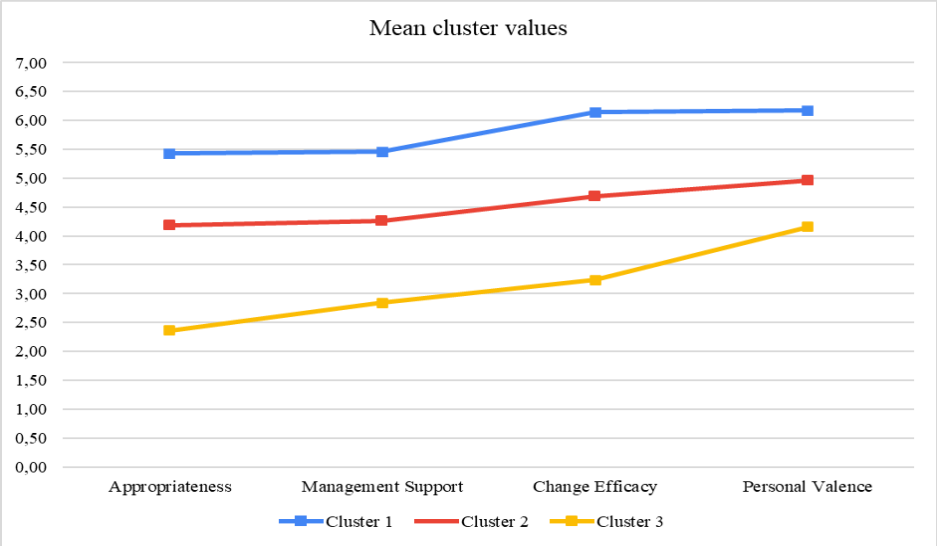

Figure 1: K-means clustering

The "Active Supporters" cluster includes employees who are not only highly receptive to organizational changes but also actively support the new personnel evaluation system. They believe that these changes align well with the organization's objectives, as reflected by an overall score on the "Appropriateness" scale (M = 54, SD = 0.9). These employees perceive strong “management support” (M = 55, SD = 0.9), reinforcing their belief in the system's importance to both management and the organization.

These employees feel confident in their ability to implement changes themselves, demonstrated by high scores on the "Change Efficacy" scale (M = 61, SD = 0.5). They also recognize personal and professional benefits from the changes (M = 62, SD = 0.6).

Cognitively, their average score is slightly lower (M = 39, SD = 0.9), indicating a need for more specific information about the changes. However, they are emotionally engaged with the change process in a very positive manner (M = 45, SD = 0.5).

Their overall assessment of the changes, measured on the "Evaluative Component" scale, is relatively high (M = 4.3, SD = 0.7), suggesting that the changes align with their values and beliefs. They are also ready to support these changes behaviorally, as shown by their high score on the "Behavioral Component" (M = 49, SD = 0.2).

The maturity level of this group is the highest (M = 3.8, SD = 0.7), indicating that these individuals are knowledgeable, skilled, and motivated to consistently perform their work while also demonstrating extra-role behaviors. Their "Conformity" score (M = 43, SD = 0.9) reflects a balance between adhering to social norms and being open to new ideas.

This cluster values autonomy and personal success, as reflected in high scores for "Self-Direction" (M = 52, SD = 0.5) and "Achievement" (M = 48, SD = 1.1). They also value "Hedonism" (M = 52, SD = 0.8) and "Universalism" (M = 4.8, SD = 1.0), indicating a desire for personal happiness while considering the well-being of others. Their appreciation for "Security" (M = 4.8, SD = 0.7) highlights their desire for safety, but their score for "Stimulation" (M = 44, SD = 1.1) reflects a yearning for novelty and change.

In summary, the "Active Supporters" cluster of employees is motivated by personal values that prioritize efficiency, professional growth, and the ultimate success of all members within the organization's objectives. This group plays a crucial role in shaping the company's change culture.

The “Cautious Appraisers” cluster consists of employees who exhibit caution towards organizational changes. They rate the appropriateness of these changes moderately (M = 42, SD = 0.8), reflecting a reserved optimism about how well the changes align with organizational goals. They perceive a moderate level of support from management (M = 43, SD = 0.8), indicating that stronger engagement between leadership and employees is needed to enhance their commitment to the new system.

The group holds a cautiously optimistic view of the effectiveness of the new system (M = 4.7, SD = 0.9). With a high score on the 'Personal Valence' scale (M = 5.0, SD = 1.0), they recognize that the change has potential benefits for individual workers, but whether these benefits can be tapped remains uncertain.

A lower score on the “Cognitive component” (M = 35, SD = 1.1) indicates a need for a better understanding of the changes. The group's emotional reaction to the change is also moderate (M = 38, SD = 0.7), as is the “Evaluative component” score (M = 36, SD = 0.8), suggesting that while the changes may be accepted, they do not fully resonate with the personal beliefs of most participants.

This group ranks between M3 and M4 in terms of maturity (M = 3.5, SD = 0.5), indicating that they do not have sufficient desire or readiness to engage in extra-role behavior. Values such as “Benevolence” (M = 45, SD = 0.9), “Universalism” (M = 43, SD = 0.8), and “Stimulation” (M = 41, SD = 1.0) reflect diverse interests and orientations. They maintain a moderate desire for novelty and a commitment to general principles of well-being and fairness. Their “Hedonism” score (M = 4.7, SD = 0.9) indicates their passion for life enjoyment, influencing their perception of changes if they promise to improve the work environment.

The "Conservative Skeptics" cluster includes employees who harbor the most doubt about any organizational transformation. They have little confidence in the suitability of the changes (M = 24, SD = 0.7) and perceive minimal support from management (M = 28, SD = 0.3), suggesting a lack of belief in the management's commitment to the new system. Their perceived effectiveness of the changes is low (M = 32, SD = 0.7), but their personal valence score (M = 42, SD = 0.9) indicates recognition of potential personal benefits despite overall skepticism.

Cognitively, they struggle to understand, let alone comprehend, the new system being implemented (M = 27, SD = 0.5). Their emotional response is also weak (M = 27, SD = 0.6), which reflects internal doubts and possible unwillingness to change. The "Evaluative" and "Behavioral" components show similarly low scores (M = 27, SD = 0.7 and M = 27, SD = 0.6, respectively), indicating that these employees are not motivated or ready to engage in the changes.

This cluster has a lower maturity level (M = 28, SD = 0.8), reflecting difficulties in adapting to new conditions. Their high “Conformity” score (M = 43, SD = 0.9) illustrates their adherence to existing norms and standards. Scores in “Self-Direction” (M = 41, SD = 1.3) and “Achievement” (M = 39, SD = 1.3) reflect a desire for control and success within familiar and comfortable boundaries. Meanwhile, “Security” (M = 47, SD = 1.3) emerges as a crucial factor, highlighting their preference for stability and predictability. Consequently, such a conservative approach to changes is motivated by a desire to maintain the current state and avoid instability.

A factor analysis was conducted to identify latent factors explaining the observed data patterns. Table 1 displays the extracted four factors, which explain 73.5% of the total variance. These factors include “Structure of attitude toward change,” “Openness to change and Self-Enhancement,” "Conformity and Security," and “Cognitive component.” Discriminant analysis revealed that the factors “Structure of attitude toward change,” “Openness to change and Self-Enhancement,” and “Cognitive component” significantly predict cluster membership.

These findings emphasize the importance of emotional, cognitive, and value-motivational aspects in shaping employee readiness for organizational changes.

From the semi-structured in-depth interviews, it became evident that employees' attitudes toward previous failures significantly influence their readiness for the new personnel evaluation system. Failures are seen as a learning opportunity by “Active Supporters,” but they are met with varying degrees of uncertainty and negativity by “Cautious Appraisers” and “Conservative Skeptics,” who are also critical of the assessment methods being put into practice. Furthermore, the more frequent occurrence of intellectual failures enhances readiness for the implementation of the new personnel evaluation system in the company. Conversely, a prevalence of complex “wrong” failures leads to a more cautious view of the system, while simple mistakes, on the other hand, result in overall unreadiness for its implementation. In addition, “Active Supporters” and “Cautious Appraisers” (as revealed in the survey) feel psychologically safe, while “Conservative Skeptics” do not feel at all secure.

6. Discussion

This study identified three distinct clusters of employees based on their readiness to implement a new personnel evaluation system, namely “Active Supporters,” “Cautious Appraisers,” and “Conservative Skeptics” (for descriptive statistics, see Table 1).

Table 1: Descriptive statistics of clusters

	Cluster 1	Cluster 2	Cluster 3
Appropriateness			
M	5,4	4,2	2,4
SD	0,9	0,8	0,7
Management support			
M	5,5	4,3	2,8
SD	0,9	0,8	0,3
Change efficacy			
M	6,1	4,7	3,2
SD	0,5	0,9	0,7
Personal valence			
M	6,2	5,0	4,2
SD	0,6	1,0	0,9
Cognitive component			
M	3,9	3,5	2,7
SD	0,9	1,1	0,5
Emotional component			
M	4,5	3,8	2,7
SD	0,5	0,7	0,6
Evaluative component			
M	4,3	3,6	2,7
SD	0,7	0,8	0,7
Behavioral component			
M	4,9	4,3	2,7

	Cluster 1	Cluster 2	Cluster 3
SD	0,2	0,9	0,6
Maturity level			
M	3,8	3,5	2,8
SD	0,7	0,5	0,8
Conformity			
M	4,3	3,9	4,3
SD	0,9	1,0	0,9
Traditions			
M	2,6	2,8	3,7
SD	1,0	1,2	1,5
Benevolence			
M	5,0	4,5	4,2
SD	0,7	0,9	0,7
Universalism			
M	4,8	4,3	3,4
SD	1,0	0,8	0,7
Self-Direction			
M	5,2	4,7	4,1
SD	0,5	0,8	1,3
Stimulation			
M	4,4	4,1	3,3
SD	1,1	1,0	1,1
Hedonism			
M	5,2	4,7	4,5
SD	0,8	0,9	0,8
Achievement			
M	4,8	4,3	3,9
SD	1,1	1,0	1,3
Power			
M	4,4	4,0	3,7
SD	0,8	1,1	1,5
Security			
M	4,8	4,6	4,7
SD	0,7	0,8	1,3

“Active Supporters” of organizational changes exhibit high readiness because they perceive the changes as appropriate, receive effective management support, and see both personal and professional benefits in the new system. This corresponds with literature that highlights the importance of a positive attitude toward change and perceived management support for successful implementation (Armenakis et al., 1993; Holt et al., 2007).

“Cautious Appraisers” showed moderate readiness for the implementation of a new personnel evaluation system, indicating a need for clearer communication and stronger engagement from management to enhance their commitment. This finding is consistent with Iverson (1996), who emphasized the importance of involving employees in planning and implementing changes to foster a sense of ownership rather than resistance.

“Conservative Skeptics” exhibited significant skepticism and low readiness for change, highlighting the need to address their past negative experiences and enhance the perceived fairness and transparency of the new system. Their reaction underscores the need for psychological safety, as suggested by Edmondson (1999), to overcome fear and foster openness to change.

Accordingly, the results indicate that employees' readiness for organizational change is influenced by the structure of their attitude toward the change, openness to change and aspiration for self-enhancement, understanding of the goals, tasks, principles, and potential outcomes of the change, as well as the various types of previous failures employees have experienced and their attitudes toward these failures.

Our research supports earlier findings that stronger attitudes, often rooted in firsthand experience, can predict behavior (Eagly & Chaiken, 1993). The initial uncertainty of organizational changes acts as a primary stressor, emphasizing the importance of understanding and conceptualizing changes (Kramer, 2015). Contrary to Schwartz (1994), the value orientation “Tradition” did not exercise significant influence. However, values of “Autonomy,” “Stimulation,” “Achievement” (consistent with Sortheix & Lönnqvist, 2014), “Hedonism,” and “Power” positively affected employee openness to changes.

Based on Fishbein and Ajzen's theory of planned behavior and Amy Edmondson's research on execution as learning, we offer the following recommendations to improve employees' readiness for the implementation of a new personnel evaluation system. This study revealed a significant information gap about the new personnel evaluation system among employees. Both semi-structured interviews and empirical research indicated that

while "Active Supporters" may lack detailed knowledge, “Conservative Skeptics” experience severe information deficiency. Therefore, HR department heads and the CEO must communicate the structure, goals, expected outcomes, and benefits of the new performance evaluation system clearly. This communication should not be limited to information emails but should also include in-person or online meetings involving employees, HR department heads, and the CEO. These meetings would provide employees with necessary information, opportunities to ask questions, and raise top management's involvement, thereby increasing perceived support for change.

At the individual level, based on Fishbein and Ajzen's theory, fostering a positive attitude toward change involves effectively communicating the structure, goals, and benefits of the new evaluation system while considering employees' value orientations. For “Active Supporters,” the values of “Self-Direction” and “Achievement” are crucial. Therefore, it is necessary to show how the new system can contribute to their professional and career development. Implementing 360-degree feedback for all employees could recognize achievements and improve the working environment. Emphasizing the evaluation system’s role in professional growth and integrating procedures such as 360-degree reviews would help to win their support so they can act as change agents. Regular team meetings to discuss changes and involve them in the implementation process would help sustain their enthusiasm.

For “Cautious Appraisers,” the key is to improve transparency and engagement. Providing clear, detailed information about the changes and involving them in discussions about the benefits could convert their cautious optimism into active support.

For “Conservative Skeptics,” the foremost need is to establish trust through consistent, clear communication. Their predominant values are “Conformity” and “Security,” so it is important to recognize their preference for existing norms and standards where they feel safe. Therefore, engaging with them through both descriptive and injunctive norms is crucial.

To achieve this, the influence of "Active Supporters" as change agents could be utilized. Their positive attitudes toward the new evaluation system could serve as a catalyst, encouraging other employees to embrace the changes. By leveraging the strong "Emotional Component" and predominant values that "Active Supporters" possess, an environment where these individuals actively participate in promoting and facilitating the adoption of new practices could be created. Their willingness to engage in extra-role behaviors would be instrumental in driving the successful implementation of the new personnel evaluation system in the company.

To foster an environment of psychological safety for all employees, management and team leaders should focus on ensuring that staff feel comfortable discussing their failures and seeking solutions. Encouraging open dialogue about mistakes and learning from them is essential for both “Active Supporters” and “Cautious Appraisers.” Regular team meetings to discuss improvements and learning outcomes could reinforce this culture.

For “Conservative Skeptics,” organizing corporate training aimed at minimizing mistakes caused by lack of knowledge or inattention, and encouraging open talks about failures might turn mistakes into learning opportunities. Discussing mistakes in a supportive environment would also help build psychological safety.

7. Conclusion

This paper aimed to explore if employees were prepared for the introduction of a new personnel evaluation system in a consulting company that had only recently split from its global network. The findings revealed three different clusters of employees: “Active Supporters,” “Cautious Appraisers,” and “Conservative Skeptics.” “Active Supporters” are prepared for changes and actively support them, recognizing their benefits for their own professional development. Conversely, “Cautious Appraisers” take a cautious approach towards changes, accepting them only if the goals and benefits are clear. “Conservative Skeptics” do not favor change and prefer stability and current ways of doing things where they feel comfortable and safe.

This study contributes to the literature on organizational change by showing the relationship between an employee’s readiness for change and their past experiences and psychological attitudes. This study extends the theory of planned behavior by showing that attitudes toward change are also shaped by an individual's past failures, highlighting the critical role of psychological safety in promoting readiness for organizational change.

A significant limitation of this study is its small sample size, which may restrict the generalizability of the findings. Future research should involve larger and more diverse samples to better evaluate the extent to which these

results can be generalized. Additionally, further research is required to explore how various types of failure impact long-term readiness for change and how different leadership styles might moderate these effects.

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Mapping the Landscape of Team Roles: A Cluster Analysis of Key Authors

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Abstract: This paper is a continuation of the presentation of results from a systematic literature review aimed at identifying key authors in the field of team roles and grouping them into clusters of interconnected authors. It aims to define clusters of authors focusing on team roles. The results of this work can serve to facilitate future researchers' orientation to the different typologies of team roles. The defined clusters can also be used by practitioners in the field due to the clarity of studies describing team roles. The methodology utilized in this study involved a systematic literature review followed by an analysis of author relationships through systematic literature mapping. As described by Soaita et al (2020), systematic literature mapping is considered a valuable tool for comprehensively understanding the structure of a specific topic. Following the guidelines proposed by Kuckartz and Rädiker (2019) for conducting a literature review based on literature search, we proceeded through the described phases. The obtained results have brought about surprising insights, particularly the strongly developed cluster around J. E. Mathieu. The cluster centred around S. K. Parker is also interesting in terms of its gradual linking pattern, where authors build upon each other's work gradually. The presented results serve as an initial exploratory input for further research on theories, concepts and models of typologies and taxonomies. The groups of approaches to team roles depicted in this study clarify the theoretical space and allow the approach to the definition of team roles to be grasped in a more comprehensive way.

Keywords: Systematic Literature Review, Team Management, Teams, Team Roles

1. Introduction

The field of team role typologies and taxonomies faces challenges in conceptualization, with one primary source dominating. Despite this dominance, numerous models exist in varying sizes and compositions. To facilitate analysis of team role typologies and taxonomies, we conducted a systematic literature analysis of authors identified in the Scopus database who have contributed to partial approaches.

In exploring team role typologies, it is crucial to consider authors who serve as pillars in this research. One such key figure is Meredith R. Belbin, whose model has inspired numerous authors. Belbin's model distinguishes between team roles and functional roles, with team roles representing a set of behaviours contributing to the team's progress, forming interrelated clusters known as team roles. In contrast, functional roles are determined by job requirements and workers perform specific duties based on relevant competencies (Belbin and Brown, 2022).

Aritzeta (2005) further differentiates between positional roles and team roles, describing the latter as a negotiation process between competencies and the team's needs, shaping the way each team member adapts. Margerison (2001) presents an alternate perspective, emphasizing the importance of team competencies in enabling team success rather than focusing solely on expected behaviours associated with general roles. Efforts have been made to establish links between different typologies and taxonomies. For instance, Driskell et al (2017) or Fujimoto (2016).

Establishing a theoretical foundation in team role models poses significant challenges. There is a lack of clear development pathways for theories by authors, with many relying on the widely recognized concept introduced by M. Belbin. Authors either apply this concept to specific team studies, validate its applicability, or construct their own team role concepts based on criticisms of the original concept.

Therefore, the objective of this (and previous) paper was to analyse the relationships among authors who have presented team role typologies and taxonomies in articles centred on team roles. The outcome of this analysis is a relational map that visualizes clusters of authors and their interrelationships.

2. Methodology

The methodology involved a systematic literature review followed by an analysis of author relationships through systematic literature mapping. As described by Soaita et al (2020), systematic literature mapping is considered a valuable tool for comprehensively understanding the structure of a specific topic. Following the guidelines

proposed by Kuckartz and Rädiker (2019) for conducting a literature review based on literature search, we proceeded through the following phases.

Once the aim of the study and the research question, "What does a network of author relationships based on shared authorship between authors dealing with team role typologies/taxonomies look like?" were established, we proceeded with the selection of the database. We chose Scopus as the primary source. We conducted a search for articles using the keyword/association "team roles." The selected keyword was intentionally broad. The resulting 165 articles obtained from this search satisfied the requirements for a comprehensive literature review and fell within the recommended range as suggested by Kraus et al (2022).

We obtained the article corpus primarily through access to the Scopus database and for the subsequent step, we conducted searches on publishers' websites using Zotero and manual searching. Additionally, we utilized the ResearchGate network. This effort resulted in a final set of 104 articles for further analysis.

Next, we conducted an extensive search within the texts to identify authors associated with each team role typology or taxonomy. We employed the advanced lexical search in MAXQDA 2018 software. Our query encompassed all the papers and targeted passages (along with their surrounding content) that mentioned terms such as "team role*," "typolog*," "taxonom*," "definition" and various combinations thereof. We then tagged authors who were recognized as the authors of specific typologies or taxonomies in the prepared documents. Initially, there were 30 such authors.

These authors' names were employed as keywords for an advanced lexical search using MAXQDA 2018. The software identified approximately 2,400 passages tagged with authors' names. While it is important to note that a considerable portion of these segments did not contribute new information.

Key publications on which the mapping of authors' relationships is based have been cited and highlighted. From this list, we proceeded to map the relationships between individual authors by examining the chains of relationships between the first and second authors. Only second and subsequent authors who appeared in a single author's publications and did not contribute to connecting other publications were excluded from the final map.

We chose not to include Meredith Belbin's approach in our analysis for several reasons. Coded segments related to Belbin's typology accounted for approximately 40% of all coded segments. The imbalance between the number of references to Belbin's typology and references in more recent works, such as "Team Roles at Work" (Belbin and Brown, 2022), which may have included reflections on other studies, or the limited number of available publications where Belbin built upon the ideas of other authors, played a decisive role in this decision. Therefore, our focus was on academically organic, interconnected, or lesser-known authors. It is worth noting that the vast majority of these authors mention Belbin's theory in some way, reflecting its influence.

3. Results

In a previous study (Dočekal, 2023) we focused on the authors of typologies/taxonomies in the original articles. The subsequent step involved identifying references within the refined set of documents. Within each document, we searched for references to articles that the authors believed contained the description/definition of the typology/taxonomy. These sources were compiled into a database, which was then analysed for relationships based on co-authorship. The resulting diagrams are presented in Figure 1 and Figure 2. Figure 1 depicts the main cluster comprising a significant number of authors connected through (co)authorship, while Figure 2 focuses on several smaller clusters that emerged from the analysis. In the diagrams, authors highlighted in yellow are the first authors, while authors in small font represent secondary authors (appearing at the second or subsequent positions in the list of authors of the publication). Within the data, the following authors appear to be standalone:

Ancona and Caldwell (Ancona 1990; Ancona and Caldwell 1988, 1992), Bales and co-authors (Bales 1950, 1969, 1980, 1999; Bales et al 1979; Bales and Parsons 2007; Bales and Slater 1957; Bales and Strodtbeck 1951), D. Beck (Beck et al 1999), Belton and Stewart (Belton and Stewart 2002), Benne and Sheats (Benne and Sheats 1948), Channon et al (Channon et al 2016), Davis (Davis 1992), DuBrin (DuBrin 1995), Gutiérrez et al (Gutierrez et al 2019), Hare and co-authors (Hare 1972, 1973, 1976, 1994, 2003; Hare et al 1965), Freedman (Freedman 1996), Fujimoto (Fujimoto 2016), Keyton and Wall (Keyton and Wall 1989), Knapp et al (Knapp et al 1988), Manning et al (Manning et al 2006, 2013), Mohammed et al (Mohammed et al 2008), Jacob Moreno (Moreno 1934), Julián Moreno et al (Moreno et al 2012), Nestsiarovich and Pons (Nestsiarovich and Pons, 2018, 2020), Parker (Parker 1990), Platt et al (Platt et al 1987) Wiggins and co-authors (Wiggins 1979; Wiggins et al 2003).

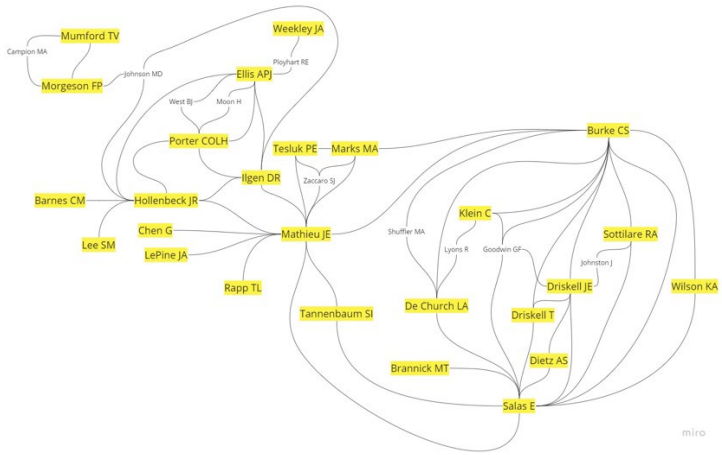

Figure 1: Diagram of the main cluster

Figure 1 shows the largest cluster of authors. In most cases, we have identified publications where these authors act as first authors, as well as multiple references where they are part of a publication team led by another listed author. The prominent authors in this cluster include Mathieu (Mathieu et al 2001, 2007, 2008, 2013, 2014, 2017), Burke (Burke et al 2006, 2017, 2018), Salas (Salas et al 1999, 2005, 2008), Ellis (Ellis et al 2003, 2005) and Hollenbeck (Hollenbeck et al 2011, 2012).

In the right section of the diagram, we observe the relationships primarily between Burke, Salas, J. E. Driskell (Driskell et al 1987, 1999, 2006, 2010; J. E. Driskell and Salas 1991, 1992, 2013) and T. Driskell (T. Driskell et al 2017, 2018). Other authors in this section include Dietz (Dietz et al 2017), De Church (DeChurch et al, 2011), Sottilare (Sottilare et al 2018), Klein (Klein et al 2009) and Wilson (Wilson et al 2005). A branch connected to Salas involves Brannick (Brannick et al 1997).

Between Mathieu and Salas, we find Tannenbaum (Tannenbaum et al 2012) and between Burke and Mathieu, there is a linked group of authors including Marks (Marks et al 2001, 2002), Tesluk (Tesluk et al 1997) and Zaccaro (Marks et at 2001) as secondary authors.

We also observe a second sphere of influence. Mathieu linked to Ilgen (Ilgen et al 2005; Ilgen and Hollenbeck 1991), serves as a gateway to other authors, including Hollenbeck. Additionally, Hollenbeck collaborates with Porter (Porter et al 2003) and especially Ellis (Ellis et al 2003, 2005), who brings other authors into the network. One loop involves Mumford (Mumford et al 2008), Morgeson (Morgeson et al 2006) and Campion (Morgeson et al 2006), which entered the network through the secondary author Johnson, who is linked to Ilgen (Ilgen et al 2005). The remaining authors involved in this section are Barnes (Barnes et al 2008), Lee (Lee et al 2015), LePine (LePine et al 2008), Rapp (Rapp and Mathieu 2007) and Weekley (Weekley and Ployhart 2013). The secondary authors connecting these authors are Johnson, as well as West and Moon (Porter et al 2003) and Ployhart (Weekley and Ployhart 2013).

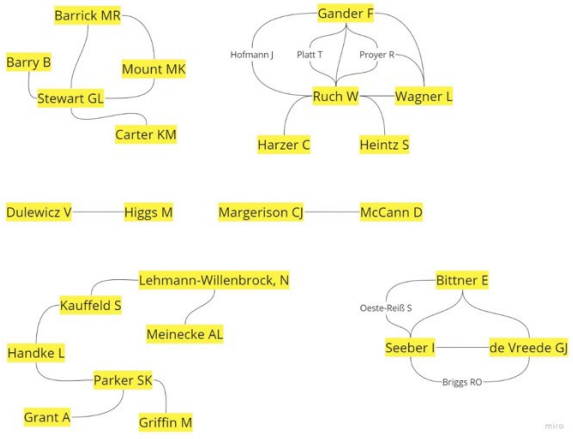

Figure 2: Smaller clusters and author pairs

Figure 2 illustrates four smaller clusters and two pairs of authors in the investigated field. The first cluster comprises Barrick (Barrick et al 1998), Mount (Mount et al 1998) and Stewart (Stewart 2006; Stewart et al 1998, 2005), complemented by Carter (Carter et al 2018) and B. Barry (Barry and Stewart 1997). Additional author connections are formed by the trio of Gander (Gander et al 2012, 2018, 2020), Wagner (Wagner et al 2020) and Ruch (Ruch et al 2010, 2018), with primary authors Harzer (Harzer and Ruch, 2012, 2014, 2015) and Heintz (Heintz 2019) linked to them. The central triad includes secondary authors Hofmann, Platt (Gander et al 2018) and Proyer (Ruch et al 2010).

A more linear connection is represented by the cluster around S. K. Parker (Parker 1998b, 2000; Parker et al 2006), which is sequentially linked to Grant (Grant and Parker 2009) and Griffin (Griffin et al 2007, 2010) through Handke (Handke et al 2019), Kauffeld (Kauffeld and Lehmann-Willenbrock 2011), Lehmann-Willenbrock (Lehmann-Willenbrock et al 2011, 2013, 2015) and Meinecke (Meinecke and Lehmann-Willenbrock 2015).

The cluster without loose ends is formed by Bittner (Bittner et al 2019), Seeber (Seeber et al 2020) and de Vreede (de Vreede and Briggs 2019), with secondary authors Briggs and Oeste-Reiß (Seeber et al 2020) also connected to this cluster.

Figure 2 also includes two author pairs: Dulewicz (Dulewicz 1995b; Dulewicz and Higgs 1999)-Higgs (Higgs and Dulewicz 2004, 1998) and Margerison (Margerison 2001; Margerison et al 1986; Margerison 1985; Margerison and McCann 1995)-McCann (McCann and Margerison 1989).

4. Discussion

The obtained results have brought about surprising insights, particularly the strongly developed cluster around J. E. Mathieu. His role as a linker between two groups of authors is intriguing and a content analysis could provide valuable insights into potential differences in their approaches to team roles. Adding a time dimension to the analysis would further enhance the comprehensiveness of the data, allowing for a better understanding of the historical inspiration and development of each author's ideas.

The cluster centred around S. K. Parker is also interesting in terms of its gradual linking pattern, where authors build upon each other's work gradually. This is in contrast to other clusters that exhibit denser interconnections.

4.1 Research Implications and Limitations

Our results demonstrate how the literature can be explored and how authors can be understood within the networks they build with their peers. The approach to the presented relationship map can be twofold: focusing on authors who play a strong role within a cluster and examining independently working individuals and their current research. It is possible that some research may have been overlooked in this analysis and can be discovered through a more in-depth exploration of the different parts of the relational schema. Therefore, the accuracy of the presented connections will only be confirmed after further exploration.

5. Conclusion

This study presents a systematic literature analysis aimed at identifying key authors in the field of team roles. By mapping the relationships among authors focusing on team roles, this research provides insights into the landscape of team role typologies and taxonomies.

The analysis revealed several clusters of authors. The most prominent cluster revolves around J. E. Mathieu, whose role as a linker between two groups of authors is intriguing. Another interesting finding is the gradual linking pattern observed in the cluster centred around S. K. Parker, where authors build upon each other's work gradually. This is in contrast to other clusters that exhibit denser interconnections.

The results of this study demonstrate how the literature on team roles can be effectively explored and how authors can be understood within the networks they build with their peers. This analysis can facilitate future researchers' orientation to different typologies of team roles and simplify the development of theoretical frameworks for their studies.

However, there are some limitations to this study. While we aimed to be comprehensive in our analysis, it is possible that some research may have been overlooked and further examination may reveal additional models and approaches. Additionally, the accuracy of the presented connections will only be confirmed after further theoretical exploration.

Overall, this study provides a valuable contribution to the understanding of the landscape of team roles and offers a foundation for further research in this field.

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Attitudes of European Citizens Towards Climate Change: A Gender Analysis

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Abstract: The present paper analyses attitudes and perceptions regarding climate change (CC) among European citizens, emphasizing their pivotal role in fostering public engagement and endorsement towards the advancement of mitigatory measures and sustainable lifestyles in accordance with the United Nations' Sustainable Development Goals. This study delves into the degree of concern among European citizens regarding CC and their inclination towards assuming personal accountability in its alleviation, scrutinizing these facets through the lens of gender attitudes. Utilizing data from the European Social Survey and information on attitudes and perceptions pertaining to CC, the analysis incorporates various variables encompassing socio-economic status, demographics, individual perceptions of societal dynamics, and governmental policies. Employing econometric methodologies, the results confirm that individuals exhibiting trust in scientific authority manifest heightened concerns towards CC. Moreover, those expressing contentment with national governance display augmented levels of concern regarding CC. Gender differentials are also discernible, with females exhibiting greater apprehension towards CC compared to males. Furthermore, advanced age and higher educational attainment correlate with heightened levels of CC concern. Additional findings indicate that females tend to exhibit greater proclivity towards assuming self-responsibility, while individuals harbouring trust in scientific authority evince heightened levels of personal accountability, particularly when content with economic stability and the efficacy of the country's healthcare system. Additionally, older individuals displaying trust in scientific expertise tend to exhibit greater proclivity towards assuming personal responsibility. The findings underscore the imperative of comprehending the gendered ramifications of climate change and advocating for collective endeavours to combat this pervasive global challenge.

Keywords: Climate Change; Gender Attitudinal Statement; Mitigation; Willingness; Sdgs.

1. Introduction

Despite extensive and increasing analysis of citizens' perceptions of climate change (CC) over recent years, earlier studies primarily concentrated on environmental and agricultural aspects. More recent research has effectively addressed the challenges of CC, focusing on mitigation efforts and citizen engagement. The literature predominantly explores the demand side, examining citizens' attitudes as consumers, which are critical in environmental degradation. Studies have highlighted environmental consumption patterns concerning demographic and socioeconomic factors and the link between attitudes and actual consumption behaviours.

Despite the results of some studies on the attitudes of citizens towards climate change, gender analysis remains quite absent in the literature (Mata et al., 2024). This paper tries to fill this gap in the literature and aims to analyse European citizens' attitudes and concerns about CC and their willingness to take personal responsibility for its mitigation. The study analysed factors such as gender, age, education, trust in scientists, and satisfaction with the economy, government, health services, and education influence both self-responsibility and concerns about climate change.

2. Literature Review

Education's role in fostering sustainable practices has been well-documented. Studies indicate that schoolchildren's awareness of CC centres around its effects, contributing factors, and mitigation strategies. Analyses of European attitudes towards CC show that these perceptions are influenced by socio-economic conditions, information, societal openness, and trust in government.

Marquart-Pyatt et al., (2019) analysed how attitudes towards CC influence national policies across 26 European countries, finding that attitudes significantly impact policy implementation. Tóth-Nagy et al. (2023) highlighted the role of psychological factors like norms and willingness to pay in driving energy-efficient behaviours, emphasizing that public awareness of necessary lifestyle changes aids policy acceptance.

To achieve the Sustainable Development Goals (SDGs) of the Agenda 2030 from the United Nations (UN), the EU's robust environmental policy framework, aligned with the United Nations' Sustainable Development Goals, aims to balance economic, social, and environmental objectives (Mata et al., 2024; Mata et al., 2023; Santos et al., 2012). Evaluations of EU directives, such as the Water Framework Directive and the Waste Framework Directive, have generally confirmed their effectiveness in reducing pollution and protecting natural resources, although improvements are still needed. Indeed, the European Social Survey (ESS) provides insights into public perceptions, revealing that socio-economic and ideological factors shape attitudes towards CC policies.

The literature's results on the relationship between EU environmental policies and socio-economic development yield contradictory outcomes. Some studies indicate potential adverse effects on economic growth (Hunjra et al., 2024), whereas others conclude that sustainable economies refer to enhanced long-term resilience with small trade-offs in socioeconomic aspects (Estoque & Wu, 2024). The efficacy of market-based instruments, such as emissions trading schemes, in attaining environmental objectives remains a subject of ongoing scientific and political debate (Mandaroux et al., 2023).

Much of the literature focusing on opinion research about climate change has reflected public discourse, emphasizing agreement or disagreement with climate scientists, concern about the issue, and support for mitigation policies. To a lesser extent, these studies have also addressed adaptation policies (Tvinnereim et al., 2017). Indeed, less scientific attention has been given to citizens' attitudes, despite a great number of studies focusing on gender attitudes. This paper tries to overcome this gap on the literature.

An increasing number of studies primarily analyse public opinions on how to address climate change. While these studies provide a relatively comprehensive understanding of policy preferences, they offer limited insight into broader trade-offs, such as the balance between governmental and individual responsibilities or the prioritization of mitigation versus adaptation strategies (Tvinnereim et al., 2017). Additionally, gender analysis remains largely absent in the majority of these studies.

3. Methods

3.1 Information and Data

Information and data come from the European Social Survey, 2023 (ESS). The ESS, is a cross-national survey and dataset, encompassed 25 European countries in its 10th iteration. The survey has three primary objectives: i) To monitor and interpret evolving public attitudes and values across Europe and examine their interaction with Europe's changing institutions; ii) To advance and consolidate improved methods of cross-national survey measurement within and beyond Europe; and iii) To develop a series of European social indicators, including those related to attitudes.

Data collection involved face-to-face interviews; however, due to the COVID-19 pandemic, some interviews were conducted via web or videoconference. The survey addresses various aspects of European life, including social conditions, behaviours, health and well-being, political attitudes, ideology, minorities, cultural and national identity, media, equality, social exclusion, language, religion, values, family life, and marriage. The sample represents individuals aged 15 and over residing in private households in Austria, Bulgaria, Switzerland, Czechia, Germany, Estonia, Spain, Finland, France, Greece, Croatia, Hungary, Iceland, Italy, Lithuania, Montenegro, North Macedonia, Netherlands, Norway, Poland, Portugal, Serbia, Sweden, Slovenia, and Slovakia, comprising a total of 18,060 entries.

To analyse the levels of concern and self-responsibility regarding climate change (CC) among European citizens, specific variables from the ESS were selected. Respondents were asked several questions, with two being of particular interest as dependent variables: 1) "How worried are you about climate change?" and 2) "To what extent do you feel a personal responsibility to try to reduce climate change?"

Independent variables included socio-economic and demographic factors and individual perceptions of European citizens, namely:

1. Demographic variables: Age, gender, and years of education.
2. Attitudinal variables: Trust in the legal system, trust in scientists, satisfaction with the economy, satisfaction with the government, satisfaction with the democratic system, satisfaction with health services, and satisfaction with education services.

3.2 Models

The dependent variables were measured on a five-point Likert scale (1 = not at all worried, 2 = not very worried, 3 = somewhat worried, 4 = very worried, 5 = extremely worried) for the first question, and on a 0 to 10 scale (from 'not at all' to 'a great deal') for the second question. The independent variables included both direct answers for demographics and 0 to 10 scales for perception variables. Responses of 'don't know,' refusals, or no answers were excluded from the analysis as outliers.

The models include Ordinal Regression Models with a cumulative *logit* link to analyse the dependent variables. Initially, single independent variable models were fitted to determine the individual impact of each independent variable. Subsequently, a factorial model was developed, incorporating only significant independent variables identified in the initial step, using backward stepwise selection. The analyses were conducted using the generalized linear model's routine in IBM SPSS Statistics, 2023.

The predicted probabilities of the models were computed based on the parameterization of the models. The general models include:

$$log\ \frac{P(Y \le j)}{1 - P(Y \le j)} = \alpha_j + \beta\, x_1 + \beta_2 x_2 \cdots \beta_n x_n \quad (1)$$

[1]

Were

4. Results

Table 1 presents the descriptive statistics of the variables.

Table 1: Descriptive statistics of the variables

	Variable								
	1	2	3	4	5	6	7	8	9
N Valid	17,78	11,86	17,65	17,65	17,61	17,21	17,91	17,48	17,71
Mean	4.86	6.78	4.66	4.39	4.93	5.62	5.47	5.72	3.21
Median	5	7	5	4	5	6	6	6	3
Standard Error	2.88	2.47	2.45	2.72	2.69	2.6	2.7	2.9	0.957
Minimum	0	0	0	0	0	0	0	0	1
Maximum	10	10	10	10	10	10	10	10	5

The questionnaire reflects a equity gender distribution of 49.9% male and 50.1% female, and is representative in terms of age and education standards across European countries (EC). The descriptive statistics of the variables indicate that less than half of respondents in the EC trust the legal system, (48,6%). Regarding trust in scientists, the EC demonstrates a high level of confidence, with 67.9% of respondents expressing trust.

In terms of satisfaction with the current state of the national economy, approximately 46.6% of respondents report confidence in the system. Satisfaction with the national government is lower, with only 43.9% of respondents expressing satisfaction. When asked about the functioning of democracy in their country, about 49% agree that they are satisfied.

Results of dependent Variable "How worried are you about climate change" are presented in table 2. The findings are as follows:

The results of expressing greater concern about climate change increase with higher trust in scientists. The results ratio is 1.08, indicating an 8% increase in the likelihood of scoring higher on the climate change concern question for each point increase in trust in scientists.

The results increase with higher satisfaction with the national government. The results ratio is 1.03, indicating a 2% increase in the likelihood of scoring higher on the climate change concern question for each point increase in satisfaction with the national government.

The results present a lower score are 0.66 higher for men compared to women. Conversely, women have 1.5627 times higher results of scoring higher on the climate change concern question than men, meaning women are 56.26% more likely to be concerned about climate change than men.

The results increase with the age of the interviewees. The results ratio is 1.007, indicating a 0.06% increase in the likelihood of scoring higher on the climate change concern question per additional year of age.

The results increase with the duration of education. The results ratio is 1.035, indicating a 3.5% increase in the likelihood of scoring higher on the climate change concern question for each additional year of education.

Table 2: Dependent Variable "How worried are you about climate change" Single model

1 NS	2 ***	3 NS	4 ***	5 NS	6 NS	7 NS	§ 8 ***	9 ***	10 ***	
β	eβ	β	eβ	β	eβ	β	eβ	β	eβ	
1	−2.66 ***	0.08	−3.2 ***	0.05	−3.41 ***	0.03	−2.92 ***	0.07	−2.74 ***	0.06
2	−1.03 ***	0.36	−1.47 ***	0.21	−1.75 ***	0.18	−1.28 ***	0.29	−1.14 ***	0.34
3	1.05 ***	2.87	0.61 ***	1.71	0.33 ***	1.39	0.81 ***	2.24	0.95 ***	2.62
4	3.0 ***	20.0	2.55 ***	12.7	2.28 ***	9.68	2.73 ***	15.6	2.8 ***	18.1
IV parameter	0.08 ***	1.08	0.02 ***	1.01	−0.44 ***	0.65	0.005 ***	1.004	0.033 ***	1.034

Table 3. presents the results of the multiple independent variable model with the same previous question. The results, confirm in general the previous results obtained with the single model, but new results are achieved.

For the interaction between "Gender" and "Trust in Scientists," no significant differences were found between men and women regarding trust in scientists.

For the "Gender-Age" interaction, a significant difference was observed between the ages of male and female interviewees, with the mean age of females (51.78) slightly higher than that of males (49.78). Thus, the 8% increase in the odds ratio is understandable, as both female gender and age positively impact the dependent variable score.

For the interactions "Trust in Scientists" with "Age" and "Age" with "Years in Education," the rationale used previously cannot be applied directly, and these results require interpretation within the context of the main effects and the three-way interaction.

The three-way interaction is directly interpretable, as each individual variable positively impacts the independent variable; hence, when considered together, the result is amplified.

Table 3: Results of the Multiple independent variable model

			95% CI			95% CI	
Parameter	**β**	**Std Error**	**Lower**	**Upper**	**Exp(β)**	**Lower**	**Upper**
How worried 1	−2.080 ***	0.276	−2.620	−1.540	0.125	0.073	0.214
2	−0.416 NS	0.273	−0.959	0.119	0.660	0.387	1.126
3	1.706 ***	0.273	1.171	2.241	5.506	3.224	9.406
4	3.670 ***	0.275	3.130	4.209	39.238	22.879	67.294
Gender *** Male	−1.247 ***	0.152	−1.546	−0.949	0.287	0.213	0.387
T Sci ***	0.085 ***	0.025	0.035	0.135	1.089	1.036	1.144
Age ***	0.024 **	0.006	0.013	0.036	1.024	1.013	1.036
YE **	0.052 ***	0.017	0.019	0.084	1.053	1.019	1.088
T Sci × Gender ***, Male	0.055 ***	0.016	0.025	0.086	1.057	1.025	1.090
Gender × Age ***, Male	0.008 ***	0.002	0.004	0.012	1.008	1.004	1.012
T Sci. × Age ***	−0.002 ***	0.0006	−0.004	−0.001	0.998	0.996	0.999
Age × YE *	−0.001 **	0.0004	−0.002	−0.001	0.999	0.998	0.999
T Sci × Age × YE **	0.0001 ***	4.01−5	5.03−5	2.1−4	1.0001	1.00005	1.0002

Table 4 presents the results of the parameters of the models fitted to the dependent variable "To what extent do you feel a personal responsibility to try to reduce climate change", using single model. The results of all the independent variables were found to be significant. The odds of scoring higher, or feeling more responsible for trying to reduce climate change, increase with higher trust in the legal system. The results of trust in the legal system indicate 12.3% increase in the likelihood of scoring one point higher on the climate change question for each point increase in trust in the legal system.

A similar result is observed for "Trust in Scientists," with an odds ratio of 1.57, meaning the odds of scoring one point higher on the climate change question increase by 57% for each point increase in trust in scientists.

For satisfaction with the state of the economy, indicating a 16.4% increase in the likelihood of scoring one point higher on the climate change question for each point increase in satisfaction with the economy.

For satisfaction with the national government, the odds ratio is 1.123, reflecting a 12.3% increase in the likelihood of scoring one point higher on the climate change question for each point increase in satisfaction with the national government.

For satisfaction with the way democracy works, the odds ratio is 1.142, representing a 14.2% increase in the likelihood of scoring one point higher on the climate change question for each point increase in satisfaction with the functioning of democracy.

Table 4: Results of the parameters of the models fitted to the dependent variable "To what extent do you feel a personal responsibility to try to reduce climate change?"

			95% CI			95% CI		
Parameter	**β**	**Std Error**	**Lower**		**Upper**	**Exp(β)**	**Lower**	**Upper**
How worried 1	−2.080 ***	0.276	−2.720		−1.640	0.135	0.073	0.204
2	−0.414 NS	0.271	−0.959	0.119	0.680	0.377	1.126	
3	1.705 *** 0.276	1.171		2.241	5.516	3.624	9.406	
4	3.671 *** 0.278	3.130		4.209	39.248	22.679	67.294	
Gender *** Male	−1.347 ***	0.152	−1.646		−0.959	0.297	0.263	0.397
T Sci ***	0.085 *** 0.026	0.035		0.135	1.079	1.056	1.144	
Age ***	0.023 ** 0.007	0.014		0.038	1.024	1.033	1.076	
YE **	0.053 *** 0.016	0.019		0.084	1.063	1.039	1.088	
T Sci × Gender ***, Male	0.057 ***	0.019	0.025		0.076	1.067	1.025	1.095
Gender × Age ***, Male	0.008 ***	0.001	0.004		0.022	1.068	1.004	1.022
T Sci. × Age ***	−0.002 ***	0.0006	−0.004		−0.001	0.998	0.996	0.989
Age × YE *	−0.001 **	0.0004	−0.002	−0.001	0.999	0.998	0.989	
T Sci × Age × YE **	0.0001 ***	4.02−5	5.01−5		2.0−4	1.0002	1.00006	1.0001

5. Conclusion

The main results highlight conclude that climate change (CC) requires a multifaceted approach, integrating social, economic, and political strategies. Our findings emphasize key drivers of public awareness, concern, and individual responsibility in addressing CC.

Education is a critical factor in raising awareness and fostering a sense of responsibility. Providing science-based education on CC from childhood through adulthood helps individuals understand the causes and impacts of CC, making them more likely to engage with policies and take personal action to mitigate its effects.

Public trust in government also plays a vital role. For policies to be effective, governments must demonstrate accountability by ensuring that their actions align with their statements on CC. Transparent and reliable policies, perceived as socially just, not only enhance trust but also increase public willingness to support and participate in CC initiatives.

Gender equality is another important consideration. Our research indicates that gender disparities influence how individuals engage with CC solutions. Policies promoting equality are necessary to ensure that both men and women contribute equally to CC mitigation efforts. Bridging these gaps can lead to a more inclusive and holistic approach to addressing the challenges posed by CC.

Based on these conclusions, the main implications of this paper emphasize the importance of lifelong, science-based education to create an informed public that understands CC and is motivated to act. This fosters a culture of responsibility, where individuals actively participate in sustainability efforts.

Government accountability is another key recommendation. Public trust relies on the alignment of governmental actions with promises. Transparent and fair CC policies are critical for gaining public cooperation and ensuring the effective implementation of sustainability initiatives.

Finally, gender equality is essential for a comprehensive approach to CC mitigation. Public policies must address gender disparities to leverage diverse perspectives and ensure that solutions reflect the needs and contributions of both men and women.

The main recommendations for public decision-makers emphasize that combining education, government accountability, and gender equality is crucial for fostering public engagement and achieving more effective action against climate change.

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The Role of Employee Engagement, Empowerment and Culture in Effective Performance Management

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Abstract: Performance management systems (PMS) are an essential tool in shaping employee behaviour in organizations. PMSs are also an important part of today's organizations and provide a framework for improving employee performance, productivity and leadership. Previous studies have not examined how PMSs influence employee behaviour, i.e. what are the mediating and moderating roles in this relationship. This article reviews and synthesizes current scientific knowledge on the influence of performance management systems on employee behaviour and examines the role of mediating and moderating mechanisms in this relationship. A systematic review of 83 research articles published in English up to 2022 was conducted. The review investigated various mechanisms through which PMS influences employee behaviour (specifically employee commitment, motivation and satisfaction). Promising trends and research trajectories were identified through content analysis with a mediating and moderating role. The PMS influences employee behaviour primarily through three constructs - clearly set goals, properly set rewards, and effective feedback delivery. A consistent (effective) PMS subsequently contributes to employee engagement and empowerment, which mediate the relationship. Organizational culture is a moderator because it can deepen the relationship between PMS and employee behaviour. The performance-oriented organizational culture in a company helps to create an effective PMS that positively influences employee behaviour. From a theoretical perspective, this paper synthesizes the results of each research, assesses the knowledge base in our selected research area, and clarifies potential avenues for future research and trends. This research contributes valuable insights for organizations seeking to improve their PMS for sustained employee success and satisfaction, as the literature search described the impact of PMS on employee behaviour through the identification and examination of individual mediating and moderating roles. Managers who pay attention to employee engagement and empowerment can then set up activities to have a good and necessary impact on employee commitment, motivation and satisfaction.

Keywords: Performance Management Systems, Employee Behaviour, Employee Commitment, Motivation, Satisfaction

1. Introduction

The impact of performance management systems (PMS) on employee behaviour has emerged as a significant area of interest for both researchers and practitioners (Awan et al., 2020). The extant literature indicates a strong correlation PMS and employee behaviour (Franco-Santos et al., 2012). While some studies have indicated that performance-related rewards can encourage enhanced work effort and measurable performance, other research has underscored the potential risks and adverse effects associated with such rewards (Pulakos et al., 2015). The practical concerns surrounding performance management systems, namely their cost, time-consuming nature and potential for stress, have been the subject of significant criticism (Murphy, 2020). Rigby and Ryan (2018) highlight additional adverse consequences associated with PMS, including a tendency for managers to prioritize quantity over quality, modifications to the incentive system, and employees focusing on performance goals explicitly included in the incentive plan.

The empirical evidence pertaining to the positive or negative impact of PMSs and the mechanisms by which they influence employee behaviour remains ambiguous and fragmented (Kakkar et al., 2020). Furthermore, the impact of organizational behaviour changes on PMS utilisation has not been adequately investigated (Yuliansyah et al., 2016). Additionally, the relationship between emotions, employee behaviour and PMS remains under-researched (Korff et al., 2017). The existing literature reveals a paucity of research concerning the outcomes of employee performance management, including work engagement and employee performance (Biron et al., 2011; Sharma et al., 2016). This article addresses these research gaps by a comprehensive review and synthesis of the current scientific knowledge on the relationship between PMS and employee behaviour, and an examination of the role of mediating and moderating mechanisms.

This study examines the relationship between employee behaviour and three key variables: employee commitment, motivation, and satisfaction. These three constructs are examined within the framework of employee behaviour, as proposed by Gupta and Upadhyay (2012). Understanding these relationships is especially crucial for industries focused on employee productivity and organizational success (Botelho, 2020). In order to pursue specific research questions, a systematic literature review was conducted as part of the research process (Alqahtani et al., 2023). The mediating and moderating roles between PMS and employee

behaviour were identified. The findings were employed to construct a conceptual model, the purpose of which was to elucidate the interdependence of performance management systems and their impact on employee behaviour. Our findings extend the original knowledge by identifying the manner in which the three constructs of employee behaviour (commitment, motivation, and satisfaction) are influenced by each PMS construct, through the mediating role of managerial practices. The implementation of valuable insights facilitates the enhancement of PMS, thereby ensuring the sustained success and satisfaction of employees. By directing attention towards the aspects of employee engagement and empowerment, managers can subsequently establish activities that will have a beneficial and necessary impact on employee commitment, motivation and satisfaction.

2. Research Methodology

In line with Seuring and Gold's (2013) framework, the aim of the literature review is to describe important research trends, synthesize the results of individual research, assess the knowledge base in the research area, and clarify potential avenues for future research/trends. In pursuit of the objective, research focuses on performance management systems (PMS) and their impact on employee behaviour. The aim of this paper is to review and synthesize the current research evidence on the relationship between performance management systems and employee behaviour and to explore the role of mediating and moderating mechanisms. In line with this aim, we adopted a systematic approach (Tranfield *et al.*, 2003) aimed at providing a comprehensive and thorough review of the literature in this area of research (Seuring and Gold, 2013).

Our systematic literature review is limited to the literature published up to 2022. We have used a wide time span, which we consider appropriate given the large development and diversification of different aspects of performance management systems (Nudurupati *et al.*, 2021). The starting point is the question of what gap currently exists in our chosen issue. Subsequently, a search of peer-reviewed English articles in the following databases was conducted: the Web of Science and Scopus, which are the most widely used sources of academic publications in the field of business and management. A narrow search criterion was chosen using keywords (performance management systems, employee behaviour, employee commitment, motivation, satisfaction) - 956 related results were found in the databases. We selected 58 articles related to this issue. Articles were selected for the subject areas of business, management, and business finance as search sources for academic publications (for the categories title, abstract, author keywords). Subsequently, the selection of studies, data extraction, synthesis of results and interpretation of results were performed (Machado *et al.*, 2019). In the next stage, we selected an initial sample of articles based on the title, abstract, and keywords of each article. We selected articles whose title, abstract, and keywords were relevant to the issue.

3. Results and Discussion

3.1 Performance Management System

Sahu (2009) describe PMS as a process of goal setting, monitoring, coaching, measuring and evaluating, giving feedback, rewarding and planning of development. Demartini (2014) states that the characteristics of the PMS definitions can be summarized in the following three elements: formal and informal mechanism a process, strategy formulation and implementation, and enabling organizational goals to be achieved through learning and change. Within this context Muhammad *et al.* (2021) states that the goal of the PMS is to achieve the best possible results in the planned goals, to stimulate each employee to high performance and improve competencies, and to eliminate their poor behaviour. In a nutshell, the primary objective is to achieve the organizational goals by influencing the behaviour and performance of individuals (Broadbent and Laughlin 2009; Ferreira and Otley 2009).

As we can see, PMS includes continuous process, at the heart of which lies performance appraisal (Sharma *et al.*, 2016). In recent years, there has been a shift from traditional methods of performance management to modern ones that focus primarily on employee development and growth, as noted by Chillakuri (2018). Current research attention is shifting from control theory in PMS to behavioral theory. This paper seeks to extend the knowledge in the area of the impact of PMS on employee behaviour. Wendt (2014) considers that a PMS which motivates employees to take responsibility for their own development and provides them with the necessary support to do so is optimal. The role of PMS is in guiding employees to meet performance expectations mainly through goal setting, rewards, and feedback, (Kubiak, 2022; Schleicher *et al.*, 2018). For this reason, the three

constructs of PMS will be described in more detail in the context of employee commitment, motivation and satisfaction (Gupta and Upadhyay, 2012).

3.2 Mediating and Moderating Role

3.2.1 Goal Setting, Feedback and Rewards

Regarding employees, PMS is primarily concerned with setting corporate goals, performance targets, as well as challenging employees to meet those goals in a proper and appropriate manner. Goals should be clearly defined, measurable, along with accountability for rewards, which compels employees to act in the interest of the company of their own volition (Lee and Jimenez, 2011; Campbell, 2015). According to Franco-Santos and Otley (2018) setting clear, achievable goals through PMS can drive employee behaviour by providing direction and purpose. As part of goal setting, Murphy's (2020) latest study recommends a coaching-oriented performance management system rather than simply evaluating deviations from goals. In particular, it means building commitment and engagement to the organization and its broad goals, and helping employees who are struggling to meet their individual goals.

A continuous and ongoing feedback process that minimizes the gap between set standards and observed results of actual performance is part of control theory (Buchner, 2007). Effective provision of feedback and performance appraisals can motivate employees to improve their performance and align their behaviour with the organization's goals (Mone *et al.*, 2018). However, according to these studies, it is appropriate to focus feedback narrowly on those employees who need it, and to focus it on learning and development rather than evaluation. Then it can have a positive effect on employee engagement in the workplace (Gruman and Saks, 2011; Mone *et al.*, 2018).

The link between performance measurement and rewards is considered a critical decision that may result in unintended negative consequences (Kerpershoek *et al.*, 2016). Different organizations exhibit different approaches, with some relying heavily on performance monitoring and extrinsic rewards, while others adopt alternative, more facilitative methods to achieve their mission and enhance performance (Franco-Santos *et al.*, 2012; Frey *et al.*, 2013). Performance-related rewards have a greater potential to increase work effort and thus measurable performance (Kuvaas *et al.*, 2017; Gerhart and Fang, 2014). However, Pink (2011) challenges the traditional view that rewards and recognition are the only motivating factors for employees. Various factors such as lack of awareness, different risk attitudes, personal characteristics of employees, differences in organizational culture and management attitudes significantly affect the effectiveness of reward systems and how they contribute to employee motivation and performance (Larkin et al., 2012; Nyberg et al., 2016). In addition, employees' job satisfaction is the result of a positive view of their job duties, as well as the rewards they receive for performing those duties (Khavayet et al., 2018).

3.2.2 Management Practices

Clear and consistent PMSs that signal expectations through goal setting, feedback and evaluation contribute to employee engagement and understanding when well defined and agreed (Biron *et al.*, 2011; Bednall *et al.*, 2022). Work engagement is considered a critical aspect of PMS (Abraham, 2012; Macey and Schneider, 2008). Effective PMS increases work engagement, which leads to superior performance (Smith and Bititci, 2017). Organizations with higher employee engagement build better culture of motivation, commitment and work (Harter *et al.*, 2002; Cheese and Cantrell, 2005). Effectively designed PMS have the potential to increase employee engagement and involvement in work (Medlin and Green, 2009; Mone *et al.*, 2011; Saks, 2019; Scott and McMullen, 2010), leading to increased efforts to achieve organizational goals and improved performance (Anitha, 2014; Awan *et al.*, 2020). Parzefall and Hakanen (2010) found a positive relationship between perceived psychological contract fulfilment and work commitment, with work engagement fully mediating the relationship between perceived contract fulfilment and affective work commitment. In a related study, May *et al.*, (2004) found a significant association between work role fit and work engagement. In order to enhance employee engagement, it is essential that managers receive training in order to recognise, develop and measure it. Furthermore, they must learn how to incorporate it into performance reviews and feedback. It is also crucial to create a supportive environment and provide the necessary resources in order to fully engage employees (Gruman and Saks, 2011).

Empowerment is seen as an act that involves the granting of work power to individuals (Kanter, 2008) a process leading to the experience of power (Thomas and Velthouse, 1990), and a psychological state manifested as

measurable knowledge (Spreitzer, 1995). Empowerment depicts employee cognition at a point in time (Menon, 2001). Viewing empowerment as a psychological state creates a mediating link between acts of empowerment and employee outcomes such as satisfaction, engagement, and organizational commitment (Seifert *et al.*, 2016). For example, acts of empowerment such as delegation are expected to induce a state of empowerment that can lead to favorable employee behaviours and overall work outcomes such as increased employee satisfaction (Cook and Crossman, 2004). There is a positive relationship between the level of employee empowerment and all dimensions of performance appraisal system quality. Trust has been identified as a mediating factor between employee empowerment and business unit performance (Baird *et al*., 2020). The relationship between empowerment and business unit performance operates through the perceived quality of performance appraisals, particularly in terms of trust in supervisors (Fletcher, 2001). The way PMS are implemented and managed by the management influences employee perceptions and reactions. Fair and transparent practices are more likely to encourage positive reactions from employees (Awan *et al.*, 2020). As posited by Bakker et al. (2011), managers should prioritise the empowerment of employees, not only through the conferral of greater autonomy in the organization of their work, but also through the granting of autonomy in the decision-making processes surrounding the performance of tasks, the presentation of challenges, and the promotion of teamwork.

3.2.3 Organizational Culture

Organizational culture represents the values, beliefs, attitudes, and practices that guide day-to-day activities in an organization, but it also represents the implicit assumptions that organizational members share (Maher, 2000; Miska *et al.*, 2018). In an organization that has a strong performance-oriented organizational culture, the performance of workers is positively affected (Kotková Striteska and Sein, 2021). For organizational culture to function effectively, it is imperative that managers establish a clear correlation between performance management systems and organizational culture, and foster a culture of knowledge sharing and innovation among employees (Kotková Striteská and Zapletal, 2020). The creation of an environment that facilitates collaboration and the integration of innovation processes with core business activities represents a pivotal step in the attainment of enhanced performance and the safeguarding of a competitive advantage (Azeem et al., 2021).

Organizational culture is an important element of a company because it influences employee behaviour, motivation and values. At the same time, performance-oriented culture is critical factor that enhances the effectiveness of the PMS (Kotkova Striteska and Zapletal, 2020). Performance management systems create career paths for employees and groups of people who stay in the company long enough to create a company culture (Ehtesham *et al.*, 2011). A culture that values performance and learning is more likely to foster positive behaviour changes (Wua *et al.*, 2022). The impact of organizational rewards on knowledge sharing among members is moderated by the type of organizational culture, which in turn influences employee performance (Rohim and Budhiasa, 2019). In general, there is a positive effect of organizational culture on various aspects of employee satisfaction, productivity, commitment and job satisfaction (Wua *et al.*, 2022). Specifically, organizational commitment was identified as a key factor positively affecting employee productivity, which is consistent with previous studies by Tolentino (2013). Job satisfaction can partially mitigate the effect of organizational culture on productivity. Therefore, it is essential for business leaders to prioritize and promote job satisfaction and organizational commitment of employees in order to enhance employee productivity (Wua *et al.*, 2022). Organizational culture deepens and strengthens the relationship between PMS and employee behaviour. A well-adjusted performance-oriented organizational culture in a company helps to create an effective PMS that positively influences employee behaviour. The entire relationship defined by our literature review is illustrated in the following figure.

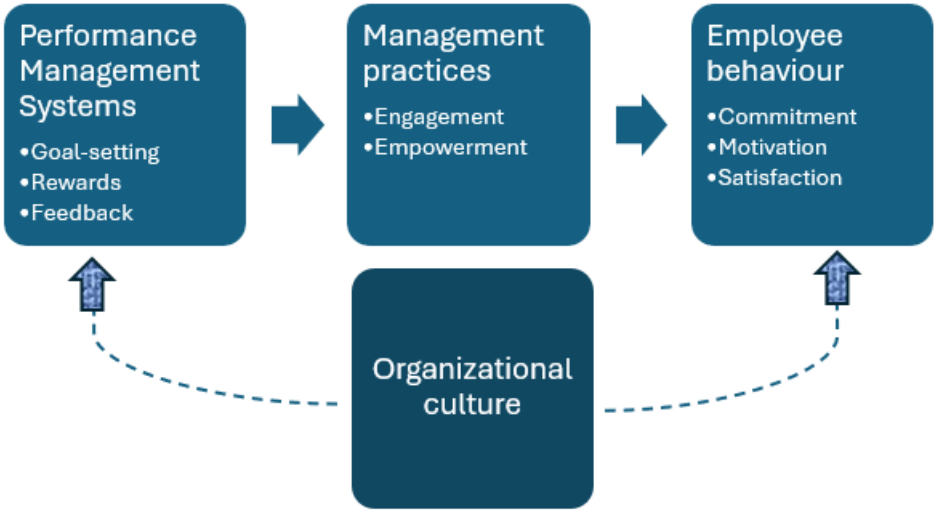

Figure 1: Mediating and moderating roles in the relationship between PMS and employee behaviour

Figure 1 shows the components of PMS and the managerial practices that have a mediating role in relation to employee behaviour. The moderating role is played by organizational culture, which, if well set, has an impact on the different components of the PMS as well as employee behaviour.

4. Conclusion

The findings of our systematic review demonstrate the complex and multifaceted nature of performance management systems, and underscore their pivotal role in fostering employee engagement, empowering employees, and directing our attention toward employee behaviour. The findings highlight the necessity for organizations to implement fair and transparent practices, empower employees through a well-defined performance management system (PMS), and cultivate a supportive organizational culture that is aligned with overall corporate goals. The central conclusion is that there is a need to alter the conceptual framework underpinning current performance management systems, moving away from a control-oriented approach and towards a coaching-oriented one that emphasises learning and development across the entire process.

This study also has limitations as it includes studies selected by us up to 2022 and there may be studies not included in the paper that would differ from our results. Articles were filtered based on the appropriateness of the selection criteria, while there may be limitations in the aspects we selected. The choice of other aspects provides an opportunity for future research. Future research studies should consider the role of performance appraisal system quality with a focus on trust. Building trust through forming relationships and improving employees' perceptions of supervisors' abilities, benevolence and integrity (Baird *et al.*, 2020). Future trends could address the area of aspects that mediate the relationship between employee empowerment and organizational unit performance.

From a theoretical perspective, this paper synthesizes the results of each research, assesses the knowledge base in our selected research area, and clarifies potential avenues for future research/trends. This research contributes valuable insights for organizations seeking to improve their PMS for sustained employee success and satisfaction, as the literature search described the impact of PMS on employee behaviour by identifying and exploring individual mediating and moderating roles. From a practical point of view, the article describes the findings for managers who, if they give attention to employee engagement and empowerment, can subsequently set up activities to have a good and necessary effect on employee commitment, motivation and satisfaction.

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From the Belly of the Beast: The Monsters We Can Create from the Zombies and the Hyenas amongst us!

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Abstract: The purpose of this article is to address what has always been discussed as the three main elements of the social world. That is, the structure, culture and agency in the management, leadership and governance systems in university education. Such elements, as analytically distinct, arise from the assumptions that their roles, respectively, are values free exercise, asocial, apolitical and, therefore, neutral. Citing a particular case that has been a subject of deep debates and extensive conversations in previous ECMLG 2021, ECMLG 2022 and as part one of ECMLG 2024, this paper subjects, as an immanent critique, the claims that the management of organisations' resources, which generally make for the interface between senior management and the formal governance of the organisation, with all things being equal, can make for forms of efficiency and effectiveness in organisational and management systems. With the title of the paper, *From the belly of the beast, the monsters we can create from the zombies and the hyenas amongst us,* the paper thus adopts a disruptive and transgressive stance about what can always appear as the structural and cultural norms. As such, the paper will argue, by drawing from the post-modernist theories, for example, the social realist theory as anchored on the critical realist philosophy, that it takes the properties and powers both of the knowledge and knower structures for the ideal of university education as the public good, as the case will illustrate, to be a realist reality. By means of a social realist methodology, research data was drawn from organizational records, which was then subjected to critical discourse analysis for identifying the structural mechanisms that could generate the crisis events and processes, and further to how the latter could be experienced and observed over time. Such a methodology therefore foregrounds the value of morphogenesis/morphostasis in a social realist oriented project. Based on what ought to be the theory-methodology-practical program chain, the value of the article is, in itself, and for generalised contexts, thus related to what ought to lie behind the shine of leadership practices, of the management systems, and of the governance structures. That refers to the case of what can be the three headed monstrous situations, and further to the value of the practices as the nexus of research and development, of policy and implementation, and of strategy and leadership.

Key Words: Fees Must Fall, Transformation, Leadership, Governance, belly of the beast, the monsters you made, Walter Sisulu University

1. Introduction

In Burna Boy's song, *The monsters you made*, the song highlights the impact the damages and impact of colonialism and coloniality on the African continent, including the negative impact on education. In this article, I draw inspiration from the song in order to elaborate, as part of what has been a consistent case at the ECMLG series going back to 2021. The case is about a monstrous situation that could play out in particular ways by the actors in MLG systems, thus reflecting whether the characters could be assuming the posture of the zombies and the hyenas, whether inadvertently and/or unwittingly? In one of the ECMLG series, I made arguments about the case of *The Emperor and the New Clothes*. Drawing from the reproduction, understanding and broadening elements in any scholarly project, the emerging question for knowledge advancement was whether the actors in the UNEC case, in an institution which seems to be still mired in the complexity of power relations, in more than 20 years of her history and social relations since her merger of 2005, can still coexist and live peaceably within itself, without the current forms of empiricist thinking? Part 1 of ECMLG 2024, therefore, reported on the claims about *The Empire who would have new clothes but still remain naked!* It is therefore along the same lines that this article emerges. Therefore, the research had its setting a particular case about the Vice Chancellor and Principal (henceforth, The VC-P 2016-2021 (The VC-P) at University of the North Eastern Cape[1] (UNEC). The following extract portrays the case as extensively reported in the ECMLG series (for example, Dwayi, 2022),

[1] Not real name

Table1: The Background to the Case Study

The research focussed on a series of events which would later be captured in the form of an Institutional Forum Report about the National Education Health and Allied Workers Union (NEHAWU)-MR X Unresolved Dispute (to be referred to as the IF Report). The events leading to the report dated back to May 2018, and the Report served at the University Council of 8th April 2022. The case had its roots at the very first year of the VC assuming duties at UNEC, which would reflect serious contradictory positions and inherent consistencies (of decision making about the case), at least from the critical realist perspective about the nature of complexity in open social systems. Several times since NEHAWU had declared the labour dispute about the case, the Council would remain obfuscating about the case until the new Council came into existence in November 2020, which was then followed by the VC-P ostensibly going on sabbatical leave in January of 2021, and finally vacating the Office in March 2021.

Part 2, *From the Belly of the Beast, the Monsters We Can Create from the Zombies and the Hyenas amongst us*, reflects on the complexity of the regime as playing out in the Case post the VC-P departure. The study adopted a desktop research approach, inclusive of a textual analysis of institutional records, which were compared with primary data from the purposefully selected research participants, towards what could be a social realist account about the role of the actors in the MLG systems. Of main interest to the researcher was based on the research question: Which discursive resources did the actors seem to draw on about the case study? The preliminary findings about such a question seemed to point to the dissonances about the case, when the university council took the posture to accept the outcomes of the investigation as policy mismanagement, but rejected the consequences as prescribed per policy. In this article, therefore, the main thrust of the claims was in defence of the idea of university education as the public good. The claims revolved around the main argument as to whether the knowledge and expertise in Law could be used as weapons to wield bullying and hegemony against the insignificant particular other? In an ideal situation, such forms of knowledge and expertise (in Law) needed to be transformed into resources for human flourishing. The means to the latter ought to be about the pursuit of excellence as being "the change we want to see". Left into their own devices, the unfortunate situation about the MLG systems could be when they become the case of the monstrous situation as evinced in the article.

The claims in this article do not intend to shed any bad light on those involved in the case, but to explain the socio-cultural factors that may have conditioned how they exercised their Agency in their respective roles as academic leadership, management systems and governance structures. Such a position is at the core of deconstructing Colonialism and Decoloniality and the enduring legacy of Empiricist thinking and Western Triumphalism, especially in the context of the new democracies! Therefore, this article reports about the previous case as it has been the subject of the ECMLG series. The rest of the discussion covers the following main sections,

a. How management, leadership and governance systems , as social practices, are always about the politics of knowledge. In order to illustrate this observation, the paper refers to educational development in university education as the potential soft belly of the beast. This is always the case where the notion of development is contested in power.
b. The need to dig deeper about the notion of development by questioning what appears as the claims for excellence, by drawing from powerful ways of thinking, of making and of doing.
c. An illustration about the case about the politics of knowledge where the representation, or the misrepresentation of the MLG systems about it, constituted maladministration.
d. A social realist account about the case by zooming into what seemed to lie behind the claims about excellence or meritocracy.
e. The article then propagates for the value of transformative agency in such cases, if the MLG scholarship is to ascend to new trajectories of knowledge advancement.

2. The Politics of Knowledge in MLG Systems

South Africa had seen major developments in the university education transformation project during the last two decades (2004-2024). These developments have included the first phase of the institutional audits (2000 to 2011), which was unfortunately characterised by what would be popularly known as the Fees Must Fall Movement (FMF) of 2015 & 2016. Before the advent of the Fallist Movement, the very meaning of the transformation project had become a subject of scholarly critiques. The main thrust of the arguments, for example, by McKenna & Quinn, (2012) would question the transformational value of higher education that doesn't seem to go far enough to change the sense of who the learners, the academics and even the institutions are, and thus as the measure thereof as quality. For example, for the case under scrutiny, an inference could be made about the incorrect translation of the transformation project as equating to measure of excellence, as if such a measure is a values free and neutral concept. While Boughey and McKenna (2016) response to the

national institutional quality audits, for example, identified such interventions as necessary at the point of them being the structural system, the incompatibilities of the audit became problematic, so the authors argued, at the dimensions of the cultural system. This refers, for instance, to when the policies and strategies could be evidenced to be in place for quality management, and yet the beliefs, value systems, norms and standards thereof remained unchanged at the level of the institutional cultures. It didn't come as a surprise, therefore, that soon after these observation, the FMF movement of 2015 and 2016 would suddenly erupt in the main institutions of South Africa., which proved that the academic project still drew more on the decontextualised and autonomous notions of quality than what ought to have been the elaborative and socially embedded logics.

2.1 The Soft Belly of the Beast

The precarious nature of the academic development work is not a new concept, as it has been noted in the other developed communities (Brew and Peseta, 2008, Holt, Palmer & Challis, 2011), including South Africa (Quinn, 2012; Moyo, 2018). Despite the latter observations, the second phase of the national audits, the focus would be on the value of integrated quality management systems where the enactment thereof would have to have coherence, functionality, responsiveness and meaningful structure (CHE, 2021). The latter would constitute the responsibilities of academic leadership, management systems and governance structures in emergent ways. Against these new developments about the politics of knowledge, and thus the contestations about the concept of quality, were also the macro issues about how the university sector seemed not to be responsive and coherent enough. The UNEC case, therefore, as represented in The Report, seemed to point to how corporate governance and leadership in university education, while necessary, might have been the subject of political decision and thus subjecting a governance structure to the incompatibilities of its decision making events and processes.

2.2 Not Everything That Glitters is Gold!

Both the UNEC Case and The Report have been a subject of analysis in previous academic projects, the ECMLG series. In a nutshell, The VC-P was found to have breached the university policy on job upgrading, and went on to undermine the university statute on the appointment of the executive managers. The nett result of the latter was to single-handedly put a Doctorate qualification as a minimum requirement for the post of SD-LTD. When the Labour Union declared dispute on the matter, The VC-P, as the head of the executive management admitted the policy breach on the basis of cost measures. The subsequent investigative report (The Report) then declared The VC-P as having usurped the University Council powers and also the Council having abrogated its fiduciary duties to the Office of The VC-P. By September 2023, the Human Resources Committee of Council (HRCC), accepted the management of grievance procedures and dispute cases as the causes to the case, but strangely did not admit accountability for the effect. Therefore, the developments between September 2023 to February 2024 shed a new light to what was first identified in the HRCC Report (WSU, 2019) about whether the policies had been adhered to in the appointment of the SD-LTD**.** For example, the following extracts reflect what would be the silences and superficialities in the management and governance processes about the case,

Table2: The Changes in the Headship of the Directorate of Learning and Teaching

Dear Colleagues (03/02/2024) As you know, the DLT organogram was revised and the position of Senior Director: Learning and Teaching no longer exists. My contract as Senior Director: Learning and Teaching ended today……A new position of Director: Directorate of Learning and Teaching was created. I have now been asked to act in the new position while the recruitment process to fill the new position takes place.

Table 3: The changes of the DLT Function by the Joint Bargaining Forum

Dear Colleagues, Following presentation at JBF I submitted the organogram to executive management.. Kindly find attached organogram following management input. TheSeniorDirectorpositionisnowredundantandanewpositionofdirectorhas been created

By September 2024, UNEC advertised the position of Director LTD at Peromnes level 5 (effectively a downgrade from Peromnes 4), (WSU, 2024). Such developments seemed to confirm the findings of The Report as briefly alluded to in the introductory section. About the latest development, however, the question remained whether the due process had been followed about a function so strategic for quality enhancement in the academic

project, as earlier claimed for its creation (WSU, 2018; WSU, 2019)? Towards getting to the bottom of this, in my capacity as the researcher in this case, I had to ask for the following information to the current Head,

Table 4: Request for Information on the R&C Project about the Directorate

Dear Prof ..... I am interested in knowing, about the WSU case, whether there were any academic/quality reviews for the changes that ultimately took place at DLT as apparently going on? Whether a Report about those reviews exist and can be made available to me? Whether this matter of the changes was ever a Senate issue? If so, when? Was there any Management Report thereof? Is there any Senate Resolution? Any Minute that I can perhaps access about that? Did the matter serve at Council? Are there any records about this as in Council Agenda? Your positive and constructive engagement of these questions I will fully appreciate.
***Response**: I'm a bit swamped at the moment training UCDG project leaders Finalising mid-year report and preparation for presentations for the Management Lekgohla in two weeks' time. Will see when I get time.*

The Professor never got time to respond to the questions about whether the post down grade, and the consequent advert for post of Director, Learning and Teaching Development (DLTD) was a subject of academic review process, and further to official engagements at Senate (institutional academic board) and all the way for Council approval. In the ideal situation, such a position would have to be based on a comprehensive and credible education research about integrated academic development for a typical UNEC context. The counter explanation to the lack of response per Table 4 would come to surface when one of the Directorate staff declared that, "I just knew the DLT integration was not documented, nor got approved by Senate." In response to the contents per the questions in Table 4, the staff member responded per the following contents in Table 5.

Table: 5 A Perspective to an AD practitioner,

"It has been driven by individuals with their personal intent.. But the relief of late is that, at least they seem to be coming back to us as PAL coordinators to ask for guidance..... All this aspects you mentioned were not considered, especially the emotional impact on the staff that got relocated. As we speak most of them are not welcomed in the Faculties, because there was never a proper process to introduce them into faculties"

3. Engaging the Tight Boundary Objects and Gatekeeping

Calling on the critical realist philosophy and the social explanatory program suggests for the kind of scholarship that can dig deeper, that is, beyond what could be the surface ontology about the Case. Such a process would include the following steps,

a. Identification of the main actors as the case unfolded in the ideal context of the academic project. Such a project ought to be about the principles that any credible MLG system would hold dear, namely, justice, fairness, empathy and democracy while mediating the potential misuse of academic freedom, institutional autonomy and public accountability.
b. Delineation of the actors in terms of their roles, functions and responsibilities. For the case under scrutiny, that meant a critique of the management systems (offices of executive managers) and the governance structure (the university council) which, as the custodians of the university policies and statute, can take decisions that seem to reflect the lack of clear thinking about the matters of the case.
c. Further delineation of the actors in terms of their embedded knowledge as beliefs, norms, standards and values about their roles, functions and responsibilities. It is at this point of the assumed cultural capital that then scholarship about the case would come alive. That is, whether the actors can disassociate their materialist interests, as dialectically related to power relations, and in ways that they can still defend the academic project.

As reported in other articles, (namely WSU, 2019, WSU, 2022), the UNEC Council had instructed the HRCC to investigate whether policies had been adhered to in the appointment in the SD-LTD. In 2023, after subjecting the case to two Legal Opinions, the HRCC recommended for a Council decision a resolution that seemed to defeat the very existential value of a governance structure. That the Council accepts the case of policy breach and lacks in the dispute resolution procedures, but reject the consequences of such a breach! It were such observable contradictions and inconsistencies that invited critical realist questions about whether governance structures could have the appetite to deal both with maladministration and the undermining of well-established codes of corporate governance and leadership? Practically, the analysis would have to identify the discursive resources that the MLG actors could draw on in resolving what seemed to be straight forward mismanagement cases. The preliminary answer to such a question was that such cases could ensue when the University Council,

as a governance structure, appears to be obfuscating about the issues of social justice and equity. The case, as it has been reported in the previous ECMLG series, related to how a preoccupation with the discourse of excellence, blindly defined as the requirement for a Doctoral qualification in the appointment to the SD-LTD post, could be compromised by means of a policy breach about talent management to the point of undermining the very statute that governs the university. It was the case of that nature that could set the whole system into a monstrous situation. What could be the discourse that were capable of generating such complexity, then, where the main actors could be described as having assumed the identities of the zombies and the hyenas.?

4. The Monster "You" Created!

Drawing from critical realist perspective, for example, Sayer (1999, p.20), that 'much of what happens does not depend on or correspond to actors' understandings; there are unintended consequences and unacknowledged conditions, and things can happen to people regardless of their understandings". With the befit of the previous insights, for example, Dwayi (2022), further to Archer, (1995) and Bhaskar, (1989), emerging were the discourses about the UNEC case as outlined below,

a. The Crisis of Legitimacy in Law Discourse. Much as The Report was quite scathing about how the case had been managed, with the recommendations for restorative justice, the HRCC report to Council would depend on the two legal opinions, which vindicated the executive management on how it handled the case. That then gave rise to what I could identify as *The Crisis of Legitimacy in Law Discourse*. The decision was antithetical to the KIV Code of Corporate Governance and Leadership (KIV, 2016), with special reference to ethical practices. The social realist description in defence of such a discourse had its source the values, norms and standards (cultural system) that the HRCC seemed to be calling upon in its decision making, further to its roles, functions and responsibility (structural system) as represented by the management systems and governance structures.
b. The Blind Pursuit of Meritocracy Discourse. The Report was quite explicit that the matter of a Doctoral qualification, as a minimum requirement for assuming the position of SD-LTD, while might have been necessary, its logic became questionable at the point of implementation, which constituted the undermining of the university statute and policy breach. In that case, not even the performative discourse could serve as a frame of reference about the victim in this case. That, then, foregrounded *The Blind Pursuit of Meritocracy Discourse* as yet another dimension of a cultural system, thus making decision making to be constitutive of the enduring legacy of colonialism and white supremacy in South Africa, along race, class, power and privilege.
c. The Policy as Pretentious Discourse. Dialectically related to last two discourses as reflective of the maladministration practices, were The Report findings was quite scathing about the choices and none choices about the case, which seemed to border on pretence, grand standing and political posturing. Pretence, in that case, became pronounced when the actors themselves, the management team, were custodians of the institutional policies and with delegated powers from the university council, a governance structure. *The Policy as Pretentious Discourse* therefore provided yet another dimension both to the *Blind Pursuit of Meritocracy Discourse* (cultural system) and of *The Crisis of Legitimacy in Law Discourse* (structural system), but now with emphasis on the actors, the point about human agency and social action (human system) in the MLG practices in the social world.

Therefore, the combined effects of these discourses, developed as the synchronous and structural mechanisms that generated the events and processes about what can be the dysfunctional governance structures and leadership, played out in dynamic and emergent ways, and, over time. For a typical university education context, that also referred to three performance levels about the case, all of which seemed to defeat the ideal of transformative agency, and in turn, surfacing the silences and superficialities of MLG systems in the idea of university education as the public and the common good.

a. Firstly, the hyenas acts in academic leadership whether by omission or commission, would be when the actors seemed to draw on particular discourses about the systems of domination and control in the academic project *(Blind Pursuit of Meritocracy Discourse)* than what could have been the alternative.
b. Emerging from the latter point, and very characteristically about the university education context, where the discipline authority resides with the professoriate, would be the apparent monsters acts at the level of the Management Systems. The VC-P and his executive management team (*Policy as Pretentious Discourse)* was found to have usurped the University Council powers in the appointment of SD-LTD as the case in point, and in the processes responsible for subverting the policy as a structure!

c. At the governance structure level, reported was the case of a University Council which abrogated its fiduciary function to that of the Executive Management level. Such a finding of The Report was evidence of how a governance structure could be complicit in perpetuating the historical and structural disadvantage *(Crisis of Legitimacy in Law Discourse),* and thus constituting the character of the zombies (confusion and complexity from the combined effects of the discourses as outlined above).

Therefore, the UNEC case, per the critical realist orientations (critical discourse analysis) provided a compelling case about the adage that 'every picture tells a story'. In this case was the story about the precarity of the academic development practitioners (Section 2 of this article), which played out in very unique ways, due to the actors in the case. Concerns about how the transformation project suffers is well documented. For example, McKenna, (2020) highlights the dangers both of the patriarchal management and compliance based managerialism. In the UNEC case, a 'white' male did not only bully the university council by usurping its powers. He went on to demonstrate opaque forms of leadership, and thus subjecting the academic project into a smokescreen. The worse form of a smokescreen was the Good Bye Message (WSU, 2021, P1) whose contents seemed to have been refuted soon after the VC-P departure (WSU, 2022). The Good Bye Message declared that the author was most grateful and hoped that "in return I have some justice to general expectations". The Report, however, called for restorative justice out of a case that stemmed from the maladministration practices as presided over by the VC-P.

5. Three Headed Monstrous Situation!

The logic about the monstrous situation, as analysed above, could be explained in terms of how the case was ameliorative, or at worse reproductive, about the social ills that can constrain the pursuit for social justice and equity. Identifying the discourses of use by further delineating them according to the three performance levels at UNEC allowed the researcher to finally arrive at the clearer picture about the reproductive dimensions about agency. This is what I preferred to aptly refer to as the Inaction-Indifference-Silence logic about the Actors.

a. Academic leadership: At this level, general scholarship ought to constitute intellectual activism against any forms of brutality, pretence and political patronage. Therefore, the silences and superficialities in the case implied the inaction of those who should have acted in the case.
b. Management systems: At this level, policy implementation, further to academic leadership, even in the best of the circumstances where the institution could be made of the knowledgeable, the consequences could defeat the very ideal of university education. Therefore, the case was quite illustrative of what can be the indifference of the professoriate when it should have known better about the very discipline they had been trained on: policy making as the enabling mechanism for social justice and equity.
c. Governance structures: Further to the two levels above, this level is about policy custody. The Findings about undermining a university statute, coupled with the policy breaches, could be declared as a compelling case of how the silence in the voice for social justice and equity can be louder than what could have been otherwise.

Each of the points about the extent to which ethical practices could be compromised at systemic levels, and as emergent and over time, represented the three headed monstrous situation delineated as the as Zombies and Hyenas about the case! The case made for how university transformation can just be about surface ontology. The case about the default position and the faulty consciousness of being and becoming, the de-ontological positions and the self-referential explanations. This was the case about the MLG systems where the actors could assume the characters of the Zombies (confusion and complexity in policy implementation as espoused values and those of uses) and of the Hyenas (the materialist interests that stem from the confusion). From a critical realist perspective, the knowledge properties and powers about such ethical values seemed inaccessible to the actors for implementation. Even when they did, the actors seemed to draw on the privileged forms of knowledge, which fed more into the systems of domination and control and their dominant explanations about social justice and equity, than what could have been the practical alternative. For example, the monstrous about the case was directly expressed in the internal communication by the SD-LTD (Table 2). At face value, such an action, when cross checked with Tables 3 and 4, defeated the very logic about what was declared as need for a Philosophical Framework, and hence the job upgrade. As evidenced in the data (Tables 2 to 4), the case was unfolding under the watch of the very incumbent who had benefitted enormously from the appointment, which was as a result of the maladministration and a social unjust process, per The Report findings. The consequence was that the post was subsequently downgraded, while the incumbent was appointed in the less than 12 months contract.

> *"The tragic paradox of the electoral route to authoritarianism is that democracy's enemies use the very institutions of democracy—gradually, subtly, and even legally—to kill it." (Steven Levitsky and Daniel Ziblatt, 2023)*

Therefore, as this case so illustrated, the disjuncture between the espoused and the enacted values, against the ideal of the transformation project measured as quality, could easily reproduce the very outcomes it seeks to change. In this case, white supremacy, the empiricist and the western triumphalist views, which are always at the core of colonialism and coloniality. At common cause, The VC-P left the unfortunate monstrous situation as discussed in the previous sections. Emerging in such, and in other similar cases, was therefore the question of the required cultural capital as the quality measure in any academic project in university question. Such an ideal needed to problematise the logics of decision making in MLG systems, especially the rationality that must challenge the mainstreamed ways of thinking, of making, and of doing! Such ways thus needed to be troubled, for potential resolutions, at the points of the sociology of learning and of knowledge making. It is for the latter reason, then, that the discussion in this article turns to the question of transformative agency. That is, what could be done, if any, in order to ensure that a proper integration of the MLG systems could be emergent and over time in defence of social justice and equity?

6. Transformative Agency, Being in the World of the MLG Systems

The case, as discussed in this article, confirmed the social realist observation, as alluded to in Section 4.

Table 6: A Perspective about the Context of the Zombies and Hyenas

"We live in a time of political cults, where the rule of law only further incentivises charismatic ghouls to crawl from their graves over and over and over again, intent on chowing flesh. The stench of the crypt reminds us that something has gone badly wrong with liberal democracy (Richard Poplak, 2024).

In Table 6, Richard Poplak alludes what can be the plethora of social ills as the result of the enduring legacy of colonialism. In the UNEC case, as discussed in this article, it then became the case of how democracy, and thus the idea of university education as the public good, could die. Such social ills are not natural acts, but arise due to the frivolity of the human nature. Such ought to be the call for mediation if the public and common good is to achieved in pursuit of social justice and equity. Further to the discussion in the second section of this paper, the institutional quality audit report (CHE, 2023) would recommendation that "all the policies related to the QMS should be updated after the implementation of the new structure so that policies are aligned with the new organogram of the University and the performance management system to ensure coherence" (CHE, 2023, p.33). This recommendation was despite the fact that performance management constituted one of the critical key performance areas for all Senior and Executive Managers as part of the institutional regime (2015-2019). Therefore, such a Recommendation could still be critiqued from a realist perspective as pretentious, grandstanding and political posturing. What could be the realist way of addressing the social ills as discussed in this article suggested for an improved understanding of academic leadership functions in emergent ways and over time, and beyond the call for policy frameworks. Therefore, the merits of the case, potentially defeated at the altar of political patronage, whether inadvertently and/or unwittingly, called for the practical, impactful and sustainable alternatives towards what could be the reimagining and promotion strategies for transformative agency. For the case as discussed in this article, McKenna, 2020 provides what can serve as the practical wisdom in the form of shared responsibility of the academic project, with the management systems and governance structures as explicitly anchored more on academic identities (the cultural capital), than what can come with their positions (structural system). In practical terms, the case called for questioning what can emerge as the serious crisis of legitimacy in law, where the fiduciary duties of the governance council can be reduced to the legal opinions. The case also challenged the whole notion about transforming university education if such efforts could continue to draw from the black box mentality and pragmatic logics, expressed as the privileged ways of doing. The alternative, as surfaced in The Report, ought to have been the elaborative and socially embedded logic about the matter of talent management, when transformation can be more about the medium and long term effects of decision making. It was quite ironical and shameful that the post of SD-LTD could be tenable only for a single term (five years), whereupon it was then a subject of a down grade. In fact, this sudden change of events raised a very pertinent question about what kind of reality must have informed the very call for the upgrade, in the first place, when such a decision could be reversed within such a short space of time. That question goes beyond what seemed to be the potential error of maladministration as The Report indicated in its Findings. Furthermore, the critical realist question then ensues as to whether Law, when it comes to corporate governance and leadership, becomes more of an embodied or disembodied knowledge or a variation of those?

As it were, and based on the Reproduction-Understanding-Broadening-Advancement Logic (ref the introductory section), this case study sought to advance knowledge by broadening the MLG related issues which had been a subject of inquiry in the particular case of UNEC. Given that, globally, universities are confronted with similar transformation challenges, and in line with the generalizability principle, such contexts are encouraged to question the significance of what can be purported to be MLG Systems based on principles of ethical and moral practices in university education in the face of encroaching the new public management discourse.

7. Integration, Reflections and Conclusions

This article discussed the significance of the MLG systems where the voice of the marginalised need to be made loud in defence of social justice and equity. The silenced continue to be on the receiving end of neoliberal thinking and economic rationality by the systems of domination and control. Such systems thrive on the sheer brutality, the patronising tendencies and the condescending attitudes which feed into the hegemonic logic of which colonialism and coloniality are the central organising principles! As such, in this article, as a sequel to the other cases before it (ECMLG series going back to 2021), I had to deal with the writer's agenda in the form of engaging my own prejudices, the preferences and personal sentiments about the MLG forms of in the idea of university education as the public and the common good. The case as discussed in this article invoked a series of events as the result of what can be the dehumanizing tendencies on the part of the powerholders. In order to ensure the balance between the claims in support of the main arguments about the Monsters we can create in MLG Systems, I had to draw on the analogy of the Zombies in order to portray what can be the intensity of confusion and complexity in decision making processes and the actors in such processes, whether by omission or commission. The latter, as a consequence, can unleash another layer of complexity, the case of the hyenas, on the part of the main actors in the case.

Being serious about the case as a scholarship project, thus, surfaced the critical question. That is, whether things can be different than what they turned out to be? To assume that there would be no practical alternatives about the case would be to defeat the very purpose of MLG and the need for socially self-organized systems. In search for the new ideas in the context-specific conditions about MLG Systems, the case about the monsters we made challenge in two ways the complexity of power relations in politics of knowledge. Firstly, the actors in MLG Systems, when they can deliberately create confusing and complex situations through their dehumanizing tendencies, the case about the Zombies. The Hyenas, those who can benefit undeservedly from power abuse. Such an account about similar cases in other contexts seeks not to blame and shame the actors, but to name the specific issues of power relations in the Social world, in ways that the practical alternative can be reclaimable!

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The Emperor and the New Clothes: Engaging the Frivolity of Ethical and Moral Leadership as Espoused Values Against the Values of use

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Abstract: University Education in South Africa has been a subject of transformation in systematic ways and over time. This has had to call upon the multi-dimensional approaches (about MLG Systems and Practices) due to the complexity of the subject. While remarkable progress has been made, and can be evidenced by empirical data, such developments remain elusive for some universities within the sector. Strangely, even the considerable highly ranked universities have not been spared from what can be argued as the complexity of power relations in the politics of knowledge and of being and becoming. This article is based on this issue about complexity in university education, which can play out more as the continuities than what should be the discontinuities from the old regimes of power and of truth. A Case study approach was applied as a methodology, with the actual methods about data management including organisational records, content analysis and critical discourse analysis, over time. Informing such an approach was the ideal of ensuring the theory-methodology-practical program aspects of a potentially credible scholarship project. As such the social realist theory, informed by the critical realist philosophy, served as the anchor of the study that this article is reporting on. The findings relate to what can become the enduring management, leadership and governance crisis in the case of university education, thus constituting the micro politics of being and becoming, despite what can be reported about the same case at macro level. Such cases call upon scholarly critiques if the practical alternatives might constitute the realms of new possibilities. The potential value of the study can be the enhanced dialogue and sustained conversations about the role of management, leadership and governance systems in university education, which have to be maintained and sustained by the idea of ethical and moral practices in pursuit of what ought to be the public and common good.

Keywords: Fees Must Fall Movement, Transformation, Ethical Leadership, Engaged University, Critical Realism

1. Introduction

The year 2024 signals what can be regarded as the documented and compelling evidence about the maturity or immaturity of South African constitutional democracy as applied in the case of university education sector. The Report on The State of Transformation in South Africa's Public Universities (Luescher, Mncwango, Fongwa, Oppelt, Mthombeni and Paterson, 2023) portrays a picture about the transformation project which is delineated into four major typologies: the compliance and equity narratives which can be juxtaposed with the innovation and development narratives. Along this report, are the mushrooming institutional audit reports, in the aftermath of the quality assurance framework (CHE, 2021-a). The value about both the report and the framework, from which the institutional audit reports emerge, is that scholars of university education sector in South Africa are then allowed a space to subject these reports not just to the standards or good practices about university education, but, more importantly, about the relevant theories about such practices and thus be able to make scholarly arguments about the maturity or the yet to be mature democratic systems where university education ought to be the enabling mechanism. It is therefore against these observations that this article seeks to contribute to the advancement of knowledge in the role of management, leadership and governance (MLG) systems, which can serve as the constraining or enabling mechanisms, or the variations thereof, in university education transformation. The article draws on the case of University of the North Eastern Cape (UNEC)-whose name has been changed in order to protect her identity-remains mired in the complexity of power relations and the politics of knowledge and being which still characterise the transformation project in South Africa. UNEC was established in 2005 as a result of a merger as part of transforming university education and training in South Africa.

The main feature and unique character about UNEC derived from its establishment. Post constitutional democracy of 1994, the previously disintegrated and racially structured university education sector had to be restructured through what would be a full, or partial merger system. While the merger, in general terms, would be conceptualised and implemented as the necessary transformation of the strong and weak, namely historical white and advantaged, and the black and disadvantaged, UNEC was constituted of three legacy institutions, which were all historically black and disadvantaged, two technikons/Polytechnique and traditional university. This arrangement would earn UNEC a strange label of the "marriage of the weak". At the time of the merger, the traditional university element was the most weak, on the verge of complete collapse and closure, while the relatively strong were Technikons. However, the latter elements did not enjoy the conventional status attributable to a traditional university (research and knowledge production). As a result, for the former

polytechnic staff, the masters and doctorate qualification was not a minimum requirement for an academic status, unlike for traditional university. After the merger of 2005, a master's qualification would then become the minimum requirement from 2012. Also, the matter of identity to define and elaborate on the comprehensive status (a combination of both Polytechnique and traditional university programs), would become a very politically contested issue which is yet to be finalised. It is therefore this issue about the politics of being and becoming that informs the idea about the Emperor and the New Clothes.

The notion about the empire refers to the idea about an ostensibly merged and unitary institution, but where power remains deeply contested in terms of the structural arrangements that constitute the institution. The idea about the empire, at least in the contest of this article, refers specifically to some forms of decision making by the management, leadership and governance systems, which can unwittingly and inadvertently expose the nakedness of the powerholder, the emperor! The emperor in this context refers to the case of a Vice Chancellor and Principal (VC-P) (2016-2020), who in his apparent attempts to effect the changes in the headship of a Centre of Excellence for Learning and Teaching Development (the Centre), by making a doctorate qualification as a minimum requirement, then, in the process, would be found to have undermined a university statute and breached university policies. As I argue elsewhere (Dwayi, 2021; 2022), such cases become of great significance in understanding the transformation project in the higher education and training in South Africa (HETSA) as reflecting the complexity of power relations in the politics of knowledge and of being and becoming! Complexity in university education can play out as more about the continuities, than what should be the discontinuities from the old regimes of power and of truth. The social realist understandings and explanations about such cases continue to constitute both the research goal and main objectives as applied in the research as reported in this article.

Subsequent to this brief introduction, the case about the frivolity of ethical and moral leadership values, as found out in the case, followed the normative structure about a scholarship/intellectualism project, the Reproduction-Understanding-Broadening-Advancement Logic, which is structured as follows in this article,

a. Power dynamics about the transformation project in South Africa with a reference to the university education sector.
b. The case of UNEC as the particular case of historically black and disadvantaged university where the example of the Emperor and the New Clothes could be discussed as the frivolity of ethical and moral values, when the required choices for such values can be more reproductive of the old regimes of power and of untruths than the opposite.
c. On the basis of the UNEC case, the discussion of two points about the dangers of logocentrism and the need for engaging the latter in the sociology of learning and of knowledge-making as transformative agency.

2. Power Dynamics in the South African Transformation Project

By the 1st decade of constitutional democracy, South Africa was already grappling with the international discourses about the governance crisis which was confronting university education. Such a crisis would be captured, for example, in the form of the enduring questions, first by Primarashni Gower on 17th July 2007, "*Who should run varsities?",* and later on by Tahir Kamran on 18 December 2016, "*Who should run the universities?* Such questions would remain quite instructive about the unique challenges in South Africa, with the highlight thereof signalled by what would be later conceptualised as the *Rhodes Must Fall Movement of 2015*, morphing into the politically "correct" project of *#Fees Must Fall* Movement from 2016 to 2018. By these *Fallist Movements*, the crisis of corporate governance and leadership was no longer the main character of historically black and disadvantaged institutions, but had firmly gripped the hallowed walls of the historically white and advantaged ones. In recent times, and at abstract and conceptual level, such forms of governance, leadership and management crisis has been represented in the three major developments in the form of national institutional audits (CHE, 2021), the recent Research Report about the state of transformation in South Africa, and the work of great thinkers about the state of crisis besetting the university education sector, in the form of the Academy of Science of South Africa (ASSAf) (Makoni, 2023).

Therefore, cross referencing these Reports with the scholarly conversations about the transformation project in the higher education and training in South Africa (to be alluded to as the HETSA, henceforth) revealed what remains, in my view, as the complexity of power relations, with the responsibility thereof falling squarely on the university institution's management, leadership and governance (MLG) systems. This was of great significance when in consideration of the need for public accountability, as identified by Professor Jonathan Jansen (Makoni,

2023). For example, the comparative analysis of the CHE Integrated Quality Framework (CHE, 2021) and the Transformation Report (Luescher et al, 2023) would surfaced not only the typologies and the quality dimensions about the transformation project, but the complexity of MLG systems as expressed at ASSAf (Makoni, 2023). These would be concerns, claims and issues which continued to characterise the HETSA project despite the advent of the KIV Code of Corporate Governance and Leadership (2016) as extensively discussed in the MLG literature (Dwayi, 2021; 2022). The contemporary scholarship about MLG systems, therefore, would have to provide credible explanations for such cases within what Prof Crain Soudien identifies as the dangers of logocentrism, and also within what Prof Saleem Badat challenges the academia about the sociology of learning and of knowledge-making. By logocentrism Prof Soudien refers to the ability to "confront the totalising impulses of modernity and its intention of centralising value in the European form … the idea that Europe is a final signifier of who we are, what we might be". Therefore, the institutional research, on which this paper emerged, had to make a critique about what can be the mainstream narratives of equity and compliance, in one case of a university institution, when juxtaposed with the quality imperatives or good practices, where MLG roles ought to constitute the strategic imperative. In the next section of this article, I discuss how the unproblematised narratives of equity and compliance can constitute the case of the Emperor and the New Clothes.

3. The Emperor and the New Clothes

At the core of the argument in this article, is when the principle of ethical culture (KIV Code of Corporate Governance and Leadership, 2016) can be undermined at the point of agency, and thus revealing more of the contradictions than the congruence, more of the inconsistencies than the consistencies, more of the tensions than the alignment, and more of the lacks than the capabilities of MLG systems.

3.1 The Case of the University of the Eastern Cape

The history about the University of the Eastern Cape (UNEC)-whose name has been changed in order to protect her identity- was already introduced in the first section of this article. It is not immediately clear from Luecher et al (2023), which narratives predominantly applied at UNEC for such a sparsely distributed institution. One would have taken more than 1000 kilometres to cover all the four main campuses, as a result of the merger of the three relatively dysfunctional legacy institutions. However, with UNEC being a Comprehensive University (a combination of a traditional university and two former polytechnics), the report seemed to categorise this university more along the developmental narrative than any other. By 2023, UNEC was still a university in transition, from the previous regime whose vision was about *an Engaged University for Rural Development and Urban Renewal* (2015-2019/20), when the transformation reports were submitted and analysed, to the current regime of *an Impactful and Technology-infused African University* (2020-2024)! The following ratings indicate how UNEC self-evaluated on two quality standards/good practices (WSU, 2022, p.16; p.12-16) as part of the institutional audit framework (CHE, 2023, p. 8-11),

- Standard 3: UNEC Rating Functional (3); CHE Final Rating: Not functional (1);
- Standard 4: UNEC Rating Functional (3); CHE Final Rating: Needs substantial improvement (2);

In these two standards, there remained a glaring gap between UNEC self-ratings and those of the HEQC as the external assessor, which would therefore call for a social realist account, about the potentially powerful knowledge (the kind of knowledge that can withstand an immanent critique) than the knowledge of the powerful (self-aggrandising explanations about its MLG systems). The critical realist thinking about such a project, and further about the emerging social explanatory program, would have to examine both the synchronous and diachronous structural generative mechanisms about the case, that is, the events and processes both at the point of emergence (in time) and over time (morphogenesis/morphostasis). At the micro level of a MLG system, and of great interest for the discussion in this article, was the particular case as represented in the Dr Lunga Mantashe Report about the Case of NEHAWU-MR X and the University Management (to be referred to as The Report, henceforth), as extensively discussed elsewhere (Dwayi, 2022).

3.2 Good Intensions are not Enough

In the introduction section, I introduced the case of the changes in one Centre of Excellence at UNEC. The intentions about the changes in the Directorate for Learning and Teaching might have been good, from the point of an ostensibly good leader (the university Vice Chancellor and Principal), but such intensions seemed not to have been sufficient enough when in consideration of what would turn out to be the necessity for great leadership practices (the decision-making processes that the "leader" embarked upon). The following extract

from the UNEC Annual Report of 2018 indicates how this case had its roots upon the arrival of the VC-P (2016-2020), and how such an arrival ushered in the case of the Emperor and the New Clothes,

"Learning and teaching at (UNEC) is primarily focused on academic development…The situation has necessitated a re-imagining of University's teaching and learning endeavour to locate these activities within a principles and value-driven philosophical framework…The first steps towards this goal were undertaken in 2018 with the adoption of a new organisational and staffing structure which established a Learning and Teaching Division to be headed by an executive manager, a Senior Director, Learning and Teaching. (WSU, 2018, p.31),

It is the position of this article that this case would become the best fit in terms of the two concepts of logocentrism (Prof Soudien, in Makoni, 2023) and about the sociology of learning and of knowledge-making (Prof Badat, in Makoni 2023). As I have already implied in the previous section of this article, elaborating on the latter by means of the two thinking tools of the Narrative-Analysis-Interpretation-Literacy Chain and of the Significance-Character-Trajectory-Dynamics Logic can be quite illustrative about the complexity of power dynamics in the politics of knowledge and Being/Becoming.

Table 1: In pursuit of the synchronous and diachronous structural mechanisms, Part 1

Labour Representations	***The IF Findings, 30/03/2022***	***Registrar Communication to EDHR, 06/06/2022***	***The Legal Opinion Findings, signed on 08/06/2022, upon receipt of EDHR communication on the matter, on 06/06/2022***
Declared dispute on the appointment of Executive Managers	*Job Grading Policy, Clause 4.6, The university breached the* ***job grading policy*** *when Mr X did not become an automatic occupant of the SD: LTD.* *Recruitment, Selection and Placement Policy: Clause 8.2.1, The university also breached the Statute in that the short-listing committee for the SD: LTD was not chaired by an external Council person as the policy on Recruitment and Selection. The monetary reason, together with absence of a Council representative, is a bad excuse and cannot be used to flout policy.*	*Council would not comment on the submission made by the IF on the dispute involving Mr X and referred it to the Human Resource Committee of Council to advise Council.*	*In our view, X has no case against client.* *Client was entitled to upgrade the position and determine relevant criteria associated with that post." While the failure to have* ***an external Council member chair the shortlisting*** *process may constitute a technical irregularity, unfairness would only be established if Mr X could prove that but for that irregularity, he would have been appointed to the post.* *Given that client was entitled to make a PhD degree a requirement for the SD: LT post, the failure to have an external Council member act as chairperson of the shortlisting committee did not result in unfairness.* *Even if the chairperson of the short-listing committee was an external Council member, he would not have been shortlisted because he did not meet the criteria.*
NEHAWU and NTEU Letter to Executive Management, 26 September 2018, Dispute on the Appointment of Executive Managers, *NEHAWU Letter to Council 15 May 2021, The issue has to do with ill-treatment and bullying of Executive and Senior Managers by the former Vice Chancellor (VC) and Principal which led to turnover and suffering in isolation by some. ….. he was never the cause of the problem instead him too was a victim of corporate bullying by the then VC.*	*The University breached the job grading policy when Mr X did not become an automatic occupant of the SD: LTD and advised that the University should compensate Mr X at Peromnes level 4 retrospectively, being in 2018 when the appointment on the position was made to date.*		

Table 2: In pursuit of synchronous and diachronous structural mechanisms: Part II

UNEC Statutory Committee submissions and Meetings, October 2016 to Nov 2020	*UNEC Council, 20/11/2020 to October 2024*
October, 2018, NEHAWU appeals the matter of SD LTD appointment, citing compliance with the Statute and Policies requirements.	*The matter finds space on Council Agenda during the presentation of the VC-P about the appointment of Senior Directors. The Council calls for HRCC advice, while proceeding with appointment of SD LTD, a Contradiction in terms.*
March, 2021, NEHAWU still appeals the case by raising directly with the Chairperson of Council	*During the time, EDHR, resource person at HRCC, has just assumed duties under the VC (2016-2020) who has had the previous EDHR leaving HET under questionable circumstances!*
March, 2022, The IF Report Findings: *a) University undermined the university Statute by flouting the Recruitment Policy.* *b) The University breached the Job Upgrading Policy by not following the due process.*	*However, same Council, instead of acting decisively on the Report, still refers matter to HRCC. (New VC, 2021-2024, but same EDHR, 2018-2023)*
	EDHR, upon receipt of the Management Report from the University Registrar, on 06/06/2022, urgently refers the matter for a Legal Institution, which acknowledges receipt of the brief on 06/06/2022 and provides the Legal Opinion on 08/06/2022

Table 1 portrays the empirical data about the case in terms of the actors and the embedded events and processes as an illustration of the Emperor and the New Clothes (there seems to be more of the continuities than the continuities from the old regimes of power and of truth about the developmental narrative in the case of a university education institution). Despite the advent of constitutional democracy in South Africa, with new labour relations policies that regulate for equity and fairness, the sector is still characterised by power dynamics in the complexity of power relations and the politics of knowledge and of being/becoming. The idea about the synchronous and structural mechanisms is informed by what must have been the interplays of structure, culture and agency at the domain of reality (Dwayi, 2022, further to Archer, 1995, Bhaskar, 1989), which is not immediately analysable at the level of events and processes (domain of the actual) and of the experiences and observations (domain of the empirical reality).

Coincidentally, both Tables 1 and 2 portray how the case played out in the background of the UNEC submissions about her transformation project based on the 2018 and 2019 data. Parallel to these submissions, UNEC would submit her self-evaluation report as part of the current institutional audits (CHE, 2021; WSU, 2023), which covered the 2018-2021 data about the ideal of integrated quality management systems. Thus, the significance of the case would have to be understood and broadened in terms of the MLG oriented theories, especially along the dimensions of transformation narratives (equity, compliance, innovation, development), and of integrated quality management systems (Focus Area 1 and Standards 3 and 4). Table 2 can be understood in terms of the silences and superficialities on the part of Council decision making as the subsequent actions by executive management are being laid bare as contradicting what Luescher et al *ibid* would categorise UNEC (a comprehensive university) as an example of a developmental narrative. For example, while the Luescher et al would categorise UNEC (and all other Comprehensive Universities) as the developmental category, such a narrative could invite an explanatory critique, at least on the basis of the case as outlined in Tables 1 and 2, at the points which are even problematic about the declared equity and compliance narratives.

3.3 Role Delineation, the Systems That Keep on Backfiring

The MLG systems actors (Human Systems) in the case included four contested structures, rather, the main actors in the case: Labour Union, the Institutional Forum, Executive Management (Executive Director, Human Resources, the Registrar, the Vice Chancellor) and University Council,

a. The Labour Union, namely NEHAWU, its main mandate is to be the vanguard of staff welfare within the human rights policies and other regulatory frameworks.
b. About the Institutional Forum, Section 31 (1) of Act 101 of 1997 states “the Institutional Forum of a public higher education institution must –\
c. advice the council on issues affecting the institution, including:
    i. The selection of candidates for senior management positions.
    ii. The fostering of an institutional culture which promotes tolerance and respect for fundamental human rights and creates an appropriate environment for teaching, research, and learning;

a. The University Council has full responsibility for Corporate Governance and Leadership of the university, with the powers to devolve the functions to Executive Management and also to delegate the authority to the range of MLG systems.
b. The Executive Managers: EDHR and the University Registrar play a significant role in this case, one as the implementor of the human resources policies (job upgrading; recruitment and section), and the other as the Secretary to Council, which is the ultimate custodian of all University Policies including the University Statute.

Ironically, the matter of Senior Director, Learning and Teaching Development (SD LTD), about which NEHAWU would lodge a dispute against UNEC Executive Management, was well documented, and thus made a public record, when in scrutiny of the UNEC Institutional Annual Reports of 2018 and 2019. Upon the Labour Dispute about the case, the University Council of November 2018 took the following decision about the case, (WSU, 2019, p.12; p. 15), on Appointment of Senior Manager and on Labour Dispute on the recruitment of Senior Management, respectively,

"Council referred the matter on the population of the organogram and the labour dispute back to the Human Resources Committee of Council (HRCC) to deliberate on and to come back to Council together with the relevant University policy for a decision to be made"

Council noted the matter raised regarding the subject and reiterated the position that the matter was with the Labour Court and hence it could not deliberate on it any further.

Table 2 indicates how the role of the Law Firm can be a subject of a critique, when the Firm's submission seemed to be partisan about what was at stake in the case, and in the process the idea of university education was thrown into a spin. Logically, one would have expected , at least from a critical realist perspective, that the simply answer by the HRCC of September 2022 should have surfaced the silences of November 2019, instead of reproducing the status quo, and thus revealing the superficialities of MLG systems actors, as the case would turn out to be. At practical level, this was the Case about how the reproductive outcomes in the idea of university education can be the case about frivolity in two ways.

- Firstly, the University Council sought for the HRCC advice on whether the policies had been followed in the appointment of the executive managers.
- Secondly, when the very HRCC, instead of acting on the Council Resolution, executive management/HRCC referred to the Legal Court process when, on the other hand, executive management had proceeded to finalise the appointment.

Meanwhile, NEHAWU, as the Labour Union, had declared a dispute about how unprocedural the process had been. After The Report served at the University Council of April 2022, the University Registrar communicated the Council Resolution as reflected in Table 1 (WSU, 2022). However, the letter by EDHR, to HRCC on 09/09/2022, signed by the VC-P (2021-2025), captured the following,

"The resolution is that Council would not comment on the submission made by the IF on the dispute involving Mr X and refer it to the Human Resource Committee of the Council (HRCC) to advise Council. To assist the HRCC with its task, Management sought a legal opinion on the matter, which is now presented to the HRCC for their guidance in attending to the matter".

At face value, such a statement would be logical. However, the statement was rendered baseless due to the fact that the three Actors continued obfuscating about the case, which should have been finalised as the original submission by the HRCC of 2019. Such a report by the EDHR was complicated by the fact that the process was not only manipulated per the events/date as indicated in Table 1, but also by selecting two resolutions of the same Council on the matter, but also subjecting the other to another process of a Legal Opinion. The simply logic here was that the two resolutions arose out of the other one, in consideration of cause and effect relationships. The point of significance here, which was a quagmire on the MLG systems, and the need for public accountability, played out in two ways,

- Firstly, when the HRCC referred to the Labour Court process, on the matter when a dispute had already been declared against the process, but still continued to finalise the appointment process, a contradiction in terms.
- Secondly, when the case of the University Council, which did not go far enough in acting on its own resolution about whether the Statute had been undermined and the policies breached.

These were the contradictions to which the findings of The Report became adverse for the MLG systems actors, and thus revealing the challenges of corporate governance and leadership. This is what can be argued as the case of the Emperor and the New Clothes, as the frivolity of ethical and moral leadership values as more espoused than enacted. The Report of March 2022 had brought back to attention the previous matter of the University Council Resolution of November 2018 about the compliance to statute and policy, for the university dispensation which ought to promote and monitor for staff equity. Had the HRCC acted objectively according to the Resolution, such an act would have given a fair and just expression about the idea of university education for the public good. This would have been the case of a developmental university that is able to apply and defend the equity imperative about talent management instead of the apparent blind pursuit of a compliance narrative (in this case, in reference the minimum requirement for the advertised position, instead of the compliance to policy and statute requirements). The VC-P of 2016-2020 undermined the university statute and breached the university policy in order to fulfil what must have been his narrow and personal agenda about the Centre, and in the process, rendering the University Council toothless about its fiduciary functions. The HRCC acted unethically and frivolously about such a significant Resolution about the compliance to university statute and policy, and in the process, caused too much damage not only to the affected party, but to the institutional culture of public accountability of which the policies ought to be the representations of (at effect)! Quite strangely, both the EDHR, and the University Registrar, were the resource persons, instead of full members to the HRCC, but, as indicated in Tables 1 and 2, it is apparent that they undermined their membership status, thus resulting to what turned out to be the silences and superficialities of decision making in corporate governance and leadership practices. As clearly indicated in Table 2, the Legal Firm did not advise, as expected, on the matter of university statute and policies (Corporate Governance and Leadership), but selectively addressed the matter of shortlisting for the interviews (an effect), and in the process obfuscating the matter of materialist interest in service of political patronage (at effect). Therefore, the MLG actors behaved in an illogical manner about The Report, rendering as power contested the role of MLG systems (logocentrism), and also revealing what can be the challenges to MLG systems when they can be the subject of an immanent critique (the sociology of learning and of knowledge-making).

The Case, as it were, provided the platform for what can be the social realist account about the MLG systems and practices, and thus the advancement of knowledge in context-specific and actor driven ways. According to the discussion thus far, the UNEC MLG system were not properly integrated in ways that both the management systems and governance structures could provide the required quality of decision making for academic leadership, which therefore created a disjuncture between the espoused values (wisdom, integrity and excellence) as actually enacted. As it were, and by drawing both from logic about the social realist explanations, the management of The Report could provide the opportunity for powerful explanations about whether the transformative outcomes might constitute the new reality in advancing the transformation project in the UNEC case. In such scholarly accounts, the generalizability principle becomes pertinent due to the call for more context-specific and actor-driven ways about the MLG systems, as those could be inferred from the discussion thus far. Towards the latter, the matter of actor-driven social systems called for the last and final section in the discussion, especially given that globally universities are always constrained in the required capacity to manage their transformation projects in more context-specific ways.

4. Transformative Agency and Being Serious about a University in Pursuit of Excellence

About UNEC, the mandate of the Institutional Forum, which has to advise Council about the appointment of executive managers, is well regulated and is explicit. The fact that the UNEC Council still referred The Report findings and recommendations back to the HRCC therefore led the researcher not only to engage in completion and confirmation exercises about the case, but also to engage in retroductive reasoning (the 3rd step of triangulation in critical realist terms) towards what could be the transcendental arguments. As it were, the Council disregard of The Report Findings, by calling on the advice of the HRCC, the same Committee which had obfuscated on the issue in November 2019, could be equated to the analogy of asking the jackal to constitute a delegation to a conference whose main agenda would be about the plight of the sheep! As already identified by ASSAf (Makoni, 2023), the MLG crisis in the HETSA context derives from the death of the cultural capital on the part of the actors. As Jansen (2023) clearly explains, such are the results of poor levels of accountability by these public institutions, with the UNEC as the case in point. From the social realist perspective, such can be the unintended consequences in the interplays of structure, culture and agency, when MLG agency (choices and projects), at the points of university statute and policies (structural arrangements), and of the cultural system (beliefs, values, norms and standards) thereof, can remain reproductive of the systems of domination and control (the case of the Emperor and the New Clothes). Complexity therefore arises at the points of collusion

and complicity by the systems actors along political patronage, whose source is the power abuse due to the misuse of academic freedom, institutional autonomy and the lack of public accountability!

Therefore, to finally answer the enduring questions about *"Who should run varsities"* the answer would come from Terence Kealey, in Times Higher Education, on 21st January 2021, that *"Only academic can run varsities effectively"*. The implications of such an answer is whether one can claim an academic identity when his decision making can position himself to be antithetical to the institutional values of wisdom, integrity and excellence as clearly transpired from the discussion in this article. Such an academic would have to be the embodiment of a transformative cultural capital. Such an academic, from which the management systems and governance structures would emerge, and over time, would mean having such cases of social ills, as evidenced at UNEC, as ameliorated, and, at best, as abolished. Towards the latter, not only the capacity building workshops (Recommendation 4.1), and not even just the Recruitment and Section Strategy (Recommendation 3.1) , as suggested by the HEQC (CHE, 2023), but the need for a full range of the Ability-Capacity-Capabilities Logic (Dwayi, 2003) in the following two related ways,

a. The Equity and Development Narrative about UNEC need to be grounded in the intellectual project which can draw on the idea of MLG systems as deep ontology, stratification, causal efficacy and emergence.
b. The Innovation and Compliance Narratives about UNEC have to emerge from the first narratives in programmatic ways, which can institutionalise the principles of Corporate Governance and Leadership. The case of the headship of Centre, as introduced in the first section of this article, needed to be addressed within the conventions of scholarship, ideally as the theory-practice nexus, but more significantly, as research and development, as strategy and leadership, as policy and implementation, but definitely beyond the glaring acts of bullying, pretence and political posturing. Only when MLG scholarship and practices can be brutally honest about the academic project that both the ideal of ethical and moral leadership, on one hand, and the realms of new possibilities (the idea of being and becoming), on the other, might be mutually constitutive.

As already identified during the ASSAf conversations (Makoni, 2023), the only defence for the academic project is when the intellectuals, including the highest offices in university education, including the range of their executive managers, can 'wield their power and deal with the brutal culture by just being intellectuals'. As it were, the CHE Recommendations (CHE, 2023) about the UNEC case point to the need for the quality of an intellectual project, which can ensure that the social ills of the HETSA Transformation Project can be abolished, or at least to be ameliorated, by means of more iterative cycles of research, if the MLG systems and practices are to finally serve as the ethical and moral leadership values in in the idea of university education as the public and common good.

5. Reflections and Conclusion

This article discussed what can be the frivolity about the claims for ethical and moral leadership values, when such values can be more about window dressing, than actually having them as enacted! Such is normally the case of the Emperor and the New Clothes, when the choices and projects by the powerholders can render as useless the value of university education more as the private than the public and common good. By the New Clothes the article refers to the state of reproductive outcomes about the misuse of power as gleaned from the case. This refers to what could have been more about a transformative state about the use of power in university education, but the case became more self-reproductive due to how the MLG incumbents acted on the case, characteristic of the dynamic interplays of structure, culture and agency. MLG systems, as the discursive spaces, surfaced the ideological position of the actors, which promoted hegemony, the Otherness, and in the process, the reproductive outcomes. This was the case about the social dimensions about the Case which were not even ameliorative but reproductive of the historical and structural disadvantage under the guise of Institutional Development. University education is not only knowledge constitutive but ought to be enacted by means of moral and ethical leadership through organizational learning. Such forms of systemic learning need to be grounded on the value about a cultural capital; they need to be quite explicit as forms of academic leadership, before such forms can emerge at levels of management systems and of governance structures, over time. Taking the context-specific and the actor-driven driven approach about such an observation, ethical and moral leadership, while necessary, become inadequate, and thus frivolous, when the MLG actors' choices and projects (agency) can be found to be incoherent, dysfunctional, unresponsive and meaninglessly structured in the relation to the ideals of governance and leadership principles. Failure in abiding by such principles is not an

option nor an excuse, as that would be tantamount to hegemony, whose results is always about obfuscation about the issues and the objectification of the other.

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Learning From Mistakes in Project-based Organizations

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Abstract: Knowledge sharing and learning play a pivotal role in improving performance in organizations. Organizational activities such as projects provide the necessary arena for creating new knowledge (knowledge exploration) as well as sharing of existing, well-proven solutions (knowledge exploitation). This can lead organizations to increase their productivity, innovation and profitability. Sustainable competitive advantage can also be gained by being keen on knowledge sharing and learning, since focusing on continuous learning and improvement can make organizations as learning organizations. Learning organizations, which are characterized as having a genuine interest, willingness and ability to learn and improve continuously, can effectively deal with typical organizational phenomena such as changes and uncertainty both reactively and pro-actively. As a result, they can quickly adapt to and master changing environments. This paper will look at the topic of learning from mistakes in an organizational context. "To err is human" – As the idiom points out how natural it is to make mistakes, organizations too are prone to make mistakes. Though mistakes can be seen as natural in organizations, it is important to look at how the person who has made a mistake as well as other relevant people can learn from the mistake. Learning from a mistake helps to avoid doing the same mistake in the future and hence contribute to save time, energy and cost. It can also trigger to find a correct or better alternative way / solution to deal with the situation at hand, resulting in providing opportunities for single- or double-loop learning. **T**his paper will focus on (1) identifying barriers that hinder learning from own mistakes and sharing that knowledge with others and (2) how to facilitate learning from mistakes and sharing that knowledge with others in project-based organizations. The study on which this paper is based, uses qualitative research method. Data have been collected through conducting interviews with Norwegian public organizations.

Keywords: Learning, Knowledge Sharing, Mistake, Failure, Project Management

1. Introduction

Projects are one-time activities aimed at achieving a clear goal within a certain time-period and cost. Projects can be seen as learning arenas. These learning arenas provide opportunities for knowledge exploration and knowledge exploitation. Since projects are by definition unique, they have at least a certain degree of uniqueness that will lead to acquisition of new knowledge (knowledge exploration). At the same time, projects also include some known elements - for example known methods and solutions - which give the opportunity to utilize the existing knowledge (knowledge exploitation).

Exploring and exploiting knowledge can create several benefits in project-based organizations (PBOs). Figure 1 shows some of the benefits.

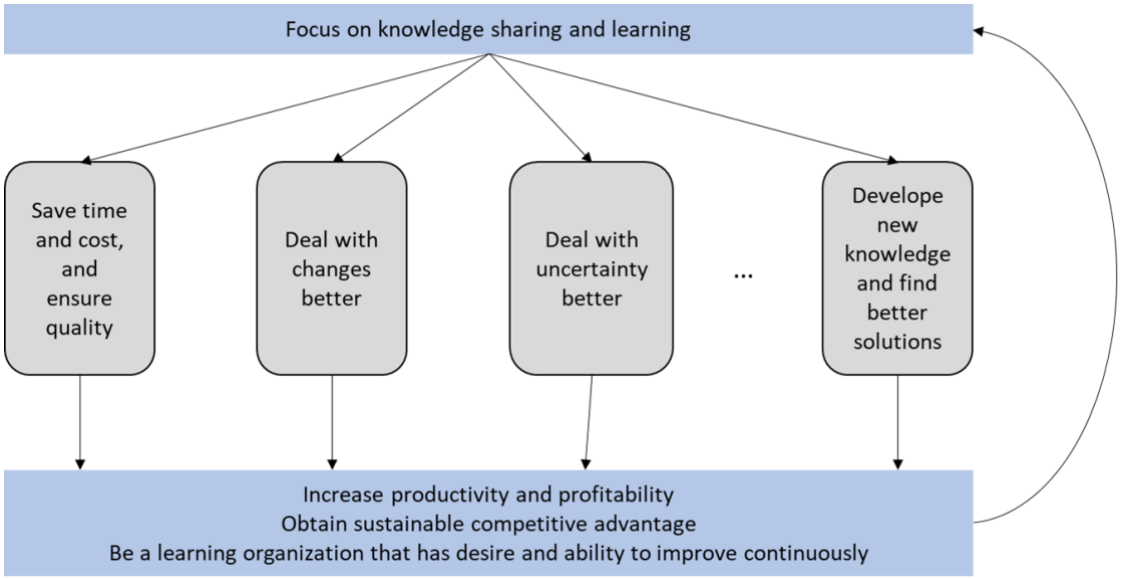

Figure 1: Positive effects knowledge sharing and learning

Several authors point out the importance and benefits of knowledge sharing and learning in project-based organizations (Abdellatif et al., 2019; Mahura & Birollo, 2021; Kvålshaugen et al., 2021; Zhang et al., 2024).

However, there are challenges to materialize the benefits – for instance, it is not always easy to share knowledge from projects to the base organization / the permanent organization (Williams, 2008; Duffield & Whitty, 2015; Evers & Chappin, 2020). This paper looks at one of the challenges: Learning from mistakes. Learning from mistakes can lead individuals and organizations to become smarter and to save time and costs in the future. Peter Senge mentions a quote (which he has read) in his book 'The fifth discipline – Art and practice of learning organizations' about learning from mistakes:

> "A mistake is an event, the full benefit of which has not yet been turned to your advantage (Senge 2006, p. 143)."

This paper focuses on the following two questions:

- What are the barriers that hinder learning from mistakes and share that knowledge with others?
- How to facilitate / enable learning from mistakes and sharing that knowledge with others in PBOs?

The structure of the paper is as follows: After the introduction, background information including research method that is applied in this study is provided, followed by relevant concepts. And then, results, analysis and discussion are presented. Finally, concluding remarks wind up the whole discussion.

In this paper, the terms “mistakes” and “failures” are used interchangeably.

2. Background Information and Research Method

This paper is based on a study connected to a pre-project called *Experience sharing and learning in project-based organizations* (ELPO), which is financed by Project Norway (https://prosjektnorge.no/). Project Norway is a national arena for the exchange of knowledge and experiences, where new knowledge about projects is developed through research-based collaboration with Norwegian business and industry.

This study applied qualitative research methods. Fourteen interviews were conducted online with five public PBOs in Norway during 2023 to collect information. An earlier meeting with the PBOs gave inspiration / pointers to develop an interview-guide. The interviews were semi-structured – having an overarching, flexible structure, and encouraging natural dialogue and discussion. The duration of the interviews varied between 1 and 1.5 hours. Those who were interviewed are anonymized and identified through a code (Respondent 1, 2, etc.). The respondents have experience of performing roles such as project member, project manager, project owner and department manager.

3. Relevant Concepts

3.1 Knowledge

Davenport & Prusak (1998, page 5) define knowledge as follows:

> "Knowledge is a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices and norms."

This definition points out that knowledge provides a framework for evaluating, interpreting and gaining new experiences and information. Learning from mistakes can contribute to evaluate and interpret new experiences in a different and better way.

3.1.1 Experiential Learning

The concept of experience-based learning is mentioned by Kolb (1984). This concept suggests that concrete experiences provide a basis for observation, reflection and abstract conceptualization. It consists of four stages:

1. Concrete experience
2. Observation and reflection on that experience
3. Formation of abstract concepts after that reflection
4. Testing the new concepts

Figure 2 illustrates it.

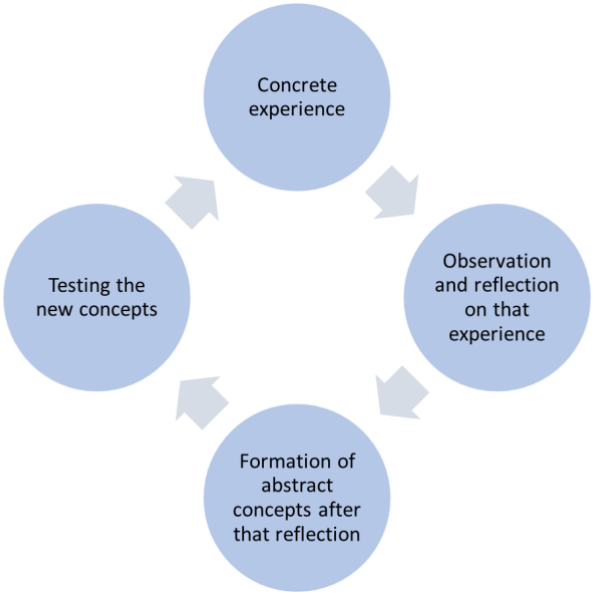

Figure 2: Experience-based learning (Kolb, 1984)

The four stagers can also be used to look at learning from mistakes from an individual perspective. An individual's ability, possibility and willingness to reflect on and learn from their own mistakes can help the individual to gain a deeper understanding or insight (lessons learned) that can further be applied to gather new experience and knowledge.

3.1.2 Single- and Double-Loop Learning

At the beginning of describing single- and double-loop learning, Argyris and Schön (1996) mention organizational inquiry:

> "In Deweyan inquiry […], doubt is construed as the experience of a "problematic situation", triggered by a mismatch between the expected results of action and the results of actually achieved. Such mismatch – a surprise, as we experience it – blocks the flow of spontaneous activity and gives rise to thought and further action aimed at re-establishing the flow. Inquiry does not become organizational unless undertaken by individuals who function as agents of an organization according to its prevailing roles and rules. Individuals may also inquire in ways that remain separate from the organization to which they belong (Argyris & Schön (1996, page 11).

If the mismatch is solved by adhering to existing norms, standards and frameworks, then the learning that emerges from this process can be called single-loop learning. If the solution is obtained by questioning and disregarding existing norms and frameworks (for example, reflecting on "why do we do that we do?"), then the learning that emerges from this process can be called double-loop learning.

3.1.3 Reflective Practitioner

A mistake that is recognized would point out that there is a mismatch between the expected result and the actual result, which can lead to either single- or double-loop learning. The inquiry process can include both reflection-in-action and reflection-on-action. According to Schön (1998), reflection-in-action is related to reflection during the ongoing action where a trigger or mismatch (a mistake or failure) appears, while reflection-on-action is associated with reflecting on what has happened before. Both can lead to understand the situation and learn.

3.2 Motivation

Motivation can contribute significantly to promote knowledge sharing and learning in organizations. There are two categories of motivation: Extrinsic motivation that can include, for example praise, public recognition,

money and promotion; and intrinsic motivation that is manifested in the form of, for example inner joy, interest and satisfaction in performing a task (Skyttermoen & Vaagaasar, 2015).

Incentive mechanisms can be used to motivate – to provide both extrinsic and intrinsic motivation to – organizational members to share knowledge including sharing information about and learning from their mistakes. Karlsen (2023, page 175) presents some of the significant factors that can create job satisfaction and motivation for project team members:

- Meaningful work: When team members feel that their work is meaningful and contributes to a greater goal, they are more likely to be motivated and satisfied.
- Well-defined goal: When team members understand what they are working towards and what is expected of them, they are more likely to be motivated and have a sense of achievement when they achieve their milestones and goals.
- Autonomy: When team members are given autonomy and are trusted to make decisions, they are more likely to be motivated and have a sense of ownership over their work.
- Feedback: When team members receive positive feedback for their work, they are more likely to feel motivated and engaged.
- Recognition: When team members feel that their work is recognized and appreciated, they are more likely to be motivated and satisfied.
- Opportunities for learning and development: When team members have opportunities to learn new skills and take on new challenges, they are more likely to be motivated and feel meaningful about their work.
- Supportive team culture: When team members feel they are trusted and supported by their colleagues and have a positive team culture, they are more likely to be motivated and satisfied.

4. What Recent Research Says About Learning From Mistakes in Organizations – A Summary

Possibly it may be not a big challenge for a person when it comes to accepting and learning from their own mistakes. However, sharing information about the mistake and learning from the mistake with others in your organization can be challenging, even though sharing it can help others not make the same mistake. Social barriers – psychological and organisational – discourage the reporting of errors (Cannon & Edmondson, 2005). Psychological safety is one of the relevant issues to consider in this regard.

Liu et al. (2021) examines how psychological safety, initiative climate and knowledge sharing contribute to team creativity in project teams working in research and development projects. In this context, they also look at how psychological safety and a climate of initiative affect knowledge sharing in projects. The authors describe the concepts of psychological safety and initiative climate as follows:

- Psychological safety: This is about (1) the expectation, approval, and practical support of attempts to introduce new and improved ways of doing things into the work environment, (2) tolerance for error, and (3) encouraging experimentation that empowers individuals to be more innovative. When employees feel psychologically safe to share knowledge, they are more likely to experience positive affective (emotional) states that in turn motivate them to explore new ideas, think broadly, and be more creative.
- Initiative climate: Initiative climate describes a phenomenon in which employees are initiative-taking, proactive, and persistent in overcoming obstacles to achieve a goal and are long-term oriented towards work.

In connection with factors that affect positive knowledge sharing in projects, Liu et al. (2021) mention the following results:

- Psychological safety is positively linked to knowledge-sharing behaviour. In other words, psychological safety can be seen as one of the enablers for knowledge sharing.
- Initiative climate moderates the relationship between psychological safety and individual knowledge-sharing behaviour, so that the relationship between psychological safety and individual knowledge-sharing behaviour is stronger when the initiative climate is high.

The link between psychological safety and knowledge sharing suggests that accepting and learning from mistakes positively affects knowledge sharing and learning in projects.

In their study, Kucharska & Bedford (2020) focus on how learning from mistakes and learning culture in organizations can promote organizational learning, development, and change. The findings show that the learning climate (work culture/environment that supports learning) has an effect on adaptability to change, and this effect is mediated/positively influenced by accepting and learning from mistakes. According to this study, this effect has been discovered among young students aged 18-24 years. However, this ratio is not significant for corporate employees (from knowledge-driven organizations) aged >24 years. This result indicates that organizations, unlike universities, do not use failure as a tool to support learning that will lead to change.

This study emphasizes the importance of accepting that mistakes happen in organizations, and learning from mistakes. The study proposes a learning culture that accepts mistakes as a method for learning and development. Furthermore, this study empirically shows the value of learning from mistakes in connection with increasing adaptability to change.

Kucharska & Bedford (2020) point out that whether organizations like it or not, mistakes have always been part of human life, and that this will never change. It is up to organizations whether they perceive failure as an opportunity for development or a worrying burden. Based on the findings, the authors recommend a love-hate relationship of accepting mistakes: Love them as an opportunity to learn and grow, hate them when this opportunity is lost.

Another study about learning from mistakes in knowledge-driven organizations in Poland (Kucharska & Rebelo, 2022) suggests that shame in making mistakes can prevent the sharing of knowledge learned from the mistake and that that knowledge remains hidden in such cases.

The authors recommend that organisations should ensure that it is easier to accept and learn from mistakes. This can be done by implementing practices that show employees that making mistakes, learning from mistakes, and continuing to work is a natural part of work in organizations. Nevertheless, organizations must also promote attitudes to avoid mistakes. This contradiction causes a significant cognitive bias that leads to the unconscious concealment of knowledge gained from learning from mistakes. This situation can be addressed by stimulating workers to engage in personal development and encouraging them to implement new ideas and seek new solutions, thus creating a learning climate. Knowledge workers should understand that they can report errors and discuss it without shame, guilt, or fear.

As a summary, Kucharska & Rebelo (2022) suggest that organizations can introduce a set of formal and informal solutions in organizations that support attitudes of accepting, managing, and learning from mistakes. In this regard, it is important to develop/ensure an organizational culture that supports this. Mahura & Birollo (2021) say that an organizational/work culture that avoids reporting errors is one of the barriers to experience sharing and learning.

To work on learning from mistakes in organizations, leadership behavior plays an important role. Based on their study in the hospitality industry, Alzyoud & Abuzaid (2023) suggest 3 leadership behaviors that can encourage employees to learn from mistakes:

1. Being open and available to employees
2. Encouraging them to speak up and share their experiences, especially their mistakes
3. Giving them constructive feedback instead of criticism.

Baker et al. (2024), who focus on the construction industry in their study, mention that there is a need to introduce incentives to learn from mistakes and emphasize the importance of individual and corporate leadership for the recognition of mistakes as a possible concept.

5. Results, Analysis and Discussion

Major findings from the interviews in connection with this paper can be grouped into three categories:

- Attitudes and personal aspects
- User-friendliness of knowledge sharing systems
- Involvement and support from top / senior management

5.1 Attitudes and Personal Aspects

Respondent 11 says that the sharing (sharing information about errors) can be seen as something negative. Respondent 2 points out that people may think about financial consequences that may arise by sharing

information about their mistake with others, and thus avoid sharing. Respondent 3 says that there is a lack of (psychological) confidence to share experiences related to mistakes one has made. This reflects lack of psychological safety that we have seen earlier (Liu et al., 2021).

This study takes into account the cultural dimension of organizations that includes, among other things, attitudes, norms, communication, inter-relationships and collaboration. If one's personality and attitudes towards sharing knowledge and learning are negative, then this will become a barrier. Several of the respondents of this study mention this issue as one of the central barriers. Respondent 4 mentions that there are different personalities and attitudes, and not all of them support knowledge sharing and learning. Respondent 2 gives an example of this:

> "[…] perhaps it is also because I have been project manager for 10, 15 projects. So I know this from A to Z, and I don't need someone to teach me my profession – When you have that attitude, it becomes a barrier to learning."

The above statement indicates two distinct barriers in connection with learning from mistakes:

1. A kind of closed culture that does not have a natural willingness to reflect critically on or question their own knowledge (from points of view that are different from their own) to find out whether the knowledge is obsolete, inadequate or comparatively ineffective, or has some hidden pitfalls.
2. Unwillingness to consider utilizing existing knowledge that is derived by, among other things, learning from mistakes.

The above statement also points out indirectly that a fundamental barrier to learning from mistakes is not necessarily lack of psychological safety or concerns over economic consequences but having a negative attitude towards sharing any knowledge with others or learning from others. When this attitude becomes positive, then other barriers (lack of psychological safety, etc.) can appear. When devising strategies for promoting learning from mistakes, it is important to take into consideration the fundamental barrier (attitudes towards sharing any knowledge with others) too. Respondent 12 says:

> "Knowledge is not registered all the time. There can be several reasons for this. There is a structure to register knowledge, but not a sufficient culture or attitudes to do so."

Respondent 6 says that if a project manager prioritizes knowledge sharing and learning in his / her projects, then that project manager will facilitate it. This depends on the person, clarifies respondent 6. Based on own experiences, respondent 8 says:

> "Managers who focus on or prioritize knowledge sharing allocate time for knowledge sharing in project meetings. However, it depends much on individuals and their choice […]. There is a lack of culture for learning."

Kucharska & Bedford (2020) (that we have seen in Chapter 4), Kjeilen (2021), Mahura & Birollo (2021), Alves et al. (2022) point out the importance of culture for learning.

As a negative attitude for sharing any knowledge with others being the fundamental barrier, the next layer of barrier may be indifference or lack of interest in sharing knowledge (though one does not have a negative attitude towards sharing knowledge). Respondent 13 says that not everyone is curious about learning something new and sharing their knowledge. Respondent 2 says the following:

> "It's not everyone who really sees the importance. You either forget about sharing knowledge or don't prioritize it".

Here it is relevant to refer to one of the barriers to knowledge sharing and learning that Maryse & Chappin (2020) mention: Lack of interest in other projects and not understanding the necessity for sharing knowledge with other projects.

5.2 User-Friendliness of Formal Knowledge Sharing Systems

Lack of user-friendliness of formal knowledge sharing systems can hinder sharing of knowledge (including learning from failure) even though organizational members are willing to share their knowledge (obtained by learning from their mistakes). Both knowledge-providers and knowledge-seekers can encounter challenges in this regard. Respondent 4 says:

> "If you have a database or a system in which it is very difficult to find the needed knowledge, then I think that the system will be very poorly utilized. If you want to obtain knowledge from such difficult systems, then you try a little, and then you don't want to spend so much time on it before giving up."

More on the role of user-friendliness of formal knowledge sharing systems in knowledge sharing and learning can be found in Ekambaram (2024-b).

5.3 Involvement and Support From Top / Senior Management

People who work in projects are generally busy with their work. Knowledge sharing and learning require time and resources, which a project manager cannot automatically / always allocate, since the project manager tends to focus primarily on delivering the project within the planned timeframe, cost and quality. In this regard, the project manager cannot prioritize knowledge sharing, and probably does not have the mandate and authority to allocate time and resources for it. Therefore, the issue of learning and knowledge sharing should be looked at from a top / senior management perspective. Several respondents mention involvement, commitment and support from top management / project owners / senior managers in this context. The top management perspective provides a strategic view of knowledge sharing and learning in PBOs – that is, considering knowledge sharing and learning as a means to increase productivity, effectiveness, profit and sustainable competitive advantage.

Respondent 9 points out that knowledge sharing is not seen as a key performance indicator. Project members do not naturally get motivated to spend time and energy on sharing knowledge due to busy everyday life in projects and the prioritization of completing project tasks. This situation can even more negatively affect sharing information of their mistakes and knowledge that is gained by learning from the mistakes. Pinkhasik & Hermann (2021), Iftikhar & Lions (2022) and Filstad (2010) mention the importance of motivation and incentive mechanisms to promote knowledge sharing and learning. Top / senior management can make use of incentive mechanisms (mentioned in Chapter 3.2) to develop a positive culture to make knowledge sharing and learning (including learning from mistakes) an important part of daily work. In addition, they can invest in proper and user-friendly formal knowledge sharing systems and ensure adequate training for organizational members to use the systems effectively. Furthermore, they can also invest in establishing informal learning arenas in their organizations that support collective reflection and single- and double-loop learning.

6. Concluding Remarks

This paper looks at one of the important factors that can contribute to learning and development in PBOs, namely learning from mistakes. In this regard, three key aspects are presented: Attitudes and personal aspects, user-friendliness of formal knowledge sharing systems, and involvement and support from top management.

The discussion on these three aspects (Chapter 5) points out different layers of barriers associated with learning from mistakes in organizations and a possibility to deal with the barriers. Figure 3 illustrates it.

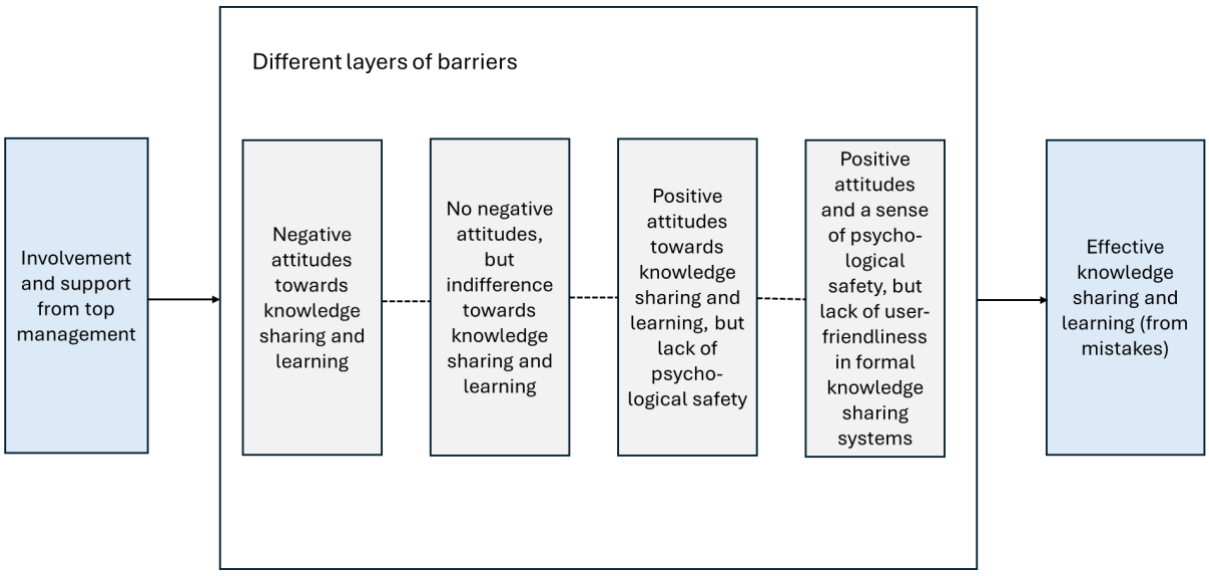

Figure 3: Different layers of barrier to learning from mistakes

As Figure 3 illustrates, involvement and support from top management can be used to deal with different layers of barriers to knowledge sharing and learning (from mistakes) to create effective learning processes and the desired effect.

Knowledge sharing and learning in PBOs can be seen in two dimensions: Cultural and structural dimensions. As attitudes and personal aspects that we have seen in Chapter 5.1 are directly connected to the cultural dimension of organizations, user-friendliness of formal knowledge sharing systems (Chapter 5.2) is primarily related to the structural dimension of organizations. The structural dimension also includes all formal systems, technology, tools and structures in organizations. The discussion in Chapter 5.3 points out that involvement and support from top / senior management encompass both the cultural and structural dimensions of organizations. Involvement and support from top / senior management are important to create a positive culture (positive attitudes towards learning from own mistakes and sharing that knowledge with others in the organization) and ensure a good and effective structure (user-friendly formal knowledge sharing systems that make knowledge sharing easier) that can lead to harvesting the benefits of learning from mistakes.

Top management's support and contribution to promote knowledge sharing and learning in PBOs should be operationalized at all professional levels in PBOs (for example, top management, project owners, project managers, project members, etc.). In order to do the operationalization effectively, both the structural and cultural dimensions of organizations are to be taken into consideration.

This study is based on experience that the respondents have gained from various projects. It can be useful to test out the research questions (presented in Chapter 1) in one or more case-projects in order to get a detailed and context-specific understanding of learning from mistakes. This is a suggestion for further study.

Mistakes can be considered as a taboo in organizations, though it is natural for human beings to make mistakes. The important thing is to learn from own mistakes, share the information of the mistakes and the knowledge gained from the mistakes with others in the organization, and learn collectively from the mistakes. This paper aims to emphasize the importance of this topic and will hopefully contribute to good discussions.

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When Supervision is Abusive: What Explains it and What are the Consequences?

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Abstract: Currently, people spend most of their daytime at work, therefore, it is essential that organisations offer their employees benefits that go beyond the salary, because people value their psychological well-being, which contributes to the quality of life in the workplace and a good work life balance.It is also important to note that interpersonal relationships at work are significant when it comes to organisational well-being. Relationships between subordinates and supervisors must be healthier and trustable relationships. When the opposite occurs, we are faced with abusive supervision with a negative influence on employees' well-being. This study focus on the relationship between supervisors and subordinates. In order to analyse the impact of a supervisor's attitudes on the relationship with their subordinates, it matters to understand that these attitudes are influenced by their personality traits. The aim of this study is to realise how different personality traits of the supervisor, namely those related to the dark triad, contribute to the development of abusive supervision that will affect the employees' psychological well-being at work. To develop this study, a survey was applied to a sample of 232 employees from different Portuguese organisations, to measure the dark triad, abusive supervision and psychological well-being at work, respectively. After analysing the results using structural equations, it was possible to conclude that psychopathy and machiavellianism, which are two of the dark triad concepts, influence the supervisor's behavior, and further lead to an abusive supervision. Abusive supervision negatively influences the employees' psychological well-being at work. The greater the abusive supervision, the greater the negative emotions felt by employees at the workplace, and therefore, the employees' psychological well-being is lower. This study also highlighted differences in the way men and women perceive abusive supervision, concluding that, although men perceive more abusive supervision than women, they present fewer negative emotions than women. Finally, some conclusions, limitations and possible future research were drawn.

Keywords: Abusive Supervision, Dark Triad, Psychological Well-being

1. Introduction

Since people dedicate a large amount of effort and time to their work, it is essential to understand which variables affect work, given that, nowadays, professional life has a significant impact on people's lives and their well-being (Bartels, Peterson and Reina, 2019).

The dark triad is often found in individuals who hold leadership positions and is related to the dark side of the personality in which people are cold, impulsive, toxic and exploitative (Furtner, Maran and Rauthmann, 2017; Paulhus and Williams, 2002). The attitudes of individuals who hold leadership positions influence the way employees feel in the workplace and take a negative form, when, for example, supervisors ridicule and are hostile towards their subordinates, culminating in abusive supervision that leads to negative consequences for employees (Tepper, 2007).

The present study aims to understand whether the supervisor personality traits that make up the dark triad: psychopathy, narcissism and machiavellianism, contribute to the adoption of abusive supervision. It is important to clarify that this is the employees' perception of the supervisor. The aim of this study is also to understand the impact of abusive supervision, also perceived by subordinates, on their psychological well-being in the workplace.

2. Background

2.1 Abusive Supervision

Tepper (2000, 2007) focused on the study of abusive supervision, defining it as "subordinates' perceptions of the extent to which supervisors engage in the sustained display of hostile verbal and nonverbal behaviors excluding physical contact" (Tepper, 2000, p. 178).

Whitman, Halbesleben and Shanine (2013) reported that abusive behaviors are considered inappropriate and non-standard behaviors, that is, these behaviors do not respect social norms and can be externalized, for example, when supervisors verbally reprimand subordinates in front of other colleagues or can be more restrained when supervisors withhold confidential information from their subordinates.

The ridicule and blaming of subordinates by supervisors leads to the adoption of abusive supervision that has negative consequences for subordinates and, consequently, for organisations. Abusive behaviors include public ridicule, intimidation, explosive reactions and aggressive eye contact (Tepper, 2007, Tepper, Simon and Park, 2017). Abusive supervision is an organisational problem and is considered an interpersonal aggression, with consequences, both in terms of relationships between supervisors and subordinates and also in their family relationships (Rego and Cunha, 2008; Zhang and Lio, 2015).

It is important to know the antecedents of abusive supervision so that it is possible to carry out adequate management in order to understand that certain individuals cannot occupy supervisory positions, as they will negatively influence the well-being of the entire organisation (Fischer et al, 2021; Gallegos, Guardia-Olmos & Berger, 2022; Moin & Khan, 2023; Moin et al, 2022; Tepper, Moss and Duffy, 2011; Tepper, Simon and Park, 2017).

2.1.1 Dark Triad as Antecedent of Abusive Supervision

According to Paulhus and Williams (2002), there are three personality traits that constitute the dark triad, namely machiavellianism, psychopathy and narcissism. These characteristics are included in an offensive personality. Individuals who have these personality traits show bad character, with a tendency to self-promote, be aggressive and reveal emotional coldness. According to Jonason et al (2014), the dark triad integrates concepts such as superiority, manipulation, impulsiveness and insensitive social attitudes. These personality traits refer to abnormal or dysfunctional personality and represent a socially harmful nature (Spain, Harms and LeBreton, 2014). The three personality traits that make up the dark triad are different, but reveal similarities between them, such as a core of insensitive manipulation, and these traits are considered malicious and disruptive in general (Furnham, Richards and Paulhus, 2013; Kiazad et al, 2010).

Machiavellianism: The concept of machiavellianism is associated with a lack of empathy, the adoption of manipulative attitudes, little affectivity, the need to explore others and strategic planning (Jones and Paulhus, 2009; Judge, Piccolo and Kosalka, 2009). Machiavellianism is characterised by manipulation, coldness and insensitivity towards others (Vernon et al, 2008) and is also associated with distrust and cynicism from the point of view of Spain, Harms and LeBreton (2014).

Narcissism: Narcissism is characterised by feelings of superiority; a narcissistic individual constantly seeks attention from others and reveals excessive self love (Caniëls and Hatak, 2022; Vernon et al, 2008). Narcissistic individuals desire uninterrupted attention from others (Paulhus, 2014).

On the other hand, Judge, Piccolo and Kosalka (2009) considered that narcissists reveal two sides regarding supervision in organisations, demonstrating a negative side, but also a positive side. The positive aspect is associated with charismatic leadership, innovation, high organisational performance culminated with an excellent vision, and narcissistic supervisors are successful in attracting followers. Thus, narcissistic supervisors can show a negative attitude as well as a beneficial attitude in organisations (Furtner, Maran and Rauthmann, 2017).

Psychopathy: According to Jones and Figueredo (2013), psychopathy is associated with impulsivity, anxiety and constant search for emotion, with individuals being too focused on their goals and ambitions, being insensitive, manipulative and antisocial. From the point of view of Mathieu et al (2014), psychopathy is a clinical concept that has a set of characteristics that include grandiosity, egocentrism, deceit, lack of empathy and tendency to ignore or violate social norms and, therefore, represents a important role in understanding destructive leadership styles and identifying dysfunctional problems in organisations. Supervisors who possess the

personality traits that constitute the dark triad adopt abusive behaviors at work, causing considerable damage to an organisation (Mathieu et al, 2014; Wisse and Sleebos, 2016). Therefore, the following hypotheses were established:

- Hypothesis 1: Supervisors who present personality traits that constitute the dark triad are more likely to exercise abusive supervision.
- Hypothesis 1.1: The supervisor's perceived psychopathy positively influences abusive supervision.
- Hypothesis 1.2: The supervisor's perceived narcissism positively influences abusive supervision.
- Hypothesis 1.3: The supervisor's perceived Machiavellianism positively inflences abusive supervision.

2.2 Psychological Well-being at Work

Warr (1990) explained that psychological well-being includes concepts such as affective well-being, competence, aspiration, autonomy, integrative functioning and satisfaction. Measures of affective well-being are one of the most important, if not the most important, indicator of psychological well-being.

Affective well-being can be measured in relation to the job domain and, therefore, measures of work-related affective well-being were presented in two domains that are job-related anxiety-contentment and depression-enthusiasm (Warr, 1994).

2.1.2 Abusive Supervision and Psychological Well-being at Work

According to Zhang and Liao (2015), abusive supervision has negative effects on the employees' psychological well-being because negative workplace environments consume subordinates' psychological resources, which, in turn, have fewer resources to deal with situations that cause stress, leading to dissatisfaction in the workplace.

For Atwater et al (2016), individuals who experience abusive supervision situations accumulate several negative work experiences, resulting in negative affective reactions and emotions, also affecting attitudes and behaviors.

From the point of view of Tepper, Simon and Park (2017), the target individuals of abusive supervision present symptoms similar to post-traumatic stress disorder, and involvement in abusive supervision compromises organisational well-being and can cause high levels of depression in subordinates, insomnia and low levels of emotional self-regulation. Abusive supervision causes dysfunctional resistance on the part of subordinates, that is, they refuse to carry out the tasks and requests of their abusive supervisors and this happens mainly when subordinates reveal themselves to have higher levels of awareness, with regard to supervisor's traits of personality (Tepper, 2007). The following hypotheses were established:

- Hypothesis 2: Abusive supervision negatively influences the development of subordinates' psychological well-being at work, with a supervisor who is perceived as abusive contributing to low levels of subordinates' psychological well-being at work.
- Hypothesis 2.1: Abusive supervision positively influences negative affect and therefore leads to low levels of subordinates' psychological well-being at work.
- Hypothesis 2.2: Abusive supervision negatively influences positive affect and, consequently, leads to high levels of subordinates' psychological well-being at work.

3. Methodology

An online questionnaire survey has been administered at individuals over 18 years of age, who have had at least one professional experience. In order to measure personality traits on dark triad, a Portuguese version of the dirty dozen was used (Pechorro et al, 2021). The scale had 12 items (4 items for Machiavellianism, 4 items for psychopathy and four items for narcissism). The original version of dark triad belongs to Jonason and Webster (2010). To measure abusive supervision, Tepper's (2000) fifteen-item scale was used, which in turn was adapted to the Portuguese version by the authors Velez and Neves (2017). Affective well-being was measured using an instrument validated by Daniels (2000), who proposed a construct of affective well-being at work comprising five bipolar dimensions: anxiety-comfort, depression-pleasure, bored-enthusiastic, tiredness-vigour and angry-placid (30 items). Rego, Cunha and Neves (2016) presented a Portuguese version that was used in this study. The sample consists of 232 workers (n=232). It was used a non-probabilistic, convenience sampling.

Respondents are portuguese employees over the age of eighteen, who have at least one professional experience and no specific organisation or industry was targeted. Regarding gender, 66,4% are female, 33,6% are male. Regarding age, 50,9% are between 20 and 29 years old, 23,6% are between 30 and 39 years old and 16,4% are

between 40 and 49 years old. In relation to academic qualifications, 59% have a bachelor's degree. 64.7% have worked in the organisation for less than 5 years.

4. Results

After data collection, data were transferred to the IBM SPSS Statistics statistical program and variables were coded.

The three scales were initially subjected to an Exploratory Factor Analysis (EFA), to verify if their factorial structure was consistent with that described in the literature. In the dark triad scale of personality traits (three dimensions) and abusive supervision (one dimension), this fact was verified, but in the psychological well-being scale only two dimensions were identified, one associated with positive emotions and the other associated with negative emotions, and the two were considered.

To test hypotheses, structural equation modeling, known as Partial Least Squares (PLS), was used. This model allows studying the relationship between dimensions or latent variables, which are measured indirectly using indicator variables, which in the present case are items from a questionnaire. PLS is suitable when the main objective is the prediction and explanation of endogenous latent variables, the sample may be small and the data may not follow a normal distribution. PLS is generally described as a technique free from distributional assumptions (Lohmöller, 1989; Ringle, Wende and Will, 2010).

In the measurement submodel, all variance inflated factor (VIF) values were below five, except three that were below six, meaning that no multicollinearity problems were detected. All loading values were greater than ,708, except five that presented values greater than ,636 and one with a value of ,511, supporting the convergent validity of the model. All indicators correlated less with dimensions other than the one they measure, except for a cross loading. These values support the discriminant validity of the model.

Cronbach's alpha, composite reliability and average variance extracted (AVE) are represented in Table 1. These values show very good reliability and support the unidimensionality and convergent validity of the model.

Table 1: Alpha de Cronbach, Composite Reliability and AVE

	Alpha de Cronbach	Composite reliability	AVE
Abusive Supervision	,966	,970	,682
Machiavellianism	,850	,899	,693
Psychopathy	,916	,941	,799
Narcissism	,920	,944	,808
Negative Affect	,945	,952	,571
Positive Affect	,956	,961	,637

The effect size indices f^2 show that the various exogenous variables have a weak to moderate role in the coefficient of determination (in the predictive capacity), highlighting the role of abusive supervision in increasing the worker's negative emotions (Table 2).

Table 2: Effect size f^2

Exogenous/Endogenous Variables	Abusive supervision	Negative Affect	Positive Affect
Gender	,019	,025	,041
Abusive supervision		,327	,113
Machiavellianism	,058	,012	,003
Narcissism	,004	,003	,001
Psychopathy	,068	,001	,031

By bootstrap resampling with 5000 subsamples randomly taken from the original sample with replacement, the significance of the two submodels was assessed. In the measurement submodel, all loadings presented a p-value lower than ,001. In the structural submodel, not all impact coefficients were significant. In Table 3, the significant paths for a significance level of ,05 are shown in bold. Thus, men feel more positive emotions and fewer negative emotions compared to women, despite perceiving greater abusive supervision. The supervisor's abusive behavior tends to increase negative emotions and reduce positive emotions, these associations being more significant and of greater intensity. In the associations between personality traits dark triad and supervisor abusive behavior, only the impacts of machiavellianism and psychopathy proved to be significant (the association is positive). The direct impact of supervisor psychopathy on reducing worker positive emotions was also found to be significant.

Table 3: Structural model coefficients and bootstrap estimates

	Coefficients	*t*	p-value (bootstrap)
Gender -> Abusive Supervision	**,099**	2,031	**,042**
Gender -> Negative Affect	**-,112**	2,531	**,011**
Gender -> Positive Affect	**,164**	3,263	**,001**
Abusive Supervision -> Negative Affect	**,547**	9,620	**,000**
Abusive Supervision -> Positive Affect	**-,368**	4,001	**,000**
Machiavellianism -> Abusive Supervision	**,335**	4,365	**,000**
Machiavellianism -> Negative Affect	,148	1,649	,099
Machiavellianism -> Positive Affect	-,090	,865	,387
Narcissism -> Abusive Supervision	,081	1,166	,244
Narcissism -> Negative Affect	,066	,850	,395
Narcissism -> Positive Affect	,043	,476	,634
Psychopathy -> Abusive Supervision	**,321**	4,172	**,000**
Psychopathy -> Negative Affect	,031	,352	,725
Psychopathy -> Positive Affect	**-,244**	2,535	**,011**

The graphic result of the PLS, with loadings values, coefficients of determination and the impact coefficients can be found in Figure 1. This figure is representative of the table above, as it explains all the relationships between the different variables in the present study.

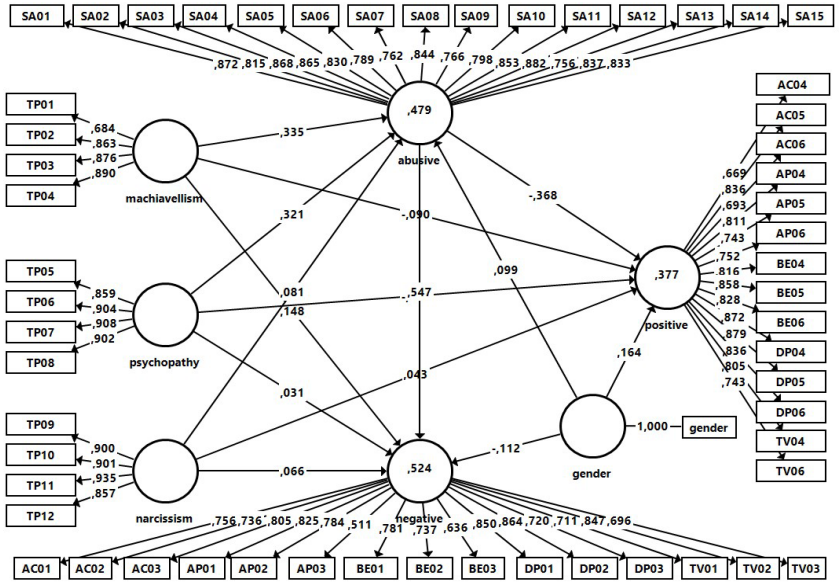

Figure 1: PLS algorithm results

5. Discussion and Conclusions

Hypothesis 1 suggests that the dark triad contributes to the adoption of abusive supervision. The hypothesis was confirmed. According to Wisse and Sleebos (2016), supervisors who have the dark triad personality traits adopt abusive behaviors at work. Jones and Figueredo (2013) considered that the personality traits that cause more harm to others are machiavellianism and psychopathy. Dark triad personality traits also represent an increase in counterproductive behaviors, deteriorating a healthy work environment (Spain, Harms and LeBreton, 2014). Supervisors who display dark triad personality traits are more likely to engage in complex and dangerous interpersonal strategies, which in turn causes negative effects on the individual (Paulhus and Williams, 2002).

Hypothesis 1.1 states that the supervisor's perceived psychopathy affects the adoption of abusive supervision. This hypothesis was supported. Psychopathy is a destructive personality trait and according to Mathieu et al (2014), psychopathy is the personality trait that is considered the most toxic of the personality traits of the dark triad and the authors considered that psychopathic traits of supervisors cause psychological distress among subordinates, work-family conflict and decreased job satisfaction, also impacting the well-being and attitudes of subordinates in the workplace. Psychopathy is characterised by impulsivity, lack of guilt or remorse on the part of the supervisor when causing harm to others, as well as insensitivity and emotional coldness. Lack of empathy and low affectivity means that psychopaths are less likely to care about others and according to Spain, Harms and LeBreton (2014), psychopaths are characterised by disrespect for the truth and failure to conform to norms social established. Mathieu et al (2014) and Paulhaus and Williams (2002) showed that psychopathic individuals

are manipulative, unethical, insensitive, intimidating, aggressive, unfocused and untrustworthy. The deceit, inability to accept guilt, unpredictability and impulsiveness of psychopaths culminate in difficulty in creating teams and establishing healthy relationships with subordinates. Traits of psychopathy encompass superficiality and disinterest in people, which results in a lack of remorse when supervisors with this trait harm subordinates. Therefore, psychopathy is associated with the adoption of selfish behaviors and abusive management practices (Tahir and Hussain, 2020).

Hypothesis 1.2 defines that the supervisor's perceived narcissism positively influences the adoption of abusive supervision. This hypothesis was not supported. Although narcissism is one of the characteristics present in the dark triad and some authors consider that narcissism is related to negative aspects regarding supervision at work, this does not always happen. Other authors have studied the positive side of the dark triad and some have concluded that the negative aspects of narcissistic individuals can go unnoticed (Judge, Piccolo and Kosalka, 2009). According to Caniëls and Hatak (2022), narcissism is associated with a high sense of self-importance, demand for excessive admiration and a preoccupation with fantasies related to success. However, narcissists are willing to deal with setbacks at work and when they see that this effort is rewarded, they are able to adapt and thrive in changing situations.

Hypothesis 1.3 highlights that machiavellianism influences abusive supervision. This hypothesis was supported. Machiavellian people show a greater tendency to be perceived as abusive by their subordinates (Jonason et al, 2014; Wisse and Sleebos, 2016). According to Judge, Picollo and Kosalka (2009), machiavellians are people who frequently abuse the power of their authority and display dominant behavior, do not follow ethical and moral standards and aim to maximise their personal power. Individuals with machiavellian characteristics act abusively in leadership situations, leading to a decrease in the motivation and satisfaction of their subordinates.

Hypothesis 2 states that abusive supervision negatively influences the development of subordinates' psychological well-being at work, with a supervisor who is perceived as abusive contributing to low levels of subordinates' psychological well-being at work. The hypothesis was supported.

Regarding the psychological well-being scale, five bipolar dimensions were initially planned (Daniels, 2000), however, through the exploratory analysis it was only possible to find two dimensions, which are positive emotions and negative emotions. The fact that only two dimensions were found confirms what Warr (1990) stated about psychological well-being being related to affective well-being which, in turn, is characterised by a greater frequency of positive emotions and a lower frequency of negative emotions.

From the point of view of Spector, Fox and Domagalski (2006), negative emotion is related to hostility, anger and shame and is triggered by environmental conditions and stress factors. Aggression in organisations is triggered by negative affect and leads to situations of helplessness, revenge and negative thoughts. Working conditions and environments are evaluated by subordinates and when environments are perceived as stressful they induce negative emotions, including anger, anxiety and depression. On the contrary, when organisations provide meaning for employees, they tend to be happier and healthier, and are also more productive in the long term, which contributes to individual and organisational success. Positive emotions allow people to face adverse situations more positively, becoming more resilient people who are more willing to develop healthy relationships and develop gratitude (Rego and Cunha, 2008).

Hypothesis 2.1 states that abusive supervision positively influences negative affect and, consequently, leads to low levels of subordinates' psychological well-being at work. Hypothesis 2.2 predicted that abusive supervision is negatively related to positive affect and, consequently, to high levels of subordinates' psychological well-being. These hypotheses were supported. Tepper (2007) considered that abusive supervision is often associated with high levels of psychological suffering among subordinates, which, in turn, trigger states of anxiety, exhaustion, depression, and tension at work, related to negative emotions. Exposure to abusive supervision causes psychological suffering and involves dysfunctional thoughts and emotions in subordinates, culminating in their emotional exhaustion (Tepper, 2007). When individuals are exposed to intensely stressful situations, they end up showing emotional numbness and decreased job performance, with high levels of exhaustion being associated with low levels of well-being (Cropanzano and Wright, 2001).

Tepper, Simon and Park (2017) reported that exposure to abusive supervision causes states of aggression, exhaustion, learning difficulties and difficulty in establishing social exchanges in subordinates, weakening affective behavior and contributing, once again, to the reduction of subordinates' psychological well-being.

Although no hypotheses were developed, the results allowed us to conclude that women feel more negative emotions than men and that men feel more positive emotions than women. Women feel more negative

emotions than men, however, men reveal a greater perception of abusive supervision. The fact that men show fewer negative emotions may be related to the strategies adopted to deal with the abusive supervision they receive, that is, subordinates who use regulatory maintenance strategies may not be aware that these abusive attitudes are producing damage to their long-term psychological well-being (Tepper, 2007). This conclusion may also be related to some gender representations that view the expression of extreme positive or negative emotions by men in a negative light.

From a practical point of vue, it is desirable that human resource managers evaluate the personality characteristics of supervisors, choosing not to select supervisors who present high levels of machiavellianism and psychopathy.

It is considered that this study contributed to analysing the impact that the adoption of abusive supervision has on the psychological well-being of employees and highlights the role of the supervisor's personality traits, which predict the adoption of unethical and destructive leadership styles for companies.

Throughout this research, some limitations were found, such as the fact that both personality traits and abusive supervision are studied based on the perceptions of subordinates. Another limitation of this study is related to the fact that it was not possible to carry out dyads supervisors-subordinates, that is, the supervisor himself would answer the questionnaire to questions about personality traits and the subordinate would answer the questions that correspond to abusive supervision and psychological well being.

Tepper (2007) mentioned that abusive supervision corresponds to the subjective evaluation made by subordinates, an evaluation that may be conditioned by the personality characteristics of the subordinate. It would be interesting for future research to understand the impact that subordinates' personality traits have on the perception that they are being abused by their supervisors. As Fischer et al (2021) suggest, it is important to rethink the abusive supervision concept as “experience of supervisor abuse”.

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Path-Goal Theory and Followers' Work Engagement: An Empirical Exploration of the Situational Leadership Approach

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Abstract: By adopting a path-goal theory approach, this study tests in a sample of Italian employees (N=181) whether a framework considering at the same time leadership style, follower characteristics, and task characteristics explains work engagement levels in followers. The study provides new empirical evidence supporting path-goal theory and offers insights into the role of situational factors in the leader-follower relationship.

Keywords: Path-Goal Theory; Situational Leadership; Followership; Work Engagement

1. Introduction

Contingent leadership models, such as the path-goal theory, highlight how leaders can adjust their style to align with followers' needs and situational demands, thereby enhancing performance and satisfaction. Developed by Robert House in 1971, the path-goal theory suggests that leaders can boost motivation, empowerment, and satisfaction by clarifying paths to goals, removing obstacles, and offering support (House, 1971). The theory outlines four leadership styles—directive, supportive, participative, and achievement-oriented—that leaders can adopt based on the nature of the task and follower characteristics (House & Mitchell, 1974). This flexibility helps address team needs and fosters a productive work environment (Northouse, 2018). For example, a directive style is effective for ambiguous tasks, while a supportive style works well in stressful situations (Schaufeli & Bakker, 2010). Despite its strengths, the theory has gaps, such as a limited focus on situational contingencies, vague descriptions of leader behaviours, and insufficient consideration of follower characteristics and preferences (Fabac, Kokot & Bubalo, 2022; Northouse, 2018; Yukl, 1994).

2. Theoretical Background

The path-goal theory, developed by Robert House (1971, 1996) and refined by House and Mitchell (1974), explores how leaders can motivate followers by aligning leadership styles with followers' characteristics and the organizational environment. Unlike the situational approach (Hersey & Blanchard, 1996; Meirovich & Gu, 2015), which adapts to followers' developmental levels, path-goal theory emphasizes matching leadership styles to followers' motivational needs, thereby enhancing work engagement (Schaufeli & Salanova, 2010). The theory identifies four main leadership behaviours: directive, supportive, participative, and achievement-oriented, which are used based on the specific needs of followers and the situational context (Northouse, 2018).

Directive leadership provides clear instructions on tasks, methods, and timelines, which helps to eliminate ambiguity and improve focus. Supportive leadership emphasizes a friendly and approachable demeanor, focusing on followers' well-being, boosting confidence, and creating a positive work environment. Participative leadership involves followers in decision-making, enhancing their commitment and group performance. Achievement-oriented leadership sets high standards and encourages continuous improvement, demonstrating confidence in followers' abilities (House & Mitchell, 1974).

These leadership styles can be combined and adapted to different situations. For instance, supportive leadership should be effective for followers with a high need for affiliation (NfA), who value close relationships and approval from peers and leaders. This approach creates an empathetic environment that addresses followers' social needs (Kong et al., 2017; Linando & Halin, 2024; Mathieu, 1990). However, research has shown mixed results; while the need for affiliation does not always moderate the effects of leadership on satisfaction (Mathieu, 1990), it can influence the relationship between leader behaviour and followers' commitment to the supervisor (Linando & Halin, 2024).

Supportive leadership is also hypothesized to benefit unsatisfied followers by enhancing job satisfaction and work engagement through empathy and encouragement (House, 1996; Schaufeli & Salanova, 2010). However, recent literature suggests this relationship may be mediated by organizational practices like communication and collaboration (Uman et al., 2024), raising questions about whether job satisfaction is a cause or effect of leader behaviour (Kauppila, 2024). Additionally, the nature of followers' tasks influences the effectiveness of supportive leadership; it can reduce disengagement in repetitive or mundane tasks by improving the work environment

(House & Mitchell, 1974; Lorinkova, Pearsall & Sims, 2013). However, other research indicates that supportive leadership may be more effective at reducing task ambiguity rather than monotony (Cheng & Osman, 2023).

Given these insights and the gaps in existing research, the study proposes two hypotheses:

H1a: Follower characteristics (e.g., job satisfaction, need for affiliation) and task characteristics (e.g., repetitive, challenging, mundane tasks) mediate the relationship between supportive leadership style and work engagement.

H1b: The supportive leadership style explains a greater percentage of work engagement compared to other styles, given equal conditions regarding followers and task characteristics.

Participative leadership involves followers in decision-making, fostering a sense of ownership over their work and increasing their commitment and performance (House, 1996). Research confirms that participative leadership positively correlates with work commitment, characterized by dedication and vigor (Sarti, 2014). According to path-goal theory, participative leadership is especially effective for followers with high autonomy and a strong need for control, as it fulfils their desire to influence decisions, enhancing job satisfaction and intrinsic motivation (Northouse, 2018).

Participative leadership is also beneficial for followers who need clarity, particularly in ambiguous or unstructured tasks (Cheng & Osman, 2023). These tasks often lack well-defined goals or methods, leading to confusion. By involving followers in decision-making, leaders help clarify task requirements and roles, reducing uncertainty and boosting confidence in managing complex tasks (House & Mitchell, 1974). This approach leverages diverse perspectives, fosters innovative solutions, and empowers followers, making them feel valued and integral to the organization (House, 1996).

However, the path-goal theory has theoretical limitations. It presumes that followers always desire participation in decision-making, which may not be universally true; some followers might prefer clear, directive guidance, especially in high-stress situations, overlooking situational nuances and individual differences (Evans, 1996). The theory's emphasis on aligning leadership style with task characteristics, such as ambiguity, might oversimplify the complexities of real-world tasks, which often involve multiple layers and require a balanced approach between participation and timely decision-making (Yukl, 2013). Empirical evidence supporting the relationship between participative leadership and follower performance is mixed, raising questions about the generalizability of the theory across different contexts (Wang, Hu & Li, 2022).

Given these considerations, the study proposes two additional hypotheses:

H2a: Followers' characteristics (e.g., autonomy, need for control, need for clarity) and task characteristics (e.g., ambiguous, unstructured tasks) mediate the relationship between participative leadership style and work engagement.

H2b: The participative leadership style explains a greater percentage of work engagement compared to other styles, given equal conditions regarding followers and task characteristics.

Control variables in this study include age, tenure, and gender.

3. Research

The data was collected through self-administration of an online questionnaire active on the Qualtrics platform. The data were collected starting from social networks such as Facebook, LinkedIn, and asking the compilers to disseminate the link to the questionnaire. Data collection began in December 2023 and ended in January 2024.

3.1 Measured Variables

Leadership style was measured with the Italian version of the Path–Goal Leadership Questionnaire (Northouse, 2018). Since this tool had never been validated in Italian, a CFA analysis was carried out, which confirmed the validity of the model. The $\chi 2/df$ score (=2.89, $p<0.001$) is within acceptable limits (below 5; Harrison and Rainer, 1996). The GFI score (=0.935) is acceptable (Bollen and Long, 1993). The CFI score (=0.853) is close to the 0.9 threshold, thus acceptable. The TLI (=0.829) is acceptable (Hair *et al*., 1998), and the SRMR (=0.08) value is below the 0.1 threshold (Hair *et al*., 1992).

Followers characteristics (autonomy, need for control, need for clarity) were measured with a 6-items ad-hoc questionnaire (Cronbach's Alpha = 0.79)

*Task characteristics (*Ripetitive, Challenging, Mundane, Ambiguous, Structured) were measured with a 10-items questionnaire (Cronbach's Alpha = 0.80).

Ned for affiliation was measured with the Italian version of the Need for Affiliation scale of Jackson (1984) (Cronbach's Alpha = 0.84).

Job satisfaction (JS): measured with the Italian version of the Short Index Job Satisfaction Scale of Judge, Bono & Locke (2000)(Cronbach's Alpha = 0.86)

Work Engagement was measured with the Italian version of the UWES- 9 (Balducci et al., 2010) (Cronbach's Alpha = 0.77)

Age, tenure and gender were measured with a single-items ad-hoc questionnaire.

4. Findings

A total of 181 questionnaires were collected between January and May 2024. The statistical analysis of the available preliminary data partially supported the hypotheses.

In the first scenario considered (followers' characteristics: job satisfaction, Need for Affiliation; task characteristics: repetitive, challenging, and mundane), the mediation analysis shows that no leadership style has a direct effect on work engagement. Among the followers' characteristics, only job satisfaction mediates the relationship between the supportive leadership style and work engagement: the path analysis (see Table 1) shows that the supportive leadership style increases job satisfaction ($\beta = 0.058$, $p < .001$), which subsequently enhances work engagement ($\beta = 0.540$, $p < .001$).

Regarding task characteristics, the findings indicate that the 'challenging' aspect mediates the relationship between the achievement-oriented leadership style and work engagement, contrary to what was hypothesized,. The analysis of the path coefficients (see Table 1) shows that, in the scenario considered, the achievement-oriented leadership style impacts the level of perceived challenge ($\beta = 0.068$, $p < .001$), which in turn increases work engagement ($\beta = 0.243$, $p < .001$).

These findings suggests that, to increase work engagement, a supportive leadership style is effective only when followers are satisfied, and an achievement-oriented style is effective with a challenging task. H1a is therefore partially supported.

However, all other variables being equal (followers' characteristics: job satisfaction, Need for Affiliation; task characteristics: repetitive, challenging, and mundane), the supportive style is the only one that shows a significant total effect (direct + indirect) on work engagement (estimated total effect = 0.051, $p = .002$). Thus, H1b is supported.

In the second scenario considered (followers' characteristics: autonomy, need for control, need for clarity; task characteristics: ambiguous, unstructured), the mediation analysis shows that neither follower characteristics nor task characteristics mediate the relationship between the participative leadership style and work engagement.

Regarding the direct effects of leadership styles on work engagement, the directive style has a negative effect ($\beta = -0.038$, $p = .0049$), while the supportive ($\beta = 0.033$, $p = .0025$) and achievement-oriented ($\beta = 0.049$, $p = .0013$) styles have positive effects on work engagement.

Contrary to what was hypothesized, the path analysis (see Table 2) shows that the directive leadership style, in addition to its negative direct effect on work engagement, reduces task ambiguity ($\beta = -0.098$, $p < .001$), which in turn has a negative impact on work engagement ($\beta = -0.068$, $p = .010$). This path suggests that when tasks are ambiguous, a directive style can support work engagement by decreasing ambiguity. Thus, H2a is not supported.

Furthermore, among the followers' characteristics, the need for clarity mediates the relationship between the supportive style and work engagement (estimated indirect effect = 0.019, $p = .005$). This indicates that when followers have a high need for clarity, a supportive leadership style is particularly motivating. The supportive style is the only one that shows a significant total effect (direct + indirect) on work engagement due to the mediation of the need for clarity (estimated total effect = 0.051, $p = .002$). The path analysis (see Table 2) also shows that, in this scenario, the supportive leadership style, besides having a direct effect on work engagement, decreases the need for clarity ($\beta = -0.061$, $p < .001$), which has a strong negative effect on work engagement ($\beta = -0.318$, $p < .001$). This path suggests that the supportive style, by reducing the need for clarity, mitigates its negative impact on work engagement. Thus, H2b is not supported.

5. Discussion

Path-Goal Theory, proposed by House in 1996, suggests that leaders should provide direction, support, and resources to help followers achieve their goals. This theory identifies four main leadership styles—directive, supportive, participative, and achievement-oriented—which leaders should adapt based on task characteristics and followers' needs.

A theoretical assumption of the path-goal theory is that a supportive leadership style, which creates an empathetic environment and provides encouragement, is suitable for dissatisfied followers, increasing their work engagement (Schaufeli & Salanova, 2010). Recent literature suggests that the relationship between supportive leadership and job satisfaction is mediated by organizational practices such as communication and collaborative working (Uman et al., 2024). Path analysis from this study indicates that the relationship can also be direct, and that supportive leadership behaviour is an antecedent of job satisfaction, not vice versa, as suggested by Kauppila (2024).

Tasks that are repetitive, unchallenging, or mundane negatively affect work engagement (Kawada et al., 2024; Schaufeli & Salanova, 2014). Supportive leadership can mitigate these negative feelings (House & Mitchell, 1974; Lorinkova, Pearsall & Sims, 2013). The study reveals that leadership style directly influences how challenging a task is perceived, which in turn positively impacts work engagement. Finally, unlike the hypothesis by Cheng & Osman (2023), supportive leadership does not affect perceived task ambiguity.

A second assumption of Path-Goal Theory is that participative leadership is most effective when followers are autonomous, have high needs for control and clarity, and the task is ambiguous or unstructured. However, findings contradict previous assumptions (House & Mitchell, 1974; Sarti, 2014), showing that participative leadership does not significantly impact work engagement. Instead, supportive leadership helps reduce the need for clarity, which otherwise negatively affects work engagement. This suggests that participative decision-making does not automatically enhance work engagement, highlighting that task characteristics play a crucial role.

Task ambiguity negatively impacts work engagement (Cheng & Osman, 2023; House & Mitchell, 1974), but the directive style helps reduce this ambiguity, thereby increasing work engagement. While House and Mitchell (1974) suggested that participative leadership fosters innovative solutions by leveraging diverse perspectives, this study finds no such evidence. Instead, a direct leadership leadership style positively impacts how structured a task is perceived but does not affect work engagement levels.

These findings indicate that while Path-Goal Theory provides a framework for understanding leadership dynamics, there are significant gaps, particularly in the relationship between participative leadership and followers' performance, and the role of task characteristics. Further research is needed to explore these complexities and refine the theory's application in diverse settings (Wang, Hu & Li, 2022).

6. Conclusion

This study suggests that while Path-Goal Theory is a sophisticated approach, it faces challenges in empirical validation. The theory's premise that leaders can adapt their style based on situational variables and followers' needs may be overly simplistic (Evans, 1996). It heavily relies on leaders' ability to understand and respond to individual differences, which is problematic in large or diverse teams where balancing conflicting needs can lead to inconsistent leadership behaviour (Schriesheim & Neider, 1996). Moreover, the theory's focus on the dyadic relationship between leader and follower neglects broader organizational contexts and influences such as culture, structure, and external pressures, limiting its applicability in complex settings (House, 1996). Although some aspects of the theory were validated, overall empirical support is mixed, questioning its generalizability and practical utility (Indvik, 1986). Additionally, the theory's mechanistic view oversimplifies the dynamic nature of leader-follower interactions, ignoring how followers' behaviours and feedback influence leadership over time (Yukl, 2013).

7. Theoretical Contributions

This study provides empirical evidence supporting elements of the path-goal leadership model, which has been largely theoretical. It identifies four paths that partially align with existing literature, offering precise insights into the relationships between leadership style, task characteristics, and followers' characteristics to support motivation. The goal-oriented style suits challenging tasks, the supportive style benefits dissatisfied followers or

those needing clarity, and the directive style is effective for ambiguous tasks. These findings help clarify the direction and intensity of these relationships, enhancing the understanding of how different leadership styles can motivate followers.

8. Limitations and Suggestions for Further Research

This study offers valuable insights but has limitations that affect its generalizability and depth. The sample of 181 Italian employees restricts the applicability of the findings to other cultural and organizational contexts. Future research should involve a more diverse sample to enhance the universality of the results.

Additionally, the study uses a static approach to leadership analysis, overlooking the dynamic nature of leader-follower relationships over time. Longitudinal studies could better capture how these relationships evolve and how the effectiveness of leadership styles changes.

Furthermore, the analysis of individual differences, such as personality traits and work experiences, is relatively superficial. A deeper exploration of these factors could provide richer insights into how followers respond to different leadership styles. Expanding research to include organizational practices like communication and decision-making could also offer more practical recommendations for improving leadership effectiveness in various settings.

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Parameter Estimates

Direct effects

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Supportive	→	Engagement	0.018	0.013	1.435	0.151	-0.007	0.043
Directive	→	Engagement	-0.011	0.016	-0.656	0.512	-0.043	0.021
Participative	→	Engagement	-0.006	0.014	-0.431	0.666	-0.034	0.022
Goal-Oriented	→	Engagement	-0.007	0.017	-0.405	0.685	-0.040	0.026

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Indirect effects

									95% Confidence Interval	
					Estimate	Std. Error	z-value	p	Lower	Upper
Supportive	→	Ripetivity	→	Engagement	2.359×10-5	5.785×10-4	0.041	0.967	-0.001	0.001
Supportive	→	Challenging	→	Engagement	-1.798×10-5	0.004	-0.004	0.997	-0.009	0.008
Supportive	→	Mundanity	→	Engagement	4.850×10-4	0.002	0.299	0.765	-0.003	0.004
Supportive	→	Job Satisfaction	→	Engagement	0.031	0.009	3.487	<.001***	0.014	0.048
Supportive	→	Need for Affiliation	→	Engagement	0.002	0.002	1.031	0.303	-0.002	0.007
Directive	→	Ripetivity	→	Engagement	-2.238×10-5	5.500×10-4	-0.041	0.968	-0.001	0.001
Directive	→	Challenging	→	Engagement	-0.008	0.006	-1.345	0.179	-0.019	0.004
Directive	→	Mundanity	→	Engagement	0.002	0.002	0.763	0.445	-0.003	0.006
Directive	→	Job Satisfaction	→	Engagement	0.003	0.010	0.270	0.788	-0.017	0.023
Directive	→	Need for Affiliation	→	Engagement	2.614×10-4	0.001	0.195	0.845	-0.002	0.003
Participative	→	Ripetivity	→	Engagement	5.558×10-5	0.001	0.041	0.967	-0.003	0.003
Participative	→	Challenging	→	Engagement	0.005	0.005	0.961	0.337	-0.005	0.015
Participative	→	Mundanity	→	Engagement	2.684×10-4	0.002	0.141	0.888	-0.003	0.004
Participative	→	Job Satisfaction	→	Engagement	0.013	0.010	1.317	0.188	-0.006	0.032
Participative	→	Need for Affiliation	→	Engagement	0.001	0.002	0.825	0.409	-0.002	0.005
Goal-Oriented	→	Ripetivity	→	Engagement	-4.122×10-6	1.149×10-4	-0.036	0.971	-2.294×10-4	2.211×10-4
Goal-Oriented	→	Challenging	→	Engagement	0.017	0.007	2.346	0.019*	0.003	0.030
Goal-Oriented	→	Mundanity	→	Engagement	3.843×10-4	0.002	0.177	0.860	-0.004	0.005
Goal-Oriented	→	Job Satisfaction	→	Engagement	0.016	0.011	1.415	0.157	-0.006	0.037

Indirect effects

					95% Confidence Interval	
	Estimate	Std. Error	z-value	p	Lower	Upper
Goal-Oriented → Need for Affiliation → Engagement	0.004	0.004	1.080	0.280	-0.003	0.012

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Total effects

					95% Confidence Interval	
	Estimate	Std. Error	z-value	p	Lower	Upper
Supportive → Engagement	0.051	0.017	3.112	0.002**	0.019	0.084
Directive → Engagement	-0.007	0.021	-0.324	0.746	-0.048	0.035
Participative → Engagement	0.014	0.020	0.732	0.464	-0.024	0.053
Goal-Oriented → Engagement	0.028	0.022	1.231	0.218	-0.016	0.071

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Total indirect effects

					95% Confidence Interval	
	Estimate	Std. Error	z-value	p	Lower	Upper
Supportive → Engagement	0.033	0.012	2.685	0.007**	0.009	0.057
Directive → Engagement	0.004	0.016	0.242	0.809	-0.027	0.035
Participative → Engagement	0.021	0.014	1.486	0.137	-0.007	0.048
Goal-Oriented → Engagement	0.034	0.016	2.089	0.037*	0.002	0.067

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Path coefficients

					95% Confidence Interval	
	Estimate	Std. Error	z-value	p	Lower	Upper
Ripetivity → Engagement	-0.002	0.054	-0.041	0.967	-0.107	0.103
Challenging → Engagement	0.243	0.058	4.214	<.001***	0.130	0.356
Mundanity → Engagement	-0.086	0.054	-1.606	0.108	-0.191	0.019
Job Satisfaction → Engagement	0.540	0.068	7.916	<.001***	0.406	0.673
Need for Affiliation → Engagement	0.069	0.059	1.157	0.247	-0.048	0.185
Supportive → Engagement	0.018	0.013	1.435	0.151	-0.007	0.043
Directive → Engagement	-0.011	0.016	-0.656	0.512	-0.043	0.021
Participative → Engagement	-0.006	0.014	-0.431	0.666	-0.034	0.022
Goal-Oriented → Engagement	-0.007	0.017	-0.405	0.685	-0.040	0.026
Supportive → Ripetivity	-0.011	0.019	-0.579	0.563	-0.047	0.026
Directive → Ripetivity	0.010	0.024	0.429	0.668	-0.036	0.057

Path coefficients

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Participative	→	Ripetivity	-0.025	0.022	-1.148	0.251	-0.069	0.018
Goal-Oriented	→	Ripetivity	0.002	0.025	0.075	0.940	-0.047	0.051
Supportive	→	Challenging	-7.409×10-5	0.018	-0.004	0.997	-0.035	0.035
Directive	→	Challenging	-0.032	0.023	-1.419	0.156	-0.077	0.012
Participative	→	Challenging	0.021	0.021	0.987	0.324	-0.021	0.062
Goal-Oriented	→	Challenging	0.068	0.024	2.824	0.005**	0.021	0.116
Supportive	→	Mundanity	-0.006	0.019	-0.304	0.761	-0.042	0.031
Directive	→	Mundanity	-0.021	0.024	-0.868	0.386	-0.067	0.026
Participative	→	Mundanity	-0.003	0.022	-0.142	0.887	-0.046	0.040
Goal-Oriented	→	Mundanity	-0.004	0.025	-0.178	0.859	-0.054	0.045
Supportive	→	Job Satisfaction	0.058	0.015	3.885	<.001***	0.028	0.087
Directive	→	Job Satisfaction	0.005	0.019	0.270	0.787	-0.032	0.042
Participative	→	Job Satisfaction	0.023	0.018	1.336	0.182	-0.011	0.058
Goal-Oriented	→	Job Satisfaction	0.029	0.020	1.438	0.151	-0.010	0.068
Supportive	→	Need for Affiliation	0.034	0.015	2.269	0.023	0.005	0.063
Directive	→	Need for Affiliation	0.004	0.019	0.198	0.843	-0.034	0.041
Participative	→	Need for Affiliation	0.021	0.018	1.177	0.239	-0.014	0.056
Goal-Oriented	→	Need for Affiliation	0.061	0.020	2.994	0.003**	0.021	0.100

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Table 2 Mediation Analysis H2

Parameter estimates

Direct effects

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Directive	→	Engagement	-0.038	0.019	-1.966	0.049*	-0.076	-1.235×10-4
Supportive	→	Engagement	0.033	0.015	2.244	0.025*	0.004	0.062
Participative	→	Engagement	0.025	0.017	1.439	0.150	-0.009	0.058
Goal-Oriented	→	Engagement	0.049	0.020	2.472	0.013*	0.010	0.088

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Indirect effects

								95% Confidence Interval	
					Estimate	Std. Error	z-value	p	Lower	Upper
Directive	→	Autonomy	→	Engagement	0.005	0.005	0.946	0.344	-0.005	0.014
Directive	→	Need for Control	→	Engagement	0.004	0.003	1.106	0.269	-0.003	0.010
Directive	→	Need for Clarity	→	Engagement	0.005	0.007	0.686	0.492	-0.009	0.019
Directive	→	Ambiguity	→	Engagement	0.017	0.007	2.234	0.026*	0.002	0.031

Indirect effects

								95% Confidence Interval	
				Estimate	Std. Error	z-value	p	Lower	Upper
Directive	→	Structured	→ Engagement	0.001	0.003	0.330	0.741	-0.006	0.008
Supportive	→	Autonomy	→ Engagement	-0.003	0.004	-0.850	0.396	-0.011	0.004
Supportive	→	Need for Control	→ Engagement	0.004	0.003	1.262	0.207	-0.002	0.010
Supportive	→	Need for Clarity	→ Engagement	0.019	0.007	2.829	0.005**	0.006	0.033
Supportive	→	Ambiguity	→ Engagement	-0.002	0.003	-0.598	0.550	-0.007	0.004
Supportive	→	Structured	→ Engagement	1.907×10-4	6.802×10-4	0.280	0.779	-0.001	0.002
Participative	→	Autonomy	→ Engagement	-0.006	0.005	-1.260	0.207	-0.015	0.003
Participative	→	Need for Control	→ Engagement	-0.004	0.003	-1.131	0.258	-0.010	0.003
Participative	→	Need for Clarity	→ Engagement	-0.003	0.007	-0.435	0.664	-0.016	0.010
Participative	→	Ambiguity	→ Engagement	0.002	0.004	0.684	0.494	-0.004	0.009
Participative	→	Structured	→ Engagement	-7.475×10-5	4.913×10-4	-0.152	0.879	-0.001	8.881×10-4
Goal-Oriented	→	Autonomy	→ Engagement	0.004	0.005	0.780	0.436	-0.006	0.014
Goal-Oriented	→	Need for Control	→ Engagement	-0.005	0.004	-1.223	0.221	-0.012	0.003
Goal-Oriented	→	Need for Clarity	→ Engagement	-0.014	0.008	-1.747	0.081	-0.030	0.002
Goal-Oriented	→	Ambiguity	→ Engagement	-0.005	0.004	-1.212	0.225	-0.014	0.003
Goal-Oriented	→	Structured	→ Engagement	-8.947×10-4	0.003	-0.328	0.743	-0.006	0.004

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Total effects

						95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Directive	→	Engagement	-0.007	0.021	-0.324	0.746	-0.048	0.035
Supportive	→	Engagement	0.051	0.017	3.112	0.002**	0.019	0.084
Participative	→	Engagement	0.014	0.020	0.732	0.464	-0.024	0.053
Goal-Oriented	→	Engagement	0.028	0.022	1.231	0.218	-0.016	0.071

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Total indirect effects

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Directive	→	Engagement	0.031	0.013	2.458	0.014*	0.006	0.056
Supportive	→	Engagement	0.018	0.009	1.937	0.053	-2.204×10-4	0.037
Participative	→	Engagement	-0.010	0.010	-0.979	0.328	-0.031	0.010
Goal-Oriented	→	Engagement	-0.021	0.012	-1.719	0.086	-0.046	0.003

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Path coefficients

							95% Confidence Interval	
			Estimate	Std. Error	z-value	p	Lower	Upper
Autonomy	→	Engagement	0.196	0.062	3.181	0.001**	0.075	0.317
Need for Control	→	Engagement	0.113	0.063	1.787	0.074	-0.011	0.238
Need for Clarity	→	Engagement	-0.318	0.062	-5.127	<.001***	-0.440	-0.196
Ambiguity	→	Engagement	-0.168	0.066	-2.569	0.010*	-0.297	-0.040
Structured	→	Engagement	0.020	0.060	0.333	0.739	-0.098	0.138
Directive	→	Engagement	-0.038	0.019	-1.966	0.049*	-0.076	-1.235×10-4
Supportive	→	Engagement	0.033	0.015	2.244	0.025*	0.004	0.062
Participative	→	Engagement	0.025	0.017	1.439	0.150	-0.009	0.058
Goal-Oriented	→	Engagement	0.049	0.020	2.472	0.013*	0.010	0.088
Directive	→	Autonomy	0.023	0.024	0.991	0.322	-0.023	0.070
Supportive	→	Autonomy	-0.016	0.018	-0.882	0.378	-0.053	0.020
Participative	→	Autonomy	-0.030	0.022	-1.373	0.170	-0.073	0.013
Goal-Oriented	→	Autonomy	0.020	0.025	0.804	0.421	-0.029	0.069
Directive	→	Need for Control	0.033	0.024	1.407	0.159	-0.013	0.080
Supportive	→	Need for Control	0.033	0.018	1.782	0.075	-0.003	0.069
Participative	→	Need for Control	-0.032	0.022	-1.461	0.144	-0.075	0.011
Goal-Oriented	→	Need for Control	-0.042	0.025	-1.679	0.093	-0.091	0.007
Directive	→	Need for Clarity	-0.016	0.023	-0.693	0.488	-0.061	0.029
Supportive	→	Need for Clarity	-0.061	0.018	-3.391	<.001***	-0.096	-0.026
Participative	→	Need for Clarity	0.009	0.021	0.437	0.662	-0.032	0.051
Goal-Oriented	→	Need for Clarity	0.045	0.024	1.858	0.063	-0.002	0.092
Directive	→	Ambiguity	-0.098	0.022	-4.521	<.001***	-0.141	-0.056
Supportive	→	Ambiguity	0.010	0.017	0.615	0.539	-0.023	0.044
Participative	→	Ambiguity	-0.014	0.020	-0.710	0.478	-0.054	0.025
Goal-Oriented	→	Ambiguity	0.032	0.023	1.375	0.169	-0.013	0.076
Directive	→	Structured	0.057	0.024	2.397	0.017*	0.010	0.103
Supportive	→	Structured	0.010	0.018	0.518	0.604	-0.027	0.046
Participative	→	Structured	-0.004	0.022	-0.171	0.864	-0.047	0.039
Goal-Oriented	→	Structured	-0.045	0.025	-1.797	0.072	-0.094	0.004

Note. Delta method standard errors, normal theory confidence intervals, ML estimator.

Job Quality, Gender and Generations: A Comparative and Exploratory Analysis of European Countries

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Abstract: This study conducts a comparative analysis of European countries regarding job quality and its relationship with gender and generational cohorts, using data from the 2021 European Working Conditions Survey. The research focuses on the subjective evaluations of job quality by European workers and examines how gender and generations may be related with these perceptions. The study operationalizes job quality using the European Intrinsic Job Quality Index, a multidimensional measure encompassing various aspects such as autonomy, interaction, intensity, and meaningful. The results show relevant variations in Intrinsic Job Quality across European countries. The study also finds that gender and generations play a role in shaping the perception of job quality. The findings of this study contribute to the ongoing debate on the importance of job quality for wellbeing and highlight the need for targeted interventions to improve job quality, particularly taking into account specific groups. The study's results also underscore the importance of considering the subjective evaluations of job quality in policy-making and the need for more comprehensive measures of job quality that capture the diverse experiences of workers across Europe.

Keywords: Job Quality; Gender; Generations; Europe

1. Introduction

The construct of job quality sits at the heart of the European labour market discourse, not merely as an abstract concept, but as a vital determinant of individual well-being and economic productivity (Knox, Warhurst & Pocock, 2011; Picatoste et al., 2021;). It carries weighty implications for workers' day-to-day lives, influencing their satisfaction, health, and overall sense of purpose (Findlay et al., 2017). Beyond the individual, job quality bears economic consequences: it affects productivity levels, organizational effectiveness, and national competitiveness (Holman, 2013a). Thus, understanding the elements that constitute high-quality jobs becomes paramount in the development of enlightened public policies and strategic organizational planning.

The central aim of this study are twofold: firstly, to conduct an exploratory comparative analysis of job quality across various European countries, and secondly, to unravel the intricacies of how gender and generational factors intersecting relate with real perceptions of job quality. The essence of this exploration lies in the subjective experiences of the workforce—a dimension of job quality that while intangible, is pivotal in understanding the contours of job satisfaction and professional well-being. By prioritizing the subjective lens, this inquiry acknowledges the diversity of worker perceptions and values, and seeks to encapsulate the nuanced feelings of autonomy, recognition, and meaning that individuals derive from their work (Cascales Mira, 2021; Kortmann et al., 2022). Such an approach diverges from the traditional focus on objective indicators alone (Stefana et al., 2021), thus enabling a richer, more holistic view of job quality that captures not only the material conditions but also the emotional and psychological facets of the European work experience.

The decision to concentrate on subjective perceptions of job quality in this study stems from a recognition of the inherent individuality of work experiences. While objective measures of job quality provide essential benchmarks, they lack the depth and richness that come from understanding the lived experiences of workers themselves (Cascales Mira, 2021; Kortmann et al., 2022). Subjective assessments allow us to capture the nuances of how job characteristics are internalized and deemed significant by employees, thereby granting us access to the multifaceted reality of work life that objective data alone cannot reveal (Stefana et al., 2021). Tailoring policies and practices to enhance job quality without considering these personal perspectives risks overlooking the diverse and intricate ways in which job quality is experienced by different individuals.

This study responds to two main gaps reported in the literature. On the one hand, studies on job quality report the need for extending the analysis to compare job quality perceptions across different countries or regions (Clark et al, 2021). On the other hand, the lack of research on the differences in job quality between genders

and age groups (Crespo et al, 2017; Antón et al, 2022). The analysis of potential differences between generations in terms of job quality is virtually non-existent. Considering that the focus of this study is on the subjective nature of job quality, the analysis of generational differences gains another relevance, taking into account the documented differences existing between several generations with regard to various aspects related to work (Boccuzzo & Gianecchini, 2015; Stiller, Garthe & Hasselhorn, 2023). As such, the present study aims to set the stage for: (1) explaining the differences in subjective job quality between countries based on the institutional and cultural theories, (2) supporting the concept of subjective job quality, and (3) examining the role of gender and generations in job quality.

Through a comparative lens, it is anticipated that the study will elucidate distinctive patterns of subjective job quality that are intricately woven with the threads of gender, unveiling nuanced disparities and insights that can significantly inform policy discourse and organizational strategies. Additionally, this research is poised to bridge a conspicuous chasm in extant literature by delving into the intergenerational dimensions of subjective job quality. With the workforce composition becoming increasingly age-diverse, understanding the aspirations and needs of various generational cohorts in relation to job quality becomes paramount. By investigating these generational differences, the study aims to offer a perspective on how the subjective nature of job quality intersects with generational factors, a discourse that has heretofore not been comprehensively explored within the European context (Crespo et al, 2017).

2. Literature Review

The theoretical framework that informs this study is grounded in institutional and cultural theories that provide a multifaceted perspective on job quality. Institutional theories suggest that job quality is largely influenced by an amalgam of regulations, labour market institutions, norms, and organizational structures within a country (Holman, 2013b). These institutions act as mechanisms that shape employment relations, worker protections, and ultimately, the quality of work that individuals experience. For example, industrial relations systems, education and training regimes, social welfare provisions, and employment legislation are instrumental in establishing the contours of job quality (Frege & Godard, 2014). Cultural theories complement this perspective by positing that job quality is not merely a consequence of institutional arrangements but also a reflection of deeper societal values and beliefs (Ollier-Malaterre et al., 2017; Xu et al., 2022). Such theories elucidate how cultural norms dictate what is valued in the workplace, such as autonomy, work-life balance, and job security, which in turn infuse subjective interpretations of job quality (Holman, 2013b). Together, these theoretical lenses enable a more holistic understanding of why job quality differs across European countries, thereby underscoring the influence of both the structural characteristics imposed by institutions and the cultural fabric that weaves workers' perceptions and attitudes toward their jobs.

Job quality is an elusive concept, surrounded by scholarly debate both in terms of its definition and the methodological approaches to its measurement. The crux of the debate rests on whether job quality should be quantified through objective indicators or assessed via subjective evaluations. Objective measurements typically include quantifiable characteristics of work, such as employment contracts, remuneration levels, hours worked, and workplace conditions (Muñoz de Bustillo, 2011; Stefana et al., 2021). On the other hand, subjective measurements consider the workers' perceptions and experiences of their work, such as their reported job satisfaction, perceived job security, and the meaningfulness of the work they do (Cascales Mira, 2021; Kortmann et al., 2022). Advocates of objective measurements argue for a consistent, cross-individual comparative approach, which could offer empirical grounds for policy action. However, proponents of subjective assessment assert that job quality is inherently experiential and must account for workers' diverse values, expectations, and personal circumstances, thus capturing the multidimensional nature of job quality in a more nuanced manner (Leschke & Watt, 2014). The implications of these contrasting approaches are significant, with each bearing direct consequences on labour market policies, workplace interventions, and ultimately the wellbeing of the workforce. Integrating these dimensions, therefore, is not just methodologically challenging but critical for accurately reflecting job quality in the European labour market.

In exploring the intrinsic dimensions of job quality, one must consider the salient indicators that encapsulate the essence of desirable work conditions from the worker’s perspective. Autonomy in the workplace, cited frequently in literature, refers to the degree of control and discretion an employee has over their tasks and methods of work (Knox et al., 2011). A closely related indicator, skill utilization, measures the extent to which workers can apply their knowledge and competencies in their current roles, which, as suggested by Simões et al. (2017), is intricately linked to job satisfaction and innovation within an organization. Job security emerges as another pivotal indicator of Intrinsic Job Quality (IJQ), reflecting the stability and predictability of employment

deemed vital for an individual's well-being (Findlay et al., 2017). These indicators are increasingly quantified and analyzed through comprehensive indices such as the European IJQ Index (Cascales Mira, 2021), which offer nuanced insights into the multifaceted nature of job quality. By incorporating factors such as diverse working conditions, contractual stability, and the meaningfulness of work, these indices lay a critical empirical groundwork for examining the various shades of job quality across differing societal contexts within Europe, setting the analytical framework upon which the subsequent examination in this paper is based.

A critical concern in the sphere of job quality pertains to the persistent disparities observed between genders. Seminal studies, such as those by Stier & Yaish (2014), and more recent analyses by Clark, D'Ambrosio & Zhu (2021), have drawn attention to the significance of occupational segregation and the resulting inequality in job quality. These works delineate the substantial role played by entrenched social roles and expectations in the perpetuation of gendered labour markets where men and women are differentially represented across occupational fields and hierarchies. The labour market is often seen through the lens of segmentation theory, with women disproportionately occupying positions in the secondary segment characterized by precariousness, lower pay, and lesser opportunities for advancement. Santero-Sanchez et al. (2015) and Ficapal-Cusi et al. (2018) provided empirical evidence of such segmentation in gender-dominated industries like hospitality and highlighted an often-observed disparity in job quality. Additionally, legal frameworks, which are effectively the formalization of social values, have a profound influence on job quality, as shown in studies by Antón et al. (2023) and Jones, Cook, and Connolly (2023). These studies offer substantial grounding for the argument that despite progress in gender equality, legally enshrined policies continue to have a differential impact on the job quality experienced by men and women, further underlining the complexity of the motherhood penalty and gender discrimination in the workplace. The literature, therefore, substantiates the existence of a complex interplay between gender, social roles, market segmentation, and legal imperatives that coalesce to systematically shape the job quality landscape in ways that often disadvantage women.

Generational differences have become a focal point in examining perceptions of job quality, with researchers acknowledging that various age groups may have divergent experiences and expectations regarding their work. Simões, Crespo and Pinto (2017) suggest that job quality is not a monolithic construct, as what is considered a quality job may vary significantly between younger and older generations. This is further explored by Friedrich and Vicari (2023), who delve into the complexity of job quality in the context of continuous digitalization and its differential impact across generations. They reveal that younger workers may perceive technological advancements as an enhancement to their job quality, through increased flexibility and opportunities for skill development. Conversely, older workers might experience these changes as a threat to job security and an increase in job demands. Despite these findings, the literature still lacks a deep, systematic analysis of how different generations define and prioritize elements of job quality.

A critical appraisal of existing scholarship reveals conspicuous lacunae, particularly in the realm of comprehensive comparative studies that extend beyond the borders of individual countries. Such research is essential to fully comprehend how institutional and cultural differences sculpt the landscape of job quality and well-being (Rodríguez-Modroño, 2024). Moreover, gender and generational disparities in the perception of job quality have been flagged as critical areas warranting further scrutiny (Crespo, Simoes, & Pinto, 2017). While the dimensions of job quality outlined by Cascales Mira's European Intrinsic Job Quality Index (EIJQI) (2021) offer a nuanced understanding, there remains a pressing need to delve into the dynamics of these disparities and their ramifications for policy. Furthermore, Clark, D'Ambrosio & Zhu's (2021) emphasis on workplace gender diversity has shed light on the intricate interrelation between gender-diverse work environments and employee well-being, signalling a call to action for more granular investigations. Such inquiries must aim to untangle the complex interplay of variables within diverse socio-economic contexts, addressing critical questions of equality, representation, and fairness in European labour markets.

3. Methods

This study draws on a quantitative methodology by leveraging secondary data from the European Working Conditions Survey (EWCS) conducted in 2021 (Eurofound, 2022). Recognized for its comprehensive scope and the richness of its data, the EWCS provides pivotal insights into the job quality experienced by workers across various European contexts. The full sample of the EWCS is 71758 participants distributed by 37 countries. For the purpose of this study, only participants declaring being employed were considered. As such, the sample of this study is 62126 participants.

We operationalize IJQ through the lens of the European Intrinsic Job Quality Index (EIJQI), a multidimensional measure that captures the essentials of job quality, such as autonomy in decision-making, the nature of interpersonal interactions, work intensity, and the meaningfulness of work (Cascales Mira, 2021). The dimensions that emerged from the data analysis in the European Intrinsic Job Quality Index model are the workers' capacity for discretion over their work (Autonomy), the social environment in which the workers interact (Interaction), the effort in terms of psychological demands (Intensity), and the social utility of the work carried out (Meaningful). All the variables of IJQ are measured in a five-point scale. The two variables of the dimension "Intensity" were reversed in order to align with the other variables and reflect the low-high job quality. One variable from the dimension "Interaction" was not included due to the lack of data in 2021 EWCS database.

Generational cohorts were computed from the variable "age". Although there is no consensus on the year bands of generational cohorts, most of the literature (Chawla, Dokadia & Rai, 2017; Hoole & Bonnema, 2015; Park & Gursoy, 2012) defines generational cohorts as follows:

Table 1: Generational Cohorts

Generation	Year of Birth Band	Age Band
Baby Boomers	1946 - 1963	58 - 75
Generation X	1964 - 1979	42 - 57
Generation Y	1980 - 1999	22 - 41
Generation Z	2000 - 2005	16 - 21

Source: authors

The analytical approach of this research started with an exploratory factor analysis in order to examine the relationships of interdependence existing between the set of items proposed by the study of Cascales Mira (2021) with data from the 2015 EWCS. The data outputs extracted were based on the analysis of the KMO and Bartlett's sphericity test, while factor extraction used the principal components method and the Eigenvalue greater than one criteria, with the varimax rotation. The next step was to calculate the mean values for the IJQ and for each dimension (intensity, autonomy, interaction, and meaningful) for all the 37 countries. Finally, a correlation analysis was performed in order to explore the relation between IJQ and gender and the generational cohorts for each country.

The results of the exploratory factor analysis revealed four factors, with the items grouping in the four dimensions (intensity, autonomy, interaction, and meaningful) proposed by the study of Cascales Mira (2021). The total variance explained is 67.24% with a KMO of 0.748 and the dimensions present similar variances, between 15% and 20%. As such, in all the indicators, the exploratory factor analysis revealed the same results already proposed by Cascales Mira (2021) with data from 2015.

Table 2: Intrinsic Job Quality dimensions (exploratory factor analysis)

Factors	Auto-values			Saturations Squared From Rotation		
	Total	% variance	% cumulative	Total	% variance	% cumulative
1	3.043	30.434	30.434	1.996	19.964	19.964
2	1.553	15.534	45.968	1.731	17.313	37.277
3	1.114	11.142	57.110	1.502	15.015	52.292
4	1.013	10.127	67.237	1.494	14.945	67.237

Source: EWCS 2021

4. Findings

The first set of findings are related with IJQ across European countries. The mean scores for each country were calculated based on participants individual responses. Figure 1 shows the European map with the position of each country in relation to the European average. More details can be found in Table A1 in the Appendix.

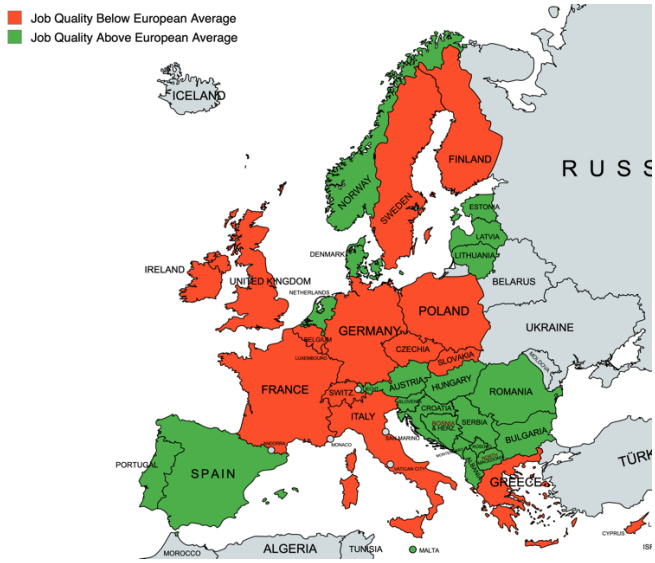

Figure 1: Intrinsic Job Quality in European Countries

Source: EWCS 2021

In geographical terms, the results allow you to identify three clearly distinct groups and one group with mixed results. The first distinct group is contradicted by the countries of the Iberian Peninsula (Portugal and Spain); A second group consisting of countries in Southeast European (Bulgaria, Romenia, Hungary, Sérbia, Kosovo, Macedonia, Albania, Montenegro, Bosnia, Croatia, Slovenia, and Austria). These two groups present IJQ values higher than the European average. A third group, consisting essentially of countries in the center of Europe (Poland, Slovakia, Czechia, Germany, Belgium, Switzerland, Italy and France), with intrisic Job Quality values below the European average. Finally, northern Europe has mixed results, with Netherlands, Denmark, Norway and the Balkan countries (Estonia, Latvia, and Lithuania) to present an IJQ higher than average, and the British Islands (Ireland and the United Kingdom), Sweden and Finland with values below the European average.

The second set of results refer to the relation of IJQ with gender. For this purpose a correlation analysis was performed. Figure 2 shows the map of Europe, signaling the countries with significant correlations between IJQ and gender. Countries in grey revealed no correlation between this two variables. Appendix table A2 presents results in greater detail.

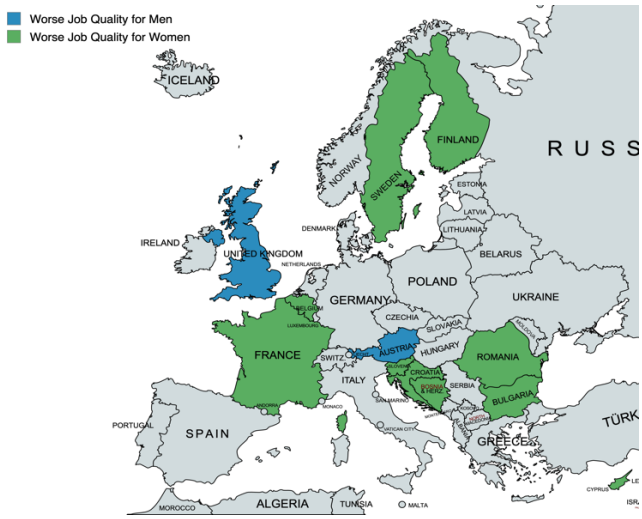

Figure 2: Intrinsic Job Quality and Gender in European Countries

Source: EWCS 2021

The results of the correlation between IJQ and gender reveal a great diversity. In fact, there are countries where the relationship between the two variables is nonexistent (most countries), and countries where the relationship is significant, but in opposite directions. For example, only 2 countries - the United Kingdom and Austria - reveal that there is a greater tendency for men to have a worst IJQ; While results for countries such as Finland, Sweden, Belgium, Slovenia, Croatia, Bosnia, Romania and Bulgaria show a greater tendency for women to have a worst IJQ.

Finally, the third set of results look at the relation between IJQ and generational cohorts. Figure 3 signals the countries with significant correlations between IJQ and generational cohorts. Countries in grey revealed no correlation between this two variables. Appendix table A2 presents correlational values in greater detail.

Regarding the relationship of generations with IJQ, the results show a clear tendency to reduce IJQ to younger generations. Such a result is significant in southern countries - such as Spain, Bulgaria and Greece - but also in some northern countries - such as Ireland, the United Kingdom, Denmark, Sweden, and Latvia. Although many countries do not have a significant relationship between IJQ and generations, there is no single country where the relationship demonstrates a tendency to increase IJQ to younger generations.

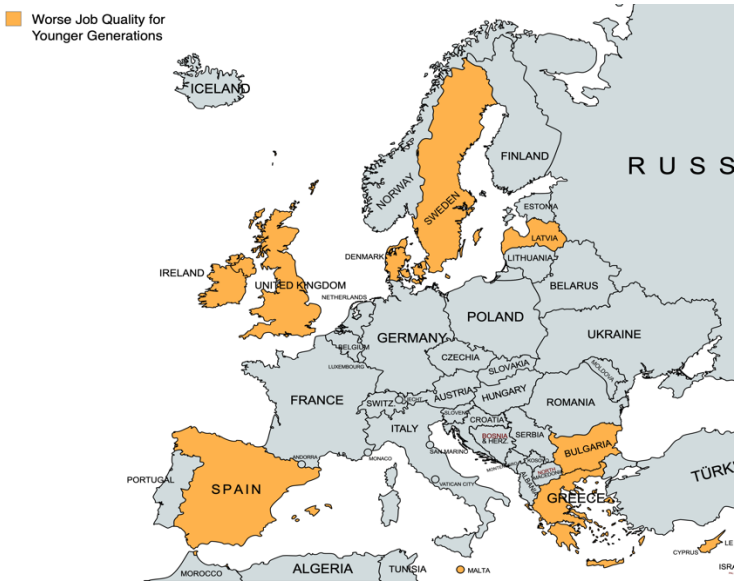

Figure 3: Intrinsic Job Quality and Generations in European Countries

Source: EWCS 2021

5. Discussion and Conclusion

The goal of this study was to examine IJQ in Europe, using the most recent data available from the 2021 European Working Conditions Survey (Eurofound, 2022). Additionally, this study looked to the relation of IJQ with gender and generational cohorts. The operationalization of IJQ followed closely the study of Mira Cascales (2021) that proposed a European Intrinsic Job Quality Index based on data from the 2015 EWCS.

The results revealed that IJQ is not uniform across European countries, but it is possible to identify country blocks: a Southwest and a Southeast blocks with a IJQ above European average and a Central block with a IJQ below European average. This results present some differences when compared with previous studies. For example, when compared with the study of Mira Cascales (2021) (see Table 3), using data from the 2015 EWCS, 6 years later some countries keep showing a high level of IJQ (such as Malta, Bulgaria, Netherlands, Slovenia, Estonia and Portugal), while others have worsened their relative position (Ireland, Denmark, Finland, and Luxembourg), notably some Nordic countries. In the opposite direction, IJQ seems to be improving in Eastern countries. This is not only demonstrated by the group of countries with IJQ above the European average, but also by the relative improvement of IJQ from countries such as Croatia and Hungary. Other previous studies (Green & Mostafa, 2012) also present the Nordic countries as the countries with the best levels of Job Quality, while in the present study these countries present mixed results, with Denmark and Norway above the European average, and Sweden and Finland below.

Regarding the IJQ dimensions, while “Interaction” and “Meaningful” present robust scores above 4.00 (on a five-point scale), “Intensity” presents the worst result with a European average of 2.66 (meaning that European employees perceive to have a relative high degree of intensity). Finally, “Autonomy” presents a medium-high result with an average of 3.63, with all countries between a lowest 3.44 and a highest 3.99.

Table 3: Countries with best IJQ (comparison)

Ranking	Present Study	Mira Cascales (2021)
1	Estonia	Malta
2	Bulgaria	Bulgaria
3	Lithuania	Ireland
4	Malta	Netherlands
5	Slovenia	Denmark
6	Portugal	Slovenia
7	Croatia	Finland
8	Hungary	Estonia
9	Netherlands	Luxembourg
10	Romania	Portugal

Note: in order to make the comparison accurate, only European Union members are included in this ranking

Regarding the relation of gender and IJQ, and despite the mixed results, the trend points to a lower IJQ among women. Notably, countries like Finland and Sweden, two Nordic countries known by their equality and diversity policies, are among those where this relation is significant. When looking at the relation between IJQ and generational cohorts, again the results are mixed, but with a clear trend towards a lower IJQ among newer generations.

Despite being exploratory, policymakers and managers can draw from this work some clues to address the issue of work quality. Firstly, the quality of work is not uniform, so it will have to be approached taking into account the particularities of each country/region. Furthermore, as it is an indicator of perception, prior expectations can be decisive. In this sense, the analysis of the cultural and institutional environment is fundamental to understanding the formation of expectations that lead to the perception of work quality in different European countries.

Despite being an exploratory study, it is important to mention that this work has some limitations. First of all, the option to consider workers' perception to measure quality at work, to the detriment of macro and more objective indicators. Although this option is based on the lack of studies with this approach (and the advantages that such approach can have), certainly the combination with more objective indicators may be an added value for later studies. Another aspect is still the cross-sectional nature of this exploratory study. This study is based on data at a specific time, not allowing to remove causal conclusions, so a longitudinal study and with a more sophisticated correlational analysis could allow other lessons to remove the IJQ and its relationship with gender and generations. Still, this study allows to launch reflection clues about the importance of the intrinsic dimension of the quality of work, but also on the dynamics underlying the development and improvement of the quality of work in Europe.

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Appendix

Table A1: Mean scores for Intrinsic Job Quality and its dimensions by country

	Interaction	Autonomy	Intensity	Meaningful	Intrinsic Job Quality
Europe	**4.26**	**3.63**	**2.66**	**4.29**	**3.71**
Austria	4.32	3.68	2.56	4.39	3.74
Belgium	4.09	3.46	2.68	4.21	3.61
Bulgaria	4.41	3.74	2.83	4.48	3.86
Cyprus	4.30	3.48	2.24	4.34	3.59
Czechia	4.09	3.50	2.65	4.18	3.60
Germany	4.15	3.65	2.57	4.27	3.66
Denmark	4.36	3.71	2.65	4.25	3.74
Estonia	4.49	3.99	2.87	4.47	3.95
Greece	4.22	3.55	2.25	4.18	3.55
Spain	4.37	3.62	2.59	4.43	3.75
Finland	4.27	3.66	2.38	3.95	3.57
France	4.05	3.45	2.62	4.15	3.56
Croatia	4.30	3.59	2.85	4.30	3.76
Hungary	4.42	3.70	2.62	4.32	3.76
Ireland	4.37	3.61	2.55	4.08	3.65
Italy	3.98	3.49	2.63	4.26	3.59
Lithuania	4.36	3.74	2.90	4.23	3.81
Luxembourg	4.21	3.57	2.57	4.26	3.65
Latvia	4.09	3.73	2.87	4.33	3.75
Malta	4.44	3.71	2.47	4.60	3.80
Netherlands	4.09	3.73	2.87	4.33	3.76
Poland	4.08	3.65	2.62	4.22	3.64
Portugal	4.30	3.59	2.86	4.46	3.80
Romania	4.40	3.60	2.50	4.57	3.76
Sweden	4.08	3.56	2.58	4.17	3.60
Slovenia	4.38	3.78	2.57	4.50	3.80
Slovakia	4.09	3.46	2.82	4.24	3.65
UK	4.28	3.66	2.50	4.03	3.62
Montenegro	4.09	3.46	2.82	4.24	3.65
North Macedonia	4.39	3.74	2.83	4.51	3.87

	Interaction	Autonomy	Intensity	Meaningful	Intrinsic Job Quality
Serbia	4.34	3.54	2.83	4.35	3.77
Switzerland	4.17	3.69	2.54	4.32	3.68
Norway	4.32	3.77	2.58	4.21	3.72
Albania	4.38	3.50	3.41	4.49	3.94
Bosnia & Herzegovina	4.32	3.64	2.93	4.45	3.83
Kosovo	4.52	3.78	3.00	4.52	3.95

Table A2: Correlations between Intrinsic Job Quality, Gender and Generations

	Gender	Generations
Europe	**-.025****	**-.011****
Austria	.52*	
Belgium	-.47**	
Bulgaria	-.083**	-078**
Cyprus	-.057*	-.085**
Czechia		
Germany		
Denmark		-.064**
Estonia		
Greece		-.074**
Spain		-.047*
Finland		-.059*
France	-.067**	
Croatia	-.090**	
Hungary		
Ireland		-.133**
Italy		
Lithuania		
Luxembourg		
Latvia		-.055*
Malta		-.058*

	Gender	Generations
Netherlands		
Poland		
Portugal		
Romania	-.097**	
Sweden	-.066**	-.083**
Slovenia	-.064**	
Slovakia		
UK	.080**	-.063**
Montenegro		
North Macedonia		
Serbia		
Switzerland		
Norway		
Albania		
Bosnia & Herzegovina	-.067*	
Kosovo		

* Correlation is significant at 5%

** Correlation is significant at 1%

Blank cells represent not significant correlations

The Evolving Space of Emirati Women's Economic Participation

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Abstract: This conceptual paper discusses the contouring of the embryonic space in which Emirati women can enact economic agency. I examine this from three perspectives, namely, the workforce localisation policies, the government's aspiration to establish itself as a force within the international political arena, and the country's cultural landscape. These three factors represent the most powerful influences that determine Emirati women's experience of the workplace, and this paper explores their impact on the space that is evolving in which women can exercise their economic agency. The space available for Emirati women's economic participation is not prescribed; rather, it emerges as ever fluctuating and transforming as a consequence of the varying contextual dominance of one or other of these three potent influences. The UAE's severe workforce imbalance, marked by 96% expatriates in the private sector and about 40% in the public sector, renders localising the workforce a key strategic objective. This fosters a route for women to find their place in the economy. The government's goal to become a key player on the global stage and a beacon of Arab political power and diplomacy involves crafting a distinguished international image. A substantial component of achieving this goal is redressing the historic female disempowerment that is seen to characterise the region. Again, this ambition eases women's access to economic participation. The country's cultural landscape, however, imposes certain constraints on women enacting economic agency. This landscape has altered exponentially since the affluence of the oil boom and many segments of the local population see positive aspects in Emirati women's expanding economic capacities. Yet values which maintain that women are primarily domestic creatures survive and militate against full acceptance of women in the workforce. Additionally, this space is also keenly influenced and configured by myriad diverse collective and individual understandings of national development aspirations, cultural legacies, and new positionings of women. The contribution of this study is its analysis of how specific institutional and societal forces effect how gender can be done and undone in this geopolitical context in which women's highly liminal economic agency is generating new conceptualisations of empowerment and freedoms.

Keywords: Doing and undoing Gender, Gender Norms, Liminality, Space, United Arab Emirates, Women's Economic Agency

1. Introduction

As historic gender inequality shifts as a result of diverse trends such as more liberal national governance, increased secularisation, and awareness of the value of diversity for the economy, we witness varying degrees of acceptance of women's burgeoning economic agency globally. The political, institutional, and cultural elements that populate a particular geopolitical setting symbiotically impact how gender and women's increasing economic agency are construed, constructed, and manifested within a given context. The United Arab Emirates (UAE) presents a particularly interesting case of a highly dynamic reconstitution of the gender/work intersection given its exponential change from a collection of desert communities to one of the world's most modern and wealthy nations. It illustrates an evolving space for women's economic agency, a space interactively contoured by empowering workforce exigencies and gendered state policy alongside restrictive gendered cultural values. These potencies mutually influence the potential for positions of change for women. Women's empowerment represents a fundamental pillar in the UAE's identity formation and is showcased in its public diplomacy efforts (Carvalho-Pinto, 2019). This high visibility of the gender equity issue offers a distinct chance to explore explicit and implicit reconstitutions of gender, work, and culture within a context of rapid modernisation. This paper conducts a conceptual exploration of these dynamic forces which are determining the nature and extent of Emirati women's economic participation.

This paper is organised as follows. It begins with a discussion of the construct of space, continues with accounts of the UAE's workforce localisation policy, political aspirations, and cultural landscape. Each of these forces is overviewed in relation to its influence on Emirati women's economic participation. The paper concludes with a discussion of the liminal space being created for women's economic agency and the rippling effect on other social structures.

2. Space

A key conceptual construct underpinning this paper is the notion of space as it is moulded by the diverse, fluctuating influences of cultural phenomena, institutional provisions, and political aspiration. This notion of space does not refer to a physical entity, but rather a subjective realm shaped by contextual and subjective intricacies. It is marked by liminality, that is, a state of transition characterised by the shifting from established norms to new and unpredictable orders (Thomassen, 2016). Liminality, which can be understood as a type of rite

of passage from one state to another, typically involves disorientation and ambiguity as individuals attempt to reconsider themselves in new roles. Former structures that determined their behaviors, restrictions, and entitlements fall away and new frameworks for behavior come into a process of development. In the case of Emirati women's expanding economic participation, this liminality arises from the new state policies for women, the need to localise the workforce, and the evolving individual and collective interpretations of these policies and their implications. These policies, promulgated by a powerful semi-constitutional monarchy (Stewart, 2012), are enacted against the background of deep-rooted cultural and religious understandings prevalent in UAE society (Kazemi, 2000). This space represents a convergence point for cultural, religious, and governmental influences in which the contours of women's economic agency are delineated and shaped (Mahmood, 2001, p. 210). The multifaceted gravitational pull of these distinct strands of influence generates the emergence of multiple and varied gendered subjectivities. This confluence of authorities is diagrammatically represented in Figure 1 below.

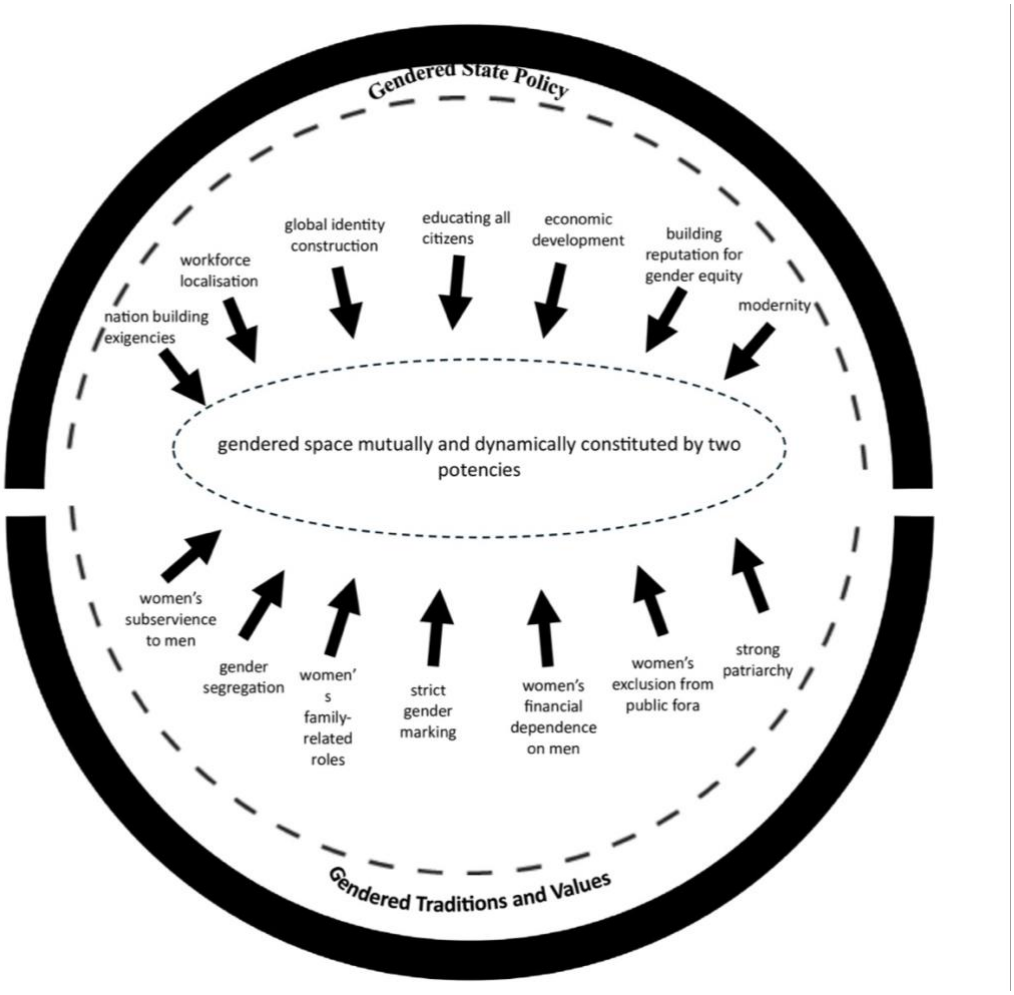

Figure 1: Space within institutional, political, and cultural forces

3. Workforce Localisation Policies

The UAE's population currently stands at approximately 10 million, with only 12% being Emirati citizens and the remaining 88% comprised of expatriates (Infographics, 2024). This demographic distribution is mirrored in the workforce, in which Emiratis constitute a mere 4% of the private sector (PWC, 2024). In response to this imbalance and aiming to facilitate greater Emirati participation in the private sector and accrue the socio-economic benefits of a robust indigenous workforce (Sarker and Rahman, 2020), the government began implementing a workforce localisation policy known as Emiratisation in the 1990s. This policy includes the development of professional training programmes, quotas for Emirati employees across various sectors, and a range of incentives for Emiratis to take up private sector positions (Elbanna, 2022; Forstenlechner, 2008, 2010; Zeffane and Kemp, 2020). These policies assist Emirati women in securing jobs, and, with the rising levels of

education among citizens, there has been a gradual increase in Emirati presence in higher-level and leadership positions (Forstenlechner, 2010).

4. Political Aspirations

The UAE is a politically stable and industrialised nation situated in the Arabian Gulf and has the world's sixth-highest GDP (Schwab, 2023). Since its foundation in 1971, the country has endeavoured to harmonise tradition, globalisation, and modernity in its development trajectory (Eno et al., 2016). Central to this agenda has been a commitment to moderate Islam and this has become an integral component of its national rebranding strategy (Kourgiotis, 2020). The application of Sharia law, Islamic canon law, is not uniform throughout Muslim countries and there are various schools of thought regarding its interpretation and significant differences in its integration into local legal systems. In the UAE, Sharia law has not been fully incorporated in the legal framework (Lombardi, 2013) as its influence has been tempered by the country's first president's call for the acceptance of "transnational jurisprudence" (Hamade, 2012). To bolster this commitment to moderate Islam, the UAE has implemented various initiatives under the banner of the "moderate Islam" campaign (Cafiero, 2018). The drive to promote moderate Islam serves multiple objectives (Kourgiotis, 2020). One is that it aims to counter and discredit militant Islamists and the perceived threat of political Islam, safeguarding both national and global security. It also seeks to enhance the international image of Islam and the UAE. One pivotal initiative in relation to this was the establishment of the "Forum for Promoting Peace in Muslim Societies" (PEACEMS) in 2014. PEACEMS endeavours to revive the purported original spirit of coexistence and tolerance within Islam and employ scientific discourse as a countermeasure to distorted religious ideologies (Kourgiotis, 2020). The objectives of the drive to promote moderate Islam have spawned considerable debate, with some interpretations framing it as an ambition to assume leadership within the Arab world (Carvalho-Pinto, 2014; Al-Azami, 2018). However, irrespective of the underlying motivations, the promotion of moderate Islam catalyses shifts in thought and values and this evolving paradigm holds significant implications for women's economic and societal empowerment. Alongside this pursuit of moderate Islam, there is a gradual transition towards increased secularisation. This secularisation does not follow the traditional model of complete separation between state and religion (Casanova, 1994), but rather involves the establishment of arenas where compromises between religion and state can develop (Bhargava, 1998). Examples of this include the 2020 legislative amendments which decriminalised practices proscribed by Islam, such as co-habiting, homosexuality, attempted suicide, and the consumption of alcohol by Muslims. These reforms institutionalise greater personal freedoms (Kerr, 2020) and facilitate interpretations of religious duty in ways that deviate from those of the more homogeneous, preindustrial UAE society. Such institutional transformations afford people the opportunity to "discover Islam in unrestricted and unconventional ways" (Elbasani and Roy, 2015, p. 13) and to contemplate alternative interpretations and expressions of their religious identity and values in their rapidly changing world. These ideological shifts contribute to a lessening of the formerly strict gender marking that molded women as solely domestic creatures and contribute to the legitimisation of their expanding economic agency.

Apart from these trajectories specifically related to religion, the very fact of fostering modernity and a unified pluralistic national identity (Findlow, 2000; Kazemi, 2000) generates implicit institutional backing for reinterpretations of societal values beyond those characterising the country's historic identity. Shifts in interpretation of traditional values are occurring among Emiratis whose educational and socio-economic backgrounds diverge fundamentally from previous generations. Raised in the Internet age and exposed extensively to diverse cultural and religious influences within a nation where the vast majority of the population is from other countries (Bristol-Rhys, 2010; Bristol-Rhys and Osella, 2018), these individuals are enacting profound transformations in their perspectives of traditional values and societal frameworks. Again, these broader globalised perspectives serve to readjust popular thinking away from the traditional conception of women as domestic creatures.

Another of the country's strategic objectives relates to gender equity. The government considers women's issues as part of its ongoing development process and displays a commitment to fostering their empowerment (*Women in the United Arab Emirates*, 2009, p. 3). Government efforts to set a new standard for gender equity in the Gulf region are vital to its strategy of seeking prestige, with women's empowerment emerging as a prominent component of its desired identity formation (Carvalho-Pinto, 2019). To this end, it has implemented policies aimed at integrating women into the workforce (Kemp et al., 2021). Yet, while their achievement of educational qualifications has overtaken that of men, women's entry into the workforce is not unimpeded and their professional skills remain underutilised (Budhwar et al., 2018; Marmenout and Lirio, 2014). Evidence of this is

the country's ranking of 128th out of 146 countries for women's economic participation in the 2023 *Global Gender Gap Report* (WEF, 2023).

5. Cultural Landscape

Religion remains a significant element of UAE culture and a strict display of adherence to its principles is socially required (Rugh, 2007). It has wielded significant influence in delineating gender roles and establishing a robust set of norms governing women, thus fostering societal resistance to changes in their activities and status (Karam and Afiouni, 2014). Shariah law does not permit any notion of gender equality (Metcalfe, 2008, pp. 90-91), and gender roles are traditionally perceived as static and binary (Kelly and Breslin, 2010; Metcalfe, 2007), with women's family-related duties remaining much prioritised. Despite demonstrations of the lack of justification for women's subjugation in Islamic scripture (Mernissi, 1996), religious dogma is often cited as contributing to the obstacles women encounter in the workplace and their limited enthusiasm for embracing career advancement (Naguib and Jamali, 2015; Tlaiss, 2014a, 2014b). Government policy explicitly underscores the Islamic conceptualisation of women as domestic beings: "Traditionally, women have always been the backbone of family life and the social structure of the UAE and they continue to remain an integral part of maintaining the nation's Islamic heritage and national culture" (*Women in the United Arab Emirates*, 2009, p. 2). This approach resonates with that of many developing nations, where women bear the "burden of representation" of the nation's identity (Yuval-Davis, 1997, p. 45) and are required to embody a dual identity that integrates the country's traditions with imported economic and professional praxis. This particular positioning impacts the modalities of agency which Emirati women can operationalise (Macleod, 1991). Nonetheless, the enduring historic respect for tribal leaders (Rugh, 2007), a cultural value which encourages government aspiration to become espoused community aspiration, has the potential to diminish the conservative associations of desirable roles for women in the light of national development objectives.

In practical terms, Emirati women with children and households to manage are well-positioned to enter the workforce due to the abundance of domestic help made available by UAE labour laws which permit the employment of low-cost foreign domestic labour. The UAE imposes limited minimum wage regulations and salaries are typically determined in relation to those in the workers' home countries. Also, the prevalence of extended family living arrangements ensures the availability of relatives, such as grandparents, to assist in supervising childcare. However, despite such material support, societal values play a significant role in moderating the extent of permissible changes in women's roles (Suchman, 1995), with traditional patriarchal values continuing to influence the modalities of agency that working Emirati women may enact.

Increased levels of education often lead to a heightened awareness of inequities among women and bolster their ability to articulate such disparities (Shakiba et al., 2021). Yet, in the case of the UAE, there is limited evidence of widespread discontent with the current state of gender equity in the country and many young Emirati women consider that they have been granted significant rights and freedoms (Schedneck, 2014). This perspective undoubtedly owes much to three factors. One is the substantial government funding that has been channelled into education and other resources that women benefit from. Another is the Islamic precept of taking care of women (Bristol-Rhys and Osella, 2018) which provides women with some specific benefits, for example, the doctrinal injunction for men to financially provide for their womenfolk. While benevolent sexism rests on the perception of women's inadequacy, this special status does promote a notion that women are well provided for. This special care has been shown to manifest in the workplace in the form of women being accorded greater consideration than their male counterparts in certain ways, such as being more likely to be granted an interview by higher management (Alhadhrami et al., 2018). This notion of distinctive status intersects with the UAE's abundant resources for training women potentially rendering the patriarchy appear a reasonable compromise between new professional opportunities and the legitimacy essential for Emirati women within their communities. A third powerful factor is the public discourse around gender such as the government's constant assertions of commitment to equity for women and how it "is determined to continue supporting their empowerment" (*Women in the United Arab Emirates*, 2009, p. 3). Gender equity serves as a vehicle for enhancing international prestige by a demonstration of globally acceptable levels (Carvalho-Pinto, 2019) intended to enhance the country's global image which has been a central issue since the foundation of the state (Carvalho-Pinto, 2014). Public discourse highlights gender equity in the process of UAE nation building (Allagui and Al-Najjar, 2018; Hesketh and Williams, 2021).

6. The Emerging Space of Emirati Women's Economic Agency

Considering gender from a social constructivist perspective allows us to understand it as a fluid and evolving construct (Gherardi, 1994). This understanding views gender not as a combination of traits or skills (Brickell, 2006), but rather emerging from the interactive processes that occur within social contexts (Deutsch, 2007). It permits the recognition of gender's capacity for reconstruction and transformation within particular historical contexts (Billing and Alvesson, 2000; Billing, 2011). Norms associated with gender are also not static but develop as behaviours formed within social environments are absorbed and perpetuated with little consciousness and eventually become ingrained within a given cultural framework (Martin, 2003).

Given the traditional static conceptualisation of gender roles, legitimacy, that is, the "generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574), remains a key concern for Emirati women in their trajectory towards greater economic participation. Emirati women's burgeoning economic participation and the judgements around the desirability of this represents a situation in which "there is no preexisting legitimacy on which to draw" (MacLean et al., 2016, p. 620). Notions of legitimacy, which determine the degree of permissible change and oblige women to avoid non-normative behaviour (Butler, 2004), are susceptible to the impact of ongoing individual efforts to redefine expressions of the traditional value framework and the doing and undoing of gender.

MacLean et al. (2016) argue that legitimacy, once achieved, can influence the broader socio-political context. We can identify how increasing legitimacy within the area of women's economic agency is exerting an impact on their legitimacy in areas beyond the workplace, impacting personal and social behaviours, and reshaping societal norms. Examples of such include unmarried women living alone and young women finding their own marriage partners, behaviours which were impossible historically (Goby, 2021). These changes demonstrate the critical reflexivity of women's reconstitution of gender within their cultural context and their efforts to gain new freedoms without precipitating tension between traditional values and their newfound sources of empowerment (Maclean et al., 2016, p. 623).

7. Conclusion

The government stresses that its gender equity policies are implemented "without sacrificing the heritage and culture that defines this society's national identity" (*Women in the United Arab Emirates,* 2009, p. 2). This begs the question as to the degree of equity that can materialise in a society historically contoured by a strong patriarchy buttressed by scripture on the divinely ordained nature of gender disparity. The extent to which gender politics can be susceptible to a more progressive approach therefore remains uncertain. Specifically, it is challenging to determine whether women's economic participation is targeted solely at serving the objectives of national development, as argued by Sibgatullina and Kemper (2021, p. 7) and Kandiyoti (1991). Nonetheless, the evolving relationships between genders in the UAE illustrate Kandiyoti's (1988, p. 275) assertion that "patriarchal bargains are not timeless or immutable entities, but are susceptible to historical transformations that open up new areas of struggle and renegotiation of the relations between genders." The evolving space that I discuss in this paper demonstrates signs of a moderated patriarchy evolving within a new landscape influenced by women's growing participation in the economy and their resultant emancipations. Women's positioning in society is shifting as they undertake the roles of contributors to economic and national development (Macleod, 1991), and the norms that have historically served as the gatekeepers of their legitimacy are shifting. These changes augur well for increasingly greater enactment of women's economic agency and the societal transformations that will follow as a consequence. The considerable attitudinal changes that are being generated by the institutional objectives of increasing gender equity and workforce localisation represent a potentially valuable avenue for future research on the ways in which women's access to economic participation alters as a result of new understandings of gender roles.

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Entrepreneurial Leadership Development in the Digital Age

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Abstract: During the second half of the 21st century, academia has presented different studies to conceptualize entrepreneurial leadership without academic consensus. Although leadership and entrepreneurship are distinct, the literature has come to understand their similarities (Harrison *et al.*, 2020). Despite the large number of publications, the characteristics of a leader should be based on an entrepreneurial profile, mainly to gain competitive differentiation for companies through the productivity of their human capital (Addy *et al.*, 2024). Over the last century, the business world has undergone several transformations intrinsically linked to innovations and developments in Information and Communication Technologies. Over the last few decades, the installed business park has changed in computerization and automation, making it necessary to equip human resources with ICT-related tools and knowledge. This and several generations cooperating in companies have brought new challenges to leadership (Figueiredo and Joaquim, 2023). However, in contemporary times, the business sector has to acknowledge the challenges inherent in meeting ESG indicators to respond to the SDGs, forcing leaders to equip themselves with entrepreneurial skills to involve, motivate, and create strategies for promoting innovation and retaining talent (Addy *et al.*, 2024). According to Omeihe *et al.* (2023), "the role of entrepreneurial leadership in enhancing positive business outcomes" (2023, p. 1), but the authors also acknowledge that leaders should embrace several attributes and skills to implement this new leadership perspective. The entrepreneur concept has gained new topics to discuss and internalize, including ICT and the sustainable domains paradigms regarding the ESG indicators and the SDG goals. This article aims to understand the challenges and competencies needed to conceptualize entrepreneurial leadership by critically reviewing the existing literature and linking it to the inherent needs of ESG and SDG goals; it seems to be the only way to understand and internalize the processes and procedures involved in entrepreneurial leadership in the digital age.

Keywords: ESG; Sustainable Development Goals, Entrepreneurial Leadership, Digital Era

1. Introduction

Contemporary society is facing the phenomenon of climate change due to the lack of environmental sustainability in companies. The perspective of financial benefits superseded the need to apply ecological practices.

Davies (2004) presented ESG as a fundamental indicator for companies' sustainable development, but this methodology has yet to resonate within the business community. However, in 2015, the United Nations (UN) conceptualized and promoted the need to achieve the 17 Sustainable Development Goals (SDGs), with the main goals of creating and preserving the world through human rights, labor rights, resource preservation, or fighting climate change. However, the results remain below expectations (United Nations, 2022, 2023).

However, in 2020, the most significant investment company in the world, BlackRock, rescued the ESG presented almost two decades earlier through a letter from its CEO to his peers.

This brought the urgency of sustainability to the business dialogue and alerted investors that this would be the most important indicator to consider when making investments(Fink, 2020). Sustainability should become more important than profit *per se*. According to Larry Fink, investors must look at companies through a binomial of profit and sustainability (Fink, 2020). According to him, "climate risk will impact both our physical world and the global system that finances economic growth"(2020). So, for that reason

> BlackRock announced several initiatives to place sustainability at the center of our investment approach, including making sustainability integral to portfolio construction and risk management; exiting investments that present a high sustainability-related risk, such as thermal coal producers; launching new investment products that screen fossil fuels; and strengthening our commitment to sustainability and transparency in our investment stewardship activities(Fink, 2020).

Despite the buzz generated by these statements, the topic faded and eventually disappeared. After some time, companies resumed their business as usual.

The European Union (EU) has been at the forefront of the shift towards sustainability, taking concrete measures to change the business paradigm. One such measure is the implementation of fines or environmental fees. More recently, the EU introduced the Corporate Sustainability Reporting Directive (CSRS 2022/2464), which mandates certain companies (as identified in the document) to present, from 2025 onwards, a report containing key

indicators of their environmental, social, and governance impacts. This exemplifies the EU's commitment to sustainability and its impact on corporate reporting.

As businesses adapt to these new sustainability requirements, another significant shift is occurring alongside the rapid evolution of Information and Communication Technologies (ICT) and Artificial Intelligence (AI) since the final two decades of the 20th century.

Integrating ICT and AI is progressively becoming integral to individuals' daily and professional obligations.

In parallel, academia presented, albeit in an embryonic form, a leadership typology based on the characteristics of entrepreneurship. Given all the environmental, legislative, and technological changes experienced, this typology is necessary and urgent.

Given these arguments, this article intends to list four themes (human relations, AI, ESG, and SDG) in the promising and growing trend of entrepreneurial leadership.

2. Entrepreneurial Leadership: Characterization

Technological changes and innovations have been undeniable, especially in the 21st century.

The integration of ICT, with a particular focus on AI, in all business areas has been happening at a dizzying speed, forcing the business sector to permanent cyclical and structural adaptations.

It also leverages the constant need for the applicability of entrepreneurial skills to respond to the needs of increasingly demanding markets.

According to Bessant and Tidd (2019), entrepreneurship is based on innovation. The authors, however, also state that the need to innovate must be based on sustainability; that is, sustainability must be internalized as an opportunity to innovate procedures and processes and not as a reductive threat.

The entrepreneur must be aware of opportunities, create differentiation and be able to integrate ICT, to generate an added and competitive value proposal.

ICT has become a community product (Figueiredo and Joaquim, 2023). However, the emergence of AI has gained permeability in several business sectors.

According to McCarthy (2007), AI is characterized as the creation of intelligent machines through the science of engineering.

If, on the one hand, the internalization of AI in the business installed base has proven to be a competitive advantage, on the other hand, entrepreneurial and leadership characteristics and skills are forced to adjust to the competitive reality.

The entrepreneur's profile is based on the search for opportunities with competitive advantage based on personal skills, so the entrepreneur must have developed tools of resilience, critical thinking, and emotional intelligence(Subramaniam and Shankar, 2020; Addy et al., 2024).

However, entrepreneurship gained new topics of discussion and internalization as it became necessary and imperative for interconnection with ICT and AI and environmental requirements based on ESG indicators and the Sustainable Development Goals (SDGs).

Faced with this panoply of competitive and environmental demands, the leader's role becomes fundamental for motivating teams and linking them to organizational cultures.

The literature on leadership conceptualization is vast; however, at the beginning of the century, a new field of study brought to academia a different approach based on positive leadership arising from positive psychology(Cameron, 2012; Gauthier, 2015; Olckers, van Zyl and van der Vaart, 2017; Unnu, 2019; Klug, Felfe and Krick, 2022).

Positive leadership is based on skills and characteristics that promote employee communication, focus on objectives, and, consequently, company productivity (Goswami, Singh, and Goswami, 2019).

Figueiredo and Fonseca (2022) conceptualize that leaders who demonstrate optimism, calm, empathy, confidence, resilience, and sustained communication of decisions promote positive leadership.

Gauthier (2015)alludes that workers are more productive when they feel happy in their workplace.

Despite the importance of positive leadership, technological challenges based on computerization and automation have brought the need for constant adaptation from human resources to ICT tools to the business sphere, almost empirically promoting the flexibility and resilience inherent to entrepreneurs' profiles.

Although the scope of this article is based on leadership, it is essential to understand that worker teams are diverse. They may comprise different generations of individuals, reflected in their distinct perceptions of the employer and their skills and digital gaps (Figueiredo and Joaquim, 2023).

As previously mentioned, the heterogeneity of human resources is reflected in the integration of ICT and AI in day-to-day functions since *Generation Z*; this task may prove to be almost innate. In contrast, for *baby boomers*, there is a need for constant learning to fill the inherent gaps of being an analog generation(Figueiredo and Joaquim, 2023).

However, on the opposite spectrum, the literature identifies *baby boomers* as privileged holders of critical thinking (Elliott and Turnbull, 2005), in contrast to *Generation Z's* human resources (Bauerlein, 2009).

Now, generational diversity and the pressing emergence of ICT and AI advocated unifying concepts pre-established by the positive leadership and entrepreneurship literature.

These concepts of joining forces rely on the soft skills regarding positive leadership and the hard skills of entrepreneurship.

According to Harrison et al. (2020), although the two fields of study are distinct, it is possible to list similarities; in fact, the authors state that entrepreneurship should be evaluated as a variant of leadership through a positive integration where they verify a replication of attributes and skills between the concepts.

Understandably, entrepreneurial leadership has gained increasing attention in contemporary academic literature; however, after a critical review of existing research, this terminology needs to be more conceptualized.

In the words of Omeihe et al. (2023), “the role of entrepreneurial leadership in enhancing positive business outcomes” (2023, p. 1). However, the authors also acknowledge that leaders should embrace several attributes and skills to implement this new leadership perspective. Harrison et al. (2020) convey this argument, adding that entrepreneurial leadership is a dynamic and contextual approach associated with entrepreneurship *per se*.

Addy et al. (2024)alluded that entrepreneurial leaders' main characteristics should be proactivity, emotional intelligence, strategic vision, adaptability, recognition of opportunities, and propensity for risk. According to the authors, the incorporation of these skills and strategies will foster an environment that promotes innovation, resilience, and sustainable growth in companies in a technological scenario that is constantly evolving and rich in uncertainties and complexities. The same authors conclude that it is possible to create strategies involving human resources, motivating them to promote innovation and retain talent.

So, regarding the literature review, it's possible to create an entrepreneurial leadership development model where the entrepreneurial culture, which includes the business context and stakeholders, the organization, the human resources teams, and the employees, is aligned with the entrepreneurial leadership hard and soft skills to obtain results of excellence that incorporate organizational sustainable performance (Figure 1).

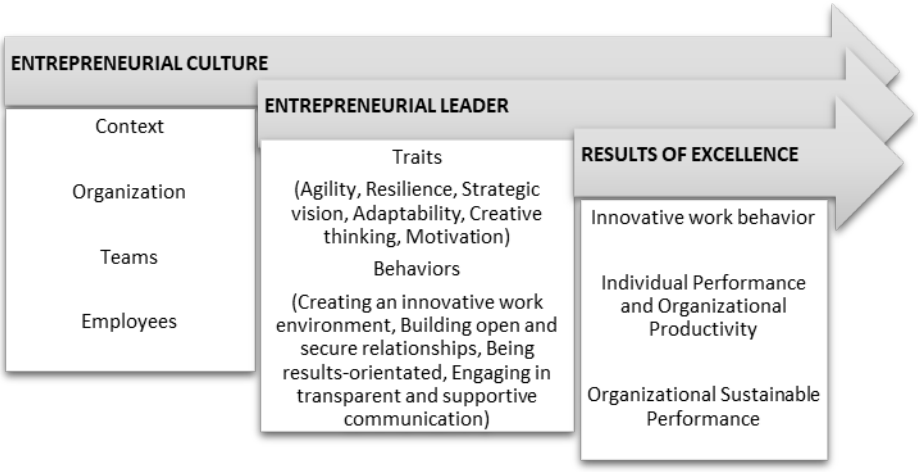

Figure1: Entrepreneurial leadership development model

According to the Future of Jobs Report(World Economic Forum, 2023), the five skills with the most significant preponderance in demand for human resources by 2027 are analytical and critical thinking, integration and understanding of AI, and processing large amounts of computer data, leadership and social influence and resilience, and flexibility and agility.

These skills are based on cognitive, technological, and teamwork skills. As Figure 1 shows, they are intrinsically linked to entrepreneurial leadership skills.

Analytical and critical thinking skills have become a tremendous must-have in leadership, especially when integrating AI, because this technology cannot understand human feelings, such as empathy (Dobrev, 2012).

Despite all the advantages of problem-solving or procedure simplification, regarding AI, the entrepreneurial leader should be able to balance human behaviors and traits with advanced technology.

However, it is essential to note that the skills inherent to entrepreneurial leadership may also be present in freelancers or digital nomads (Ahmed and Lucianetti, 2024), not exclusive, commonly identified as traditional business positions.

Dhakal, Wiesner, and Maraseni (2024) concluded that there is a fruitful relationship between positive leadership and entrepreneurship, which is reflected in the growth of companies based on the interconnection between business culture and the characteristics of entrepreneurial leadership.

However, it is essential to note that the business sector faces additional challenges regarding sustainable matters that are not limited to those previously exposed, such as the ESG indicators and the SDGs proclaimed by the United Nations (UN) in 2004 and 2015 (Davies, 2004; United Nations, 2024).

3. Environmental, Social, and Governance Indicators and the Sustainable Development Goals

ESG was conceptualized in 2004 for the first time in a United Nations report (Davies, 2004) regarding sustainability as an essential factor for financial companies' analytics.

At the beginning of the 2020s, environmental, Social, and Governance (ESG) indicators emerged within the framework of the SDGs (United Nations, 2024) as a proactive movement that consists of a comprehensive framework that includes these three critical elements, which are divided through the analysis of environmental and social impacts and governance structures that impact corporate well-being.

This way, stakeholders can understand how companies manage their risks and opportunities transparently.

In the words of Davis (2004), the need to conceptualize this framework is because "until now, the industry has not developed a common understanding on ways to improve the integration of environmental, social and governance (ESG) aspects in asset management, securities brokerage services, and the associated buy-side and sell-side research functions. This is due partly to the complexity and diversity of issues involved" (2004, p. 19).

However, as mentioned before, these emerged into the business field only in the 2020s, when Larry Fink, Chairman and Chief Executive Officer (CEO) of BlackRock, sent a letter to his peers, international business companies concluded that sustainability should be in parallel with financial profit on the leading analysis standards for making investments (Fink, 2020).

The CEO realized that climate change was not a conjunctural problem but a long-term topic that must be fully incorporated into companies' daily objectives, goals, and procedures.

> Over the next few years, one of the most essential questions we will face is the scale and scope of government action on climate change, which will generally define the speed with which we move to a low-carbon economy. This challenge can only be solved with a coordinated, international response from governments aligned with the goals of the Paris Agreement(Fink, 2020).

Khaled et al. (2021), quoted by Dalcero et al. (2023), also understood that the interrelationship between the SDGs and the ESG aimed to promote sustainable economic development and the adaptation of the business installed base to climate change, as well as combat social inequalities through the integration of governance (Table 1).

Table 1: The intersection between SDG and ESG

ESG	Sustainable Development Goals
Environment	**SDG 6 – Drinking water and sanitation**
	SDG 7 – Clean and Affordable Energy
	SDG 9 – Industry, Innovation and Infrastructure
	SDG 11 – Sustainable Cities and Communities
	SDG 12 – Responsible Consumption and Production
	SDG 13 – Action against Global Change and Climate
	SDG 14- Life in Water
	SDG 15 – Life on Earth
Social	SDG 1 – Eradication of Poverty
	SDG 2 – Zero Hunger and Sustainable Agriculture
	SDG 3 – Health and Well-Being
	SDG 4 – Quality Education
	SDG 5 – Gender Equality
	SDG 10- Reduction of Inequalities
Governance	SDG 8 – Decent Employment and Economic Growth
	SDG 16 – Peace, Justice, and Strong Institutions
	SDG 17 – Partnerships for the goals

Font: Adapted from Davies (2004) and United Nations (2024)

According to Dalcero et al. (2023), the environmental (*E*) indicators must be aligned with the gold standards of SDG through companies' internal procedures that aim to reduce environmental degradation. Nevertheless, the employee's labor work conditions (*S*) must be based on well-being, confidence, respect, and equality. At last, but not least, the governance (*G*) indicators correspond to companies' policy ability to become more informative and transparent with the stakeholders.

This urgent necessity of aligning the ESG with the SDG relies on several tipping points that scientists have identified, like "Earth warms, sea ice melts, that reduces the reflectance of solar radiation back into space and accelerating the warming"(Sachs *et al.*, 2023, p. 7). Consequently, it increases drastic climate changes.

The Earth's resources are limited, and for that matter, they should be consumed with efficiency!

The role of companies' procedures is central to mitigating this global problem.

However, despite being intrinsically linked to the political guidelines of the UN Member States, legislation needed to be more active regarding the implementation of both the ESG and the SDGs (United Nations, 2024). Although each SDG was defined and implemented through goals and indicators that were measurably monitored, their applicability and achievement were below expectations(United Nations, 2022).

In 2022, the European Union (EU) enacted the Corporate Sustainability Reporting Directive (CSRS 2022/2464)(European Commission, 2022), included in the European Sustainability Reporting Standards (ESRS), thus legislating the sharing of information about sustainability in a standardized and transparent way.

The European Sustainability Reporting Standards (ESRS) represent a novel regulatory framework within the European Union. Effective January 5th, 2023, the CSRD (Corporate Sustainability Reporting Directive) mandates the implementation of ESRS. This directive necessitates that listed companies and financial institutions (including banks and insurance companies) prepare sustainability reports. While the legal obligation to report commences in 2024, with reports first due in 2025, the CSRD signifies a significant shift towards increased transparency in corporate sustainability practices.

Notably, the interpretation of ESG results transcends the mere concept of sustainability. The directive's underlying assumption is the unambiguous identification of metrics about environmental pollution, social capital (human resources), and corporate governance practices.

Consequently, a pressing need exists to understand each ESG dimension concisely. As Davies (2004) posits, standardized evaluation criteria enhance the transparency of corporate practices, facilitating a more rigorous systemic analysis of organizational efficiency and effectiveness. While short-term business cycles may influence profitability, implementing an ESG-oriented business culture fosters long-term structural benefits for companies.

However, as mentioned, it was only in 2020 that Davies's visions (2004) began to gain relevance and importance. Therefore, environmental indicators are understood as all those that impact the environment, that is, the emission of gases harmful to the greenhouse effect, water and energy consumption, or waste management, among others.

Social indicators relate to companies' responsibilities towards stakeholders, including employees, customers, other partners, and society. Regarding governance, indicators may present business ethics, transparency, or social responsibility to combat corruption.

These are only a tiny sampling of ESG indicators; however, understanding their functionality and purpose will benefit companies and the environment in the medium and long term.

4. Incorporating ESG and SDGs into Entrepreneurial Leadership

From a simplistic approach, it may seem that incorporating ESG and SDGs is impossible in entrepreneurial leadership, as it is commonly wrongly believed that entrepreneurial leadership is limited to a company's microenvironment.

While achieving the SDGs by 2030 necessitates a collective effort from all individuals, it does not preclude but necessitates strengthened interconnectedness among companies. This collaboration is fundamental to accelerate progress towards the multifaceted objectives enshrined within the SDGs.

To Doghan, Abdelwahed, and Ali Soomro (2023), the responsibility factor is prominent in organizations where it plays a central role. According to the authors, companies have social and environmental responsibilities that directly impact their workers.

Entrepreneurial leadership comprises skills linked to innovation and development based on characteristics of positive leadership and the understanding that human interactions make teams more robust (Kets de Vries and Korotov, 2012; Redín, Meyer, and Rego, 2023; Dhakal, Wiesner, and Maraseni, 2024).

The clear challenges of entrepreneurial leadership are based on complex premises: human relations, AI, ESG, and the SDGs. However, it is understood that they can be overcome through creative skills and a critical spirit to integrate all these topics and, subsequently, challenges inherited.

The incorporation of ESGs and SDGs must be carried out from a macro-to-micro perspective, that is, through conceptualizing a pluralistic framework comprising the four dimensions (Figure 2).

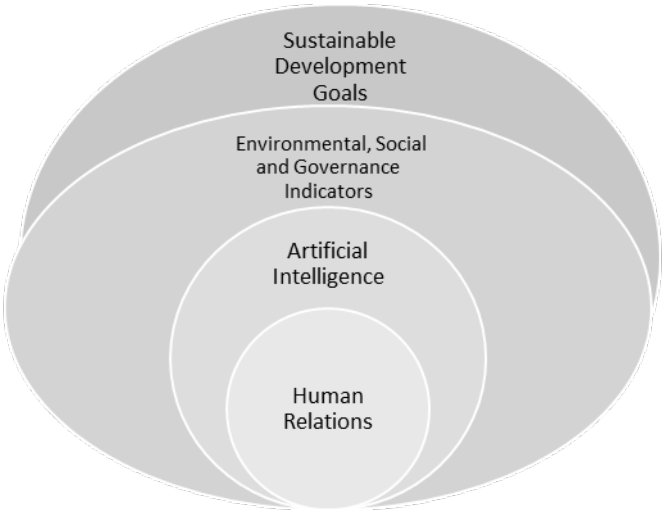

Figure 2: Dimensions of Entrepreneurial Leadership

According to Yela Aránega, Gonzalo Montesinos, and del Val Núñez (2023), the primary soft skills of the entrepreneurial leader are motivation, teamwork, and risk-taking, which enhance the quality of an entrepreneurial ecosystem in business management.

The internalization of the SDGs and ESG in business culture must be carried out from a macro perspective; it will probably be necessary to change the company's mission, vision, and values, redirecting the business strategy towards the theme of sustainability in the three axes of ESG indicators (Al Doghan, Abdelwahed and Ali Soomro, 2023).

To recover the characteristics of entrepreneurial leadership, communication must be clear and transparent, integrating the team into the proposed organizational paradigm (Thummakul, Sinjindawong, and Makmee, 2012). To Goswami, Singh, and Goswami (2019), a positive relationship between high-performance human resource management practices, employee engagement, and effective leadership tended to have better results, as it can be incorporated with the social indicators of ESG.

Another dimension to consider is mitigating technological inequalities between employees, as this should be one of the agenda items through the promotion of specialized training and collaborative work, for example (Figueiredo and Joaquim, 2023).

The literature identifies the integration of AI into work tasks as a phenomenon based on ambiguous feelings on the part of workers; on the one hand, according to Ratcheva, Leopold, and Saadia Zahidi (2020), AI translates into an increase in opportunities, but on the other Tuomi (2018) alludes to the fact that there is still much skepticism on the part of society and the economy regarding the emergence of the AI phenomenon. This understands the need for the leader to undertake skills based on resilience and adaptability in the face of binomial human relations and AI to overcome inequalities and promote inclusion through governance policies incorporated with the social and environmental indicators.

Tursunbayeva and Chalutz-Ben Gal (2024) propose a framework based on technology (AI), organizations (culture of trust), and people (motivation and skills) as a way of empowering digital leaders. Being a digital leader in contemporary times has become redundant since more is needed to have digital skills.

However, according to the Future of Jobs Report (World Economic Forum, 2023), soft skills tend to maintain, if not gain, more significant importance in the digital era at all levels, particularly in leadership.

Emerging from the intersection of leadership and entrepreneurship, entrepreneurial leadership has solidified as a paradigm despite ongoing efforts to refine the definitions of its constituent concepts. This convergence has garnered significant scholarly interest in recent years, as entrepreneurial leadership is increasingly recognized as a potential pathway to achieving sustainable competitive advantage. However, for those goals to be achieved, companies must incorporate the challenges inherent in ESG indicators and SDG accomplishment into their procedures.

5. Conclusions

The field of leadership boasts a vast literature encompassing a diverse array of evolving conceptual frameworks and subtopics.

Leadership theories have transitioned from traditional models to encompass positive leadership, digital leadership, and other contemporary approaches.

In today's dynamic environment, leaders must adapt to meet the demands of businesses operating within an interconnected ecosystem encompassing markets, society, and the environment.

The increasing salience of sustainability and the pervasiveness of AI have introduced novel challenges for business management, particularly in human resource management. Consequently, leadership adaptability has become a mandate in response to stakeholder expectations.

Integrating entrepreneurial characteristics into leadership practices offers an asset for team management, enabling leaders to effectively navigate the constant challenges posed by technological and environmental advancements. Comprehending and internalizing ESG indicators will align businesses with achieving SDGs in environmental stewardship, promoting decent work, combating inequalities, and upholding human rights principles.

The recently enacted CSRS may be familiar to academia. However, it will likely challenge established businesses and tiny and medium-sized enterprises (SMEs).

The initial implementation phase will likely target specific sectors and company types, with an anticipated gradual expansion encompassing the entire business landscape.

This necessitates a paradigm shift within the business community, prompting structural changes aligned with the CSRS.

To facilitate a smooth and sustainable transition, leaders must embrace a more entrepreneurial approach, necessitating procedural modifications and the acquisition of entrepreneurial skills to navigate the ever-increasing pace of technological advancements; in other words, entrepreneurial leaders bring a fresh perspective to the field of leadership, fostering closer connections among employees, cultivating a positive organizational culture, embracing new technologies, and promoting environmental sustainability.

According to Addy et al. (2024), Ahmed and Lucianetti (2024), and Dhakal, Wiesner, and Maraseni (2024), the implementation of entrepreneurial leadership has demonstrated successful results in the investigation field. Nevertheless, the authors also realize several challenges to its operationalization, such as the digital gap, workers' training needs, and sampling dimensions, to name a few.

In these case studies, the authors did not explicitly analyze the link between ESG and entrepreneurial leadership. However, their conclusions suggest that there are aligners between these two topics.

6. Study Limitations and Future Recommendations

This exploration of entrepreneurial leadership and its intersection with ESG (Environmental, Social, and Governance) factors and the SDGs (Sustainable Development Goals) does not represent a definitive endpoint. A critical gap persists within the existing academic literature regarding the empirical validation of entrepreneurial leadership's effectiveness when coupled with ESG and SDG integration into company strategy. While extant research includes articles on these topics, a comprehensive analysis of the practical outcomes of applying an entrepreneurial leadership model that leverages the interconnectedness of ESG and SDGs in corporate strategic management still needs to be discovered.

The current body of literature primarily focuses on localized case studies, lacking large-scale, data-driven analyses investigating the interplay between these four interconnected dimensions (entrepreneurial leadership, human relations, AI, and ESG/SDGs). This lacuna underscores the pressing need for further research exploring entrepreneurial leadership models grounded in the consideration of human relations, AI integration, and the combined impact of ESG and SDG principles on company strategic decision-making.

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Sensemaking View on Servant Leadership in Crisis Discourse

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Abstract: This study is based on leadership in crisis time - a panel discussion after 62 leaders' discussions in various workshops. Analysing the data through the sensemaking typology for organisations - using sensemaking typology (Sandberg & Tsoukas 2020) and coming up with servant leadership theory offers a fresh and welcomed view in servant leadership study - revealed how servant leadership and especially the readiness to shift in sensemaking helped to overcome the crisis. The leaders used the four typologies: immanent, involved-deliberate, detached-deliberate, and representational sensemaking in various ways for a servant purpose. For example, seeing the personnel with new eyes and allowing them to act freshly, lowering barriers, and bringing others' potentiality to use helped to tolerate crisis. To demonstrate, leaders with detached-deliberate sensemaking found a new direction and valued co-work whereas when acting with the immanent sensemaking they held on to routines and kept the focus on the basic task. In brief, the servant-first attitude was emphasized for the leadership to be willing to set oneself in use as well as create an atmosphere where others can work on their best and emerge from others capabilities for them to serve the common good.

Keywords: Leadership, Sensemaking, Crisis, Change Management, COVID-19, Servant Leadership

1. Introduction

Heini's story: "*In the sixth grade, my classmates and I selected a silver ring to symbolize our collective identity and to commemorate our time in primary school. There was a debate over which ring to choose, with initial support for one option that I advocated for. Nevertheless, I reconsidered my position and began to advocate for a different ring, which ultimately received the most votes. This experience demonstrated the capacity of leadership to influence decisions. The experience provided an insight into the significance of leadership in determining outcomes and the influence of leadership on shaping others' opinions. This experience may have involved principles of change leadership and leadership psychology, as I observed firsthand the ability of a leader to influence views and redirect thinking.*

My interest in leadership has been a constant since my earliest recollections, prompting me to reflect on its nature since childhood. Over an extended period, I have engaged in either active or passive leadership practices. In addition to personal experiences, observations of successful and unsuccessful leaders have prompted reflection. The dissertation will analyse leadership in a variety of contexts, with a particular focus on the ability to influence others, as demonstrated in crisis-driven change management".

The global pandemic of 2020 presented a significant challenge to the leadership, requiring the development of innovative approaches to problem-solving. In a crisis, the necessity for trying novel strategies becomes apparent, as the efficacy of traditional methods may be limited. Leaders must be prepared to adapt, fostering resilience, and embracing uncertainty. In the contemporary era, crises are a regular occurrence, rendering the leadership role more challenging. The research questions are as follows: *How do leaders make sense in times of crisis? What kind of leadership is required to overcome the crisis and prevent the loss of an institution's identity?*

The study demonstrates that leaders who recognise the potential in their employees and empower them to act independently can contribute to an organisation's resilience in the face of crisis. The research indicates that a leader's aptitude to facilitate a shift in sensemaking (SM) is a crucial factor in the ability to survive a crisis. Furthermore, leaders who survive a period of crisis exhibit characteristics that are analogous to servant leadership. The aim of this paper is to gain insight into the sensemaking factors that contribute to the ability to survive a crisis, to improve leadership skills, and overcome a crisis without impeding the fundamental task at hand. We encourage them to embrace diverse approaches to sensemaking and to cultivate a servant leadership mindset, which is beneficial for the institution they serve.

2. Research Design and Research Gap

Here we present the methods we used to analyse the data. As a theoretical framework, sensemaking was chosen because it lends itself well to the concept of leaders being forced to face the unknown and survive a crisis situation. In order to validate our research and make it credible, we chose to use triangulation as our approach

to the data. After analysing the data and comparing the findings with leadership theories, servant leadership emerged from the midst of them by showing similarities with sensemaking types in crisis discourse.

2.1 Sensemaking as a Theoretical Framework

The concept of sensemaking was first introduced by Karl Weick (1995) to describe the manner in which individuals structure and make sense of the unknown in order to act. Sensemaking is the process of developing a plausible understanding of a changing world, testing that understanding with others through data collection, action, and conversation, and then refining or abandoning it depending on its credibility (Weick & Sutcliffe & Obstfeld 2005). The importance of sensemaking is particularly evident in the context of leadership, where it is crucial to navigating ambiguity, complexity, and change, and communicating a clear and compelling vision to others (Combe & Carrington 2015). The concept of sensemaking has been studied from a variety of perspectives and levels of analysis, including individual, group, organisational, and inter-organisational sensemaking (Maitlis & Christianson 2014). Furthermore, sensemaking encompasses a multitude of interrelated processes, including cognitive, emotional, social, and organisational sensemaking (Gioia & Chittipeddi 1991, Maitlis 2005, Weick 1993). Considering these characteristics of sensemaking, it was deemed an appropriate methodology to deal with the data presented in this article.

Empirical phenomena are the focus of sensemaking research, which examines how cognition and language use influence the process of making sense of complex and uncertain situations (Sandberg & Tsoukas 2020). Methodologically, the study utilises Sandberg and Tsoukas' (2020) various types of operating in sensemaking as a foundation for analyses of leadership discourse (see Table 1). The study proposes that sensemaking can be considered a leadership capability that enables one to act in the unknown and involves different cognitive, emotional, social, and organisational processes.

Table 1: Sensemaking types and outcomes (Sandberg & Tsoukas 2020)

Types of sensemaking ↓	Where SM is located	Ontological underpinnings of SM	Purpose of SM in accomplishing organizational activities	Specific sense generated	***Core constituents of SM*** → *sense-action nexus*	*temporality*	*embodiment*	*language*	**Outcomes** → stability/renewal	learning
Immanent	*primary practice world*	*absorbed coping*	*enacting routine activities*	*practical sense*	*unified*	*practical (immediate-anticipatory) existential*	*principally bodily; minimally cognitive-discursive sensing*	*performative*	*stability, rigidity*	*new practical sense: new skills & routines*
Involved-deliberate	*primary practice world*	*involved thematic deliberation*	*restoring interrupted activities*	*contextual sense*	*partly unified, partly separate*	*practical (immediate) pragmatically chronological (retrospective-prospective)*	*partly bodily; partly cognitive-discursive sensing*	*mostly performative*	*higher flexibility, adjustment*	*new skills & routines, new direction*
Detached-deliberate	*primary practice world*	*abstract detachment*	*re-viewing problematic/problematized activities*	*conceptual sense*	*temporarily separate*	*pragmatically chronological (retrospective-prospective)*	*little bodily; mainly cognitive-discursive sensing*	*mainly representational*	*renewal*	*questioning organizational identity, new conceptual sense*
Representational	*secondary practice world*	*theoretical detachment*	*explaining problematic /problematized activities*	*spectatorial sense*	*completely separate*	*analytically chronological (retrospective-prospective)*	*minimally bodily; principally cognitive-discursive sensing*	*representational*	*renewal, disconnect with practice world*	*learning from the process*

2.1.1 Triangulation as Analytical Perspective

Triangulation of qualitative research data allows research findings to be validated and enables the data to be viewed from multiple perspectives, it provides a more comprehensive understanding of the subject matter and ensures accuracy and neutrality. (Dzwigol 2020, Casey & Murphy 2009). The subsequent triangulation process is illustrated in Figure 1. The triangulation process helped to analyse the data, starting with the sensemaking analysis.

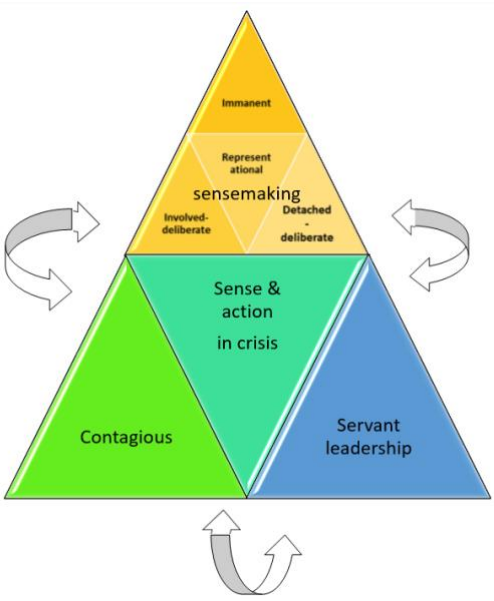

Figure 1: Triangulation processes in crisis leadership

2.2 The Research gap and Approach With a Servant Leadership Perspective

As one of our main findings was the connection between sensemaking in crisis discourse and servant leadership, it deserves a closer look. Sensemaking and servant leadership haven't been combined in this way before, which makes this research unique and significant. A considerable body of research has been conducted on servant leadership over the past forty years. However, literature on leadership in time of crisis has been lacking. There is a desire for further advancement in the theory and methodology of servant leadership. (Eva et al 2019). One potential avenue for this is the combination of sensemaking with servant leadership. Furthermore, there is a research gap in how servant leaders are developed and trained (Eva et al 2019). This study addresses this gap, as the crisis period is forcing leaders to practice servant leadership or develop in their crisis management, which can offer further research material of servant leadership development. The loss of belonging and family-like tribes in our societies has resulted in the unfulfilled needs of individuals. (Eva et al 2019). Servant leadership can help to bridge this gap and provide guidance and support during times of crisis. Leaders represent an authority, a close leader, or even a parent, and when staying distanced, they leave people missing their presence. Servant leadership can fill the gap in this. Especially in crisis, people need someone to show them direction and offer them presence and comfort.

Additionally, there is a paucity of experimental designs within the field of servant leadership. It is recommended that researchers consider including as many competing variables as possible within their research design to demonstrate the true effects of servant leadership (Antonakis et al 2010). In their analysis of instrumental leadership, Antonakis and House (2014) argued that the existing transformational leadership research does not include instrumental leadership, which has led to an overstatement of the effects of transformational leadership. Moreover, they challenge the validity of existing meta-analyses which do not take into account the effects of instrumental leadership. The combination of servant leadership and sensemaking has not yet really been researched. This approach could potentially offer new insights and a deeper understanding of the subject matter.

3. Data Analysis

3.1 Data: Panel Discussion in Crisis Time

In the spring of 2021, during the global pandemic caused by the novel coronavirus, the "Prayer Breakfast" event was held in Rovaniemi, Lapland, Finland. The objective of the event was to empower leaders from various sectors by facilitating the exchange of experiences and ideas related to leadership. This event is collaboratively organised by local churches, academic institutions, and the Arctic Centre on a biannual basis. Due to pandemic restrictions, it was transitioned to a virtual format. The inaugural Prayer Breakfast in 2017 was designed to facilitate the unification of regional leaders, the establishment of connections, and the enhancement of

leadership skills. The attendees of the event were drawn from a diverse range of fields, including the military, education, business, politics, and others.

The 2021 event was hosted by a member of Congress and featured discussions on "Leadership in Crisis Time," moderated by leadership students. Both of us authors of this paper were involved in the organisation of the event too. The panelists included the mayor of the city, the bishop, the infectious diseases head physician, the university director, and an entrepreneur. Prior to the event, the panelists were invited to share one challenge they had faced in a crisis with the organisers in advance of the event. The panel moderators asked open-ended questions and encouraged the leaders to participate in the discussion in a balanced manner. The panel discussion was designed in collaboration with the university leadership department, and the panelists were provided with some discussion questions pertaining to leadership in crisis situations in advance. The questions were designed to elicit responses that reflected the progression of the crisis. The moderators began by inquiring about the initial understanding of the crisis and the subsequent evolution of the situation.

The questions delivered in advance to the panelists:
1. How do you ensure the well-being of your employees? What actions have you taken for this?
2. How do you practice self-care? What has helped you to cope?
3. What challenges have you encountered in leadership/work? How has leadership/work evolved?
4. How can one maintain a sense of purpose at work during a crisis?
5. If you could wish for support during the crisis, what would it be?

Following the panel discussion, the participants were divided into ten workshops in order to deepen discussion on the challenges presented by the panelists which had been delivered to the workshop hosts. Following the workshops, the ideas generated were recorded in the event chat and collated by the panel hosts. Following the panel discussion and workshops, the event concluded with brief prayers delivered by representatives of various churches. Thereafter, the bishop concluded the meeting in conjunction with the congressman. The panel and the workshops were recorded in Teams video recordings and subsequently transcribed. The video of the panel discussion was made available online for the general public to access and learn from. In this study, we first transcribed all the recordings in order to be able to analyse the panelists' statements using sensemaking.

Challenges presented by the panelists to workshops:
1. When a crisis arises, where can you find enough time, and what are you willing to reduce to make time to deal with crisis-related matters?
2. What methods can managers use to enhance the significance of work during exceptional times?
3. As remote work becomes more prevalent, how can work communities increase their support for one another? Additionally, how can a "give time to think" management culture be supported in expert work?
4. How can the government better understand the situation of small entrepreneurs and sole proprietors, particularly in the Lapland region? What strategies can be developed to improve understanding of the specific challenges faced by entrepreneurs, especially in the north, including the substantial resources required for organizing tourism?
5. How can access to and sharing of information be ensured during a crisis? What approaches can be taken to maintain the motivation of the management team during a crisis?

3.2 Sensemaking Types in Crisis Leadership

The study examines how leaders make sense of complex and uncertain situations in times of crisis. The data collected from a panel discussion between leaders in five fields during the corona pandemic (COVID-19) crisis and 10 workshops of 62 leaders discussing leadership challenges was analysed using the theoretical framework and analysis method developed by Sandberg and Tsoukas (2020). The authors argue that there are four types of sensemaking. This paper proposes that leadership discourse can shift between these types in response to situational factors. The leadership may either shift or remain within the selected understanding. The study examines the dynamics of shifting and staying and their effects on leadership. In times of crisis, the collective dimension of sensemaking is particularly salient, as decisions are made for and on behalf of others.

This study examines the manner in which leadership decisions are shaped by the opinions of others, with an analysis of panel discussions serving as the primary methodological approach. The study identifies the dominant themes that emerge in the discussion and attributes them to collective phenomena and sensemaking's

emotional and cognitive contagiousness (Cristofaro 2022). A framework proposed by Sandberg and Tsoukas (2020) was employed to categorise statements according to different types of sensemaking (see Table 2). The decisions on sensemaking types were informed by Sandberg and Tsoukas' definitions, which focus on the sense-action nexus, temporality, embodiment, and language.

Table 2: Statements made during the panel discussion clustered according to the sensemaking types. The first number indicates the order of the statement, while the following letter(s) and colour distinguish the speaker. The second number denotes the order of the speaker's statement.

Immanent SM: routine activities	*Involved – deliberate SM: interrupted activities.*	*Detached- deliberate SM: problematic/problematized activities.*	*Representational SM: problematic/problematized decontextualized activities*
6.M1 starting point: the basic task is the fundament of the organization 11.M6 challenging situation 16.T1 trying to keep the work going despite the interruption 18.T3 telling basic things, what has been done: practical things 19.T4 telling the goal: back to normal situation/situation earlier 53.P8 Explaining the basics of the organization (size, resources) 61.JUS7 saw the practice from the situation 107.M54 basic task: giving advice	7.M2 interruption very exceptional "Wuhan" 8.M3 finding corresponding to the history: Spanish sickness 9.M4 seeing the possibility to come over the crisis: compering to the past 10.M5 analysing what to do: 12.M7 coming back to basic task: not spreading out more & taking care of the people: no more deaths 20.R1 what interruption caused 23.R4 coming back to basic task: maintaining 28.U2 thinking the future: soon over 40.U14 thinking the positive sides 41.U15 what's possible 42.U16 meeting near ones 48.P3 making up a task for himself / 49.P4 giving reason to the organization: saying it in a bit new way	4.Jus.4 new, challenging situation: decisions had to be made, direction to be shown and taken care of the neighbours 5.Jus.5 how has the leadership been in Covid time? 13.M8 going more to the details of the interruption 14.M9 serious matter 15.M10 cowork with other organizations 21.R2 analysing the situation with a group 22.R3 relying on experts 25.R6 finding own strengths to cope the situation: organizing 26.R7 finding a new way to cope together with others 27.U1 picturing the interruption: having an interruption meeting 29.U3 finding good points in the situation and reasoning them	1.Jus1 The start of the crisis: naming the interruption 2.Jus.2 Finland in exceptional conditions: interruption occurred 3.Jus.3 everyone met the interruption 24.R5 giving orders/statements 54.P9 giving orders, suggestions 81.M28 important in the team 82.M29 cowork 83.M30 interaction 84.M31 openness 85.M32 knowledge is coherent, 86.M33 based on the current knowledge, 87.M34 not extravagant, 88.M35 not underestimated 92.M39 our strengths 93.M40 network with other organizations: 94.M41 sharing information 95.M42 coherent information

The sensemaking statements were grouped according to sensemaking type to facilitate an overall understanding of each type (immanent, involved-deliberate, detached-deliberate, and representational SM). Following the analysis, a description of each sensemaking type in a crisis was formulated. They are presented below accompanied by citations from the original panel discussion and compared with servant leadership attributes.

After gathering the data, a theoretical framework was established. Subsequently, the analysis of the data and comparison with leadership theories revealed that in crisis situations, the characteristics of servant leadership were dominant. The attributes of servant leadership emerged as key to overcoming the crisis. The analysis of the data by sensemaking revealed that the attributes of servant leadership become dominant in crisis time leadership. The findings indicated that leadership must be flexible and responsive to the prevailing circumstances. Leaders are able to shift between different forms of sensemaking, contingent upon the specific sensemaking requirements of a given situation. A crisis, such as the global pandemic of COVID-19, compels leadership to adapt and utilise the novel tasks and capabilities of others to overcome the crisis, or even more: to leverage the benefits of the crisis to enhance one's leadership and to share the main task with others.

The ability to shift and a servant leader attitude abled leadership to maintain the basic task, find importance in ordinary work, make necessary changes, analyse the past and benefit from it in the present, analyse workers' behaviour and how they cope, support workers, and build up the community. In essence, leaders could leverage the advantages of diverse sensemaking types for the betterment of the situation. The challenges that the different sensemaking types pose for leadership are also worth of considering. For instance, the wide responsibility and the challenges in the face of change are pertinent issues. Further analysis could be conducted to examine the outcomes and consequences of this shifting and contagious nature.

The sensemaking types in crisis leadership that emerged from the analysis are then presented with original situations from the panel discussion. Following the citations, each sensemaking type is shown in the light of servant leadership characteristics. This shows the equivalence between each sensemaking type and the servant leadership attitude.

3.2.1 Immanent Sensemaking and Servant Leadership in Crisis

Leaders with immanent SM are concerned about losing control of the fundamental task, particularly when a crisis occurs, which can lead to difficulties. The interruption of a situation is perceived as a frightening and uncertain occurrence, which can result in a cessation of work by the leader. Those with an immanent SM are particularly susceptible to confusion in such circumstances and may seek external assistance to overcome the

crisis. Immanent SM leaders perform their duties well in the absence of interruption and concentrate on the basic tasks. Consequently, those leaders place a high value on the work routine and see it as a source of satisfaction. Such individuals derive contentment from the completion of fundamental tasks and strive to maintain this state as long as possible.

"How to preserve the sense of the meaning of the work during a crisis, yes…and my answer to that is that the best way is to always return to that basic task."

"I throw the ball … to the state. And for those in charge of taxation, that they see the workers' insurance like that."

As in immanent SM, so servant leadership is rooted first in serving, the fundamental task of a leader. As in immanent SM so in servant leadership the slogan of the leader could be: "Do what you need to do." "It begins with the natural feeling that one wants to serve. Then conscious choice brings one to aspire to lead." (Greenleaf 1977). Servant leaders find fulfillment in the basic tasks, what is for them necessary to do. In a crisis, the main thing is to see about others to survive. Servant leadership represents a distinctive approach that places a premium on the needs of others, prioritising self-sacrifice and collective benefit over personal gain or fame, whereas performance-oriented leadership takes the profit of people to create growth (Sendjaya 2015).

3.2.2 Involved-deliberate Sensemaking and Servant Leadership in Crisis

Leaders with involved-deliberate SM are inclined to return to the fundamental task at hand and employ all available means to facilitate a return to normalcy. The fundamental task is the basis of all subsequent actions. They view time in a manner that encompasses the past and the present. Those with involved-deliberate SM apply the insights gained from past experiences to inform their actions in the present. Leaders with involved-deliberate SM analyse the situation and the reasons for the interruption. In the context of crises, they are willing to accept assistance from others and are prepared to implement minor adjustments if this facilitates the continuation of the fundamental task. In the context of a crisis, the well-being of the workers is of paramount importance, and it is essential to maintain hope. Such individuals are adept at coping with crises. When leaders with involved-deliberate SM perceive an impending disruption, they embrace it and initiate a response. The role of the leader is strong, encompassing the following responsibilities: bringing together divergent perspectives, encouraging constructive dialogue, analysing the situation, ensuring the well-being of employees, providing support and guidance, and assuming accountability.

"Bringing something positive, hopeful, creative and maybe even humorous from everyday life into such small situations is certainly good to laugh together and together experiencing even small positive things is surprisingly empowering for each of us leaders at the same time."

"We have our own little unit, which in the front line, in a certain way, like fighting, works to ensure that we have the right picture of the situation and that we have a defence with all their numerous partners."

Servant attitude is found in involved-deliberate SM especially in serving others and supporting their growth. Eva et al (2019) define in their article: "Servant leadership is about (1) someone or something other than the leader, (2) one-on-one interactions between leaders and team members, and (3) an overarching concern towards the wellbeing of the wider organisational stakeholders and the larger community. Servant leaders seek to identify the will of a group and help to clarify that will. Servant leaders are deeply committed to the growth of each and every individual within their organization (Spears 2010). Individuals are regarded as objectives of support for growth and as a form of capital.

3.2.3 Detached-deliberate Sensemaking and Servant Leadership in Crisis

Leaders with detached-deliberate SM are seeking a new direction. Coworking and networking are important. They analyse everything, including their own behaviour, and identify their strengths. They maintain perseverance as a community and utilise skills from involved-deliberate SM by learning from the past and developing deeper meanings. In the event of an interruption or change, leaders with detached-deliberate SM maintain the feeling of importance of their work but try new things. Leaders appreciate understanding and support in attempting novel approaches in the context of a crisis, despite the inherent uncertainty of the outcome. The detached-deliberate SM approach necessitates the development of skills to facilitate change and to analyse the optimal direction and actions to pursue. Leaders must maintain cohesion within the workforce, and they can foster a sense of community and facilitate the exploration of new possibilities. In the context of a

crisis, the role of the leader in detached-deliberate sensemaking is challenging, as they are required to navigate uncharted territory without the benefit of a clear set of instructions.

"Yes, people have the ability when there is a common goal, there is trust, there is courage, there is such a sense of security that it is possible to present solutions even if they have not been tested to the last degree, so it does help. In a crisis, you need the ability to learn and creativity, and if you as a leader can encourage people to do that, then we will probably manage."

"You have to change the changeable and try to carry that task forward in those exceptional circumstances and through that create something that also secures continuity, a sense of permanence when so many blocks change in people's consciousness and environment."

As in detached-deliberate SM, servant leadership is positively related to commitment to change (Kool & van Dierendonck 2012). Servant leadership is of personal growth and accepting to serve first and lead after, but it has a great benefit to changing society (Song 2020). Servant leaders think beyond routines and are supporting to dream (Spears 2010), which supports to see things in a new way.

3.2.4 Representational Sensemaking and Servant Leadership in Crisis

Leaders with representational SM look back to the crisis afterward, analysing how the situation unfolded and how the various actors managed. They collect coherent information and learn from the situation and from others involved. Leadership is perceived as a collective endeavour, and the value of re-establishing connections with other actors is recognised. Leaders with representational SM analyse the causes of the crisis and identify the fundamental questions that have been raised by the crisis. In this form of leadership, there is a risk of losing sight of the fundamental task and the actors involved by becoming detached from the actual situation. The leader who adheres to representational sensemaking may be perceived as an outsider.

"We have had a huge number of joint meetings like this. Where we have exchanged a situational picture and also operating instructions and this has probably made us stronger."

"But when I think about what this pandemic has caused?…Yes, it has raised such fundamental questions. Especially that time a year ago in the spring, when just like the fear of death."

Foresight is a characteristic that enables servant leaders to understand the lessons from the past, the realities of the present, and the likely consequences of decisions for the future (Spears 2010). Servant leaders analyse past and present to learn from them.

4. Contributions

Through the use of field experiments, researchers can not only advance the research on servant leadership but also advance the practice of servant leadership within organisations. (Eva et al 2019).

The findings of this research have several implications for both theory and practice. The outcomes provide empirical evidence and insights into how leaders utilise sensemaking as a key capability when coping with and thriving in crises. Additionally, the results illustrate how decisions are made and the specific areas on which leaders need to focus on the context of crises. Moreover, the research findings underscore the intricacy and heterogeneity of sensemaking processes, which encompass diverse cognitive, emotional, social, and organisational dimensions. The research demonstrates which of these dimensions influence the decision-making process of leadership. In practice, this work enables the identification of which dimensions affect crises. The findings provide practical guidance and recommendations for leaders facing crises, including the use of sensemaking to act in the unknown, to communicate and collaborate. Furthermore, the research identifies some of the challenges and potential pitfalls that leaders may encounter when attempting to engage in sensemaking efforts, as well as strategies for overcoming these challenges. This study also demonstrates which statements are most prevalent in discussions and the reasons behind this. Furthermore, it provides insights into the contagiousness of discussions. The research also demonstrates which statements are particularly prone to contagion in discussions and the underlying reasons for this. When leadership is aware of this phenomenon, it can be cognizant of the contagiousness of certain statements and refrain itself from being drawn into unproductive or unwanted directions simply due to the influence of human behaviour.

The findings of this research can be further investigated with other groups to ascertain whether they are corroborated in different situations and across a range of crises. It is important to be cautious when interpreting and generalising the current results to other contexts and settings until further investigation has been

conducted. The findings have significant implications, including advancing the understanding and application of sensemaking in leadership research and human behaviour, and providing a novel and rich dataset for further analysis and comparison.

5. Conclusion

The capacity to lead effectively in times of crisis hinges on the leader's disposition to embrace a proactive stance and a readiness to adapt their sensemaking approach to the demands of the ongoing crisis. In particular, the sensemaking process in managerial discourse emphasises the importance of servant leadership in various ways. The present study aimed to examine the leadership dimensions that are particularly salient during crises and to identify the different perspectives on servant leadership sensemaking transitions that are highlighted in such contexts. The study demonstrated that servant leadership, which can shift between sensemaking types in various situations, is beneficial for organisations in the context of crisis challenges. It is noteworthy that the capacity to survive a crisis necessitates a servant leadership disposition. Servant leadership is inherently suited to navigating crises, whereas crises compel leaders to demonstrate these qualities to survive. Consequently, the servant leadership evolves naturally within the organisation as a means of overcoming crises.

In conclusion, this paper sought to examine how leadership makes sense of complex and uncertain situations and can act effectively in times of crisis. The sensemaking theoretical framework and methodological approach were employed to analyse the data collected from a panel discussion with five leaders from different sectors. The leaders shared their experiences and insights on leading in a time of crisis. The study found that sensemaking is a crucial leadership capability for navigating the unknown, involving a complex interplay of cognitive, emotional, social, and organisational processes. Furthermore, the study demonstrated how leadership can employ diverse forms of sensemaking in the context of varying circumstances. Leadership may be exercised through the utilisation of the immanent type of sensemaking for decision-making purposes, or through the examination of behaviour and the subsequent application of detached-deliberate sensemaking for the development of the manner of action.

Notably, further research indicates that leaders were influenced by a variety of statements, resulting in a lack of consensus and a tendency to deviate from the original topic during the discussion. This phenomenon appears to have occurred unconsciously and can be observed to have an impact on leadership. From this, we can derive insights into the principles of human discussions and the factors that contribute to the spread of ideas and statements in such contexts.

The paper discussed the implications, limitations, and contributions of these findings for theory and practice. It also suggested some directions for future research, including expanding the sample size and the data sources, using different methods of data analysis, and comparing different types and levels of leadership and crisis.

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Employee Training in the Workplace: The Case of a Private Hospital in Attica, Greece

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Abstract: This study investigates the impact and advantages of on-the-job training within organizations, with a particular focus on a case study of a major private hospital in Attica. It begins with the purpose of the research followed by literature review. The methodology section elaborates on the selection of the research method. Finally, it analyzes the outcomes from surveys conducted with many hospital employees, offering a detailed assessment of the real-world application of on-the-job training. The results showed that the training of employees in the workplace is an important means for the development and success of an organization, but also for its establishment in the area in which it operates.

Keywords: On-the-job Training, Incentives, Barriers, Hospital

1. Introduction

In the modern and constantly changing working environment, the need for continuous development and adaptation of professional skills to new data is becoming imperative. In the context of the fourth industrial revolution and the new data created by the rapid development of artificial intelligence, the continuous training of employees is emerging as a crucial part of this process, providing a springboard for the development of human resources and enhancing their efficiency. However, training in the workplace goes beyond the simple framework of vocational training, since it seeks to develop individuals in an integrated way, to enhance their overall potential and to promote innovation.

1.1 Purpose of the Research

The objective of this article is to examine the importance and benefits of employee education in the workplace, as well as the trends and issues encountered in this critical area. The paper focuses on the case study of a large private hospital in Attica, Greece. This study aims to solve the following important research questions:

- RQ1: What is the degree of willingness of employees to participate in on-the-job training programmes?
- RQ2: What are the barriers to workers' participation in workplace training programmes?
- RQ3: What incentives can be given to employees to increase their participation in workplace training programmes?
- RQ4: What degree of correlation is observed between the degree of willingness of employees to participate in workplace training programmes and the incentives and barriers observed?
- RQ5: What are employees' expectations of participating in workplace training programmes?
- RQ6: What basic training needs are identified?

The combined answers to these questions allow for a thorough comprehension of the issue at hand, the emergence of all of the individual parts that comprise the issue, and an assessment of its relevance while taking into account the specificities and demands of a health service organization. The first step in this approach is a survey of the international literature on adult education and adult educators, on-the-job training, various types of workplace training, lifetime learning, continuing education, and the design and implementation of relevant educational programs.

2. Literature Review

In today's ever-changing workplace, the necessity for ongoing improvement and adjustment of professional abilities to new data is becoming increasingly important. In the context of the fourth industrial revolution and the new data generated by the rapid growth of artificial intelligence, continuous employee training is emerging as a critical component of this process, serving as a springboard for human resource development and efficiency.

However, workplace training goes above the fundamental framework of occupational training in that it attempts to develop persons holistically, to maximize their overall potential, and to stimulate innovation (Papademetriou, 2015; 2020).

On-the-job training refers to the acquisition of new skills and knowledge by employees within the work context. It is seen as a highly innovative and effective training process, as it is targeted to the needs of a specific job or work sector, tailored to the development of an employee's skills. It is a dynamic process, which changes according to needs and adapts to the new circumstances of an organisation. According to McBeath (2013), on-the-job training has as its main objective the purposeful and systematic modification of employees' behaviour in their work environment through training programmes that lead employees to develop their level of knowledge and skills in order to respond more successfully to their job duties.

On-the-job training has been the focus of extensive research worldwide, particularly in recent years. As one of the most current disciplines in the larger discipline of human resource management, it has piqued the interest of eminent university professors and other academics who specialize in related issues.

Ruhose et al. (2019) analyze data from the German SOEP (Socio-Economic Panel) and conclude that ongoing on-the-job training considerably boosts employee participation in organizational activities while also enhancing social bonds amongst them.

Belzer and Dashew (2023) focus on adult educators and the unique abilities they must develop in order to fulfill their educational objectives. They claim that adult learners pursue learning on purpose, for a variety of reasons and in a variety of circumstances, making them a very specific group of learners who require a common strategy.

3. Methodology

The sample included 165 personnel from the Gynaecology-Obstetrics, and General, Paediatric Clinic at IASO hospital. The specific sample was chosen because the nursing staff members share several intriguing characteristics:

- Nursing professionals get ongoing training to be up-to-date in their field.
- Nursing professionals require continual training due to frequent department transfers.
- As medical and nursing practices evolve, nursing staff must adapt their tools accordingly.
- The organization's ongoing expansion necessitates the recruitment of new nursing staff. As a result, there is an increased requirement for training for newly hired nursing staff.

An original structured questionnaire was developed to fit the research's goal and collect a significant amount of data. It took about a month to design the questionnaire after researching the necessary literature. The primary sources on which the questionnaire's framework was based are as follows:

The General Secretariat of the National Statistical Service of Greece conducted the "Adult Education Survey/Individual Questionnaire" in Athens in 2014. Questions 9 through 15 of the questionnaire were based on this questionnaire.

National Centre for Public Administration and Self-Government, "Detection of Educational Needs and Assessment of Training Results/ Individual Questionnaire," Athens, 2011. Questions 20 through 23 of the questionnaire were based on this questionnaire.

European Commission, "Guidelines for the Adult Education Survey/ Individual Questionnaire", Athens, 2017. Questions 16 through 19 of the questionnaire were based on this questionnaire.

This was followed by a written application to the organization's Scientific Council for the awarding of a research license within the organisation, together with a research protocol for the development of a thesis. The research protocol describes the study's aim, research questions, literature review, methodology, and dates. The surveys were distributed in person by the researcher to the various nursing departments of the organization's three clinics, with on-site access available. Respondents were invited to complete them anonymously. A specific box was established in a central location in the Clinic to collect completed questionnaires, into which the respondent(s) placed their completed forms after being informed of the method and location of collecting. This guaranteed that the respondents were not subjected to any external influence or impact that could call into question or affect the honesty of their responses.

The questionnaire contains 28 questions in total and is separated into two sections. The first section includes the respondents' demographic information (eight questions), while the second section focuses on their participation in in-service training programs, motives and hurdles faced, and adult educator characteristics. The second section of the questionnaire consists of both closed and open questions. Closed-ended questions make use of multiple-choice or Likert scale responses. This is a five-point fixed-choice scale (often up to seven points), in which respondents indicate whether they agree or disagree with the questionnaire's phrasing. The five values used in the current survey's questionnaire are "not at all", "a little", "quite a bit", "a lot", and "very much". A five-point Likert scale (rather than a seven-point scale) was used because it is thought to be more user-friendly for the respondent(s), resulting in faster questionnaire completion. Furthermore, on the five-point scale, it is quite simple to distinguish between values with a very low or low degree ("not at all", "a little"), a moderate degree ("quite a lot"), and a high or very high degree ("very much", "very much") in terms of the level of agreement with the formulated proposition. Cronbach's alpha coefficient was used to assess the questionnaire's reliability (Anastasiadou & Karakos, 2011; Anastasiadou, 2012; Panitsides, & Anastasiadou, 2015). The Cronbach's alpha coefficient was determined to be 0.802, confirming good dependability (Anastasiadou, 2013a; Anastasiadou & Papa, 2009; Anastasiadou et al., 2010; Papademetriou 2015; Papademetriou et al., 2023a; 2023b; 2022, Taraza et al., 2023; 2024).

As already mentioned the investigation relied on 165 questionnaires issued to IASO hospital personnel between the end of October and the end of November 2023. The questionnaire data were input and analyzed with the statistical software SPSS V 29.0

4. Results and Discussion

4.1 Demographic Findings

The study sampled 165 persons, including 17 men (10.3%) and 148 women (89.7%). The unequal gender distribution of the sample stems from the fact that women outnumber men in the field of nursing professionals. The majority of survey respondents (45.5%) are between the ages of 25 and 34. This is followed by persons aged 35-44 (25.5%), with nearly equal frequency by those aged 18-24 (13.9%) and 45-54 (13.3%). In contrast, only 1.8% are beyond 55 years old. In terms of marital status (Graph 3), the sample is virtually evenly divided between unmarried and married, with the former slightly outnumbering the latter (53.3% versus 46.7%). 57% are childless, whereas 43% have at least one kid.

4.2 Research Question 1

The data analysis found that the vast majority of respondents (at a cumulative rate of more than 97%) share a similar ambition, to varied degrees. More specifically, 51.9% stated that they are very likely to join in such programs, 24.1% that they are very likely, and 21.6% that they are somewhat likely. In comparison, only 1.2% responded that they are only mildly inclined to participate in in-service training programs, with another 1.2% stating that they have no such interest.

The desire to participate in in-service training programs was significantly correlated with respondents' age ($p = 0.003 < 0.05$). More specifically, in the 25-34 age group, the high and very high desire is 87.5%, however in the 18-24 age group, it drops dramatically to 52.

There was a significant association ($p = 0.001 < 0.05$) between respondents' educational level and their desire to participate in in-service training programmes.

4.3 Research Question 2

Lack of time due to workload appears to be the most significant impediment to participation in such programs, with 84.3% describing it as a very or very big barrier, 11.5% as a reasonably big barrier, just 3% as a moderate barrier, and 1.2% as not a barrier at all. It is noteworthy to note that Karalis (2013) determined that a lack of time due to workload is an impediment for only 48%.

Lack of time owing to family obligations is also a significant impediment, with 61.3% describing it as a very or very major obstacle, 21.2% as a moderately important obstacle, 9.7% as a little obstacle, and 7.9% as not an obstacle at all. Again, there is a substantial discrepancy from Karalis' (2013) survey results, which show that lack of time owing to family duties is a limiting issue for only 28.3%.

For a very tiny percentage, only 3%, the absence of need for schooling is a very or very major barrier; for 7.9%, it is a reasonably important barrier; for 15.2%, it is a minor barrier; and for nearly three out of four (73.9%), it is not a barrier at all. 12.1% do not see a reason to participate because they do not believe there will be a significant change in their daily lives at work (much lower than the 21.4% found in Karalis' research, 2013), compared to 9.1% who believe the change will be moderate, 25.5% who believe there will be a noticeable change, and 53.3% who expect a significant change. In contrast, a lack of appropriate trainers, the absence of a culture of ongoing education in the organization, and the training program's restricted substance do not appear to be significant deterrents.

More importantly, the timing of the training program appears to be convenient for potential participants, as nearly half of them (49.7%, comparable to Karalis' (2013) survey, which puts it at 56.5%) reported that an inconvenient schedule is a very or very important barrier to their participation. The age parameter does not appear to be a determinant, as three out of four respondents stated that they did not see considerably advanced age as a barrier to participation in in-work training programs. Finally, Karalis (2013) states that the most significant barrier is the cost of participation in a training programme. However, this component is absolutely absent from our research because the firm in which this research was done provides free training sessions to its employees, therefore financial cost has no effect on participation.

The primary association seen in the survey data is related to the participants' ages. As respondents age, they are more likely to identify lack of time due to family responsibilities ($p = 0.001 < 0.05$), lack of time due to workload ($p = 0.001 < 0.05$), and training program days and times ($p = 0.0014 < 0.05$) as significant barriers to participation in in-work training programs.

4.4 Research Question 3

The data analysis reveals that 88.2% of respondents are very or very highly motivated in terms of their professional development, 13% are moderately driven, 1.9% are not very motivated, and no one indicated a complete lack of motivation. 60.5% reported having a very or very high motivation to participate in order to keep their job (more than ten percentage points lower than the 71.8% reported in the Karalis, 2013 survey), 25.9% having a fairly high motivation, 12.3% having a low motivation, and only 1.2% having no relevant motivation. Almost two-thirds (65.4%, significantly lower than 76.3% in the Karalis, 2013 survey) said they have a very or very high motivation to participate in order to increase their earnings, 23% said they have a fairly high motivation, 4.8% said they have a low motivation, and a not-insignificant 6.7% said they have no motivation at all.

More than four out of five respondents (82.7%, nearly identical to Karalis' 2013 findings) stated that they are very very or very much motivated to participate in such programs in order to increase their efficiency, while one in eight (12.3%) stated that they have quite a lot of motivation, 3.1% that they have little motivation, and 1.9% that they have no motivation at all. Almost three-quarters (73.5%, slightly less than the 79.2% reported in the Karalis, 2013 survey) stated that they were very or very strongly motivated to take part in order get additional formal qualifications, 17.3% that they are quite motivated, and nearly one-tenth (9.3%) that they are not very motivated. 93.8% of respondents said they are very or extremely driven to engage as a means of learning new things, 6.2% said they are moderately motivated, and no one said they have little or no motivation. Finally, respondents had more mixed feelings about how much they thought engaging in in-work training programmes would help them create relationships with their co-workers. More specifically, 63% assessed this form of motivation as very or very high (approximately seven percentage points higher than Karalis' 2013 findings), 18.5% as fairly high, 11.1% as low, and 7.4% as not existing.

4.5 Research Question 4

Of particular relevance is the substantial correlation observed between the degree of willingness to participate in workplace training programmes and the motivation for such participation, which relates to Research Question 4 (E4). More specifically, of those who are very or extremely willing to participate in such programmes, 63.4% have a strong motivation to increase their earnings ($p = 0.0021 < 0.05$), 83.7% to improve their efficiency ($p = 0.0018 < 0.05$), and 78.1% to broaden their formal qualifications.

4.6 Research Question 5

Respondents reported having very or extremely high hopes from participation in similar programmes at a cumulative rate of 87%, with another 9.3% reporting having fairly high expectations. In comparison, only 3.7% reported having few expectations, and no responder reported having none. The results are similar when it comes to expectations for earning formal qualifications, with 70.2% reporting that they have very or very high expectations, 19.1% having rather high expectations, 4.9% having modest expectations, and only 3.7% having none at all. According to the Karalis (2013) survey, 79.2% of respondents have very or extremely high aspirations for earning formal qualifications.

In terms of mentality adjustment, 67.9% reported having very or very high expectations, 25.3% rather high, and only 6.8% a few. 84.6% said they have very or very high expectations of learning knowledge that will improve their efficiency, 10.5% said they have several, and 4.9% said they have few. The percentage of those who stated that they have very or very high expectations of learning knowledge that will boost their efficiency is nearly equal to the findings of Karalis' (2013) study, which was based on 86.4 percent. Finally, 84% of respondents said they had very or very high expectations for learning skills relevant to their job, 9.3% said they have several, and 6.8% said they have few. The amount of respondents who stated that they have very or very high expectations of developing skills related to their profession greatly exceeds the data obtained by Karalis in his study on incentives and barriers to adult engagement in lifelong learning (2013), which put it at 71.8%.

It is worth noting that there is a strong association between employees' desire to participate in workplace training programmes and their expectations of the benefits of doing so. Of those who are very or extremely willing to participate in such courses, 95.1% anticipate to receive knowledge that will help in their professional growth ($p = 0.001 < 0.05$), and 90.3% expect to develop work-related abilities ($p = 0.001 < 0.005$). it is important to mention that, 78.1% of respondents plan to improve their professional behaviour ($p = 0.001 < 0.05$), 80.5% plan to increase their formal qualifications ($p = 0.001 < 0.05$), and 90.2% plan to expand their knowledge, leading to increased efficiency ($p = 0.001 < 0.05$).

4.7 Research Question 6

According to the data, the sample respondents rate the following parameters as very or very important: training of new employees (66.1%), in-service courses of theoretical content (64.9%), in-service courses of skills (63%), continuing education in the form of seminars and workshops (59.4%), and supervisor training (57.5%).

The correlations that emerge from data analysis are related to individuals' ages and their desire to participate in workplace training programmes. 78.6% of respondents aged 35-44 and 80.6% of respondents aged 45-54 prioritise employee training as a basic need ($p = 0.003 < 0.05$). Sussilo (2021) draws the same conclusion in his research. Furthermore, those aged 45-54 years old deem it significant. 86.4% of respondents believe acquiring specific job skills is vital ($p = 0.001 < 0.05$), while 86.3% value supervisor training. Similarly, those who express an increased desire to participate in workplace training programmes consider the training of new employees ($p = 0.001 < 0.05$) and the training of supervisors ($p = 0.001 < 0.05$) as key needs. Furthermore, the sample's responses to the techniques of continuing education used in the organisation are linked to Research Question 6 (Q6). This data does not show that one strategy is clearly selected by respondents as the most appropriate over the others. On-the-job training is seen as very or extremely effective by 44.2%, while in-clinic seminars and workshops are highly and very highly desired by 39.4% and in-service seminars by 38.2%.

A considerable association exists among willingness to participate in in-service training programmes and evaluation of the benefits of ongoing training within the business. Among those who express a strong desire to participate in such programmes, nearly seven in ten (69.9%) believe that continuing their education will make the organisation more attractive to new employees ($p = 0.0014 < 0.05$), nearly nine out of ten (88.6%) believe that continuing education positively contributes to increasing employee performance ($p = 0.001 < 0.05$), and two out of three (66.6%) claim that continuing education contributes to reducing retirements from the organization ($p = 0.0017 < 0.05$).

The effects of continuing education as perceived by respondents are also related to Research Question 6 (Q6). Examining these responses, it is clear that there is a strong belief that continuing education contributes to organisational culture change, makes it more appealing for attracting new employees, increases efficiency, and reduces employee turnover.

5. General Discussion

Employee training in the workplace is a vital method of an organization's development and success, as well as its establishment in the field in which it operates. Adopting suitable training procedures can help employees improve their skills, knowledge, and competences, allowing them to perform their jobs more effectively (Hoyle, 2015).

It is not an exaggeration to say that, in today's work environment, the implementation of a holistic and inclusive training model is emerging as a precondition for attaining an organization's long-term goals and, in general, sustaining its sustainability (Merriam & Bierema, 2023). The research found that this fact is first and foremost recognized by the workers themselves, particularly those working in the sensitive health sector, which is the focus of this thesis. On the one hand, one of the most important discoveries is that there is a strong willingness among the organization's personnel to participate in training programs. On the other hand, this desire appears to be stronger when an individual's educational profile rises; hence, there is a clear relationship between desire and cognitive background. The combination of these two findings emphasizes the importance of developing training programs that take into account the unique requirements of each work environment (Mitchell, 2023), so that objectives, methods, and learning outcomes can be tailored accordingly, following a customized/tailored-made logic.

The study also found that the incentive to enroll in a training program in a healthcare organization results in a pattern that is particularly interesting. The findings are consistent with the previous literature (Karalis, 2023).

On the contrary, an increase in financial profits is not as important as motivation, which at first glance appears to be a contradiction. Similarly, it appears contradictory to conclude that preserving one's employment does not provide a substantial incentive to enroll in in-service training programmes. However, these anomalies are simply superficial and can be easily explained rationally and convincingly through a comprehensive review of all survey data. Throughout this process, it becomes evident that, in the end, the primary goal of those who participate in a training program is not so much to secure their current employment, but rather to increase their position in the labor market in general. As a result, their concentration is on the medium to long term, rather than the near term. According to Ocen et al. (2017), a significant portion of the workforce recognizes the strategic value of such training programs.

According to the survey, the most significant hurdle faced by employees in a health service company is the respondents' severe workload. This is not a new finding; other experts have long recognized it (Karalis, 2013). Interestingly, the second most prevalent barrier stated by the sample is the perception that participating in a training program will not result in major changes in their daily professional life.

Respondents' family duties, on the other hand, were not identified as a significant barrier, which is consistent with the fact that the training programs are most often offered during working hours, so participation does not interfere with the rest of the trainees' schedules. It is also worth noting that the sample did not perceive a lack of interest in a programming as a barrier to participation. Finally, it is worth noting the zero link between age and readiness to participate.

In terms of educational needs, the analysis of the data acquired through the questionnaires leads to the conclusion that two of them play a primary role in the development of an educational program. On the one hand, it is critical to teach newly arrived employees in a professional setting, especially if it has specialized characteristics, as is clearly the case in a health care firm. On the other hand, continual training for all employees is equally crucial, with a focus on developing skills that are more relevant to the work than others.

As indicated in the worldwide literature (Belzer & Dashew, 2023; Samoilenko, 2020), trainers are critical to the success of an adult education program. This finding is supported by the findings of the current study. It is worth noting that survey respondents stated that their trainers' substantive qualifications are more essential than their formal qualifications. Thus, in addition to a thorough understanding of the subject matter, the most crucial attributes that emerged were a trainer's practical experience and awareness of the factors that govern the working environment in which the training is offered.

6. Conclusion

The findings of this study could be put into effect in organisations like the one under examination. To do this, an autonomous training department is required (and, if one does not already exist, one should be established), which will be in charge of designing and implementing training programs. Such programmes should be designed

to satisfy the organisation's training needs, as defined by its scope and objectives. Such needs include training new entrants into the workforce, ongoing human resource training, and on-the-job training tailored to the specifics of the job at hand. Furthermore, the success of such a model can only be attributed to the use of cutting-edge training approaches such as interactive learning methods, cooperative learning, systematic and thorough feedback, the development of mechanisms for recognizing effort and reward, and the application of theory to practice.

Finally, it is worth noting that in a future research project on a comparable topic, descriptive mixed research might be used as a combination of quantitative and qualitative research to better leverage the benefits of each. Mixed-methods research was not undertaken in this study due to the researcher's personal relationship with the organization, which could have influenced the study's findings. This is the major limitation of this study. Simultaneously, qualitative research becomes more challenging as the time required increases. If mixed methods research is adopted in the future, it would be beneficial to collect qualitative data first, followed by the development of a questionnaire to attempt a quantitative analysis of the results.

Furthermore, the use of algorithms, analytics, and big data research with very large samples would allow for greater exploration and understanding of the topic (Souravlas. 2019; Souravlas & Anastasiadou 2021; Tantalaki et al., 2019a; 2019b).

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The Importance of Emotional Intelligence in Direct Leadership in the Army of the Czech Republic

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Abstract: The article deals with application of emotional intelligence for leaders of direct leadership in the Army of the Czech Republic and its connection with the social climate of their units. Emotional intelligence leadership and social climate is a connection that is currently appearing in research activity and doctrinal army documents and explores. The authors try to find and evaluate the benefits and limits of EI in the field of preparation military personnel. From the currently available research, it is precisely the construct of emotional intelligence that appears as one of the possible ways to develop the necessary skills of commanders to facilitate their work with subordinates. Emotional intelligence involves the ability to correctly identify emotions in oneself and in others, to understand emotions and their language, to manage emotions in oneself and in others and use emotions to support cognitive activities and to motivate adaptive behaviour. Direct leadership is the level where leading people is face to face. These are units, where subordinates are used to seeing their commanders every day. For these functions it is still possible and important to create strong relationships, close cooperation and mutual knowledge of all members of the unit. Commanders facing high decision-making demands in an unstable environment. They build working one's teams with a favourable social climate and support their psychological resilience subordinates. These aspects are decisive for ensuring the tasks of the unit. The main method is quantitative research, which is carried out using a standardized test MSCEIT emotional intelligence in selected commanders of six units and a non-standardized questionnaire "social climate on the units" in their subordinates. Based on obtained results is submitted methodology of development of emotional intelligence for leaders of a platoon. It contains standard parameters. The thesis also formulates recommendation for pedagogical and research activities and output of doctrine leadership.

Keywords: Army Leadership, Direct Leadership, Emotions, Emotional Intelligence, Social Climate

1. Introduction

The article deals with direct leadership in the Army of the Czech Republic with a focus on the application of emotional intelligence for direct leadership commanders and its connection with the social climate of the units. Emotional Intelligence (EI), leadership, and social climate is a connection that is currently being explored. The authors seek to identify and evaluate the benefits and limitations of EI in the preparation of military personnel.

The searching for new ways to modernise the training of personnel is important to ensure the fulfilment of the tasks of the Czech Armed Forces and to maintain the standards of the North Atlantic Treaty Organisation (NATO). Considering the construction concept of the Czech Armed Forces, which plans for an increase of approximately 2,400 new soldiers per year, the area of training and development of personnel is a priority. The University of Defence will play a key role in attracting candidates for service at the lowest officer ranks, as well as direct recruitment and career progression (Concept of the build-up of the AFK 2030, 2019). The preparation of personnel is also essential in view of the planned numbers of deployed soldiers in foreign operations in the coming years. In 2021, 851 soldiers are expected to be deployed and in 2022, 954 soldiers are planned to be deployed (Fajnor, 2020).

The direct leadership is the level where soldiers lead face-to-face. These are units where subordinates are used to seeing their leaders every day (teams, squads, platoons and companies). The paper deals with the possibilities of application of emotional intelligence for the positions of company commander, deputy company commander, platoon commander and his deputy in mechanized troops in the conditions of the Czech Army. For these functions it is still possible and important to form strong relationships, close cooperation and mutual knowledge of all members of the unit. Commanders face to high demands for decision-making in an unstable environment. They build functioning teams with a favourable social climate and support the psychological resilience of their subordinates.

Based on currently available knowledge, the construct of emotional intelligence appears to be one possible way to develop the necessary skills of commanders to facilitate their work with subordinates. Emotional intelligence includes the ability to correctly identify emotions in oneself and others, to understand emotions and their language, to manage emotions in oneself and others, and to use emotions to support cognitive activities and to motivate adaptive behaviour. It has a variety of applications. EI is seen as a predictor of workplace success due to its significant association with transformational leadership.

All of the above aspects are also crucial for the direct leadership commanders and have an impact on their daily job duties. If these aspects are developed and supported, a favourable social climate is created in the workplace, which has an impact on the performance of job duties and the satisfaction of subordinates in the unit. The social climate is characterised as the nature of the prevailing interrelationships between the individual members of the work group and their overall atonements. It has an impact on the working and behaviour of individuals (Jarošová, Pauknerová & Lorencová, 2016).

Research findings show that emotional intelligence supports leadership, including developing a coherent vision of goals, instilling the value of subordinates' work, creating a favourable social climate, and cultivating adaptability to change (Conger & Kanungo, 1998; Kirkpatrick & Locke, 1991; George, 2000). A military unit is a complex organism where the commander plays a decisive role. The social climate also plays a key role in the functioning of the unit and the fulfilment of its objectives, which influences the overall functioning of the relationship between the commander and his subordinates. In his daily activities, there is a two-way exchange of emotional information, in particular the ability to identify the significance of social signals in the behaviour of subordinates on the one hand and to respond appropriately on the other.

Based on these findings, the key question is in what form to include emotional intelligence in the system of training commanders at the direct leadership level in the Czech Republic in order to strengthen the fulfilment of the needs of the functioning of their unit.

2. Theoretical Background

The construct of emotional intelligence can help prevent social and interpersonal problems and increase the likelihood of success in interpersonal relationships. It can influence the conditions for forming strong, harmonious, social relationships between soldiers and their commanders, especially in the smallest military units.

The literature and military leadership doctrines are emerging emotional intelligence and its importance in leading military members. Based on current research findings, it appears that emotional intelligence and social climate play a role in the development of military leaders (Penrod, 2010).

The concept of emotional intelligence is currently the subject of intense research not only in the field of leadership. This concept was first mentioned by American psychologists Peter Salovey and John D. Mayer in the wake of Howard Gardner's research. The authors tried to point out that society perceives emotions as a disturbing element of mental processes, and it is necessary to keep it under control. As such, they defined the concept as a subset of social intelligence, which includes the ability to monitor feelings and emotions in oneself and others, to discriminate them, and to use the information obtained to direct one's thinking and activities (Mayer, Salovey & Caruso, 2000).

Emotional intelligence is a fundamental element of human behaviour that is distinct from our intellect (Bradberry & Graves, 2013). The concept of emotional intelligence was popularized among the general public by American psychologist Daniel Goleman, who pointed out that emotional dispositions and personality traits, especially those that influence the quality of interpersonal relationships, are critical (Goleman, 2011).

For the purposes of the article, a four-component model of emotional intelligence was used, which is based on a questionnaire survey in the practical part (Schulze & Roberts, 2007). In this model, the authors define emotional intelligence as a set of emotional abilities that can be divided into four areas perceiving, assessing and expressing emotions, using emotions, understanding emotions and their interpretation, emotion management, emotion regulation supporting emotional and intellectual growth.

While some individuals tend to be considered potential leaders, on the other hand, some individuals demonstrate leadership ability on measures of emotional intelligence due to their insensitivity and inability to work in a group, inability to express themselves (Bar-on, Handley & Fund, 2006).

A close link was found between the selection, assessment and development of leaders and emotional intelligence in a study by Johnson and Johnson. Applying a questionnaire called the Emotional Competence Inventory, results were obtained from supervisors, employees, and colleagues. This questionnaire includes 4 aspects of emotional intelligence: self-awareness, self-management, social awareness and social skills. Gowing found that emotional intelligence can be used in the selection, evaluation and development of future leaders. These results are supported by the view of Goleman, who believed that leadership development is something that occurs over time. (Gowing, Leary, Brienza, Cavallo & Crain, 2006).

Emotional intelligence research has been conducted at the federal Finance and Accounting Services Agency. Employees of the organization participated in emotional intelligence training. Prior to the training, their emotional intelligence level was measured using the "Emotional Competence Inventory". After the implementation, the measurement was repeated using the same questionnaire. The results of the questionnaire increased after the training. The result of the study provided evidence that emotional intelligence can be trained, developed and linked to leadership (Gowing, Leary, Brienza, Cavallo & Crain, 2006).

Interpersonal skills are needed for current and future military leaders. Bar-on defined that interpersonal intelligence is closely linked to emotional intelligence. These competencies consist of active listening, trust, and balancing demands for the well-being of others. According to Goleman, these competencies are closely related to emotional intelligence (Bar-on, 2007).

In 2010, quantitative research was conducted at the Military Education Center, where the subject of the study was the relationship of emotional intelligence of the employees of the Military Education Center and whether it plays a role in unit performance when considering organizational climate and job satisfaction. A positive statistical relationship was found between emotional intelligence and job performance. Another recommendation of the research was to expand the sample of respondents, to include emotional intelligence training in professional development (Penrod, 2010).

In 2015 in the United States, the Leadership Faculty explored emotional intelligence and its relationship to the competency model of the military leader. The research was conducted with members of the direct and organizational leadership. Based on the qualitative research, the following suggestions are recommended: (1) conduct quantitative studies examining the relationship between emotional intelligence competencies and the attributes and competencies of the military leader; (2) formally integrate emotional intelligence competencies into the military leadership doctrine; (3) and incorporate emotional intelligence development programs at all levels of leadership and education within the military (Clark, 2015).

In 2016, quantitative research was conducted to look for a relationship between emotional intelligence and self-efficacy in U.S. military leaders. The research used the standardized MSCEIT emotional intelligence questionnaire. The author of that study recommended training emotional intelligence and self efficancy in military commanders to influence decision making and confidence in their own decisions (Hudson, 2016).

In 2017, research was conducted on the influence of emotional experiences on emotional intelligence in U.S. military commanders. The purpose of this quantitative study was to evaluate and compare the emotional intelligence scores of military commanders who served in high stress environments with commanders who did not serve in such conditions. The WLEIS questionnaire was administered to measure emotional intelligence levels (Crosby, 2017). Other research that focuses on the relationship between emotional intelligence, performance, and leadership is shown in Table 1 above.

Table 1: An overview of selected research on the issue

Studies	Participants	Research Design	Results
Kambeya (2008)	5 lecturers	Qualitative	Interpersonal skills played a role in the level of performance of the teachers. Teachers' attitude and productivity were influenced by principals' interpersonal communication.
Barbuto a Burbach (2006)	80 selected public officials and 388 of their subordinates	Quantitative (questionnaire)	A positive relationship was found between emotional intelligence and transformational leadership. Leaders with higher levels of empathy were more likely to identify themselves as transformational leaders.
Cook (2006)	143 directors	Quantitative (questionnaire)	There was no statistically significant difference between emotional intelligence, age, gender, and length of experience. The level of emotional intelligence affected the performance of the individual.
Eichmann (2009)	51 leaders	Combined research	Emotional intelligence improves over the course of training. Training results showed growth in stress management. There were changes in behavioural practices after training. Positive feedback, better teamwork, active listening and showing empathy.

Studies	Participants	Research Design	Results
Military Training and Commander Development (Walters, 2018)	40 000 soldiers and civilian workers	Combined research, Questionnaires, Interviews, Focus groups	Four areas were defined for the research (lifelong learning, interpersonal capability, military culture and accountability.

3. Methodology

3.1 Purpose of Study

Based on the clarification of the issue, the research objective was set as follows. The main objective of the research investigation of this thesis is to identify the level of emotional intelligence of the direct leadership commanders and to assess the social climate of their individual subordinates and to compare the findings between the different companies. A similar approach was implemented in the United States at Georgia Southern University, where the author identified the emotional intelligence level of leaders, organizational climate, and job satisfaction of their subordinates in a military training environment.

In relation to the stated research objective, the following research questions are formulated in the first phase of the research:

VO 1: What is the level of emotional intelligence of the selected direct leadership leaders?

VO 2: Does the level of emotional intelligence of the selected direct leadership commanders differ from the normative values?

The following hypotheses are formulated in relation to the stated research objective in the second phase of the research:

H1A: The mean values of the measures of organizational work environment conditions are not the same for each company.

H2A: The mean values of the measures of working relationships and cooperation are not the same for each company.

H3A: The mean values of the measure of the working behaviour of commanders in each company are not the same.

H4A: The mean values of the measures of job satisfaction are not the same for each company.

H5A: There are statistically significant differences between the frequencies of responses to question 45 for each company.

H6A: There is a statistically significant relationship between responses across age groups for each company.

Parametric and non-parametric approaches were used for hypothesis testing (Kruskal-Wallis test, Wilcoxon test, One-factor ANOVA, two-sample Wilcoxon test and Chi2 test of homogeneity).

3.2 Characteristics of the Sample in the First Stage

The sample of respondents consisted of members of the Army of the Czech Republic currently serving with the 7th Mechanised Brigade in Hranice na Moravě and Přáslavice. The sample consisted of 30 direct leadership commanders from 6 selected companies. A specific overview of the numbers is shown in Table 2 below.

Table 2: Composition of respondents

Hranice na Moravě	1/71	5
	2/71	5
	3/71	5
Přáslavice	1/72	5
	2/72	5
	3/72	5
	Total	30

(own study)

On January 14, 2019 at the Commanders' Meeting, commanders were contacted and asked to participate in the research. Due to the challenging availability of the sample, a non-probability method was chosen: opportunity sampling based on availability. The following characteristics were observed for respondents: age, gender, rank, position, level of education attained, and time in command. The return rate of the questionnaire was 100%, thus 30 questionnaires were evaluated.

3.3 Characteristics of the Study Population in the Second Stage

The sample of respondents consisted of members of the Army of the Czech Republic currently serving with the 7th Mechanised Brigade in Hranice na Moravě and Přáslavice. These were 295 subordinates of individual company commanders according to the table below: Number of subordinates in each company.

Table 3: Composition of respondent in second stage

Hranice na Moravě	1/71	50
	2/71	38
	3/71	20
Přáslavice	1/72	40
	2/72	78
	3/72	69
	Total	295

(own study)

The following characteristics were observed for the respondents: age, gender, rank, position, time in position. The representation of different functions was diverse.

3.4 Measurement Tool

According to the set objectives, quantitative research was chosen, which was divided into two stages. In the first stage, in order to obtain research data and verify the research assumptions, quantitative research was conducted using the standardized questionnaire MSCEIT - emotional intelligence test. This is a performance test, where instead of answering questions regarding the assessment of their emotional abilities, individuals directly perform tasks and solve emotional problems. MSCEIT provides two basic methods of administration: a standard electronic online form, or a paper form using a test booklet and record sheet. However, the answers must then be transcribed into the "Hogrefe Testsystem 4" computer system for evaluation. In the second stage, quantitative research was carried out using a non-standardized questionnaire of own construction, the "Company Social Climate Questionnaire". It contains 46 items that describe the current nature of the social climate in the selected company.

3.5 Result and Discussion

The purpose of the research investigation is to identify the level of emotional intelligence of direct leadership commanders and to assess the social climate of their individual subordinates and to compare the findings between companies.

In the first phase, the following two research questions were formulated.

Q1: What is the level of emotional intelligence of the selected direct leadership leaders?

Based on the evaluation of the results from the first phase, the level of emotional intelligence and its individual areas were identified in 30 direct leadership commanders from 6 selected companies currently serving with the 7th Mechanised Brigade in Hranice na Moravě and Přáslavice. The resulting emotional quotient for each respondent is shown in the table below.

Table 4: **The resulting emotional quotient for each respondent**

1/71	1/72	1/73	1/72	2/72	3/72
66	78	89	91	82	97

1/71	1/72	1/73	1/72	2/72	3/72
89	101	83	102	91	82
101	64	69	82	118	76
53	91	71	88	99	102
98	109	59	98	99	80

(own study)

VO 2: Does the level of emotional intelligence of the selected direct leadership commanders differ from the normative values?

Based on the evaluation of the result of the first phase and the answer to the first research question, it can be said that the level of emotional intelligence of the selected 30 direct leadership commanders differs from the normative values. The results compared to the normative values classified the commanders into three categories. For 13 commanders, the result is below average compared to the normative sample. For 16 commanders the result is average compared to the normative sample and for 1 commander the result is above average. The results show that there is room for the development of emotional intelligence. Based on the research, it shows that there are ways and means of developing EI and describes the benefits of development.

In the second phase, the six hypotheses below were formulated.

H1A: The mean values of the measures of organizational work environment conditions are not the same for each company.

- The hypothesis was accepted. Significantly different pairs were for the 3/71 and 1/72 companies and also for the 3/71 and 3/72 companies.

H2A: The means of the measures of working relationships and cooperation are not the same for each company.

- Hypothesis accepted. Significantly different pairs were for company 1/71 and 3/72, 3/71 and 1/72, 3/71 and 2/72, and 3/71 and 3/72.

H3A: The means of the measures of work behaviour of commanders are not the same for each company.

- Hypothesis accepted. Significantly different pairs were for 3/71 and 1/72 companies.

H4A: The means of job satisfaction measures are not the same for each company.

- The hypothesis was accepted. Significantly different pairs were for 3/71 and 3/72 companies.

H5A: There are statistically significant differences between the frequencies of responses to question 45 for each company.

- The hypothesis was not accepted.

H6A: There is a statistically significant relationship between the responses in the age groups for each company.

- The hypothesis was accepted only for Company 2/72 when all question blocks were combined.

Based on the findings and the literature reviewed, this subsection describes the results related to emotional intelligence as well as the results assessing social climate.

The initial step in answering the research questions was to identify emotional intelligence and compare it to a normative sample of selected direct leadership commanders in the Army. The results show that sixteen respondents fall within a wider range of average compared to the normative sample. One respondent is categorized as above average compared to the comparison sample and thirteen respondents fall into the below average category.

According to the EQ result of the respondents, the following can be summarized. Eleven respondents are advised to further improve their emotional intelligence, and five respondents are advised to develop their EQ intensively. For thirteen respondents, EQ could be increased to above average ability by training. Only one respondent who scored high is not recommended to increase EQ as his score is assessed as above average.

The results of the first stage of the research show that there is room for the development of emotional intelligence, and it is advisable to look for ways to develop it and to design a training methodology for members

of the A.C.R. Emotional intelligence describes the ability to intentionally engage emotions in social and analytical problem-solving processes. Emotional intelligence is a function in which thinking and feeling meet, and it is an important ability for the correct handling of one's own emotions and the emotions of other people. These skills are crucial to leadership practice.

Following the EQ survey, subordinates' perceptions of the social climate of each company were measured. The second stage of the research tested six formulated hypotheses. The questionnaire monitored organizational conditions of the work environment, working relationships and cooperation, commanders' work behaviour, and job satisfaction. The first four hypotheses tested for differences in the means of each category. In all cases, at the 0.05 level of significance, there are statistically significant differences between the scores of the individual companies in the blocks and overall. Pairwise comparisons show the most frequent differences between the 3/71 companies and any of the 1/72, 2/72, or 3/72 companies.

For the first category of organizational work environment conditions, the largest differences were between 3/71 and 1/72 and between 3/71 and 3/72. For the second category of working relationships and cooperation, differences showed between 1/71 and 72-3, 3/71 and 1/72, 3/71 and 2/72, and 3/71 and 3/72. "EI's ability to manage and influence relationships consists of three components: self-awareness (self-perception), self-control, and empathy" (Jancik, 2020, p. 29). This ability lies in the art of handling the emotions of others. Relationship management also lies in authenticity, trustworthiness and honesty. If a leader possesses this ability, he or she is able to create a positive social climate in the team.

Authors Jordan, Ashkanas & Härtel (2003) found that the ability to deal with others' emotions contributed significantly to self-monitoring and/or that by regulating and influencing other people's emotional reactions, role-dividers were able to enhance their own self-awareness skills.

For the category of commanders' work behaviour, the largest difference was found for 3/71 and 1/72. In the last category of job satisfaction, a significant difference was found for 3/71 and 2/72-3.

The findings for the fifth hypothesis, "There are statistically significant differences between the frequencies of responses to question 45 for each company," are as follows. The results showed that there is no statistical significance in the responses for individual companies. For Company 1/71, communication (74%), leadership style (68%), and interpersonal relationships (66%) were seen as most important, while working conditions (36%) were seen as least important. For Company 2/72, interpersonal relationships (71.1%), communication (57.9%) and (55.3%) leadership style were most frequently identified as important and working conditions (18.4%) were least frequently identified as important. For Company 3/71, interpersonal relationships were most frequently identified as important (75%), followed by leadership style (70%), communication (45%), and least frequently by working conditions (15%). Company 1/72 most frequently identified communication (72.5%), followed by interpersonal relationships (65%), leadership style (52.5%), and least frequently by working conditions (32.5%).

For company 2/72, leadership style (71.8%), followed by interpersonal relations (64.1%), communication (61.5%) and working conditions were the least frequently selected. For Company 3/72, leadership style (66.7%) was the most frequently chosen, followed by interpersonal relations (56.5%) and communication (46.6%), and working conditions (36.2%) the least.

Table 5: Table of frequencies and relative frequencies (%) of agreement with variants

Table of frequencies and relative frequencies (%) of agreement with variants								Table of frequencies and relative frequencies (%) of agreement with variants
Infuence has	**Company**						**Summary**	
	1-71	**2-71**	**3-71**	**1-72**	**2-72**	**3-72**		
Communication	37	22	9	29	48	32	177	
	74,0%	57,9%	45,0%	72,5%	61,5%	46,4%	60,0%	
Style of leadership	34	21	14	21	56	46	192	
	68,0%	55,3%	70,0%	52,5%	71,8%	66,7%	65,1%	

Working condition	18	7	3	13	30	25	96
	36,0%	18,4%	15,0%	32,5%	38,5%	36,2%	32,5%
Interpersonal relationships	33	27	15	26	50	39	190
	66,0%	71,1%	75,0%	65,0%	64,1%	56,5%	64,4%

(own study)

It can be assumed from the results that interpersonal relationships, leadership style and communication matter most to the selected respondents. All these three aspects can be developed through the EI construct and strengthen these skills in the commander, thus affecting the social climate and job satisfaction in the company.

4. Conclusion

The article addresses direct leadership in the Army of the Czech Republic with a focus on the application of emotional intelligence and its connection to the social climate of units. The selection of these selected areas is based on a literature search of domestic and foreign sources. The results of conducted research have shown the importance of strengthening emotional intelligence in the army, and open for searching ways how to include the development of emotional intelligence in the educational army system.

In accordance with the aim of the paper, a draft methodology for commanders of direct leadership in the Czech Armed Forces and other recommendations were presented. The main objective of the methodology is to increase the level of the individual components of emotional intelligence (perception of emotions, use of emotions, understanding emotions and emotion management) of the participants and to develop the ability to apply them in practice in command positions in the ACR.

In the presented methodology, the profile of the participant and the profile of the graduate of the training event is defined. Individuals who serve in the ground forces command of the mechanized brigade of the Army of the Czech Republic may participate. The prerequisite is the completion of secondary education with a high school diploma. Graduates will have developed the various components of emotional intelligence and will be able to apply them to their command practice.

The methodology will be implemented under the auspices of the University of Defence, where the course will be included in educational activities. The duration is 5 teaching days, a total of 40 teaching hours according to the timetable of each study module. The methodology includes five study modules, namely "theoretical foundations of emotional intelligence, perception of emotions, use of emotions, understanding emotions, management of emotions". The developed curriculum defines the module title, structure, reading list and the way of module completion.

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Who is an Agile Leader? Technological vs. Non-technological Mindset Employees' Views

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Abstract: For an agile organization to be truly agile, it must be led by agile leaders to sustain its competitiveness and continuously identify opportunities for future growth and development. Technological and non-technological mindsets can see agile leadership differently. Therefore, this study aims to explore if there is any difference in the vision of who the agile leader is in the views of knowledge workers employed in the IT and other sectors. Using a qualitative definitional/interpretive approach supported by MAXQDA software, this study revealed that from the perspective of the technological mindset, key specific to this group characteristics are diligent risk management, technology usage focus, deep understanding of needs, efficiency, and efficacy, critical thinking skills, multitasking, information and knowledge sharing, responsibility, feeling, and constant focus on improvement. Whereas from the perspective of non-technological mindsets, key specific characteristics these mindsets notice are support for employee growth, dynamism and relevance of actions taken, perfect operation on managerial paradoxes, creativity, inclusion, empathy, and self-confidence. The common characteristics that are easy to notice in both mindset types are open-minded personality, the sequential habit of revisions, reflection, and re-framing, learning from experience, wise dynamic (smooth and accurate actions), perfect change implementation skills, adaptability skills, and a positive attitude towards challenges.

Keywords: Transformational Leader, Agile Leader, Technological Mindset, Non-technological Mindset, Knowledge Workers, Qualitative Study, Interpretive Approach, MAXQDA

1. Introduction

In today's business environment of extreme change and uncertainty, all businesses need to be more agile. Adopting an agile approach helps organizations develop internal adaptability and organizational learning capabilities, improve their responsiveness (Kettunen et al. 2022), and gain a competitive advantage (Pulakos et al., 2019; Zastempowski and Cyfert, 2023). For an agile organization to be truly agile, it must be led by agile leaders to sustain its competitiveness and continuously identify opportunities for future growth and development (Cyfert et al., 2022; Harvey and De Meuse, 2021; Delioğlu and Uysal, 2022). Since agility was before the COVID-19 era, often seen mainly as the need and domain of the fast-developing IT sector, this study aims to explore if there is any difference in the vision of who the agile leader is in views of knowledge workers employed in the IT and other sectors. It is interesting because, from the after-COVID-19 perspective, agility has been lifted to the position of the most desired and highly valued organizational competency, not only in the IT sector (Stei et al., 2024). Changes in the business context create the need to adjust organizational knowledge to the new contexts. Without it, the organizational agile responses can be problematic or impossible. Cegarra-Navarro and Martelo-Landroguez (2020) and Cegarra-Navarro et al. (2016) claimed that efficient knowledge management supports agility, significantly increasing organizational performance. So, since leaders create standards in organizations, it is worth exploring how a leader who exposes high-level agility standards is defined.

This research is based on the definitional/interpretive qualitative approach (Elliott and Timulak, 2021; Willis, 2007). This paper assumes that knowledge workers with different mindsets (technological vs. non-technical) might perceive agile leaders differently. For better agility implementation in organizations, it is important to understand different perceptions of who is a perfect 'agile leader.' It matters today after the pandemic experience, which made the idea of agility implementation very popular across different sectors, not only in IT. Exploring different mindsets and views matters because we can learn from these perceptions about what makes a leader seen as 'agile.' The integration of both (technological and non-technological) mindsets views allows us to build the complete picture of who a perfect agile leader is. Several studies have exposed that the IT sector and other sectors' perceptions differ (Kucharska and Erickson, 2020, 2023) and that, consequently, the technological and non-technological mindsets can see some important organizational issues differently and can act differently

(Kucharska and Kucharski, 2023). Summing up, in this research, we search for the meaning of who an 'agile leader is'; we believe that first, the interpretation and, next, the integration of different views enable us to understand this construct better. So, this study aims to find the answer to the following research question:

RQ: How do technological mindset-dominated knowledge workers see a perfect agile leader, and how is a perfect agile leader viewed by those knowledge workers who are exposed to a non-technological mindset? Is there any difference?

2. Theoretical Background

Agile organizations constantly learn collectively and respond quickly to changes, always bent on delivering value to customers and stakeholders. According to the trait theory, the most critical factor determining the effectiveness of the leadership process is the traits of the leader (Koçel, 2014, p. 676; Akkaya, 2020). Therefore, the agile leadership concept refers to the adaptability skills of leaders that enable them to respond effectively to changing business circumstances.

2.1 Agile Leaders

Agile leaders adapt to rapid changes, implement innovation, take risks, and act with foresight in unpredictable, fast-changing reality (Denning, 2016; Medinilla, 2012). They focus on continuous learning, development, technology application, and innovativeness (Hayward, 2018). Agile leaders are then transformational. So, transformational leaders identify, adapt to external, and implement internal and external changes (Kucharska and Rebelo, 2022; Kucharska et al., 2022). Regarding agile leaders' characteristics, Denning (2018) identified such vital agile CEO qualities as a customer-first mindset, a company vision for the future, and the ability to continuously create new business models that match employees' skills and create multiple paths to the same aim (scenarios creation) and are ready to take risks and acquire new institutional skills to develop new paths. According to Sanatigar et al. (2017), agile leaders foster a culture promoting collaboration and nurturance, accepting diversity, competency, innovation, and creativity, as well as transparency and trust. Kergel et al. (2023) summarized that the power of agile leadership is its exemplary commitment to inspiring the group to pursue intrinsic values and the skill created by agile cognition to envision how these values can be made factually possible. It is because, according to the authors, leading by instrumental values does not align with the agile perspective. The power of agile leadership is its status as an inspiring exemplar and a role model loved by the group and admired for the success its team creates. It serves intrinsic values and nourishes the development of agile cognition, creative relations, and community. Kergel et al. (2023) emphasize that agile leadership does not need harmful and threatening techniques to control people.

On the contrary, Neto et al. (2022) explored the literature to identify the demanded characteristics of agile software project leaders, but they did not finally define an agile leader clearly. Kumar and Ray (2023) admitted that agile leadership had become a buzzword today, and the results of their study locate an agile leadership concept as a set of practices preferring inspiration and guidance over control, collaboration over hierarchy, cross-functionality over silos, adaptiveness over plan-centricity, and value creation over output. Summing up, the numerous approaches to the agile leader concept definition provoke a critical reflection on who an agile leader is.

2.2 Technological and Non-technological Mindset

Technology is perceived as a driver of change (Huda, 2019). Agility and change are related (Oosterhout et al., 2006; Ulrich and Yeung, 2019). Moreover, people who use technology are more likely to be open-minded (Kmieciak, 2019). Being open-minded seems to be vital for agility. Therefore, technological mindsets might probably be more open to learning and adapting to changes. However, at the same time, Campana and Agarwal (2019) found that low-technology environments are not a barrier to learning. So, might be that also for adaptability. Kucharska and Kucharski (2023) exposed that technological and non-technological mindsets equally efficiently learn in their mindsets-fitted working environments. If the environment misaligns with mindset, the learning process, and consequently, the adaptability process, can take longer. Since agility was before the COVID-19 era, often seen mainly as the need and domain of the fast-developing IT sector, this study aims to explore if there is any difference in the vision of who the agile leader is in views of knowledge workers employed in the IT and other sectors. It is interesting because, on the one hand, technology and agility are seen as supporting one another (Overby et al., 2006; Gao et al., 2020), but from the after-COVID-19 perspective, agility has been lifted to the position of the most desired and highly valued organizational competency not only in the IT sector (Stei

et al., 2024). So, it is worth verifying how technology-driven mindsets and non-technology mindsets see agile leaders. There might be no difference in the agile leader's perception. However, it might be that the identified earlier strong impact of mindsets on the phenomenon of the working environment-mindset alignment for learning and change adaptability might also be visible in the leader agility vision. Mindsets are potent drivers of visions and actions. Therefore, this study aims to explore who an agile leader is through the prism of technological and non-technological mindset lenses prisms.

3. Methodology

This qualitative study has a definitional/interpretive character. It is because the a priori assumption has been made that the leader's agility might be seen differently by knowledge workers representing different mindsets (technological vs non-technological). However, since technology spread widely, forced by the pandemic and business reality, it is not apparent whether the expected difference exists or is sharp enough. It matters, especially since this concept has numerous definitions (Neto et al., 2022; Kumar and Ray, 2023). It might be that these different views on a leader's agility are rooted in the technological/non-technological mindset views. So, this study aims to reveal it thanks to these comparisons of views.

Theoretical sample – To best explore the perception of an agile leader through the prism of a technological/non-technological mindset, the theoretical sample was defined as knowledge workers working in specialist positions interested in the topic of agility. So, this sampling process was clearly purposeful. We aimed to interview those who could bring a fresh perspective to the topic they were familiar with; therefore, we excluded experts.

Final sample—The final sample comprises twenty volunteers, ten with a technological mindset and ten with a non-technological mindset. The gender balance was secured. Participants' age was not controlled.

Data collection: Volunteers were recruited among scrum methodology workshop members conducted in January 2024 in Gdansk, Poland. However, those volunteers were intentionally invited to participate in the interviews before the workshop started. Thanks to this, the sample represents knowledge workers interested in the topic of agility but not experts. It matters to be sure we collect those members' individual opinions instead of shared opinions through the collaboration of the workshop. Individual views enable the identification of peripherals (insights that are not widely known and established can bring new value). The point of conducting this interview before, rather than after, the training was to ensure that these fresh insights were not obscured by established training content presenting a specific view. The goal was to gather these insights from a group knowledgeable and interested in the topic before these insights were obscured or overwritten by expert opinion.

Participants declared their familiarity with the agility concept; next, they declared themselves as representing a technological or non-technological mindset. Next, the interviewee answered the following open-ended question: *Who, in your opinion, is a perfect agile leader exposing higher-level agility standards? Please describe.* Answers were recorded, transcribed, and anonymized.

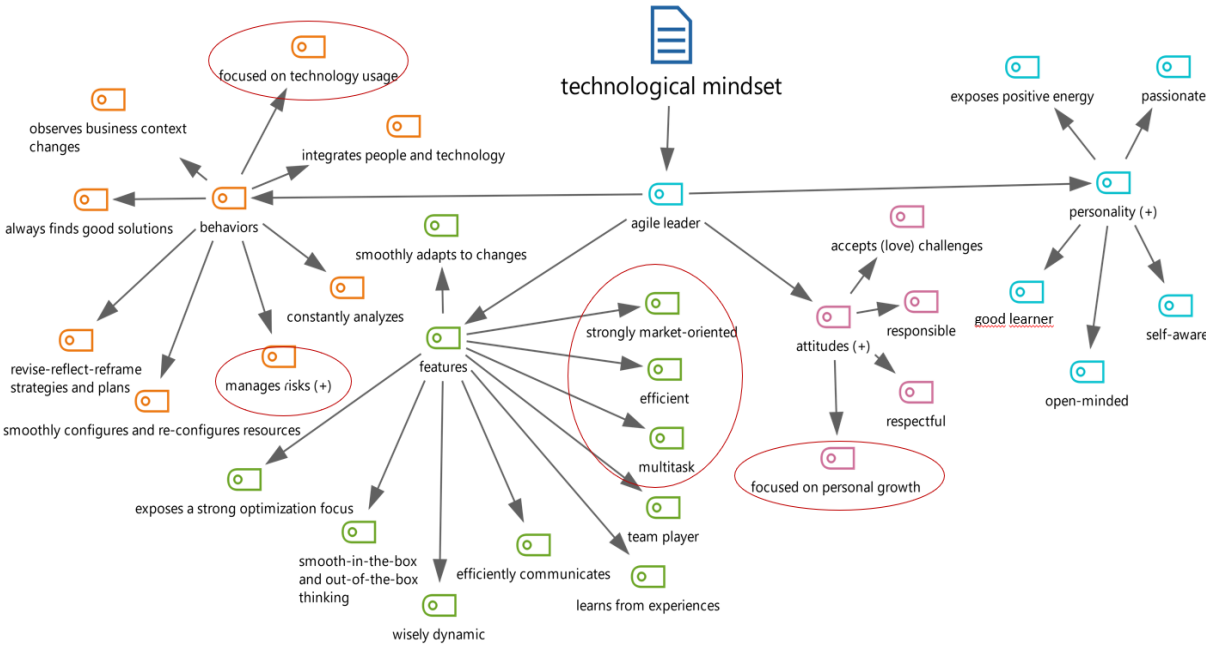
Analysis procedure—The collected data were analyzed using MaxQDA Analytics Pro 2020 software. This analysis started by identifying the main themes and subthemes (codes) separately for each group. Next, data collected for the technological mindset and non-technological groups were separately structuralized and visualized to be summarized and compared. The following sections present effects and their meaning.

4. Results

As a result of the analysis, 160 codes for the non-technological group and 171 for the technological group were structured into four main themes: behaviors, features, attitudes, and personality, and thirty-eight subthemes: ten subthemes for agile leaders' behaviors, sixteen for features, five for attitudes theme and, seven subthemes for personality characteristics. Figure 1 exposes these themes and their hierarchy for both groups separately.

Ellipses expose those themes that are characteristic of the particular group based on up to 10 of the most frequently identified codes. So based on this, there is a simple conclusion regarding behaviors: the technological mindset focuses on technology usage and development, whereas the non-technological mindset focuses on people's growth. Regarding features, the technological mindset stands out in market orientation, multitasking, and efficiency, whereas the non-technological mindset view stands out in perfect operation on managerial paradoxes and creativity.

a) Technological mindset view



b) Non-technological mindset view

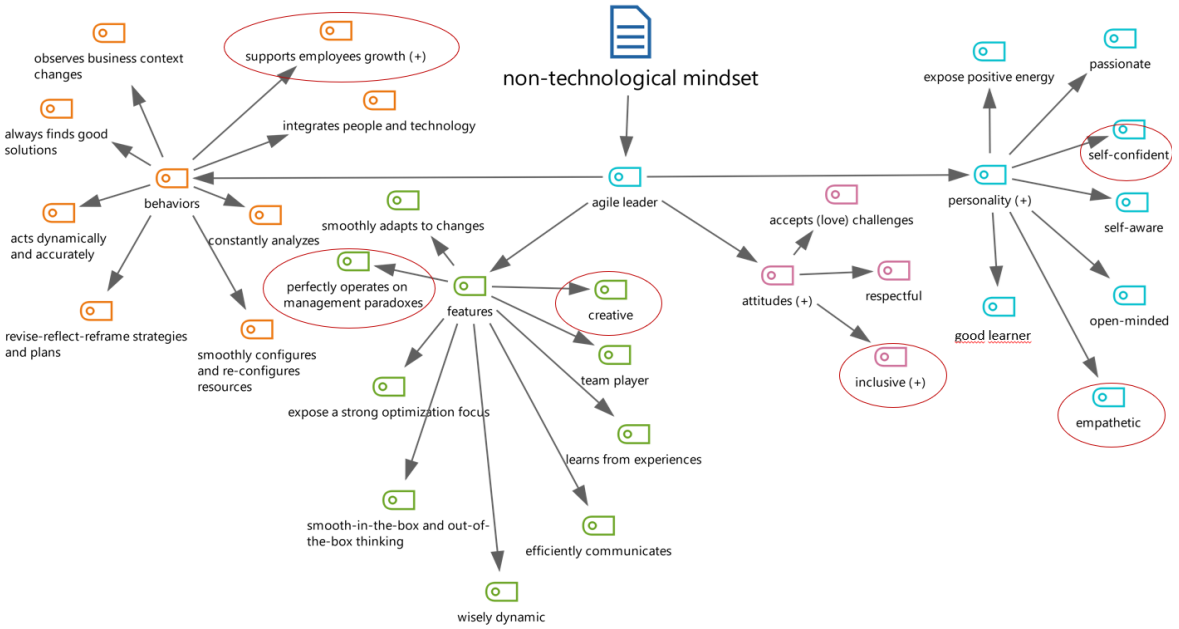


Figure 1: Themes hierarchy generated based on a) technological and b) non-technological mindsets' perceptions of agile leader characteristics.

Note: Visualizations were made by authors using MaxQDA Analytics Pro 2020 software based on up to 10 of the most frequently identified codes.

Regarding attitudes, technological mindsets highlight personal growth needs, whereas non-technical mindset highlights inclusive attitudes as important for being agile leaders. Regarding personality, non-technological mindsets identified more themes than technological ones, and those themes that do not repeat in both groups are self-confidence and empathy. Summing up, Figure 1 presents a hierarchy of themes and sub-themes based on up to 10 of the most frequently identified codes but does not present their frequency, whereas Figure 2 does. Figure 2 presents clouds of subthemes where the most frequent subthemes are bolded (wide font).

a) Technological mindset view

b) Non-technological mindset view

Figure 2: Clouds of subthemes frequency are generated based on a) technological and b) non-technological mindsets' perceptions of agile leader characteristics.

Note: Visualizations were made by authors using MaxQDA Analytics Pro 2020 software; the most frequently identified codes are bolded

Based on the data presented above, it can be summarized that ten of the most frequent themes are very similar, but their frequency differs in groups. Technological mindsets most frequently see the agile leader as someone who learns from experience, constantly revises, reflects, and re-frames strategies and plans to align to a fast-changing business context, and acts quickly and wisely. Non-technological mindsets also often see an agile leader as a wisely dynamic person who reflects and re-frames strategies and plans to align to a fast-changing business context but who also supports employees' growth, is open-minded, loves challenges, is inclusive, and communicates effectively. So, a set of human-factor themes is the most critical for leaders' agility perceived by non-technological mindset specialists. In comparison, technological mindset specialists focus more on analytical skills resulting from critical thinking. This summary is based on the most frequent subthemes but does not clearly focus on the detailed comparison between the views of the explored mindsets. Figure 3 illustrates then the most frequent subthemes comparison and groups them into commonly frequent themes and themes that are characteristics only for the particular group that helps more sharply see similarities and differences.

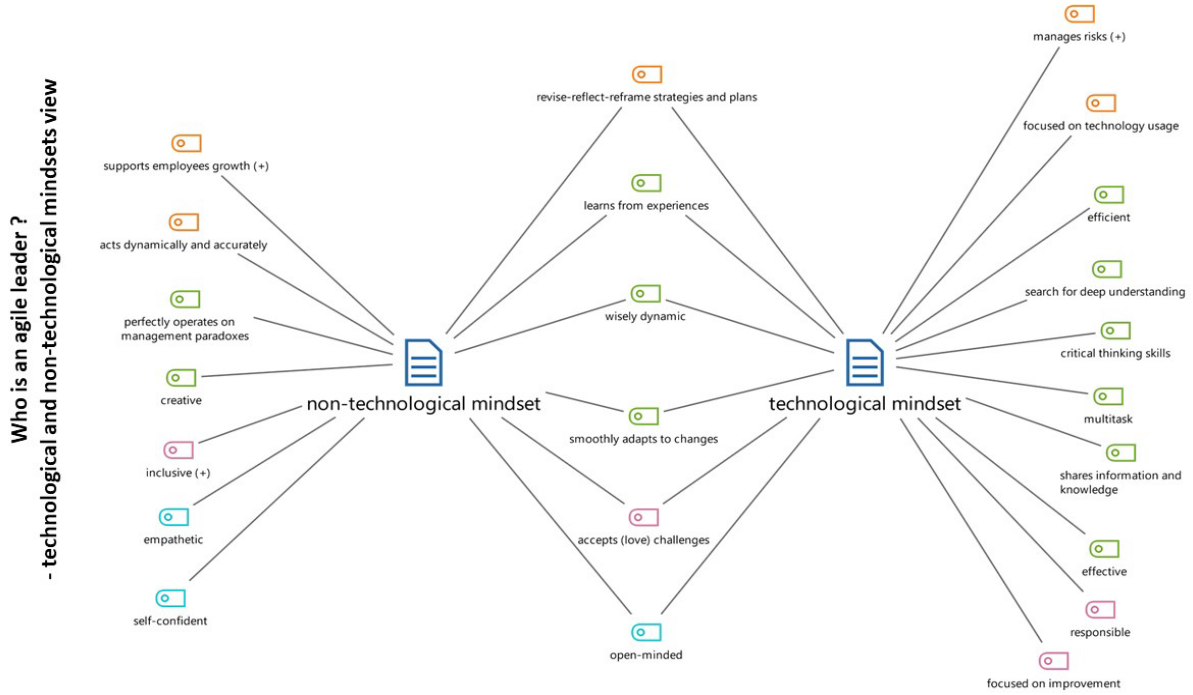


Figure 3: All identified subthemes comparison to expose mindsets perceptions differences

Note: Visualization was made by authors using MaxQDA Analytics Pro 2020 software

Summing up, from the perspective of the technological mindset, key specific to this group characteristics are diligent risk management, technology usage focus, deep understanding of needs, efficiency and efficacy, critical thinking skills, multitasking, information and knowledge sharing, responsibility, feeling, and constant focus on improvement. Whereas from the perspective of non-technological mindsets, key specific characteristics these mindsets notice are support for employee growth, dynamism and relevance of actions taken, perfect operation on managerial paradoxes, creativity, inclusion, empathy, and self-confidence. The common characteristics that are easy to notice in both mindset types are open-minded personality, the sequential habit of revisions, reflection, and re-framing, learning from experience, wise dynamic (smooth and accurate actions), perfect change implementation skills, adaptability skills, and a positive attitude towards challenges.

Based on the presented analyses, we summarize that agile leaders are those leaders who support employees' growth, are wisely dynamic (respond to changes quickly and accurately), are open-minded; reflect, revise, and re-frame strategies and plans smoothly; learn from experiences; love changes and prefer them over repetitive actions therefore enthusiastically adapt to changes; are highly self-aware, empathetic, respectful and inclusive; integrate people and technology; observe and analyze business context changes and smoothly operates on paradoxes.

5. Discussion

Answering the research question, we summarize that agile leaders are those leaders who support employees' growth, are wisely dynamic (respond to changes quickly and accurately), are open-minded; reflect, revise, and re-frame strategies and plans smoothly; learn from experiences; love changes and prefer them over repetitive actions therefore enthusiastically adapt to changes; are highly self-aware, empathetic, respectful and inclusive; integrate people and technology; observe and analyze business context changes; smoothly operates on paradoxes. However, there is a difference between technological and non-technological mindset views. At the same time, we highlight that there are differences in an agile leader's perception by knowledge workers with technological and non-technological mindsets.

Consequently, there is a simple conclusion regarding identified key behaviors: the technological mindset perception notices technology usage, development, and risk management (non-technological mindsets ignore these behaviors), whereas the non-technological mindset focuses on employee growth support and dynamic acting. Regarding features, the technological mindset stands out in market orientation importance, multitasking, critical thinking, knowledge sharing, efficiency, and efficacy. In contrast, the non-technological mindset view

stands out in perfect operation on managerial paradoxes and creativity. Regarding attitudes, technological mindsets highlight personal growth needs and responsibility, whereas non-technical mindsets strongly highlight inclusion as vital for successful agile leader status. Regarding personality, non-technological mindsets identified more themes than technological ones: self-confidence and empathy.

Generalizing the given results leads us to the simplification that non-technological mindset specialists uniquely pay attention to the social skills of agile leaders. In contrast, technological mindsets dominated specialists focused uniquely on analytical skills and technology support. What is common – both mindsets highlight a positive attitude towards challenges, an open-minded personality visible in a sequential habit of revisions, reflection, and re-framing, learning from experience, smooth and accurate actions (wise dynamic), perfect change implementation skills, and change adaptability skills. It leads us to conclude that, generally, both mindsets see agile leaders quite similarly. However, the roots of agility – technological mindsets are seen in analytical skills and technology support. In contrast, non-technological mindsets next to the dynamism and adaptability skills highlight socially oriented skills (employee support, inclusion, creativity) as vital to leading organizations' agility.

Studies by Kucharska et al. (2024a-b) confirm these findings.

6. Limitations and Further Studies Direction

Qualitative studies aim to bring new insights, enabling a better understanding of the particular phenomenon, as this study was based on a specialist view. So, to gain more insights and views of managers could be beneficial. Analyzing only one group—specialists—is the fundamental limitation of this study, and for better understanding, managers' insights should also be collected. So, this study did not examine the self-vision of leaders who aspire to be agile, which can expand the insights gathered.

Moreover, all presented analyses conclude that only the synthesis of both technological and nontechnological perspectives can give us a complete picture of the perfect agile leader. So, to define an agile leader, the synthesis of both views is needed. This assumption provokes the contrary opinion that some behaviors, features, attitudes, and personal characteristics might be more critical for leaders' agility in different sectors. Further studies should verify this assumption. Moreover, this study aimed to reveal the differences in perceptions among mindsets based on qualitative analysis methods and revealed a set of insights that should be explored quantitatively, including gender issues. Lechman and Popowska (2020, 2022), taking a macro perspective, proved that there is a significant relationship between ICT and women's economic activity. So, it might be that the agile leader mindset is somehow related to gender. To quantify the importance of the identified characteristics, the agile leader measurement scale should be first developed based on all the identified factors to be next confronted with organizational agility and its performance.

7. Practical Implications

From the practical perspective, the value of the identified insights is quite tremendous. All leaders aspiring to be agile should revise their attitudes and behaviors according to identified factors and, based on this self-revision, reflect and reframe some of their attitudes and behaviors, features, and personalities. Agile leaders constantly learn – so this research delivers some materials for consideration and learning on what leaders can improve regarding personal development focused on being agile leaders. Summing up, this study's results provide material for self-reflection. It might be that some of the identified factors will inspire leaders to become 'more agile'. However, it is essential to know that the relevance and importance of identified qualities will vary across contexts (e.g., personal, industrial, organizational, and cultural). So, critical thinking and self-reflection are the basis for making good use of the delivered characteristics.

8. Conclusions

This study exposed that, generally, both mindsets see agile leaders quite similarly. So, it suggests that the idea of agility is increasingly popular today and, therefore, less and less limited to IT organizations – as observed before the pandemic crisis experience (COVID-19). Nevertheless, some detailed differences have been identified. Technological mindsets see agile leaders more through the prism of analytical skills and technology support. Whereas non-technological mindsets highlight dynamism and smooth change adaptability, other socially oriented skills (employee support, inclusion, creativity) are vital for a successful agile leader.

Summing up, this study delivered a set of valuable insights regarding who the agile leader is and exposed that the synergy of both perspectives, technological and non-technological, can provide the complete picture. To fully

see the entire picture of who the agile leader is, the power of the influence of identified factors should be quantifiably explored with the understanding that the relevance and importance of identified qualities will vary across contexts (e.g., personal, industrial, organizational, and cultural).

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Artificial Intelligence in Morocco: Towards Holistic, Responsible and Ethical National AI Strategy for Moroccan Competitiveness and Strategic Intelligence

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Abstract: This paper analyses current achievements and emerging landscape of artificial intelligence in Morocco. It explores also the various challenges and opportunities related to the development of an AI ecosystem that facilitates the emergence of an agile, holistic, responsible, ethical, and forward-looking national artificial intelligence strategy that supports Morocco's global competitiveness and its strategic intelligence. Based on a methodological triangulation approach, we combined a documentary approach focused on a literature reviews and international benchmarks of national AI policies and strategies. In addition, we have proposed a conceptual model that outlines the essential elements and key enablers and drivers of the national AI strategy for Morocco. We have called it "LAFBAH AI Framework" focusing on Leadership & Vision, Adaptive Governance, Forward-thinking, Breakthrough Innovations, Agility in Implementation, and Human centred approach. This model is predictive and prescriptive, and most importantly, aligned with the Moroccan priorities and strategic orientations of Morocco's New Development Model. The study's findings show that Morocco possesses strategic assets that can help it establish itself as an AI hub for Africa and bolster its leadership and digital influence. These assets mainly include the country's international commitment to AI, its participation in AI cooperation programs, a dynamic creation of institutions and university centres dedicated to AI and the start of a virtuous public and political dialogue on the subject involving the private sector, academia and civil society. Our research argues in favour of a holistic and integrated approach to AI in Morocco, which combines AI Governance with technological innovation, ethical and societal considerations to promote sustainable and inclusive development and enhance Moroccan competitiveness. It also demonstrates the urgent need to design and ensure the implementation of an innovative, adapted and integrated national AI strategy for Morocco. This national AI strategy should be designed as an integrative, agile, dynamic framework with a clear and integrated vision, ambitious strategic objectives, relevant priorities and choices and key pillars of AI such as responsible, ethical and innovative governance and strong ecosystem enablers, collaborative research and development, AI talent and skills, sufficient data and infrastructure. We have also designed the fundamental and necessary milestones for a new ecosystem of artificial intelligence in Morocco focused on the imperatives of the knowledge society, the digital, health, food and energy sovereignties of the country, while aspiring to be a hub of artificial intelligence in Africa.

Keywords: Artificial Intelligence, AI National Strategy, Competitive And Strategic Intelligence, Moroccan AI Ecosystem Responsible AI, Ethical AI

1. Introduction

Artificial intelligence (AI) defined by John McCarthy (2007) as "the science and engineering of making intelligent machines", has become an extremely important driving force for innovation and the socio-economic development of countries, thus influencing many sectors such as healthcare, finance and energy. The exponential expansion of computing power and the greater availability of data have led to a considerable and unprecedented advancement in artificial intelligence (AI) over the past decades. These advances and innovations in AI are profoundly changing economies and societies around the world (Van Roy, V et al, 2021). Thus, AI technologies are evolving at a very accelerated pace, requiring the establishment of national strategies to guide their development and deployment in an ethical and responsible manner. This rapid development of AI requires urgent action from governments and the private sector more than ever (Bolton et al., 2021; Schmitt, 2022).

The OECD Principles for Trustworthy AI, initially adopted in 2019 and updated in May 2024, establish a unifying framework for developing trustworthy AI systems (OECD, 2024). These principles provide safeguards for different AI stakeholders to ensure that AI technologies adhere to values such as inclusive growth, sustainable development and well-being, human rights and democratic values, including fairness and privacy, transparency and explainability, robustness, security and safety, accountability (OECD, 2024). Additionally, the OECD made recommendations for policymakers, including: investing in AI research and development, fostering an inclusive ecosystem enabling AI, shaping governance and a supportive interoperable policy environment to AI, strengthening human capabilities and preparing the transition to the labour market and international cooperation for trustworthy AI (OECD, 2024).

According to the OECD Framework for the Classification of AI Systems, AI systems have the potential to transform various aspects of society, ranging from education and work to social interactions and daily life (OECD, 2022)." Stakeholders impacted by AI systems directly or indirectly, and consciously or unconsciously by the AI system may include workers, Workers/employees, Consumers, Business, Government agencies/regulators, Scientists/researchers, Children or other vulnerable or marginalized groups (OECD, 2022).

Galindo, L., K. Perset and F. Sheeka (2021) state that "the development of national policies and strategies focusing specifically on AI is a relatively new phenomenon". The World Bank (2021) emphasizes the importance of a multi-stakeholder approach in shaping national AI strategies, where governments, private sectors, civil society, academia, and international organizations all contribute to policymaking and strategy implementation. National AI strategies, as outlined by The World Bank (2021), target a variety of sub-goals, which can be categorized into eight distinct policy domains to accelerate AI development and adoption. These domains, influenced by various tools and instruments, are as follows: (1) scientific research, (2) AI talent development, (3) entrepreneurial ecosystem, (4) standards for ethical AI, (5) data access, (6) AI adoption in the public sector, (7) strategic sectoral targeting of AI, and (8) building capabilities for AI governance. The World Bank (2021) outlines six essential tools and instruments for implementing national AI strategies, encompassing legal and regulatory reforms, expansion of public services and programs, soft law and industry self-regulation, multi-stakeholder partnerships, new centres and collaborations, and strategic investments and funding.

In this context, several governments are working to regulate and foster AI innovation and striving to integrate this technology into public services (Oxford Insights, 2023) and in national research ecosystems (International Science Council, 2024). Among the countries seeking to find a place in the world of AI is Morocco which occupies 88th place in the world rankings in the Government AI Readiness Index 2023 (Oxford Insights, 2023) and It is among the countries with AI Strategies in Development (Nestor Maslej, et al., 2024). Like many countries, Morocco recognizes the strategic importance of AI for its economic and social development. The country has taken many initiatives to promote AI, such as specialized training programs in universities, support for research and development, and the establishment of international partnerships to enhance its capabilities in this area.

The Moroccan Special Commission on the Development Model (SCDM) considers that "Digital technology is a real lever for change and development. It should be given special attention at the highest level of the State as a driving force for structural and high-impact transformations" (SCDM, 2021).

The SCDM has called for making "digital technology and technological capabilities a key factor in competitiveness, business modernization and the development of new professions and sectors in step with global transformations" (SCDM, 2021). It emphasized in this context that robotics, automation, and artificial intelligence (AI) technologies will play a pivotal role in reducing human intervention in many economic sectors. This shows the crucial importance of the development of human capital and innovation and their central place in Morocco's New Development Model which places them at the heart of its development priorities, thus accelerating its transition to a technology-driven economy. . As the SCDM specifies "The overall competitiveness of the country will essentially depend on the quality of its human capital" (SCDM, 2021).

Taking into account all these AI global tendencies and Moroccan particularities, this paper aims to answer the following central question: To what extent can Morocco implement a national AI strategy that is integrated, holistic, responsible, and ethical, thereby enhancing its competitiveness, strengthening its strategic intelligence, and positioning itself as an African AI hub?

To achieve this, we noted Morocco's main achievements in the field of AI by highlighting its strengths and its various potentials, then we identified the major challenges and opportunities. The results of our research argue in favour of the establishment of a national AI strategy, that we have designed via our own Framework which we have called "LAFBAH AI Framework" that summarizes the main objectives, the approach to follow, the key factors of success and above all the priority levers for the development of a Moroccan ecosystem of augmented artificial intelligence, contextualized and adapted to the specificities of the country. It is an agile Framework, driven by the creation of meaning, centred on humans, values, ethics with a prospective perspective, an African focus open to global trends, and above all constantly monitoring to strengthen Morocco's competitiveness and its strategic intelligence in line with the strategic foundations of its New Development Model.

2. Theoretical Framework and Research Methodology

2.1 Theoretical Framework

We have mobilized the theoretical framework of technological governance and national strategy by focusing on the work of Castells (1996) and Bell (1973) on the dynamics of the information society and the governance of technologies, while concentrating in particular on aspects related to public policies for digital transformation and artificial intelligence (AI). We also relied on the stakeholder theory of Freeman (1984) by dissecting the main actors of the AI ecosystem in Morocco and their main achievements in this area. Also, we mobilized the concepts of competitiveness and national strategy developed by Porter (1990).

2.2 Research Methodology

To conduct our research, we used a triangular methodological approach combining a systematic review of the literature with a targeted analysis and a special focus on national artificial intelligence (AI) strategies and policies of pioneering countries in the field of AI. To achieve this, we reviewed relevant academic work, think tank reports, and government documents, while conducting in-depth interviews with experts and professionals in the field since May 31, 2023, the date of the first edition of Gitex Africa Morocco 2023 held in Marrakech in which we participated. We also carried out benchmarking of national AI strategies, highlighting good practices and lessons learned in other countries. This multidimensional approach allows us to understand the different approaches nations take to AI governance and identify the most effective strategies for strengthening national competitiveness in this rapidly evolving area. Finally, this approach allowed us to develop our own conceptual model that is both descriptive and prescriptive to guide the formulation of national AI policies and strategies.

3. Main Achievements and Assets of AI in Morocco

Mapping the key actors of AI ecosystem in Morocco allowed us to identify the major players and characterize the nature and multiplicity of actions and initiatives related to AI. Thus, several achievements and efforts made by ministries, constitutional governance bodies, universities, schools and research centres, the private sector, think tanks and the civil society. Our diagnosis shows that Morocco has a conducive and favourable environment for the emergence of an ambitious and global vision for the implementation of an AI ecosystem. The country has several assets of various natures capable of positioning it as an African AI hub and strengthening its leadership and digital influence. These points of strength also predispose it to play a growing role in the global dynamics relating to the AI industry, including a political will emanating from the highest authority of the State to develop the digitalization and digital transformation of the Moroccan economy and society as a whole and Morocco's commitment to good global governance of AI.

Figure 1: Accomplishments and advancements in AI in Morocco

This international commitment appears obviously in two major initiatives that are revealing and structuring the global AI ecosystem. The first concerns the UN resolution, initially co-sponsored by the United States and Morocco and ultimately supported by 120 countries, on Artificial Intelligence adopted on March 21, 2024, by the General Assembly of the United Nations calling to regulate Artificial Intelligence.

In addition to promoting "safe, secure, and trustworthy" artificial intelligence (AI) systems that will also benefit sustainable development for all, this historic agreement on AI seeks to provide safeguards by establishing international rules intended to govern the uses of AI (United Nations, 2024).The second is the Morocco's official adherence to the UNESCO Recommendation on the ethics of AI and its choice to implement this Recommendation, which includes Morocco in international debates on AI ethics.

Other structuring assets that can facilitate the implementation of a national AI strategy with an international connection and African influence such as close collaboration with international organizations namely the UN, UNESCO, World Bank, ADB on themes related to digital transformation, AI and emerging technologies. In addition, several international cooperation programs with donors, multinationals and large technology groups have been launched focusing on the development of AI, skills training and the development of research and development in AI and disruptive technologies.

Furthermore, it should be emphasized that Morocco has strengths relating in particular to connectivity, access to data, cybersecurity, and the protection of personal data, which we consider to be fundamental and structuring foundations of any AI ecosystem efficient. Also, the notable achievements are the launch of Research financing initiatives, such as the Al Khawarizmi program, with a budget of 50 million dirhams (5 million US Dollars) for the financing of research projects in AI.

In addition, Morocco has created several artificial intelligence research centres in universities and technological institutions such as the International Centre for Artificial Intelligence of Morocco at the Mohammed VI Polytechnic University. This ambitious initiative enriches Morocco's repertoire of ambitious actions contributing to the strengthening of Morocco's position as a regional hub for the development of AI and the emergence of an African innovation ecosystem. Morocco has also created public institutions exclusively dedicated to AI. The country has also set up AI training programs, with a particular focus on developing digital skills.

We also highlight the commitment of the 12 Moroccan public universities, in the development of skills and research in AI and the launch of innovative initiatives in this field such as the Mohammed V University of Rabat which comes first in the ranking of Moroccan Universities publishing the most on AI. Added to this is also the commitment of other higher education establishments not belonging to universities such as the School of Information Sciences (ESI), the only public engineering school dedicated to information sciences in Morocco and Africa (Bahji, 2022). Furthermore, several initiatives and programs have been launched to facilitate access to incubators and accelerators specializing in information technologies and artificial intelligence.

Additionally, AI was the subject of a public debate involving several public, private, academic and societal actors to discuss the opportunities, challenges and pillars of the development of an AI ecosystem capable of providing new dynamic to the digital transformation of the country with a view to the emergence of a competitive and economically intelligent start-up nation. We have noted also the emergence of innovative start-ups in the field of AI. In this context, several scientific and institutional events have been launched to present the advantages of AI, its particularities, its opportunities and the main recommendations for implementing an integrated AI policy at the national level. In addition, Morocco has organized several events and meetings to explore the contributions, challenges, impacts and opportunities of using AI in different areas of activity. These initiatives, such as forums and conferences dedicated to AI, are helping to breathe new life into AI research and encourage exchanges between the key players in this field. It should also be noted the launch by certain constitutional institutions of public consultations on the opportunities and issues linked to the use of AI in different fields in Morocco. Thus, we can conclude that Morocco has indeed made notable progress in the field of artificial intelligence, positioning it as an emerging player in the field of AI in Africa.

4. Major AI Challenges in Morocco

The results of our research have identified the main challenges of artificial intelligence (AI) in Morocco. These issues should be addressed to ensure the harmonious and beneficial development of this transformative and emerging technology. As shown in the following figure, the main challenges can be described as follows:

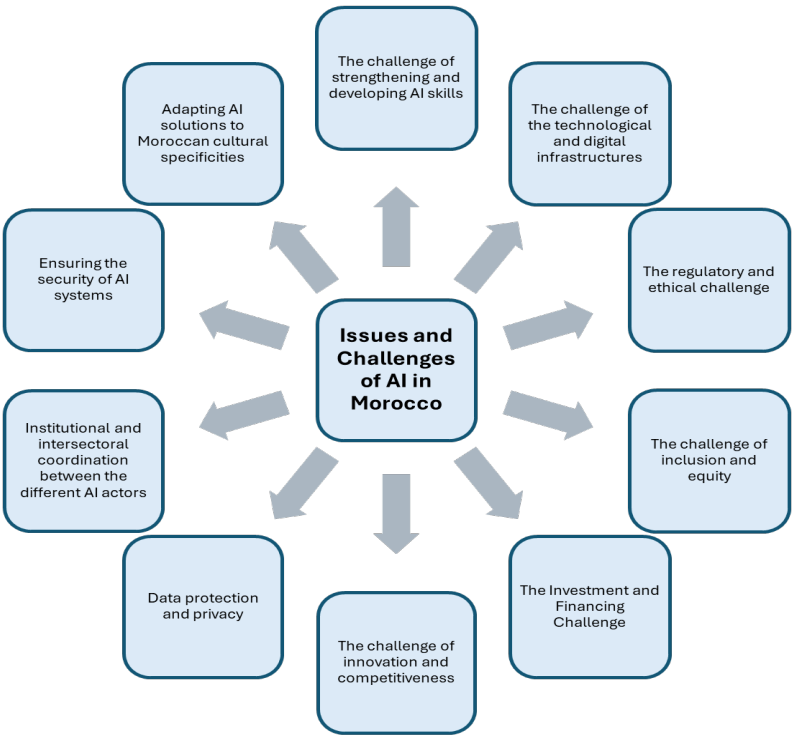

Figure 2: Main issues and challenges of Morocco AI

A major challenge in Morocco is strengthening and developing AI skills. We consider training in its initial and ongoing dimension as a fundamental condition for an effective and efficient AI ecosystem in Morocco.

In addition, we identified additional challenges, including insufficient technological and digital infrastructure essential to promote and support AI systems and projects. There is also the data challenge, marked in particular by restricted access to diversified and qualified data necessary for the proper development and relevance of the training of AI models. In addition, we have identified the regulatory and ethical challenge linked to the absence of standards and guidelines specific to AI in the Moroccan context allowing AI to be used wisely in an ethical and responsible manner, in accordance with the principles of the UNESCO Recommendation on the Ethics of AI. We have also identified the challenge of the inclusive and equitable use of AI guaranteeing everyone in society the right to benefit from AI and to combat potential algorithmic bias and discrimination. Also, AI requires massive investment and therefore there is a great need to increase public and private investment to support the research, development and implementation of AI solutions.

We have identified also the challenge of innovation and competitiveness which deserves great attention to the extent that Morocco must continue to encourage innovation in AI and support the development of cutting-edge technologies to remain competitive on the international scene, which obviously requires substantial investments. Furthermore, the other major challenge of AI in the Moroccan context is that of data protection and privacy, highlighting the imperative need to have robust regulatory frameworks to better guarantee the confidentiality and security of information. personal, while ensuring the balance between innovation and respect for individual rights. Other challenges should also be highlighted. This concerns the lack of convergence and institutional and intersectoral coordination between the different stakeholders of the Moroccan AI ecosystem marked by fragmentation. Another equally crucial issue is the need to ensure the security of AI systems to prevent cyberattacks and the growing vulnerabilities in this area. This requires the development of rigorous security standards and the implementation of advanced cybersecurity protocols to protect critical systems and maintain the trust necessary for the emergence of a high-performing AI ecosystem in Morocco.

Another challenge is the adaptation of AI solutions considering the specific cultural nuances of Morocco. Indeed, a well-contextualized adaptation of AI improves its acceptance and effectiveness. This involves the development of technologies integrating national values, languages and socio-cultural contexts, thus ensuring their relevance and recognition of Moroccan cultural diversity.

5. Toward a National AI Strategy in Morocco: "LAFBAH AI Framework" Implementation and Recommendations

The proposed model for a national AI strategy, encapsulated by the acronym "LAFBAH", provides a thorough and forward-thinking strategy that is specifically adapted to Morocco's particular context. Morocco can create a strong and inclusive AI strategy by concentrating on Leadership & Vision, Adaptive Governance, Forward-thinking, Breakthrough Innovations, Agility in Implementation, and Human centred approach. This approach seeks to use AI to advance human-centred ideals, economic expansion, and environmental development while upholding moral and ethical principles. A comprehensive, cohesive, and ambitious national AI strategy is required, fully aligned with the Sustainable Development Goals.

5.1 Critical Success Factors of National AI Strategy According to the "LAFBAH AI Framework"

We consider that the implementation of an effective and relevant national strategy, following an inclusive, integrated, comprehensive, and holistic approach, both ethical and forward-thinking, should adhere, as shown in the following figure, to a set of critical success factors of the Moroccan AI strategy according to an approach we've named **"P3A: Prioritize, Adapt, Agilize, and Assess"**.

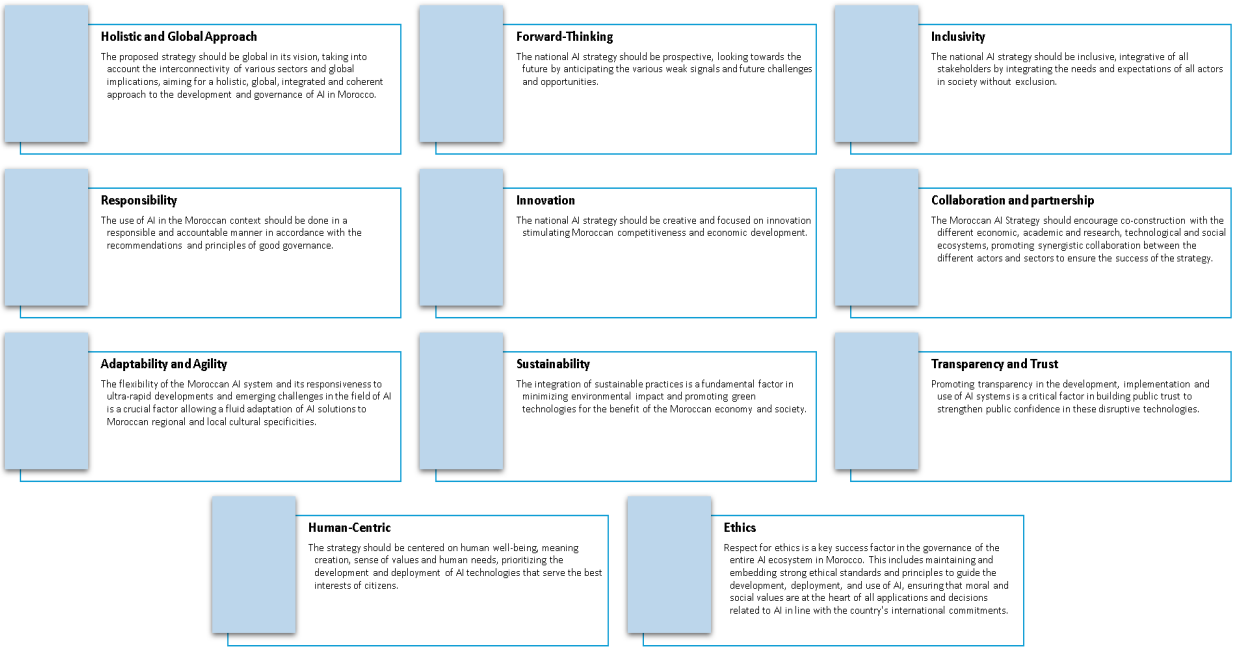

Figure 3: Critical success factors of the Moroccan National AI strategy

5.2 The Levers of a National AI Strategy in Line With the "LAFBAH AI Framework"

Our Framework sets out the milestones of a new national AI strategy which draws its substance from the strategic orientations of the State and the priority choices of the New Development Model as aspired by the public authorities and draws on its guiding doctrine and its founding principles. It aims to translate the priorities of the government program in terms of IT and digital transformation into concrete actions. It is a model of co-construction which is driven by the objective of propelling Morocco to the rank of pioneering nations with strong capacity for innovation and high added value on the academic and scientific levels and as an African hub of AI.

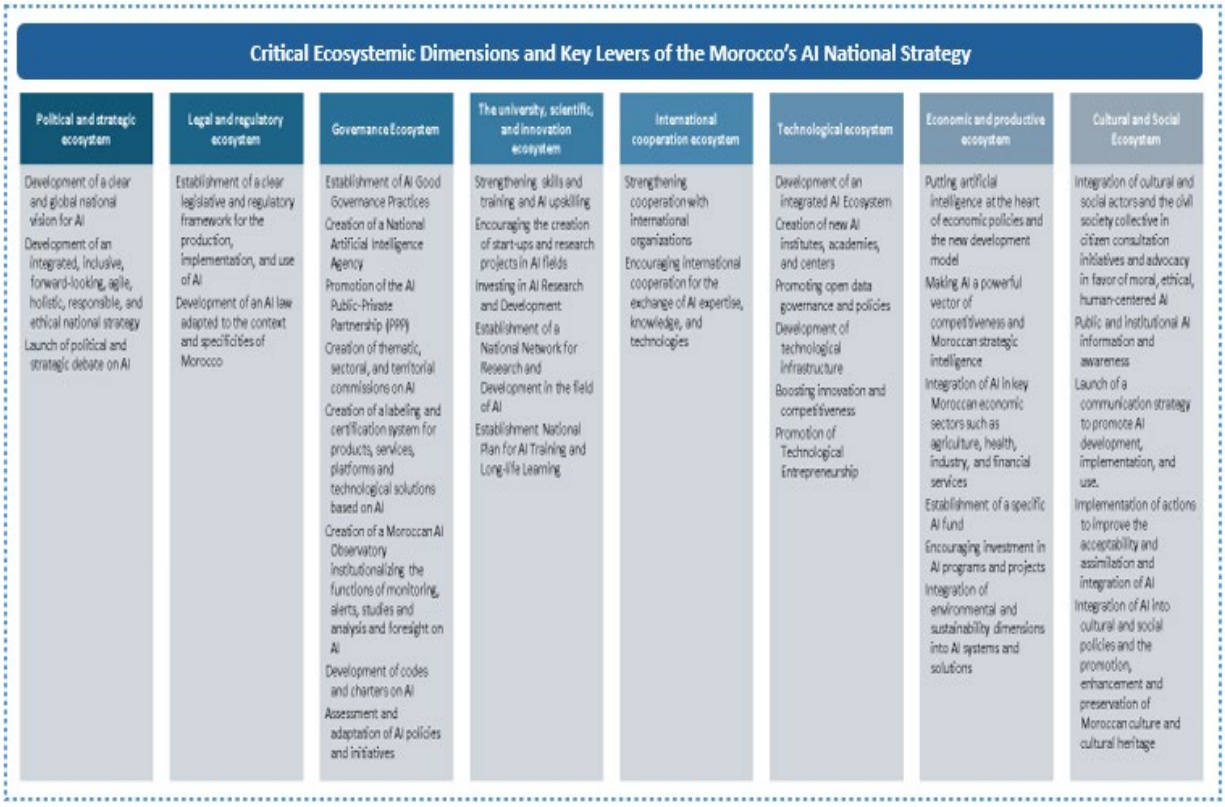

Figure 4: Critical Ecosystemic Dimensions and Key Levers of the Morocco's AI National Strategy according to the "LAFBAH AI Framework"

We consider that the first lever of the AI National Strategy of Morocco is the development of a clear and committed strategic and forward-looking national vision for AI aligned with Morocco's economic and social development objectives. Indeed, to implement an effective, holistic, responsible and ethical national strategy in AI, we consider, on the basis of our research and our benchmark of good practices in this area, that the first thing to have is a clear, global, integrated and strategic vision.

The second lever is the development of the Digital Ecosystem that strengthen connectivity, access to data, cybersecurity and the protection of personal data to promote the adoption of AI and promote research and development in AI. It is also fundamental to strengthen international cooperation with the various pioneering countries in the field of AI and international organizations participating in global AI governance. It is also necessary to encourage national and international partnerships and strengthen collaborations with research institutions and international companies.

Others levers are identified such as : the promotion of the Public-Private Partnership (PPP) and strengthening collaboration between universities, centres of research, businesses and public institutions; the strengthening skills and training by establishing ambitious AI training programs to develop the necessary skills and promote continuous learning and upskilling; investing in AI Research and Development by allocating financial and human resources to support research in artificial intelligence and finance research projects; creation of new institutes, academies and centres dedicated to AI; increase investments in fundamental research; encouraging the creation of start-ups and research projects; boosting innovation and competitiveness; promoting open data policies to encourage innovation and transparency; development of technological infrastructure involving modernizing telecommunications networks, including the expansion of 5G technology, and strengthening local data centres to provide storage and processing capabilities suitable for AI applications.

In this context, the installation of supercomputers and high-performance computing (HPC) infrastructure is also crucial to support research and development. Morocco should carry out several actions to ensure rapid and stable connectivity, encourage and stimulate innovation, increase the global competitiveness of businesses, and reduce regional and local disparities in access to digital technologies. These actions include specially extending the fibre optic network, facilitating access to technological resources for businesses and institutions through subsidies and public-private partnerships.

Another lever is the assessment and adaptation in the sense that we should establish mechanisms for the continuous evaluation of AI policies and initiatives to adapt them to technological and societal developments. Training and awareness-raising among public and private stakeholders, civil society and particularly users and citizens is highly recommended to ensure accessibility of this emerging technology and to encourage citizens to adhere to the national vision of AI, its benefits and advantages and challenges and issues of inappropriate use or failure to master AI systems at national, regional and local levels.

By combining these different levers mentioned above Morocco can lay the foundations for a truly well-thought-out, global, sustainable national artificial intelligence strategy in alignment with its strategic choices and priorities and specificities. In this context, we propose the following components of an integrated system for the institutionalization and promotion of an inclusive and effective AI ecosystem in Morocco:

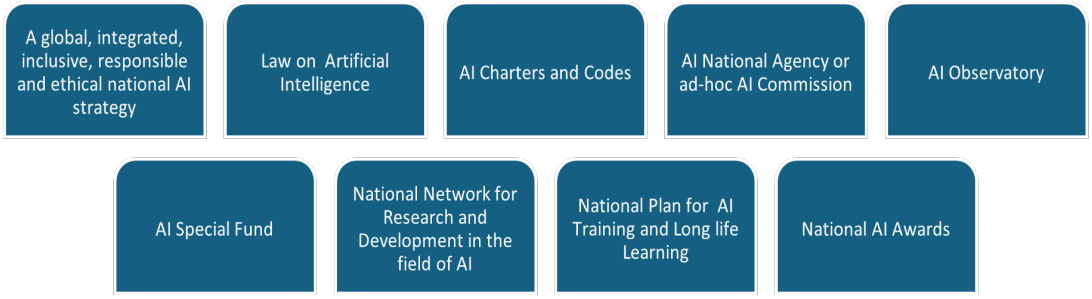

Figure 5: Components of an Integrated Framework for the Development of AI Ecosystem in Morocco

6. Conclusion

Our research revealed that by adopting an integrated, holistic, responsible and ethical AI approach, Morocco can not only strengthen its competitiveness and strategic intelligence, but also become a leader and hub for AI in Africa. To be effective and sustainable, this strategy will require close collaboration between the government, the private sector, academic institutions and civil society which have launched various actions and initiatives for the development of AI in Morocco. Indeed, Morocco has several positive points linked mainly to the political and governmental will to make digitalization its workhorse in addition to an international commitment for the benefit of global governance of AI and many other achievements infrastructure and technology to be capitalized. However, several challenges remain to be overcome, notably the lack of convergence and coordination between the different stakeholders, the insufficient human resources and talents in AI, as well as the absence of a legal and regulatory framework governing AI and its complex characteristics and impacts. All these elements argue in favour of the establishment of a national strategy which is essential for Morocco. This strategy should be thought within the framework of a prospective, holistic, well-integrated strategic vision, adapted to the Moroccan context and which drives a new dynamic of development and innovation of trusted AI adapted to the Moroccan context. Above all, it should be implemented and used in an ethical, inclusive and sustainable way. By following guiding concepts such as innovation, collaboration, transparency and human-centred values, Morocco can effectively harness the potential of AI to drive economic growth, improve social well-being and maintain competitiveness on the global stage. A robust and comprehensive AI framework, tailored to the country's unique context and aligned with international standards, will surely ensure that AI technologies contribute to a prosperous and equitable future for all Moroccans.

The “LAFBAH AI Framework” serves as a guiding framework for policymakers, industry leaders and academic institutions to collaboratively drive the national AI agenda, ensuring that Morocco not only keeps pace with global progress, but also leverages AI to address local challenges and opportunities. The development of such a strategic framework will allow Morocco to position itself as a leader in the field of AI, thus strengthening its competitiveness on the international scene and ensuring sustainable and equitable development for all of society.

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Entrepreneurial Psychological Contracts: Shaping the Future of Work in Times of Uncertainty

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Abstract: In the backdrop of a global work environment characterized by uncertainty, fragmentation, and precarization, this paper introduces the 'entrepreneurial psychological contract', a concept that reshapes our understanding of employment relations in new venture creation. The paper responds to the need for reimagining employment in an era where standard, stable employment is increasingly an exception. By extending psychological contract theory with insights from incomplete contracting literature, a nuanced perspective is provided on how entrepreneurs navigate the inherent uncertainties of new ventures to establish employment agreements. The paper is conceptual, and it reveals that entrepreneurial psychological contracts are markedly different from traditional bureaucratic contracts, characterized by their procedural, associational, constitutional, and polyarchic nature. This distinction is pivotal in comprehending the adaptive employment strategies in entrepreneurial environments, which mirror the global trends of work fissuring and employee precarization. This paper contributes to the broader discourse on how work and employment should be reorganized in contemporary capitalism. It offers theoretical advancements in entrepreneuring, human resource management, and contracting under uncertainty, and presents practical insights for entrepreneurs in crafting flexible and resilient employment relations. The paper aligns with the call for broadening perspectives on work, promoting sustainable organizational practices, and envisioning new ways of mobilizing workers in the face of global challenges.

Keywords: Employment Relations; Entrepreneurial Psychological Contract; Entrepreneurship; Psychological Contract, Uncertainty.

1. Introduction

This conceptual paper ventures into the uncharted territory of employment relations in entrepreneurial contexts, a critical area of study in the contemporary discourse on the future of work and employment. As the global work landscape undergoes significant transformations marked by uncertainty, fragmentation, and the precarization of labor, understanding how new ventures navigate these challenges becomes imperative. The paper directly addresses the call for papers' emphasis on reimagining work from the bottom up, by examining the unique dynamics of employment agreements in the context of entrepreneurship.

The interactions between employer and employee, and the informal, unspecified obligations generated as a result can be examined through the lens of psychological contracts. A psychological contract is a set of beliefs about what each party is entitled to receive, and obligated to give in exchange for another party's contribution (Levinson, et al., 1962; Rousseau, 1989; Schein, 1965). These beliefs arise from the expectations of each party and the obligations that arise as employers and employees exchange promises during the recruitment and early socialization stages of psychological contract formation (Rousseau, 2001).

The proposed and developed concept of the 'entrepreneurial psychological contract' lies at the core of our conceptualization. This novel construct extends traditional psychological contract theory by incorporating elements from incomplete contracting and uncertainty literatures, thereby offering a fresh lens through which to view employment relations in new ventures. This approach is particularly relevant in a world where traditional, stable employment is increasingly rare, and where work arrangements are characterized by a high degree of flexibility and adaptability.

Furthermore, global challenges, such as COVID-19 pandemic, point towards the need for stronger and more effective support for entrepreneurs in the times of uncertainty. Giones et al. (2020) explore the necessity of revising entrepreneurial action in response to the COVID-19 pandemic, emphasizing the importance of planning, frugality, and social support in navigating unprecedented uncertainty. This underscores the potential for psychological contract theory to provide a framework for understanding and managing the expectations and obligations between entrepreneurs and their stakeholders in highly uncertain environments, suggesting a valuable research direction for examining psychological contracts in entrepreneurship settings during crisis conditions.

Our exploration is timely and aligns with the call for understanding how work and employment are being reshaped in response to global crises and systemic challenges. By shedding light on the complexities of forming employment relationships in uncertain entrepreneurial environments, our study contributes to the broader conversation about sustainable and equitable work practices. We provide theoretical and practical insights that are crucial for reimagining organizational structures and mobilizing workers in ways that are responsive to the current economic and social realities.

The paper is structured in the following manner. First, recent literature on the topic is addressed, and the research gap defined. Second, theoretical background is introduced. Third, the paper moves into the development of a conceptual structure. Finally, we conclude with the discussion and contributions.

2. Review of Literature and Research Gap

Recent literature on psychological contract research, particularly in the past three years, has shown a limited but evolving focus in the context of entrepreneurship. Kozhakhmet et al. (2023) performed a bibliometric analysis of the field, highlighting the development and intellectual framework of psychological contract research, which aids in understanding the field's evolution. Crick & Crick (2022) examined psychological contracts in entrepreneurial coopetition among wine producers, underscoring their importance in managing competition and collaboration dynamics.

In entrepreneurial settings, few studies have delved into integrating psychological contracts. Notably, Kickul (2001) explored the impact of unmet promises by small business organizations on employee attitudes and retention. Nadine and Cassell (2007) examined how the size and conditions of small firms influence psychological contracts. Atkinson (2008) applied a psychological contract framework to study small firm employment relationships. Parhankangas and Landström (2004) addressed responses to psychological contract violations in venture capitalist-entrepreneur relationships, focusing on the active behaviors of venture capitalists.

Anggraeni et al. (2017) analyzed the impact of psychological contracts on the commitment and behavior of millennial employees in small and medium enterprises. Karen & Nowell (2018) investigated new venture teams, highlighting the influence of psychological contracts on team dynamics, particularly in trust and control aspects during venture formation.

Overall, these studies indicate a growing but still nascent integration of psychological contract theory in entrepreneurial contexts, suggesting an opportunity for further exploration and development in this area.

Establishing effective employment relations is a key part of entrepreneuring, which is the organizing process of creating a new venture (Gartner, 2016; Hjorth, 2014; Katz et al., 1988). Mutual agreements, in the form of implicit or explicit contracts, are a cornerstone of the employment contracts and work arrangements of employment relations. These agreements are by definition incomplete, since it is not feasible to specify every possible work behavior or condition (Lopes, 2018; Rousseau, 2001). The high degree of uncertainty surrounding new venture creation heightens this inherent incompleteness; yet, entrepreneurs do successfully build workforces for their new organizations. We examine how entrepreneurs accomplish this organizing feat by using a framework that extends psychological contract theory with concepts from the literatures on incomplete contracting, and contracting under uncertainty.

Psychological contracts are key building blocks of the mutual agreements anchoring employment relations (Levinson, et al., 1962; Rousseau, 1989; Schein, 1965). However, current psychological contract theory does not address the role of uncertainty, and makes little distinction between new ventures, or organizations-in-creation, and established firms (Rousseau, 2001; Rousseau, Hansen & Tomprou, 2019). Therefore, we utilize concepts from the incomplete contract literature (Grandori, 2010; Grandori & Furletti, 2019) to extend psychological contract theory. In doing so, we illustrate how uncertainty impacts the establishment of employment agreements, and advance a new construct, the entrepreneurial psychological contract.

3. Theoretical Background

Individual employees have implicit and unwritten expectations as they seek employment. These expectations include desired outcomes and goals, and arise from personal preferences, previous employment experiences, and institutional sector norms (Lopes, 2018; Rousseau, 1989, 2001). Similarly, employers have implicit expectations, as well as desired outcomes and goals as they seek employees, and these expectations arise from the productive activities of the firm, experience with previous employees and institutional sector norms. A

mutually held psychological contract is an implicit, unwritten agreement between an employer and an employee regarding the reciprocal rights and obligations of each party (Levinson, et al., 1962; Schein, 1965). This mutually held psychological contract serves as the basis for other employment agreements (Rousseau, 1989, 2001).

A mutually held psychological contract and other employment agreements are characterized by two major sources of incompleteness. First, the difficulty of fully specifying all aspects of a job and all contingent possibilities of employment prevents any agreement from being truly comprehensive (Lopes, 2018; Rousseau, 2001). Second, the promises in terms of behavior that are implicit in employment agreements are largely unenforceable (Lopes, 2018).

In stable environments with low to moderate levels of uncertainty, specific terms and actions can be included in the mutual psychological contract because the future states of the firm and the ensuing employment relationship can be reasonably predicted. Most of work in employment relations and psychological contracts has concentrated on established firms. The predominant focus on the aftermath of psychological contract violations, with more recent studies considering how these unwritten contracts evolve and change over time (Rousseau, 2001; Rousseau, Hansen & Tomprou, 2019). implicitly assumes that the firm operates in a relatively stable external environment with fairly consistent repeatable routines. These routines provide a set of knowable future states of nature and permit interested parties, such as employees and employers, to reasonably assess the probability of any given future state of nature. We define these types of contracts as bureaucratic psychological contracts.

However, uncertainty is heightened during entrepreneuring and in entrepreneurial environments. In the context of entrepreneurship, where risk-taking and handling uncertainty are paramount, van Hugten et al. (2021) discuss how psychological flexibility, which includes acceptance, defusion, mindfulness, self-as-context, values, and committed action, enables entrepreneurs to better manage setbacks and uncertainty. They argue that higher levels of psychological flexibility lead to more effective decision-making in the face of risks and uncertainties, directly impacting entrepreneurs' satisfaction.

In their recent research, Muñoz et al. (2023) reveal that in the entrepreneurship setting, mismatches between entrepreneurs' expectations and their actual experiences across purpose, autonomy, and achievement lead to a diminished sense of control, direction, and worthiness. This compounding of incongruences fuels a cycle of negative emotions such as anxiety, isolation, shame, and guilt, illustrating a critical process through which self-worth deteriorates in the face of uncertainty inherent in entrepreneurship.

Strong form uncertainty (Knight, 1921) pervades entrepreneurial contexts, since the future states of nature of the new firms being created are unknown and the probability of any given state of nature is also unknown (Knight, 1921). In addition, knowledge is distributed, so that no one actor, and in particular, no one central actor, can know what the best actions are, either before or after the relevant states of nature have been observed (Thompson & Tuden, 1959; Perrow, 1967). Specific terms and actions can no longer be reasonably predicted.

These contextual characteristics resemble those found in discovery-intensive and design-intensive industries such as pharmaceuticals and biotechnology (Grandori & Furletti, 2019). Firms in these industries engage in contract agreements for innovation and R&D projects that remain robust under strong Knightian uncertainty (Grandori, 2010; Grandori & Furletti, 2019). We propose that these forms of contracting for innovation and discovery provide insights into how psychological contracts differ in uncertain entrepreneurial settings.

4. Towards a Conceptual Framework

In their analysis of a large international database of multi-party projects governing innovation, Grandori (2010) and Grandori and Furletti (2019) found that these agreements enabled the participating parties to commit substantial resources over sustained periods of time in the face of high levels of uncertainty. These contracts specified the rights and obligations of each party, what resources they will commit and own, and how the parties will decide what to do. They avoided trying to spell out multitudinous possible states of nature and the specific corresponding actions. Consequently, they were effective under uncertainty, and represented a shift from contingent contracts over actions to non-contingent contracts over resource commitments (Grandori, 2010; Grandori & Furletti, 2019).

Their findings indicate effective contracting in uncertain contexts is indeed possible and demonstrate that contracting on resources and assets and on decision rules rather than on specific actions is a viable alternative to incomplete contracts among boundedly rational parties and complete contingent contracts among

omniscient actors. These types of contracts have the following characteristics: 1) procedural instead of substantive, 2) associational instead of transactional 3) constitutional instead of operational, and 4) polyarchical instead of hierarchical.

We argue that a similar approach is applicable to psychological contracts and employment agreements under conditions of high uncertainty. Here we illustrate how these findings apply to employment relations in entrepreneurial settings.

In these settings, employees can be described as joiners with entrepreneurs assuming the role of employers. Entrepreneurs and joiners create contracts on resources and assets when joiners commit resources in the form of their time, talent and expertise, and entrepreneurs commit resources in the form of equipment, space, compensation and opportunities without either party knowing the future states of the new venture-in-creation. They rely on decision rules for governing the new venture as new states of nature arise instead of delineating future specific actions or uses of resources. We now discuss how the four key features of contracts for innovation and discovery apply in the employment context.

4.1 Procedural Versus Substantive

Procedural contract clauses provide guidelines for deciding what to do while substantive clauses provide specific stipulations on what to do. In entrepreneurial settings, the procedural nature of these agreements is reflected in the expectation that joiners will "wear many hats", will take initiative and be self-starters, and will do whatever needs to be done. These types of guidelines take the place of detailed job descriptions or formal duties that specify the tasks to be performed as in established firms in more stable environments. Although agreements of any complexity will contain both procedural and substantive clauses, we would expect the procedural content to increase relative to the substantive content in higher levels of uncertainty.

4.2 Associational Versus Transactional

Associational clauses define the resources each party will commit, and rights to and ownership of resources enjoyed by each party, while transactional clauses define how resources will be used. Examples of associative clauses are those that specify the ownership rights of joiners through equity stakes, profit-sharing and stock options but leave the detailed uses of resources unspecified. By defining rights over resources committed and the resulting outcomes, associational clauses allow joiners and entrepreneurs to discover optimal actions and uses over the course of time. In addition, these clauses provide joiners with incentives to maximize the use of resources while simultaneously offering the flexibility to pursue optimal strategies for resource use over any future states of nature. We anticipate that increases in uncertainty would lead to increases in associational clause content relative to transactional clause content in the mutual psychological contract.

4.3 Constitutional Versus Operational

A necessary complement to an agreement to associate is an agreement indicating who will make decisions and according to what procedures (Grandori & Furletti, 2019). Grandori and Furletti (2019) define the clauses that establish associations between parties, institute decision rules, and determine rights to control and rewards as constitutional. Constitutional clauses provide a set of rules for governing while operational clauses offer specifics on what to do. When joiners and entrepreneurs agree on a set of rules or norms based on the philosophy or ideology of the founders, then this is an example of a constitutional clause. These agreed upon norms can also include the burgeoning cultural norms of the new organization-in-creation. A higher proportion of constitutional clauses relative to operational clauses is expected to occur in highly uncertain environments.

4.4 Polyarchic Versus Hierarchical

Polyarchic clauses recognize decentralized sources of power while hierarchical clauses focus on centralization. In a pure hierarchy, decision rights are concentrated in one central actor, who is then entitled to choose optimal actions based on the relevant state of nature. In this instance, it is necessary for the central actor to hold the relevant knowledge and for the other parties to be relatively indifferent to the actions assigned to them (Simon, 1951). This concentration of knowledge is unlikely to occur in uncertain entrepreneurial settings since knowledge and capabilities tend to be broadly distributed and the type of knowledge required for any given state of nature is likely to be unknown ex-ante. In addition, joiners are unlikely to be indifferent to decisions made by a central authority since they are likely to have committed substantial resources in the form of time,

talent and expertise, they may possess ownership rights, and they may be more knowledgeable about certain states of nature. Conversely, the decentralized authority of polyarchic clauses permit joiners to participate in decision-making based on their talent and expertise. These clauses also recognize that the capacity to tap into a wider knowledge base equips the new venture to more nimbly address a wider variety of states of nature. More polyarchic clauses are expected to be found in mutual psychological contracts in contexts with higher degrees of uncertainty.

5. Discussion and Conclusions

This conceptual paper suggests that the high degree of uncertainty in entrepreneurial contexts results in entrepreneurial psychological contracts which are more procedural, associational, constitutional and polyarchic than their bureaucratic counterparts which arise in more stable contexts. In addition, the proposed construct of entrepreneurial psychological contract illustrates how many of the employment options observed in entrepreneurial environments are the result of efforts to manage heightened levels of uncertainty. By explicating the link between uncertainty and particular contract characteristics, our attempt to broaden perspectives on work and uncertainty and to show how entrepreneurial psychological contracts can arise in highly uncertain environments within established firms such as skunkworks, special research and development projects and corporate intrapreneurship initiatives. Conversely, bureaucratic psychological contracts can exist in relatively stable, clearly defined areas in highly uncertain entrepreneurial environments, such as specific assignments for independent contractors and gig workers.

This paper also makes contributions to the entrepreneuring, human resource management, incomplete contracting literatures. The entrepreneurial psychological construct provides insights into how new ventures organize employment and work arrangements. Moreover, the insights of the paper may apply to reflect upon the broader issues, particularly the challenges posed by contemporary work environments, characterized by precarization, with many jobs becoming increasingly uncertain and short-term, and an increasing lack of meaningful and materially rewarding work. By highlighting how entrepreneurial psychological contracts adapt to uncertainty, our work offers a pathway for reimagining employment relations in a manner that can counteract the negative effects of uncertain work environments.

In addition, this construct provides additional theoretical grounding for the study of human resource management and employment practices in new ventures, and in small and medium-sized firms. It also responds to the call for broadening perspectives on work in organization studies, by presenting a nuanced view of employment contracts in the unique context of entrepreneurship. This perspective is critical for understanding the fissured nature of workplaces today and the resulting implications for worker rights and protections.

The application of incomplete contracting concepts to employment relations expands the scope of literature addressing contracting under uncertainty. Our findings contribute to envisioning new ways of mobilizing workers, especially in contexts where standard employment is no longer the general norm and where the labor force is increasingly subjected to various levels of precarity. On a more practical level, the construct of the entrepreneurial psychological contract can aid entrepreneurs who are in the process of recruiting and hiring their employees, by providing a framework that acknowledges and strategically addresses the complexities and uncertainties inherent in modern work environments.

Ultimately, the discussion herein and the construct of entrepreneurial psychological contract broadens the potential for theoretical and empirical insights that challenge and expand current understandings of work, employment, and organization in the face of global economic and social change.

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The Role of Awareness and Level of Digital Literacy in Creating Entrepreneurial Intentions in Generation Z Women

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Abstract: Currently, modern market conditions for the development of entrepreneurship are extremely uncertain and highly turbulent. The speed and intensity of changes in the business environment make starting your own business a high risk. Entrepreneurial intentions play a particularly interesting role in the decision-making process to start your own business. The literature review indicates that the factors influencing intentions include the abilities and skills of future entrepreneurs, including their level of digital skills and competence. Knowledge of digital technologies enables future entrepreneurs to access reliable and up-to-date information and increases the opportunities for continuous learning. Digital literacy facilitates effective communication and collaboration between businesses. These competencies help to understand the implications of using digital technologies and support the use of digital tools in company management. The aim of the paper is to identify the awareness and digital literacy that influence the entrepreneurial intentions of Generation Z women. The study conducted in 2024 is based on the results of research on a group of 193 Polish women, representatives of Generation Z. An original survey questionnaire was used to collect the data. An original survey questionnaire was used to collect the data. The analysis based on the data showed the level of digital literacy of Polish Generation Z women and which of them influence the level of entrepreneurial intentions. The novelty of the paper is the indication of areas of knowledge regarding digital skills that determine the entrepreneurial intentions of Polish Generation Z women.

Keywords: Digital Literacy, Digital Skills, Digital Competences, Entrepreneurial Intentions, Women's Entrepreneurship, Generation Z, Poland

1. Introduction

Assuming that entrepreneurship is the basic condition for development, innovation, and economic growth, it should be perceived as a process in which external and internal conditions determine its level. Entrepreneurial attitudes, subjective norms, flexibility of action, and acquired experience and knowledge are in constant interaction with each other and determine entrepreneurial intentions, which influence entrepreneurial behavior (Crisp & Turner, 2009; Zbierowski, 2014; Abubakar et al., 2019; Czaplińska, 2020). In the face of rapidly changing environmental conditions and competitive pressure, future entrepreneurs also need to develop the ability to respond and better adapt to the dynamic business environment (Cheng 2007). Awareness and knowledge of digital technologies enable future entrepreneurs to have access to reliable and up-to-date information and increase the opportunities for continuous learning. The ability to use digital technologies facilitates effective communication and cooperation with other enterprises and activities in clusters and associations. It helps to understand the modern implications of using digital technologies and supports the use of digital tools in running and managing a business (Aydınlar et al, 2024). It can therefore be said that it strengthens future entrepreneurs in their decisions regarding starting a business and therefore strengthens their entrepreneurial intentions.

The aim of the paper is to identify the awareness and digital literacy that influence the entrepreneurial intentions of Generation Z women. The conclusions are based on the results of research from 2024 on a group of Polish Generation Z women. The paper contributes to science by combining the identified awareness and level of digital competences with entrepreneurial activity, in particular the entrepreneurial intentions of Generation Z Polish women.

2. Literature Review

2.1 Awareness and Level of Digital Literacy

Digital technologies are playing an increasingly important role in the economy and development of regions. It can be indicated, based on a review of the literature, that they are a determinant enabling the creation of new ventures. Researchers indicate that it is even the greatest force for entrepreneurship and innovation (Nambisan, 2017; Shane & Venkataraman, 2000; Berger et al, 2021; von Briel et al, 2021). Digital technologies allow current and future entrepreneurs to gain valuable and timely market insight, improve their ability to respond to changes in the environment, reduce transaction and communication costs, expand the scope of their market, promote international exchanges, and reduce cultural, organizational, and institutional boundaries (Dabbous, Barakat &

Kraus, 2023). Moreover, technological change driven by the use of artificial intelligence acts as an external factor influencing new entrepreneurial activity (Davidsson, Recker & von Briel, 2020).

Entrepreneurial opportunities preceded by intention, thanks to digital skills, become possible not only for existing enterprises, but also for new business opportunities. They allow you to introduce innovations, assess risks, take advantage of opportunities or flexibly organize business (von Briel et al, 2021). Rapid technological progress forces the building of future-oriented competencies, especially for future entrepreneurs, including employees (Punie, Ferrari & Brečko, 2013; Sergi et al, 2022). Research on entrepreneurship focuses on the factors influencing it, including entrepreneurial competences. Researchers confirm that knowledge of digital skills is positively associated with entrepreneurial intention, which proves to be a reliable predictor of entrepreneurial actions and activities (Fayolle & Gailly, 2015; Reis, Fleury & Carvalho, 2021).

Digital competences can be defined as a set of knowledge, skills, abilities, and other characteristics that enable individuals to perform their jobs effectively. These are tasks related to the use of digital means in a secure way to process information and data, communicate and collaborate, and solve problems (Rubach & Lazarides, 2021).

Following Aydınlar et al. (2024), it can be indicated that digital competences are divided into seven areas, which include:

- Software and multimedia, including, among others: ease of learning technology, ability to communicate through simple Internet platforms, knowledge of computer languages;
- Hardware, including, among others, the ability to solve technical problems, technical knowledge of a computer;
- Network, including the ability to communicate on the Internet, work via Internet platforms;
- Ethics, including knowledge of copyrights, licenses and provisions of the Personal Data Protection Act;
- Security related to cybersecurity and security;
- AI related to the knowledge of artificial intelligence and areas of its use;
- Interest-Knowledge related to knowledge of technology, ability and willingness to learn.

In today's business conditions, running your own business requires very complex skills compared to previous years. In order to effectively run a business, a future entrepreneur must combine, use, and implement new technologies to create innovation. Therefore, awareness of digital technologies and the ability to use them are important. The literature review indicates a paucity of research on individual digital skills that may determine entrepreneurial intention, therefore the following research questions can be constructed: *What level of awareness of digital technologies is needed when creating entrepreneurial intentions? Which competencies related to digital technologies determine the process of starting your own business or influence entrepreneurial intentions?*

2.2 Entrepreneurial Intentions

The literature review does not indicate a clear definition of "entrepreneurial intentions." It can be pointed out, following Kadir, Salim and Kamarudin (2012), that it is the intention to create a new business venture in the form of a new company. Karabulut (2016) believes that entrepreneurial intention initiates future business activities. Therefore, the goal of a future entrepreneur is to plan activities that will produce the expected result. People are ready to raise funds, take risks, and create a venture. The first critical step on the path to an entrepreneurial career is the formation of entrepreneurial intentions, which can be understood as a person's independent belief that he or she intends to start a new business venture and consciously plans to do so at some point in the future, regardless of whether this point in the future is known, unknown, or never achieved (Thompson, 2009). Hmieleski and Corbett (2006) stated that entrepreneurial intentions can be defined as intentions to start a business with high growth potential.

The great and growing interest in research on entrepreneurial intentions results, among other things, from the fact that entrepreneurs and entrepreneurial activities play a significant role in supporting social and economic development (Baubonienė et al, 2018) and in the development process for sustainable development (Bouncken, Lapidus & Qui, 2022). Research shows that a higher level of economic growth and innovation requires a higher level of entrepreneurship in a given region or country. Moreover, as the literature review indicates, entrepreneurial intentions determine competitive advantage, which requires flexible, agile capabilities in the process of entrepreneurial activities (Shuyan & Fabus, 2019). The basic assumption that intentions precede actions has sparked a lively debate and research stream in recent years, with researchers searching for and discovering factors that influence entrepreneurial intentions (López-Núñez et al., 2020).

Nijkamp (2003) emphasizes that the literature does not indicate clear factors determining an individual's entrepreneurial behavior. The most important in the process of becoming entrepreneurs are entrepreneurial intentions and behaviors resulting from external and internal conditions (Piróg 2014). Regarding social aspects, the level of entrepreneurial intentions reflects the economic potential and economic environment of the country (Kordos, Krajnakova & Karbach, 2016). Understanding the level of entrepreneurial intention provides researchers and policymakers with the ability to predict future entrepreneurial potential and entrepreneurial activities that can be used to achieve economic goals (Yıldırım, Çakır & Aşkun, 2016). When it comes to internal conditions, these include: individual characteristics of an individual, education and experience, skills, and opportunities for personal development by expanding knowledge and learning (Czaplińska 2020). Intentions are influenced by situational or "demographic" factors, in particular, but greater knowledge contributes to a more realistic perception of entrepreneurial activity (Ajzen, 2002), thus indirectly influencing intentions. The importance of experience and education has been widely highlighted in international research, particularly in the context of the knowledge it provide. Entrepreneurial knowledge, including digital skills and abilities, can therefore be expected to have a clear and significant impact on the formation of intentions (Liñán & Chen, 2006).

2.3 Women and Generation Z

Entrepreneurial intentions reflect the behavior and motivation of individuals to choose the entrepreneurial path over other career choices (Piperopoulos & Dimov, 2015). Gender, an individual characteristic, explains the differences in behaviors and beliefs between men and women. Gender norms are common throughout society and influence not only how individuals view themselves but also how society views and positions them (Murnieks, Cardon & Haynie, 2020). Women have lower professional expectations regarding promotion and success and are less motivated by high income and independence than men (Orlando et al, 2022). Therefore, it can be indicated that entrepreneurship is gender-specific (Murnieks, Cardon & Haynie, 2020), where women recognize opportunities for creative problem solving, perceiving barriers and challenges in a different way than men (Hamilton, 2014). Unfortunately, there is a general bias in society's support for male entrepreneurship. It allows men to more easily build and maintain external relationships conducive to entrepreneurial activity. Moreover, entrepreneurship is culturally perceived as a masculine activity, less suitable for women (Laouiti et al, 2022). However, a review of research on women's entrepreneurship shows that women are characterized by a higher level of passion for entrepreneurship than men (Kyriakopoulos, Herbert & Piperopoulos, 2024), even though, according to the GEM Report (2022), there are three times as many male entrepreneurs. Entrepreneurial passion is positively and strongly associated with entrepreneurial intentions, especially for women (Biraglia & Kadile, 2017).

As the PARP Report (2023) indicates, the youngest generation on the labor market is Generation Z, born after 1990. This is a group of people with initial professional experience who are familiar with digital technologies. It is characterized by variability and demandingness (Cho & Lee, 2018). It can be indicated that representatives of Generation Z are not attached to the company and that they are ready to sacrifice their private time for their own business. Research on Generation Z confirms the great entrepreneurial potential of this employee group (Dreyer & Stojanová, 2023). The conducted review of the literature on the subject and observation of the business environment allowed us to formulate the following main hypothesis: H: *Awareness and level of digital literacy determine the level of entrepreneurial intentions of generation Z women*.

3. Methodology

The aim of the paper is to identify the awareness and digital literacy that influence the entrepreneurial intentions of Generation Z women. The research results are part of a larger study. The actual study was conducted in 2024 and was preceded by pilot studies. A group of Generation Z women was selected for the study due to their role in creating entrepreneurial potential. The survey had 193 respondents who were chosen at random.

The results of the pilot study and the literature review allowed for the development of a research tool, a survey questionnaire. The questionnaire consisted of a summary and closed questions, including: assessing the level of entrepreneurial intentions and digital skills and abilities. Responses on a 5-point Likert scale (Sheng, Zhou & Li, 2011; Peng & Luo, 2000) allowed the use of the managerial approach, which is most often used in the social sciences.

During the data analysis, the level of entrepreneurial intentions was examined based on the assumptions of the Entrepreneurial Intentions Model (EIQ) used by Liñán and Chen (2006). The EIQ model used assumes that future entrepreneurs make the decision to start their own business based on personal preferences, perceived social

norms related to running a business, and their assessed entrepreneurial effectiveness. The developed questionnaire of entrepreneurial intentions (EI) was found to be generally adequate to analyze the intention to become an entrepreneur in this study. In turn, the identification of digital skills in the study group was based on the conclusions from the research of Aydınlar et al. (2024). The awareness and level of digital skills were divided into seven fields, the skills of which were assessed by the respondent. Fields of digital literacy were distinguished: software and multimedia (DL_1), hardware (DL_2), network (DL_3), ethics (DL_4), security (DL_5), AI (DL_6), interest-knowledge (DL_7).

First, reliability tests were run on the created research instrument as part of the analysis of the research findings (Table 1). The Cronbach's alpha coefficient reliability estimation approach was applied (Taber, 2018; Christmann & Van Aelst, 2006).

Table 1: Reliability and validity

Variables	Cronbach's α
EI	0.913
DL_1	0.924
DL_2	0.923
DL_3	0.922
DL_4	0.920
DL_5	0.920
DL_6	0.930
DL_7	0.919
DL_Total	0.933

The results of the analysis showed that the EI scale has an excellent reliability of 0.913, while the DL scale has excellent reliability in each of its domains, with an overall reliability of 0.933. It turns out that the research scales built within the tool satisfy the requirements, and their application in quantitative research is warranted based on the classification scheme that George and Mallery (2016, p. 240) established.

4. Results

The analysis of the research results was carried out in several stages, and the following research questions helped to implement them:

1. What is the level of EI of Generation Z women?
2. What is the level of awareness of digital technologies necessary for running a business among Generation Z women?
3. What is the level of DL of Generation Z women?
4. Is there a statistically significant relationship between the level of digital awareness and literacy and the level of EI of Generation Z women?
5. Which digital capabilities and skills determine the increase in EI among Generation Z women?

The analysis of research results on a group of Polish women representatives of Generation Z showed that the average level of their EI is 3.56 on a 5-point Likert scale and this level differs by +/-0.849 points from the average value. At least 50% of the respondents ranked level of EI at a level of 3.60 or below on a 5-point scale, according to the median value for the category.

The survey results also confirmed that respondents have a high level of awareness of digital technologies necessary when running a business. This level was set at 4.58 on a 5-point scale and this level differs by +/-0.952 points from the average value.

Further analysis of the data showed that the overall level of DL is 3.73 on a 5-point Likert scale and this level differs by +/-0.831 points from the average value. The median value for the level of DL_Total indicates that at least 50% of the respondents rated DL at the level of 3.881 or less on a 5-point scale. At the same time, it turned out that the highest level of DL occurs in the field of security at the level of 4.14 and in the field of ethics at the level of 3.91 on a 5-point scale. The lowest level of DL was declared by respondents in the field of software and multimedia at the level of 3.38 and interest-knowledge at the level of 3.54 on a 5-point scale (Fig. 1).

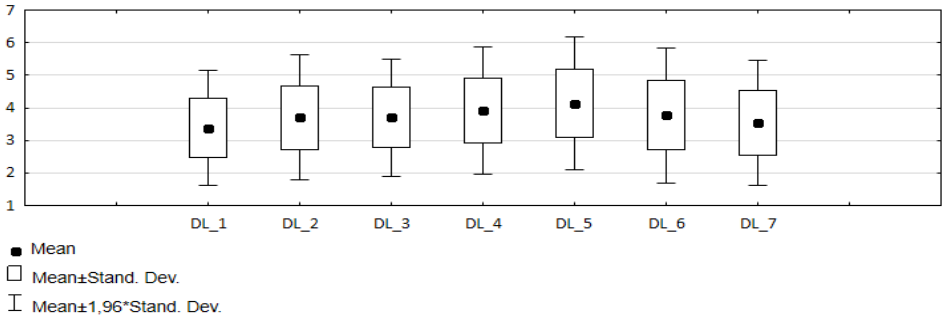

Figure 1: The level of DL among Generation Z women (n=355)

The Kendall's tau correlation coefficient was used to determine whether there was a linear relationship between the variables (Table 2). In the following stage the correlations between the level of EI and fields of DL were identified. The analysis showed that the correlations between the variables are statistically significant for $p<0.05$ and can be described as poor positive, ranging from 0.115 to 0.256.

Table 2: Correlation analysis (n=193)

Fields of Digital Literacy	Entrepreneurial Intentions
DL_1	0.250*
DL_2	0.126*
DL_3	0.115*
DL_4	0.214*
DL_5	0.235*
DL_6	0.256*
DL_7	0.141*

*Kendall's tau correlation (p-value<0.05)

Multivariate linear regression analysis was performed using the stepwise method, which allows for examining the significance of the next introduced variable, as well as examining a different arrangement of variables at each step (Montgomery, Peck & Vining, 2012). The modeling results after introducing all variables are shown in Table 3. Ultimately, there are four variables left in the model that are statistically significant, namely DL_1, DL_6, DL_3, and DL_4. The fit of the model to the data was assessed with the R2 coefficient, which was 0.2274, so it can be indicated that the four variables that entered the model at $p<0.05$ explain it in 22.74%.

Table 3: Modelling result, final model

(N=193)	b*	SD with b*	b	SD with b	T (348)	p
Intercept			2.163	0.285	7.59	0.000
DL_1	0.477	0.115	0.502	0.121	4.14	0.000
DL_6	0.265	0.092	0.238	0.083	2.87	0.005
DL_2	-0.212	0.124	-0.206	0.121	-1.71	0.089
DL_3	0.216	0.104	-0.223	0.107	2.09	0.038
DL_4	0.232	0.100	0.222	0.096	2.31	0.022
DL_7	-0.140	0.120	-0.135	0.116	-1.17	0.245
Multiple R=0.4769; Multiple R2=0.2274; Adjusted R2=0.2025; F (6.186)=9.1244; p=0.00000; Standard error of estimation=0.849						

The results of the analysis showed that awareness and level of digital literacy in the field of software and multimedia have the greatest impact on the increase in the entrepreneurial intentions of Generation Z women.

The next field is artificial intelligence, networks, and ethics. Interestingly, awareness and level of digital literacy in the fields of hardware and interest-knowledge were not included in the built model.

5. Discussion

Entrepreneurial intentions reflect the behavior and motivation of individuals to choose an entrepreneurial path over other career choices (Tantawy et al, 2021). Recent empirical research in the literature on the subject has confirmed that entrepreneurial passion has a significant positive impact on entrepreneurial intentions, which in turn determine the growth of regional entrepreneurship (Kyriakopoulos, Herbert & Piperopoulos, 2024). The study results show that individuals' entrepreneurial intentions are influenced by digital skills (Aydınlar et al, 2024). The positive relationship between women's digital skills and their entrepreneurial intentions shows that knowledge in selected areas determines women's entrepreneurship in regions. This confirms the research of Biraglia and Kadile (2017), which indicated such a relationship. Not all digital skills of future entrepreneurs equally determine their intentions to start their own business. It turns out that knowledge of the simplest digital skills helps in making decisions about the future entrepreneurial path. Moreover, awareness of this knowledge also determines entrepreneurial intentions (Sergi et al, 2022). Therefore, it can be indicated that women with knowledge in the field of digital technologies are more willing to decide to start their own business (Bachmann et al, 2024).

6. Conclusion and Future Research Directions and Limitations

To sum up, the analysis conducted allowed us to answer the research questions. The research results showed that the awareness and level of digital skills positively determine the entrepreneurial intentions of Generation Z women. It can therefore be indicated that the formulated research hypothesis has been confirmed. The model included only four variables determining the level of digital skills in the fields of software and multimedia, AI, networks, and ethics. Therefore, the analysis made it possible to identify areas of knowledge in the field of digital technologies that should be strengthened in the case of activities to increase entrepreneurship in regions or the country.

The research conducted is not free from limitations. Firstly, the study was conducted on a selected group of Generation Z women; the selection of a broader research group (representative) would allow for a more thorough analysis and generalization of the results. Secondly, the study was conducted only in Poland, where the level of entrepreneurship is not high.

In the future, the authors plan to continue research in the area of the analysis of factors influencing the growth of entrepreneurship in general with a representative group of people, also abroad. The researchers plan to expand the analysis to include research on a group of men, which will allow for a comparative analysis and provide recommendations for individual research groups in a turbulent business environment.

7. Theoretical and Practical Implication

Our research makes several important contributions to the literature linking individual-level entrepreneurship, education, and digital technologies. Additionally, the study has several implications for practitioners. Recommendations in the area of activities to strengthen digital awareness and skills, especially for women, are becoming the basis for functioning in an extremely changeable business environment. Focusing on activities that increase the level of knowledge, including the level of knowledge regarding digital skills in areas that determine entrepreneurial intentions, may become the key to the development of entrepreneurship in a region or country. All the more so because women's passion for entrepreneurship is higher in international research compared to men. Therefore, an increasing number of women entrepreneurs will have a positive impact on the development of regions and the country.

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The Impact of SME Financing Policies on Financial Reporting: A Case Study

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Abstract: Considering financing crucial for the daily survival of entities, it is fundamental to understand the impact of the measures taken by companies regarding the financing obtained. Therefore, the study aims to analyse the impact of financing policies on the financial reporting of entities through an analysis of the financial statements for the year 2021 of three entities. After analysing the results, it is demonstrated that bank loans are the main source of financing used by entities to fund their investments. However, it is noted that the entities under analysis seek external sources of financing, which has significantly increased their financial dependence. Therefore, when compared to their industry sector, these entities have a much lower level of financing via Equity. Regarding the financing costs incurred by their financing policies, it is observed that these are significantly high, mainly in relation to the weight of financing costs in total EBITDA, which impacts the net result of the period. Finally, the high impact of the rise in the Euribor rate on financing costs in 2023 was demonstrated. Thus, it is evident that in relation to other sources of financing, their respective expenses will increase dramatically, potentially greatly affecting the results of the companies.

Keywords: Financing Policies, SMEs, Euribor Rate, Financial Reporting, Funding Difficulties, Bank Loan

1. Introduction

SMEs are the main driver of the European economy, crucial for enhancing competitiveness and employment. They make up 99% of businesses in Europe (European Commission, 2003) and generate 56.4% of the wealth (Muller et al., 2019). In Portugal, SMEs represent 99.9% of businesses, with 1,333,649 SMEs, 96% being micro-enterprises. They employ 77.37% of the workforce and, in 2021, generated 60.46% of the country's wealth.

Small business owners are pillars of society and need support for sustainable growth. Financing is key for their stability, allowing business expansion and meeting short-term obligations (Barbosa & Pinho, 2016). Companies should be aware of diverse financing methods to suit their needs (Tavares et al., 2015).

SMEs face more financial constraints than larger firms, hindering their access to funding and growth (Beck & Demirguc-Kunt, 2006). Early-stage SMEs struggle with a lack of commercial history and high risk of failure, affecting financing conditions and trust from financial institutions. The type of financing chosen can significantly impact financial reporting, affecting balance sheets and income statements, and influencing financial ratios and market equilibrium.

Bank loans, the primary financing source (Ferreira, 2020), involve higher interest costs and debt amortization, often linked to the Euribor rate. Early-stage SMEs face higher financing costs due to higher risk spreads. Higher risk also leads to shorter loan periods, increasing repayment amounts.

This study aims to analyse the impact of financing policies on SMEs' financial reporting. The goal is to highlight the significant effects financial crises can have on companies' results through increased interest rates combating inflation.

After this introduction, this paper is structured as follows: the next section presents a background on the topic; section 3 presents the methodology adopted to collect and process the data and the definition and characterisation of the sample; section 4 is dedicated to the presentation and discussion of the results and, finally, the main conclusions, limitations of the study and suggestions for future research are presented.

2. Background

The relationship between companies and banks is intricate and often disadvantages smaller firms (Correia, 2018). Smaller companies face challenges in securing favorable financing terms due to their size and market position. Established companies typically benefit from better financing conditions, such as lower interest rates and larger loans, due to their stability and lower risk profile (Neves, 2009). In contrast, larger banks prefer to finance well-established companies over smaller ones.

Smaller companies often struggle with poorer financial information and fewer assets (Rostamkalaei & Freel, 2016). High information costs for these firms result in less favorable financing terms, with interest rates reflecting both the opportunity cost of internal funds and an additional risk premium (Farinha, 1999). This results in higher financing costs and limited liquidity.

In Portugal, competition among banks, including foreign banks, might offer smaller companies alternative financing options like factoring and leasing (Beck et al., 2010). However, micro-enterprises often face high risks and lack of information, which can prevent this competition from reducing interest rates (Ferreira, 2020). Comprehensive financial information is essential for banks to assess risks and offer better credit conditions.

The European Central Bank's survey indicates that SMEs encounter obstacles such as loan rejections and high costs (Bankowska et al., 2020). In Portugal, common difficulties include high interest rates, stringent guarantees, bureaucratic processes, and long credit approval times (Lopes, 2014). Interest rates, collateral requirements, and the availability of relevant information are key barriers. SMEs, viewed as high-risk due to insufficient assets and market vulnerability, face higher interest rates to mitigate these risks (Bădulescu, 2010). They also struggle with recruiting qualified staff and adapting to market changes.

The opacity of SMEs and their lack of audited financial statements further complicate financing (Beck, 2008). In contrast, larger firms can provide substantial guarantees and are better able to meet short-term financial commitments. Banks view SMEs as high credit risks in a competitive environment and are reluctant to approve loans without positive cash flows, regardless of collateral (Jovin, 2016).

Information asymmetry arises from the absence of audited financial statements, limiting banks' ability to assess companies' credibility and risk (Bădulescu, 2010). Larger companies offer more detailed information about their operations and strategies, which helps banks evaluate performance and risk more effectively (Miller, 2003). Smaller firms often withhold critical success factors, making it harder for banks to trust and assess them.

Lopes (2014) examined how SMEs in Portugal secure financing and the main constraints they face through a questionnaire of 31 SMEs recognized in 2013. The study found that SMEs are heavily reliant on bank financing, facing significant challenges with high interest rates and stringent collateral requirements. The study also highlighted the growing importance of financial statements in building trust between banks and SMEs.

Correia (2018) explored financing difficulties for Portuguese SMEs using an econometric model from 2006 to 2015. The study found that business volume is crucial for accessing financing, with collateral requirements being a major barrier, especially for new companies with medium- and long-term investment needs.

Luzio (2015) investigated factors influencing bank financing for Portuguese SMEs using a sample of 2,689 companies from 2010 to 2013. The analysis showed that larger companies find it easier to access bank financing, and credit availability increases with export activities. Consistent with other research, collateral remains a key factor, with larger assets facilitating financing access.

Internationally, Masiak et al. (2019) compared financing between SMEs and large enterprises. Their study of 2,144 SMEs across 27 European countries found that small businesses face challenges due to high costs and information asymmetries. Microenterprises particularly rely on bank loans to address financing needs.

Kumar and Rao (2016) provided insights into common financing policies among SMEs through a study of 1,524 Indian SMEs from 2006 to 2013. Their findings revealed that trade credit and bank loans are the most used financing sources, with company age, profitability, tangible assets, and liquidity being critical for securing financing.

3. Methodology and Sample

This case study will analyze the financing issues of three entities from a small accounting firm's client portfolio. It aims to evaluate how financing policies affect financial statements and ratios. The study will compare these costs with industry benchmarks.

An exploratory case study methodology will be used, involving data collection through document analysis. This will include management reports and financial statements for 2021 to assess financing policies and their effects on financial reporting. The analysis will focus on the entities' financial statements and relevant indicators and ratios.

To comply with Law No. 58/2019 of August 8, regarding the Data Protection Regime, the identification of the entities under study will not be disclosed. The entities will be referred to as entities A, B, and C.

Subsequently, through Table 1, relevant data for the study about entities A, B, and C for the year 2021 will be presented.

Table 1: Data on the entities analysed in 2021

	A	B	C
Sector of activity	Sock production	Organising transport	Trade and Distribution of Food Products
Year of foundation	1995	2013	1999
Number of employees	56	13	20
Turnover	4 977 425,16€	2 705 670€	3 543 543,62€
Assets	5 421 250,50€	1 643 188,04€	1 925 670,88€
Liabilities	4 226 342,43€	1 502 093,64€	1 560 766,41€
Equity	1 194 908,07€	141 094,40€	364 904,47€
Net profit	616 761,64€	40 660,37€	25 644,42€
No. of banks they work with	7	4	3
Applicable accounting standards	General accounting standards	Standard for small entities	Standard for small entities

Based on Table 1, the analysed companies are from completely different sectors with extensive market experience. Company A has the highest turnover but also significantly higher liabilities. Despite good results in 2021, all companies have a high debt-to-asset ratio, which could lead to future financial autonomy issues.

Company A follows the general system of the 28 Accounting and Financial Reporting Standards of the Accounting Standardization System in Portugal, while companies B and C follow the small entities' standards.

According to Decree-Law No. 372/2007 of November 6, all companies are classified as small entities, as they exceed the limits for micro-entities. However, while company A exceeds the worker limit (56 workers in 2021), its turnover and balance sheet value are below the medium-sized entity limit. Companies B and C have 13 and 20 workers, respectively.

Finally, company A operates with 7 banks, unlike companies B and C, which work with 4 and 3 banks, respectively.

3.1 Analysis and Discussion of Results

3.1.1 Analysis of Financing Policies and Their Impact on Financial Statements and Financing Ratios

To begin analysing the financing policies of the respective entities, it is essential to understand their balance sheet structure and compare it with the sector they belong to.

The Balance Sheet is a document that reflects an entity's financial situation at a specific period. Based on Table 2, we can compare the balance sheet structures of the entities in this study. A Balance Sheet must comply with the Minimum Financial Equilibrium Rule (MFER), meaning Current Assets should be equal to or greater than Current Liabilities, and the company's Permanent Capital should exceed Non-Current Assets (Fernandes et al., 2019). In practice, entities must allow their investments to turn into cash to meet their debts and financial obligations.

Table 2: Balance Sheet Structure of Entities A, B and C in 2021

	A	B	C
Assets	5 421 250,50€	1 643 188,04€	1 925 670,88€
Non-current assets	2 737 260,52€	542 359,00€	722 200,01€
Current assets	2 683 989,98€	1 100 829,04€	1 203 470,87€
Equity	1 194 908,07€	141 094,4€	364 904,47€
Liabilities	4 226 342,43€	1 502 093,64€	1 560 766,41€
Non-current liabilities	1 622 112,04€	340 851,76€	369 032,83€
Current liabilities	2 604 230,39€	1 161 241,88€	1 191 733,58€

Based on the analysis from Table 2, Entity B has a short-term financial imbalance, with Current Assets being lower than Current Liabilities. This means its investments take longer to convert into cash to meet short-term obligations. Entities A and C have Current Assets close to Current Liabilities, which, despite being slightly higher, may cause cash flow issues if there are production problems or customer loss.

To analyse the impact of financing policies, it's important to examine the liability structure and identify their effects on financial statements. Additionally, financial and economic ratios should be analysed to draw conclusions about the adopted financing policies. A comparative analysis with the sector in which these entities operate will also be conducted.

This analysis will be illustrated in the following tables.

Table 3: Liability Structure of Entities A, B and C in 2021

	A	B	C
Non-current liabilities	1 622 112,04€	340 851,76€	369 032,83€
M/L term financing	1 622 112,04€	340 851,76€	369 032,83€
Current liabilities	2 604 230,39€	1 161 241,88€	1 191 733,58€
Suppliers	1 285 346,11€	703 442,96€	681 504,88€
State and other public entities	60 484,02€	52 274,10€	38 418,97€
Short term loans	944 613,05€	169 858,77€	344 105,58€
Other debts payable	313 787,21€	0€	0€
Deferrals	0€	0€	0€
Other current liabilities	0€	235 666,05€	127 704,15€
Liabilities	4 226 342,43€	1 502 093,64€	1 560 766,41€
Weight of financing in total liabilities	60,73%	33,99%	45,69%
Weight of short-term financing in current liabilities	36,27%	14,63%	28,87%

After analysing Table 3, it is evident that financing represents a significant portion of the total liabilities for Entities A, B, and C, especially for Entity A, where 60.73% of its liabilities are composed of financing. Additionally, 36.27% of Entity A's Current Liabilities are short-term loans that must be repaid within a year.

Entities B and C also have a notable portion of their liabilities in financing. For Entity B, only 14.63% of the financing is short-term. In contrast, almost half of Entity C's liabilities are financed, with 28.87% being short-term loans.

Next, the sources of financing for these entities will be compared with their industry sector.

Figure 1: Comparison of Financing Sources in 2021 (% of assets)

Source: Sector data retrieved from Banco de Portugal

Through figure 1, it's possible to compare the funding sources' weight on total assets with the sector of activity to which the respective entities belong, as stipulated by Banco de Portugal. It's noticeable that the entities under study have a lower equity financing compared to their respective sector, notably Entity B, which only has 8.59% equity financing compared to 26.85% in its sector. This demonstrates a high dependence on external funding for potential investments, thereby increasing financial dependency.

Similarly, there's a significantly higher proportion of bank loans in their financing structure compared to the sector, particularly in Entity A, where bank loans represent 47.35% of total assets, compared to 35.70% in its sector. This category implies additional efforts to meet obligations to banks, including payment of associated interest and fees. Additionally, there's a higher weight of commitments to suppliers compared to their respective sectors.

Based on this analysis, conclusions can be drawn regarding the entities' higher dependency on their sectors and the considerably higher proportion of obtained financing. This demonstrates that the financing policies adopted by these entities heavily impact their liabilities, necessitating consideration of the costs incurred through these financing policies.

Next, the weight of these types of financing in total liabilities will be analysed.

Table 4: Weight of Financing Sources in Total Liabilities in 2021

	A	% of liabilities	B	% of liabilities	C	% of liabilities
Bank loans	2 371 404,06€	56,11%	501 225,24€	33,37%	708 487,05€	45,39%
Bank loan to support COVID-19	343 518,52€	8,13%	50 000,00€	3,33%	450 000,00€	28,83%
Bank loan (fixed asset financing)	31 944,95€	0,76%	----------	0%	----------	0%
Bank loans to boost growth	150 000,00€	3,55%	35 000,00€	2,33%	2 360,335	0,15%
Confirming	----------	0%	----------	0%	39 273,22€	2,52%
Finance Leases	195 321,03€	4,62%	9 485,29€	0,63%	4 651,36€	0,30%

Thus, based on the analysis of table 4 regarding the weight of financing types in the total liabilities of the entities under study, a significant emphasis is placed on bank loans. At first glance, bank loans represent 56.11% of Entity A's liabilities, 33.37% of Entity B's liabilities, and 45.39% of Entity C's liabilities, respectively.

Next, in figure 2, the weight of bank loans in total financing obtained will be analysed compared to the sector of activity.

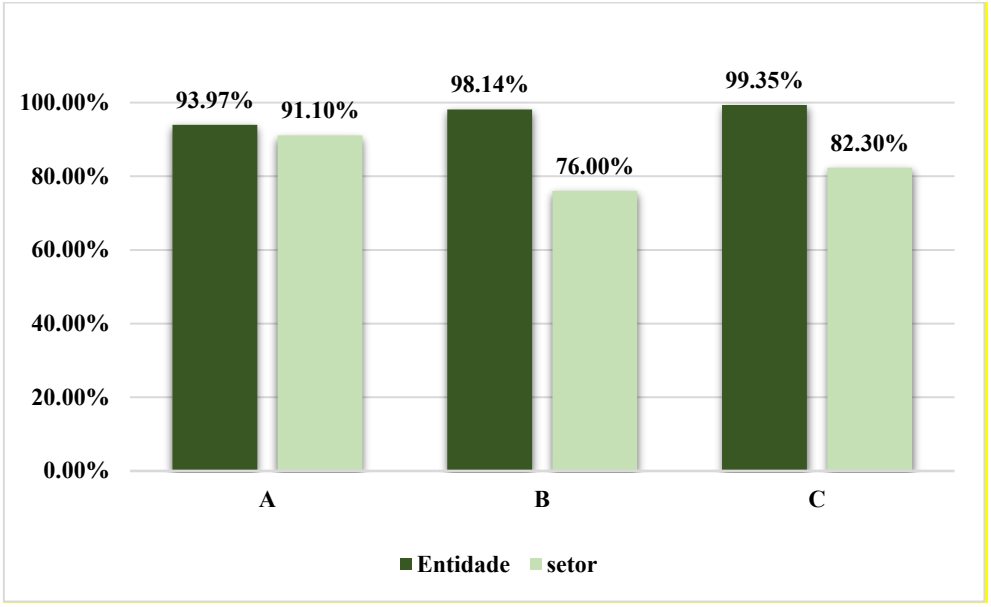

Figure 2: Weight of bank loans in total borrowings in 2021

In comparison to their respective sectors of activity, the entities under study show a significantly higher proportion of bank loans as part of their total financing obtained. Specifically, Entity B has 98.14% of its total

financing obtained from bank loans, compared to 76% in its sector. Similarly, Entity C has 99.35% from bank loans, compared to 82.30% in its sector. These figures indicate a greater financial dependency on bank loans to fund essential activities necessary for the entities' operations.

Table 5: Indicators of the entities' sources of funding in 2021

	A	B	C
Finance obtained	2 566 725,09€	510 710,53€	713 138,41€
Financing costs	85 724,39€	26 014,39€	16 161,40€
Bank commissions	*19 933,90€*	*8 820,10€*	*1 201,99€*
Supported Interest	*65 790,49€*	*17 194,29€*	*14 959,41€*
EBITDA	1.130.974,59€	88.027,13€	63.151,13€
Cost of loans obtained	3,34%	5,09%	2,27%
Coverage of financing costs	13,19	3,38	3,91
Weight of financing obtained in EBITDA	2,27	5,80	11,29

Weight of financing obtained in EBITDA is intended to give an indication of the number of years needed for the EBITDA generated during the period to be sufficient to cover the financing obtained, assuming that the levels of both indicators are maintained. It is calculated as the ratio between Borrowings / EBITDA.

Source: Banco de Portugal

Analysing the inherent costs of the financing policies adopted by the entities in 2021 (table 5), several notable points emerge. Firstly, Entity A bears substantial financing costs amounting to €85,724.39, in contrast to Entities B and C, which bear €26,014.39 and €16,161.40 respectively. These financing costs are related to bank loans and respective financial leases. Particularly significant are the high bank commissions accrued by banks due to these financing policies, with Entity A facing approximately €19,933.90 in such charges.

Examining further indicators regarding the financing sources of the entities under analysis, it becomes evident that the financing costs differ significantly among them. Entity B, despite having the lowest amount under the financing obtained category, incurs the highest percentage of financing costs at 5.09%. Additionally, it is noteworthy that Entity B's EBITDA is only 3.38 times higher than its financing costs, whereas Entity A boasts an EBITDA that is 13.19 times greater than its financing costs, highlighting its effective management and operational efficiency in the market.

Regarding the proportion of financing obtained relative to total EBITDA, it can be concluded that on average, Entity A would need approximately 2.27 years for its EBITDA generated during the period to cover its financing obtained, assuming both remain constant. In contrast, Entity C would require over 11 years for its generated EBITDA to be sufficient to cover its financing obtained. This indicates that Entity C faces substantial costs throughout the year compared to the income generated.

These insights underscore the varying financial dynamics and management efficiencies across the entities studied, reflecting their strategies and operational strengths in managing financing challenges.

Table 6: Comparison of funding source indicators in 2021 with those of the respective sectors of activity

	A	Sector	B	Sector	C	Sector
Cost of loans obtained	3,34%	2,20%	5,09%	3,50%	2,27%	1,40%
Coverage of financing costs	13,19	6	3,38	20,1	3,91	19,5
Weight of financing obtained in EBITDA	2,27	7,7	5,8	1,4	11,29	3,8

Comparing to the sector of activity (table 6), regarding the costs of financing obtained, we observe that the entities under analysis have a higher proportion than their respective sectors, with the largest percentage difference in Entity B, which has 5.09% compared to 3.50% in the sector, despite having the lowest amount of financing obtained among the entities.

Looking at the coverage of EBITDA over financing costs, Entity A shows a very positive result compared to its sector, with EBITDA covering its financing costs 13.19 times, whereas the sector's average is covered 6 times. In contrast, Entities B and C exhibit weaker performance in 2021 compared to their sectors. Entity B's EBITDA covers its financing costs 3.38 times, compared to 20.1 times in the sector, indicating a lower ability to cover expenses with generated income. Similarly, Entity C's EBITDA covers its financing costs 3.91 times, compared to 19.5 times in the sector, further illustrating a lower financial efficiency relative to the sector.

These comparisons highlight the financial dynamics where Entity A demonstrates robust financial management relative to its sector, while Entities B and C face greater challenges in managing their financing costs compared to their sector benchmarks.

These results show the significant impact that bank loan costs can have on company management, especially if there are significant increases in reference interest rates, as we have seen recently. Companies could face high risks of cash flow difficulties

3.1.2 Analysis of Financial and Economic Ratios

In order to analyse each company in detail, we chose to calculate several ratios, as per table 7.

Table 7: Financial and economic ratios

Ratio	A	B	C
Coverage of fixed assets	1,03	0,89	1,02
Liquidity	1,03	0,95	1,01
Financial Autonomy	0,22	0,09	0,19
Indebtedness	0,78	0,91	0,81
Return on Equity	0,52	0,29	0,07
Return on Sales	0,12	0,02	0,01
Average term of receipts	65	93	66
Average term of payments	105	95	64

Therefore, according to table 7, we can observe that in terms of the Fixed Assets Coverage ratio, Entity B records a value below 1, meaning its permanent capital is insufficient to finance its non-current assets. This implies that the entity is financing medium to long-term assets with obligations that need to be paid within 12 months. This situation could lead to liquidity problems, as indicated by the Liquidity ratio, where its current liabilities exceed its current assets. These results indicate that the entity may struggle to meet its short-term obligations due to insufficient financial resources.

Thus, Entity B clearly fails to meet the Minimum Financial Balance Rule. Although Entities A and C have Fixed Assets Coverage and Liquidity ratios above 1, their liquidity is still weak. They may struggle with short-term commitments if working capital issues arise, given the limited buffer for potential problems like delayed customer payments or production issues.

The Equity Ratio for the entities is below the 33% benchmark, indicating insufficient equity to finance their investments. Entity B funds only 8% of its investments with equity, while Entities A and C use 22% and 19%, respectively. This low equity corresponds to high debt ratios, with Entity B's debt ratio at 91%. Additionally, Entities A and B have high liability proportions relative to total assets, at 78% and 81%, respectively.

Moving to the analysis through economic indicators, we observe that Entity C has a very low Return on Equity (ROE). This indicates that for every euro invested in the entity, shareholders receive a return of only 7 cents. In contrast, Entity A has an excellent ROE ratio, as for every euro invested in the company, there is a return of 52 cents.

Regarding Return on Sales (ROS), similarly, Entity C shows a low return, where for every euro the entity sells, there is only 1 cent in profit. The same applies to Entity B, which has a return of 2 cents for every 1€ sold. Entity A, however, demonstrates a relatively better ROS ratio compared to the other entities, achieving a profit of 12 cents for every euro sold.

Finally, concerning the average collection and payment periods, we notice excellent management by Entity A in these areas. On average, it collects from its customers in 65 days, while its payments to supplier’s average 105 days. Entities B and C have very similar average collection and payment periods, with Entity C paying its suppliers earlier compared to its average customer collection days, 66 and 64 days respectively.

4. Conclusions, Limitations, and Suggestions for Future Research

Based on the analysis of the financing policies of Entities A, B, and C and their respective impact on their financial reporting, we can conclude that bank loans are the primary source of financing used by these entities to fund their investments, as highlighted by Lopes (2014), Ferreira (2020), Tavares et al. (2015), and Kumar and Rao (2016). Additionally, it has been shown that the entities adopt other types of financing such as Confirming policies, financial leasing contracts, and supplementary payments, as demonstrated by Tavares et al. (2015).

All these sources of financing indicate that the entities are financially dependent, as their financing via equity is very low, which translates into a relatively low level of self-financing compared to common benchmarks, as concluded by Masiak et al. (2019). Consequently, the level of indebtedness is high, requiring these companies to maintain good treasury management to meet their commitments, especially with regard to the financing obtained. Therefore, when comparing the structure of financing sources, we conclude that the entities have a much lower level of equity financing compared to their industry sector.

Furthermore, it is evident that the entities fall below average in some analysed indicators, particularly in financing costs, which are significantly high, and especially in terms of the proportion of financing costs to total EBITDA. This leads to the conclusion that a substantial portion of the company's earnings will be deducted due to financing costs.

Regarding the analysis of financial and economic ratios, Entity A is found to be the most financially balanced, despite some indicators not meeting reference values, especially concerning financial autonomy. In contrast, Entities B and C fall significantly short of reference values, indicating some financial imbalance, particularly in terms of financial autonomy and fixed assets coverage. This is reflected in the financing of medium to long-term assets with short-term debts, thus not complying with the Minimum Financial Balance Rule (REFM). Additionally, there seems to be some operational inefficiency in Entities B and C, as evidenced by their low Return on Sales ratios, where these entities achieve a return of only 2 cents (Entity B) and 1 cent (Entity C) for every euro sold, respectively.

This case study helps to understand the impact that using sources of finance that are highly dependent on bank loans can have on the financial position of companies. It helps to understand the impact on the companies' balance sheet structure, the costs related to these loans and the economic and financial ratios.

Therefore, while financing through bank loans can be an effective strategy for accessing capital and maintaining shareholder control, it is essential that companies carefully balance their capital structure and consider the risks associated with high leverage. Prudent debt management and constant analysis of repayment capacity are key to mitigating potential negative impacts.

As limitations of our study, we can point out that the research focused on only 3 entities. Therefore, for future research, we propose expanding the study to a sample of entities representative of the Portuguese business landscape. Furthermore, this report was based on financial data from the year 2021, as financial statements for 2022 were not available at the time of the report's preparation.

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Determinants of Financial Information Disclosure Online: Empirical Evidence in Portugal

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Abstract: The rapid advancement of information technology, particularly the Internet, has significantly transformed communication and corporate reporting practices. The evolution of the Internet and Information and Communication Technologies (ICT) has enabled companies to disseminate extensive financial and non-financial information quickly and cost-effectively. Typically published on company websites, this information is accessible to users worldwide. Digital financial reporting has evolved to meet the needs of both information users and companies. The Internet is increasingly the primary channel for companies to share financial information, driven by technological advancements and the growing demand for online company data. However, the rise of technology in financial reporting raises concerns about information overload, potentially diminishing the quality and relevance of economic data. Additionally, managing the costs associated with technology, such as website development, customer relationship management systems, hardware, software, and other digital platforms, is crucial. This study aims to determine the extent of online financial information disclosure among the 150 largest Portuguese companies and identify the factors influencing this disclosure. The research methodology involves content analysis of the websites of 52 of the largest and best-performing companies operating in Portugal, as ranked by Revista Exame, using a predefined disclosure index to evaluate the degree of financial information disclosure on the Internet. The objective is to enhance understanding of the financial reporting practices adopted by major Portuguese companies and identify factors determining the level of disclosure. The results confirm that the disclosure index has an average value of 0.52147 and that there is a relationship between company size and sector of activity and the level of internet financial reporting.

Keywords: Determinants of Disclosure, Disclosure Index, Digital Platforms, Internet Financial Reporting

1. Introduction

In recent years, there has been rapid advancement in information technologies, especially the Internet. The evolution of the Internet and ICT has profoundly changed the characteristics of communication in all its aspects and, consequently, the reporting practices of companies in the last two decades. The Internet allows companies to inform and report a vast amount of non-financial or financial information dynamically and frequently, quickly, punctually, and in a valuable and economical way. Generally published on the company's website, this information can be consulted by all types of users worldwide (Al-Hajaya & Sawan, 2018).

According to Lymer (1999), reporting on the impact of ICT on the disclosure of companies' financial information began in the 1960s, when the foundations of modern accounting practice began to be understood and established. The relevance of this academic discussion about the potential of databases and documents in digital format to provide a framework for event-based reporting systems occurred during the 1980s. The development of the Internet has expanded the possibilities of information management and offered new ways of acting, marketing, and disseminating, in a more agile way, the growing amount of information, overcoming all the limitations imposed on us by the non-traditional conventional model.

Alves (2005) states that the change created by the development of ICT has made information management an essential activity for the success of any organization. This notable revolution, combined with the business world's need to have and obtain quality information in the shortest amount of time, has created changes in capital flows and the areas of production and marketing.

Academic or digital financial reporting is the result of an evolution that responds to the needs and difficulties felt, both by users of that same information and by companies themselves. It allows them to reduce the cost and time of disseminating information and communicate with a more significant number of users and potential investors, going beyond the limits of traditional relationships, as well as increasing the amount and type of information to be disclosed.

Thus, companies currently find themselves in a post-industrial position, far from the Taylorism vision, as they need to pay more attention to the human factor in their analyses. In this modern phase of administration, in which priority is given to employee initiatives and feedback to make them feel valuable and committed, financial

communication plays a primary and decisive role in the company's growth (Uddina & Hossain, 2015). The available management information reflects the company's activities, strategies, and evolution.

The concept of transparency also comes into play here, as it is considered a prerequisite for accountability. Schmidt and Wood (2019) argue that providing critical analytical tools to assess levels of accountability, transparency, inclusion, and openness leads to potential institutional improvements, offering a promising outlook for our research.

This study aims to determine the extent of online financial information disclosure among the 150 largest Portuguese companies and identify the factors influencing this disclosure. The research methodology involves content analysis of the websites of 52 of the largest and best-performing companies operating in Portugal, as ranked by Revista Exame, using a predefined disclosure index to evaluate the degree of financial information disclosure on the Internet. The objective is to enhance understanding of the financial reporting practices adopted by major Portuguese companies and identify factors determining the level of disclosure.

The interest in this topic is justified by the relevance and timeliness of the topic, as well as by the fact that there are few studies in Portugal on the topic, underscoring the novelty and importance of our research.

After this introduction, the structure of this paper is as follows: Section 2 presents a brief literature review and formulates the research hypotheses; Section 3 describes the methodology adopted in this study; Section 4 presents and discusses the results obtained; and finally, the main conclusions, limitations, and suggestions for future research are provided.

2. Literature Review and Research Hypotheses

Most of the literature on the presence of financial reports on the Internet suggests that the disclosure of these documents impacts the company's value. The link between financial information and the company's value aims to determine if the transparency of financial reports reduces the cost of capital (Healy and Palepu, 2001; Verrecchia, 2001; Beyer et al., 2010) and improves the efficiency of contracts (Armstrong et al., 2010).

According to Roychowdhury et al. (2019), reducing financial information asymmetry and increasing its transparency improves companies' access to external capital and allows them to increase investment efficiency. Additionally, the disclosure of financial information can play a positive role in risk mitigation. However, Ernstberger et al. (2017) concluded that when the European Union moved from semi-annual to quarterly reports in 2004, European companies showed an increase in earnings manipulation.

Given the above, the publication of financial information has become a priority for companies. The Internet is becoming the main channel for disclosing financial information because it allows information to be disseminated more economically, quickly, and easily. Furthermore, companies can use this medium to disclose all the desired business information (Rodríguez and Justicia, 2007).

According to Li and Li (2022), the traditional financial report published in PDF or HTML format no longer meets users' needs. They require a new model of financial reporting, and the emergence of XBRL technology has facilitated this. XBRL technology enables financial reports to be created by combining multimedia technology, open-source XML technology, and database technology. Filing files in XBRL format allows thousands of financial information pieces to be made available digitally. As of 2021, only an Inline XBRL format, which incorporates XBRL data directly into the HTML document, is required. The availability of XBRL data has helped users deepen their financial analysis, visualize and collect financial data, make peer comparisons, review cross-sectional or time-series data, and update forecasts (FASB, 2021).

Dolinšek and Lutar-Skerbinjek (2018) state that the theoretical basis of Internet financial reporting can be explained by different theories. Some of these theories, such as Agency Theory, interpret the impact of different factors on Internet financial reporting, such as company size, profit, company age, industrial sector, and ownership concentration. Agency theory seeks to identify ways to align the interests of the principal and the agent and reduce potential conflicts. This may involve establishing appropriate incentives, well-designed contracts, greater transparency, effective oversight, and accountability mechanisms. These solutions aim to ensure that the agent acts in the principal's interest and thus efficiently achieves the organizational or contractual objectives as intended by the principal.

Omran and Ramdhony (2016) conducted a study on the determinants of Internet financial reporting in listed companies in Mauritius. They analyzed the websites of 34 companies and created a disclosure index composed of 52 items (mandatory and voluntary items). The results indicate that company size, board size, and liquidity

are significant explanatory variables of the level of Internet financial reporting. However, for the first two variables, the relationship is positive, while for the last one, it is negative. Conversely, no significant relationship was found between leverage, profitability, audit quality (whether it is a Big4 or not) and the level of Internet financial reporting.

Hanifa and Rashid (2005) studied the Internet financial reporting practices of listed companies in Malaysia and concluded that company size, leverage, growth, foreign shareholding, and shareholder concentration are related to the adoption of Internet financial reporting. However, no significant association was found regarding performance and sector variables. This finding was also confirmed in studies by Marston (2003) and Lymer (1997). In contrast, Boshnak (2020) concluded that disclosure levels vary according to the company's sector.

Brennan and Hourigan (1998) studied the use of the Internet for financial report disclosure of 109 Irish companies in 1998. They analyzed the relationship between the disclosure of financial information on the Internet and company size, leverage, demand for corporate information, and sector. The results show that 37% of listed companies and 15% of semi-state companies had a website. Larger companies were more likely to have a website. However, no association was found between having a website and leverage or the number of shareholders. Nonetheless, service and financial sector companies were significantly more likely to have a website.

Silva and Ajward (2019) conducted a study on 100 listed companies in Sri Lanka to identify corporate internet reporting and the company characteristics that influence it. The level of internet reporting disclosure was measured using a disclosure index, and a multiple regression was performed to identify significant determinants of corporate internet reporting. The results indicate that, despite 83% of Sri Lankan companies having websites, the overall level of corporate internet reporting is 16.2%. It was also concluded that auditor size, market capitalization, and representation of the hotel, travel, and services industries influence the level of corporate internet reporting.

Faisal et al. (2021) studied the impact of company size, listing age, internationalization, and auditor size on corporate internet financial reporting practices. The study focused on non-financial publicly traded companies in Australia (95 companies), Singapore (87 companies), and Indonesia (85 companies) in 2019. The results show that companies in Singapore and Indonesia have higher levels of corporate internet financial reporting compared to Australia. It was also found that company size, internationalization, and auditor type have a significantly positive impact on corporate internet financial reporting. However, listing age does not explain the level of corporate internet financial reporting.

Given the above, the following research hypotheses were formulated:

H1: There is an association between company size and voluntary disclosure of financial information on the internet.

H2: There is an association between company age and voluntary disclosure of financial information on the internet.

H3: There is an association between the industry sector and voluntary disclosure of financial information on the internet.

H4: There is an association between the type of audit firm and voluntary disclosure of financial information on the internet.

3. Research Methodology

3.1 Sample Selection

Starting from the total population of the 500 largest companies in Portugal, as listed in the "500 Maiores" ranking by Exame magazine (Exame, 2021), we selected the top 150 companies from this sample. Various search engines, primarily Google, were used to locate the websites of these companies. Subsequently, we identified the companies that provided some financial information for investors, specifically searching for the presence of a dedicated section for this information. In the end, the sample consisted of 52 companies, whose websites were analysed in greater detail.

3.2 Data Collection

In analysing the information disclosed, the content analysis technique was used, coding the information collected into an online financial disclosure index, whose sum of the items disclosed over the total of items considered results in the online financial disclosure index for each company per year. The data were obtained through the analysis of the companies' websites that make up the sample during the months of July, August, and September 2023.

3.2.1 Dependent Variable

Since the objective of this work is to study the level of online financial disclosure, a disclosure index was built. Based on the review of empirical studies, taking into account the disclosure items studied by different authors, the disclosure index consists of 43 disclosure items, as shown in Table 1.

Table 1: Disclosure Index

Disclosure Items	Disclosure Items
Corporate Information	Cash Flow
Board of Directors & Officers	Financial calendar (Budget)
Mission, vision and values	Recent monthly financial data
Corporate governance (principles/guidelines)	Leverage
Activities plan	Interim reports
Charters for the audit committee	Forward Looking Indicators
Company size	Budget execution reports
Company age	Report of the Fiscal Council
Language: bilingual (English and Portuguese)	Contacts of investor relations
Statement of Shareholders Equity	Calendar of events of interests to investors
Income Statement	Analyst ratings
Notes to Financial Statements	Dividend history
Management Report or MD&A	Performance overview (e.g., highlights, fact-sheet, 'FAQ')
Annual report of current year (full text)	Public investor publications;
Annual report of past years (full text)	Shareholder structure
Reporting by segments	Accounting policies
Share price performance in relation to stock market index	Checklist of Internet Financial Reporting Index
Historical share prices	Annual report in PDF-format
Auditor's Report	Annual report in HTML-format
Financial Highlight Summary	Annual report in XBRL-format
Financial Ratios	Auditor size
Balance Sheet	

Subsequently, all the websites of the companies that make up the sample were identified, and their analysis was carried out using the constructed index. Each item in the disclosure index was assigned a weight of 0 or 1, where 0 means the item is not disclosed and 1 means the item is disclosed. After verifying each item for each company's website, the online financial disclosure index value for each company was obtained by dividing the sum of the items disclosed by the company by the total number of items in the disclosure index. The index ranges from 0 to 1, and the higher the index value, the higher the level of disclosure presented by the company.

3.2.2 Independent Variables

The independent variables used in this study are based on the research hypotheses previously formulated, as shown in Table 2 below.

Table 2: Independent variables

Variable	Determination Form	Hypothesis
Size of the company	Number of employees	H1
Age of the company	Number of years the company has been in existence	H2
Activity sector	Dummy: 0 – secondary sector 1 – tertiary sector	H3
Type of auditor (BIG 4)	Dummy: 0 - not belonging to the Big 4 1 - belonging to the Big 4	H4

3.2.3 Regression Models

In order to analyse the relationship between the independent variables and the level of online financial disclosure, several simple linear regression models were developed, crossing the dependent variable with each of the independent variables previously described, which are presented in table 3 below.

Table 3: Simple linear regression models

$DI = \alpha_0 + \beta_1 Size + \varepsilon_i$ $DI = \alpha_0 + \beta_1 Age + \varepsilon_i$ $DI = \alpha_0 + \beta_1 Sector + \varepsilon_i$ $DI = \alpha_0 + \beta_1 Big4 + \varepsilon_i$
DI – Value of Online financial disclosure index Size – Board of Director's Size Age– Board of Director's Diversity Sector – Independent Directors on the Board of Directors BIG4 – Type of Auditor

4. Analysis and Discussion of Results

At this point, we will proceed to the analysis and discussion of the results obtained in our study.

4.1 Descriptive Analysis

Table 4, below, presents the result of the descriptive statistics of the disclosure index (which is the dependent variable of the regression models presented in the next point).

Table 4: Disclosure Index – descriptive statistics

		DI
N	Valid	52
	Missing	0
Mean		0,52147
Deviation error		0,199012
Minimum		0,023
Maximum		0,833

As it is possible to conclude, by analysing the values presented in table 6, the average value of the index is 0.52147, indicating that Portuguese companies do not disclose all of the disclosure items under analysis. However, it is possible to identify a maximum disclosure value of 0.833, indicating that there is at least one entity that presents almost all the considered disclosure items. On the other hand, it is possible to verify there are no entities that do not present any disclosure item (since the minimum value is 0.023).

The results obtained prove that large Portuguese companies are concerned about disclosing financial information on their websites, although they do not comply with all the items considered.

4.2 Regression Models Analysis

In order to identify the determining factors of online financial disclosure, four simple linear regressions were estimated, relating the disclosure index to each of the previously defined variables according to hypotheses 1, 2, 3, and 4 previously formulated. The results are shown below.

4.2.1 Size of the Company

Table 5: Model summary

Model	R	R squared	R squared adjusted	Standard error of estimate	Durbin-Watson
1	0,298[a]	0,137	0,089	0,193372	1,376

a. Predictors: (Constant), Size

b. Dependent variable: ID

Table 6: ANOVA[a]

Model		Sum of Squares	df	Medium Square	Z	Sig.
1	Regression	0,178	1	0,178	4,759	0,034[b]
	Residue	1,832	49	0,037		
	Total	2,010	50			

a. Dependent variable: ID

b. Predictors: (Constant), Size

Table 7: Coefficients[a]

Model		Coeficientes não padronizados		Coeficientes padronizados	t	Sig.
		B	Erro Erro	Beta		
1	(Constant)	0,481	0,032		14,890	<0,001
	Size	0,000008118	0,000	0,298	2,181	0,034

As can be seen from the analysis of table 7, the independent variable size is significantly and positively associated with the disclosure index, so it is possible to conclude that the level of online financial disclosure will be higher in larger companies. In this way, it is possible to validate hypothesis 1.

The results obtained are consistent with the results obtained by Omran and Ramdhony (2016), Hanifa and Rashid (2005), and Faisal et al. (2021), who also obtained evidence of the existence of a positive association between the size of the company and online financial disclosure.

4.2.2 Age of the Company

Table 8, Table 9, and Table 10 below present the results of the simple linear regression model for the independent variable age of the company.

Table 8: Model summary

Model	R	R squared	R squared adjusted	Standard error of estimate	Durbin-Watson
1	0,167[a]	0,028	0,008	0,198179	1,250

a. Predictors: (Constant), Age

b. Dependent variable: ID

Table 9: ANOVA[a]

Model		Sum of Squares	df	Medium Square	Z	Sig.
1	Regression	0,056	1	0,056	1,430	0,237[b]
	Residue	1,964	50	0,039		
	Total	2,020	51			

a. Dependent variable: ID

b. Predictors: (Constant), Age

Table 10: Coefficients[a]

Modelo		Coeficientes não padronizados		Coeficientes padronizados	t	Sig.
		B	Erro Erro	Beta		
1	(Constant)	0,489	0,039		12,568	<0,001
	Age	0,000	0,000	0,167	1,196	0,237

The results presented in table 10 allow us to verify that the variable age of the company does not prove to be statistically significant, and therefore it is not possible to validate hypothesis 2.

The results obtained are not consistent with the results of Faisal et al. (2021), who proved the existence of a positive association between the age of company listings and online financial disclosure.

Sector of activity

The results of the simple linear regression for the independent variable sector of activity are presented in Table 11, Table 12, and Table 13 below.

Table 11: Model summary

Model	R	R squared	R squared adjusted	Standard error of estimate	Durbin-Watson
1	0,291[a]	0,085	0,066	0,189419	1,151

a. Predictors: (Constant), Sector

b. Dependent variable: ID

Table 12: ANOVA[a]

Model		Sum of Squares	df	Medium Square	Z	Sig.
1	Regression	0,163	1	0,163	4,533	0,038[b]
	Residue	1,758	49	0,036		
	Total	1,921	50			

a. Dependent variable: ID

b. Predictors: (Constant), Sector

Table 13: Coefficients[a]

Model		Non-standardised coefficients		Standardised coefficients	t	Sig.
		B	Erro Erro	Beta		
1	(Constant)	0,586	0,042		13,827	<0,001
	Sector	-1,116	0,054	-0,291	-2,129	0,038

The variable "sector of activity" shows a negative and statistically significant relationship with the dependent variable, demonstrating that companies in the secondary sector exhibit higher levels of online financial disclosure than those in the tertiary sector. Thus, it is possible to validate hypothesis 3.

These results are consistent with the results obtained by Hanifa and Rashid (2005), Boshnak (2020), Brennan and Hourigan (1999), and Silva and Ajward (2019), who also obtained evidence of the existence of an association between the sector of activity and online financial disclosure.

4.2.3 Type of Auditor

The results of the simple linear regression model for the independent variable type of auditor (Big4) are presented in Table 14, Table 15, and Table 16 below.

Table 14: Model summary

Model	R	R squared	R squared adjusted	Standard error of estimate	Durbin-Watson
1	0,272[a]	0,074	0,047	0,129591	1,621

a. Predictors: (Constant), Big4

b. Dependent variable: ID

Table 15: ANOVA[a]

Model		Sum of Squares	df	Medium Square	Z	Sig.
1	Regression	0,047	1	0,047	2,789	0,104[b]
	Residue	0,588	35	0,017		
	Total	0,635	33			

a. Dependent variable: ID

b. Predictors: (Constant), Big4

Table 16: Coefficients[a]

Modelo		Coeficientes não padronizados		Coeficientes padronizados	t	Sig.
		B	Erro Erro	Beta		
1	(Constant)	0,521	0,058		8,989	<0,001
	Big4	0,104	0,062	0,272	1,670	0,104

The value presented for the variable type of auditor (shown in table 18) is not significant, so it is possible to conclude that the level of online financial disclosure is not related to the type of auditor, making it impossible to validate hypothesis 4. These results are consistent with the results obtained by Omran and Ramdhony (2016), which also failed to prove the existence of an association between those two variables.

In conclusion, from the analysis of the linear regression models, it is possible to conclude that, for a significance level of 5%, the variables size of the company and sector of activity significantly influence the level of online financial disclosure, making it possible to validate hypotheses 1 and 3.

The remaining variables were not significant, indicating that the age of the company and the type of auditor do not influence the level of online financial disclosure, making it not possible to validate hypotheses 2 and 4.

It is therefore possible to conclude that the largest companies are concerned about their reputation and legitimacy and are therefore the ones with the highest disclosure rates. In addition, large companies are under greater pressure from their stakeholders to increase the transparency of their information, which justifies the presentation of more detailed information.

In addition, there is evidence that companies in the secondary sector have higher disclosure rates. These companies often need to raise large sums of capital for expansion and operations. They therefore have a greater incentive to provide detailed financial information in order to attract investors and obtain loans.

On the other hand, it can be concluded that the age of the company and the type of auditor have no influence on online financial disclosure, which indicates that auditors are more concerned with the information provided in mandatory disclosure reports, the impact of which on their own reputation may also be greater.

5. Conclusions, Study Limitations, and Suggestions for Future Research

The objectives of this study were to measure the level of online financial disclosure and to identify the determinants of the disclosure level. To this end, in a first stage, a content analysis was carried out on the websites of the companies through a disclosure index. In a second phase of the study, through simple linear regressions, this disclosure index was related to a set of independent variables related to certain characteristics of the companies (size of the company, age of the company, sector of activity, and type of auditor).

The online financial disclosure index presents an average value of 0.52 which represents little more than half of the information that was considered in the disclosure index, also revealing a level of disclosure insufficient in relation to what would be desirable.

It was possible to prove that the size of the company and the sector of activity influence the level of online financial disclosure. Thus, it was possible to conclude that larger companies and companies belonging to the secondary sector present higher levels of online financial disclosure. However, it was not possible to establish a relationship between the age of the company and the type of auditor with online financial disclosure.

A limitation of this study is related to the fact that the sample used is small, and the results obtained cannot be extrapolated to all companies in Portugal since it is limited to a pre-defined list of the largest companies. In that regard, it is suggested to extend this study to include a larger number of companies, also covering small and medium-sized companies that are the most representative of the business fabric in Portugal.

Acknowledgment

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Artificial Intelligence and Deep Learning in Stock Prediction: A Bibliometric Review

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Abstract: Artificial intelligence (AI) and deep learning (DL) are advancing in stock market prediction, attracting the attention of researchers in computer science and finance. This bibliometric review analyzes 525 articles published from 1991 to 2024 in Scopus-indexed journals, utilizing VOSviewer software to identify key research trends, influential contributors, and burgeoning themes. The bibliometric analysis encompasses a performance analysis of the most prominent scientific contributors and a network analysis of scientific mapping, which includes co-authorship, co-occurrence, citation, bibliographical coupling, and co-citation analyses enabled by the VOSviewer software. Among the 693 countries, significant hubs of knowledge production include China, the US, India, and the UK, highlighting the global relevance of the field. Various AI and DL technologies are increasingly employed in stock price predictions, with artificial neural networks (ANN) and other methods such as long short-term memory (LSTM), Random Forest, Sentiment Analysis, Support Vector Machine/Regression (SVM/SVR), among the 1399 keyword counts in publications. Influential studies such as LeBaron (1999) and Moghaddam (2016) have shaped foundational research in 8159 citations. This review offers original insights into the bibliometric landscape of AI and DL applications in finance by mapping global knowledge production and identifying critical AI methods advancing stock market prediction. It enables finance professionals to learn about technological developments and trends to enhance decision-making and gain market advantage.

Keywords: Bibliometric Analysis, Artificial Intelligence (AI), Deep Learning (DL), Stock Prediction, VOSviewer, Scientific Mapping Knowledge

1. Introduction

This study explores the impact of Artificial Intelligence (AI) and deep learning (DL) on stock prediction. AI has revolutionized stock market prediction with machine learning (ML) and natural language processing techniques, analyzing diverse data sources for trend discovery and forecasting (Valle-Cruz et al., 2024). However, unpredictable events make forecasting challenging, necessitating AI predictions as part of a diversified investment plan (Kanthimathi et al., 2023). Techniques like DL and neural networks outperform traditional methods, and hybrid models integrating multiple AI techniques handle non-linear complexities effectively (Lin and Lobo Marques, 2024). As a broad field, AI encompasses various techniques, among which DL is a prominent subset characterized by its ability to model complex, non-linear relationships in large datasets. It uses DL algorithms to predict stock price movements and handle complex dynamics (Lin and Lobo Marques, 2024). AI enhances stock price prediction by enabling predictive analytics and evaluating real-time data and past trends (Raman and Tiwari, 2024). It improves prediction models through feature engineering and preprocessing techniques (Abunasser et al., 2023; Lin and Lobo Marques, 2024).

AI and DL in stock prediction have transitioned from various predictive approaches to hybrid models (Lin and Lobo Marques, 2024). DL algorithms, adept at handling big data and non-linear relationships, have become a promising solution for stock market prediction (Dwiandiyanta et al., 2023). The application of AI and ML in finance, focusing on stock price prediction, portfolio management, and big data analytics, has seen an upward trend (Ahmed et al., 2022). While previous research has acknowledged the transformative potential of AI technologies in finance, there remains a lack of comprehensive bibliometric analyses that specifically focus on the evolution and application of these technologies in stock market prediction. To guide this investigation, the following research questions (RQs) are formulated:

1. RQ 1: How have the applications of AI and DL in stock market prediction changed over the past three decades, and what are the key trends identified in the bibliometric analysis?
2. RQ 2: What AI and DL techniques have significantly impacted stock prediction accuracy?
3. RQ 3: How do geographical and institutional factors influence the research output and collaboration patterns in AI and DL applications for stock prediction?

Employing a bibliometric approach, this study examines 525 articles from 1991 to 2024 in Scopus-indexed journals, conducting assessments such as co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation analysis using VOSviewer. It outlines the research procedures of bibliometric analysis, providing insights into crucial research trends, influential entities, and emerging themes in the field.

2. Data and Methodology

2.1 Data Collection

2.1.1 Data Collection Sources

As demonstrated by earlier research, data was collected from the Scopus database (Ahmed et al., 2022; Lin and Lobo Marques, 2024). Scopus, a globally recognized bibliometric data source, is known for its extensive collection of high-quality articles. It offers comprehensive coverage and enriched metadata, ensuring data quality through rigorous processes (Baas et al., 2020). As a trusted resource, it's used for large-scale research analyses and offers free access to the academic community. Journals indexed in Scopus continue to be cited, influencing scholars' metrics and attesting to their reliability (Cortegiani et al., 2020). Importantly, for the objectives of this research, Scopus is indeed a more comprehensive and diverse resource for academic research compared to the Web of Science, as it covers a higher percentage of scientific literature and indexed documents across various research fields (Aksnes and Sivertsen, 2019; Tsay et al., 2019).

2.1.2 Keyword Selection Strategy and Refinement Procedure

A two-phase approach was adopted for keyword selection in the quest for precision in the bibliometric analysis of stock prediction. The first phase entailed a thorough review of online glossaries and dictionaries focused on AI and DL to identify the most germane keywords (Rafee et al., 2023; Prahani et al., 2023; Thayer, 2022). The second phase involved a two-step process utilizing Scopus to search for AI and DL terminologies. The initial step was exploratory, leveraging the Scopus keyword feature to augment our final query with additional keywords constrained only by the character limit of the Scopus search bar. The final step involved a manual review of each keyword, ensuring the relevance of the selected terms.

We executed a search query based on the title and keyword criteria to pursue our investigation's most pertinent articles and reviews. This search was confined to English language journals within the field of finance, resulting in a yield of 525 documents (515 articles and ten reviews) from 160 sources and 70 countries. Despite the substantial volume of preliminary data, we undertook a series of online refinements to hone our dataset further. Firstly, while there was no explicit restriction on the temporal range of the documents, the dataset naturally spanned from 1991 to 2024. Secondly, we narrowed the subject area of the journals to Economics, Econometrics, and Finance. Thirdly, we restricted the document type to articles and reviews. Fourthly, we ensured that the publication stage was at its final phase. Fifthly, we imposed a language restriction, accepting only English documents. Lastly, we confined the source type to journals. Thus, the search query is delineated as below:

TITLE-ABS-KEY (("artificial intelligence" OR "machine learning" OR "deep learning" OR "reinforcement learning" OR "deep reinforcement learning" OR "automated machine learning" OR "transformer" OR "support vector machine" OR "support vector regression" OR "neural network" OR "artificial neural network" OR "long short-term memory" OR "sentiment analysis" OR "transformer" OR "AI" OR "SVM" OR "SVR" OR "LSTM" OR "ANN" OR "DRL") AND ("stock" OR "stock market" OR "stock price" OR "stock index") AND ("prediction" OR "forecasting" OR "forecast")) AND (LIMIT-TO (SUBJAREA , "ECON")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (SRCTYPE , "j"))

To ensure comprehensive topic coverage, a dataset of 525 academic articles and reviews was prepared using specific inclusion and exclusion criteria. After filtering, these works underwent bibliometric analysis, facilitated by specialized software, providing a systematic exploration of the research field. Further details will follow in the next section. Simultaneously, it's important to note that the concept of AI was introduced in 1956 (Clermont, 2023) and has been applied to financial investment since the 1990s (Ferreira et al., 2021), particularly in stock price forecasting to address market volatility. The focus has been on time series algorithms and the use of AI in combination with multiple approaches for stock market prediction (Sarma et al., 2023). A systematic review of the literature from 1995 to 2019 shows a continuous interest in this area (Ferreira et al., 2021). Recent

advancements have emphasized using hybrid models that integrate multiple models, leveraging DL algorithms to handle non-linear complexities and temporal dynamics in predicting stock price movement (Lin and Lobo Marques, 2024). This reflects the ongoing evolution and potential of AI in stock prediction.

2.2 Bibliometric Analysis and VOSviewer Software

Bibliometrics, a methodological paradigm originally conceived by Alfred Lotka and Samuel Bradford (Thompson and Walker, 2015; Danesh and Mardani-Nejad, 2020), leverages mathematical and statistical techniques to scrutinize scholarly literature. This paradigm was subsequently honed by Eugene Garfield, who pioneered the concept of citation analysis and systematic processing (Thompson and Walker, 2015). The fundamental purpose of bibliometrics is to evaluate the influence of scientific contributions, employing parameters such as the Impact Factor (IF) and the h-index (La Torre et al., 2017). A notable merit of bibliometrics lies in its ability to unearth innovative perspectives on academic and broader scientific trends. It has been efficaciously applied in a wide array of areas, including the evaluation of the historical progression of academic disciplines, the patterns of authorship and publication, and usage trends (Thompson and Walker, 2015; La Torre et al., 2017; Aleixandre-Benavent et al., 2017). This method encapsulates contributions to a specific research topic in conjunction with content analysis (Mayring, 2014; Schreier, 2012).

In this research, we adhered to the PRISMA guidelines for conducting bibliometric analysis (Donthu et al., 2021; Page, McKenzie et al., 2021). The initial step involved defining the objectives and scope of the bibliometric study. Subsequently, we selected the appropriate techniques for bibliometric analysis as the fourth step below. The third step encompassed the collection of data pertinent to the bibliometric analysis. The fourth step entailed the execution of the bibliometric analysis, followed by the reporting of the results. Within this fourth step, we undertook a performance analysis, including the most significant contributors in the literature. A network analysis of scientific mapping followed this (Perianes-Rodriguez et al., 2016). This analysis incorporated co-authorship, co-occurrence, citation, bibliographic coupling, and co-citation analysis using VOSviewer (Li, 2018; van Eck and Waltman, 2023; Van Eck and Waltman, 2014). This comprehensive analysis extensively unveiled participants' performance in the scientific field, including documents, authors, and countries. The final step involved planning the bibliometric summary and crafting a discussion on the findings and their implications (Lim and Kumar, 2024; Montazeri et al., 2023; Szomszor et al., 2021).

3. Results and Discussion

3.1 Performance Analysis

This section aims to provide comprehensive answers to RQ 1 and RQ 3. As depicted in Figure 1, the body of literature from 1991 to 2024 demonstrates an average growth rate of 29%. It is noteworthy that the productivity in research remained relatively constant from 1991 through 2016. Nevertheless, a significant surge has been observed since 2017, indicating a growing interest in these technologies. This trend suggests that integrating AI and DL into stock prediction methodologies has gained momentum, reflecting technological advancements and increased recognition of their predictive capabilities. Cioffi et al. (2020) have noted a substantial expansion in the literature on AI and DL since 2013. Interestingly, Figure 1 reveals that the literature on the application of AI and DL in stock prediction experienced a marked increase in 2018, suggesting a lag period of approximately five years compared to the general literature on AI and DL. This could be interpreted as an indication that the field of stock prediction required some time to incorporate these emerging technologies. The growth in the literature surrounding AI and DL in stock prediction presents significant opportunities for researchers and practitioners to explore new methodologies and applications and enhance predictive accuracy and investment strategies through these advancements.

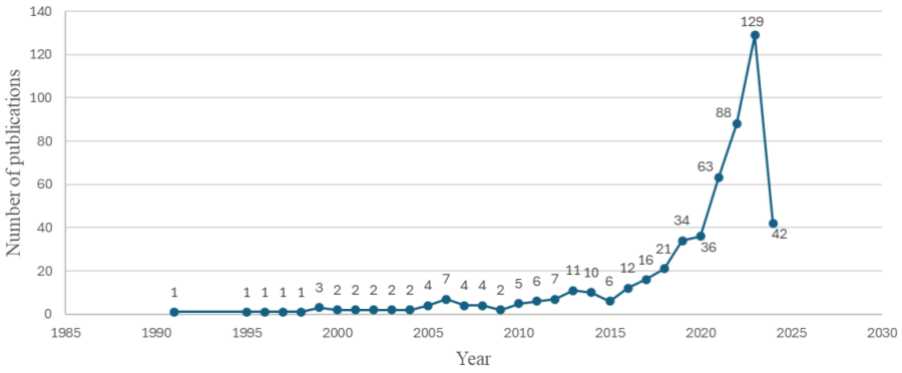

Figure 1: The literature growth of AI and DL in stock prediction

As shown in Figure 2, examining the AI and DL literature reveals the countries most engaged in stock prediction research. The countries demonstrating the highest productivity in this domain are China (14%), the US (12%), India (8%), and the UK (5%). The methodology employed for this analysis involved tallying the affiliations of each author to their respective countries. Furthermore, we also considered the corresponding authors' affiliations to provide a more comprehensive representation of each country's productivity.

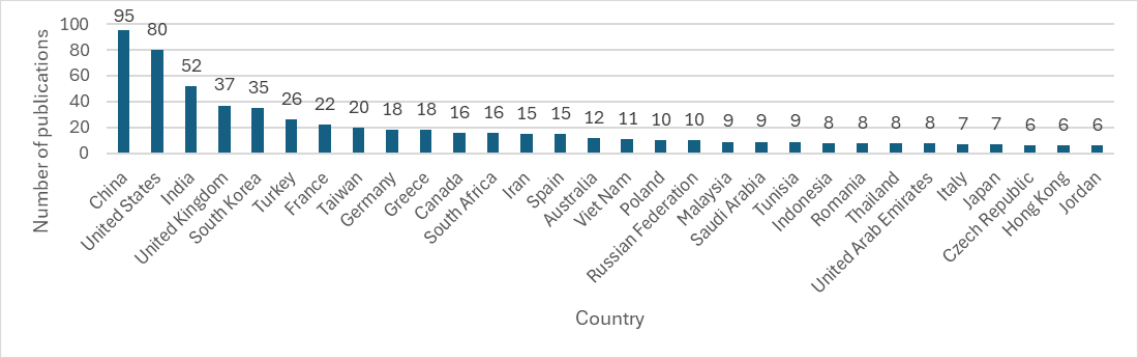

Figure 2: The top 30 most productive countries

3.2 Network Analysis and Discussion of Scientific Mapping

We focus on addressing RQ 2 and RQ 3 in this section, presenting the network analyses of scientific mapping, including co-authorship, co-occurrence, citation, bibliographical coupling, and co-citation analyses enabled by the VOSviewer software. In academic research, the interpretation of map features is crucial. The size of an item, such as an author or journal, indicates the number of associated publications, and the distance between two items signifies their normalized relatedness. Colors differentiate clusters of related items, and a link represents the relation between two items. Clusters are non-overlapping groups of items in VOSviewer, and an item can belong to only one cluster. The weight and score attributes of an entity, which are numerical, indicate the importance and other characteristics of the entity, respectively. This comprehensive approach ensures a scientific and precise depiction of the research landscape (Li, 2018; van Eck and Waltman, 2023).

3.2.1 Co-authorship Analysis

As revealed in Figure 3, the co-authorship patterns within the examined literature are elucidated. Data was procured from a pool of 1000 authors, and it was discerned that a mere 13 authors were interconnected. This paucity of co-authorship underscores the need for more research collectives to contribute to the stock prediction field. The implications of this finding suggest that fostering collaborative research networks could enhance the quality and impact of future studies, ultimately benefiting the field.

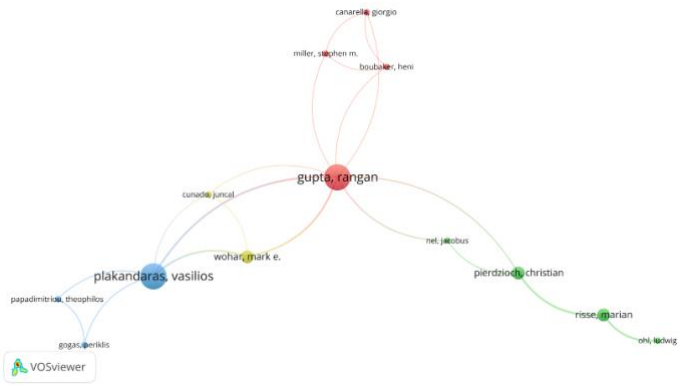

Figure 3: Co-authorship analysis for authors

3.2.2 Co-occurrence Analysis

In the initial phase of the analysis, the focus is placed on keyword analysis utilizing the full-count method (Perianes-Rodriguez et al., 2016). This approach entails counting each instance of a keyword term within a document. From a pool of 1787 keywords, only those networks were chosen for further analysis, where the keywords appeared at least six times. This selection criterion resulted in a final map displaying 73 keywords. Figure 4 illustrates the co-occurrence of keywords using the full-count method, presenting 73 items organized into seven clusters.

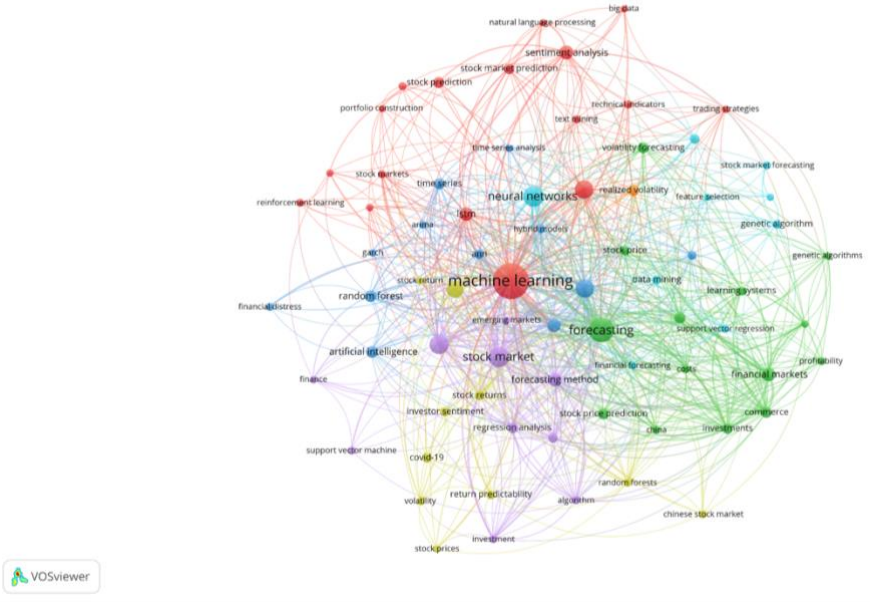

Figure 4: Network visualization of co-occurrence analysis for keywords

The three keywords with the highest total link strength are "machine learning," "forecasting," and "stock market." These keywords are distributed across three distinct clusters. The cluster centered around "machine learning" includes terms such as "deep learning," "LSTM," "sentiment analysis," and "stock market prediction." The cluster revolving around "forecasting" encompasses "financial markets," "commerce," "investments," and "long short-term memory." Lastly, the cluster with "stock market" at its core includes "prediction," "forecasting method," "financial market," and "regression analysis." The implications of these keyword trends indicate a strong focus on ML and forecasting techniques, suggesting that future research should continue to explore these areas while also considering emerging topics such as sentiment analysis and hybrid models.

The spatial relationship between the expression bubbles is relatively close, with all clusters demonstrating significant overlap. This overlap indicates a substantial interconnectedness among these clusters and the keywords employed in the analyzed scientific and research articles.

Figure 5 provides insights corresponding to the average year of usage for each term as a keyword. This figure explains the terms' validity and evolution over time, employing a color scale classification that transitions from blue to green to yellow. Terms represented in blue have an older average publication value, while those in yellow are the most recent ones.

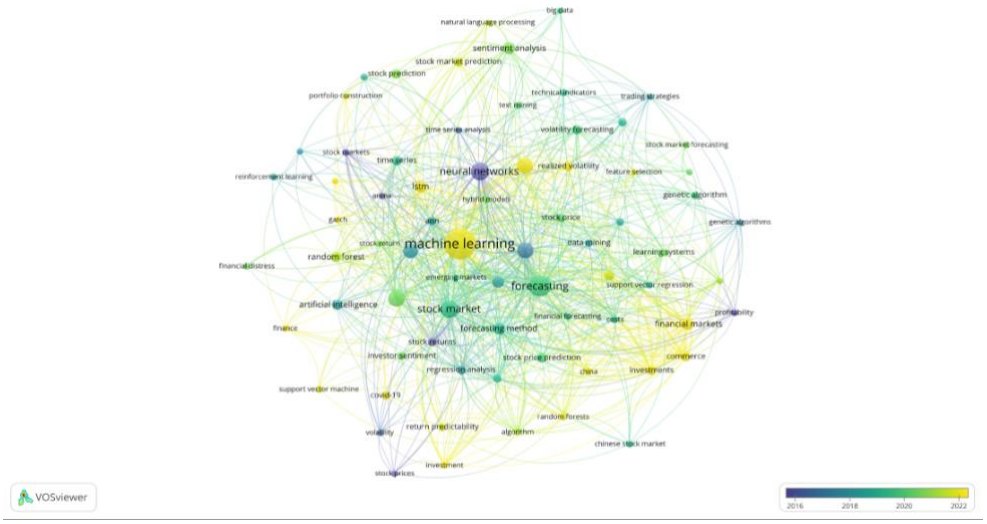

Figure 5: Overlay visualization of co-occurrence analysis for keywords

The time window analyzed spans from 2016 to 2022. During this period, some of the terms with the highest occurrence include "machine learning," "forecasting," "stock market," and "neural networks." Terms such as "neural networks," "stock markets," "stock prices," and "time series analysis" have been utilized in the academic spectrum for over eight years (from 2016 to 2024), indicating the maturity of these topics.

From the map, it is possible to extract terms such as "machine learning," "long short-term memory," "support vector machine," and "stock market prediction," which exhibit an average publication value of 2021. The result is similar to recent systematic literature reviews (Lin and Lobo Marques, 2024). Additionally, terms like "deep learning," "financial markets," "investment," and "China" present an average publication value of 2022, highlighting them as the most recent or emerging topics that are garnering the interest of researchers.

3.2.3 Citation Analysis

As illustrated in Figure 6, the citation trajectory for a specific scholarly work from 2011 to 2024 presents a captivating temporal pattern. The initial stage, encompassing 2011 to 2013, was distinguished by a marked citation escalation. This surge intimates that the work was progressively accruing recognition and being increasingly invoked in subsequent scholarly publications. Nevertheless, from 2014 to 2023, the span witnessed fluctuations in citation counts, with an apex in 2019 succeeded by a trough in 2015.

Intriguingly, 2019 was characterized by an unparalleled surge in citations, insinuating that the work had been acknowledged as seminal or had experienced a resurgence of interest due to advancements in cognate fields. After this apex, there was a precipitous decline in 2020, yet the citation counts exhibited stability, hovering around 717–725 from 2021 through 2022. Despite the overall upward trend in the number of citations from 2011 to 2024, it is noteworthy that the citation counts in 2023 experienced a decline compared to 2022.

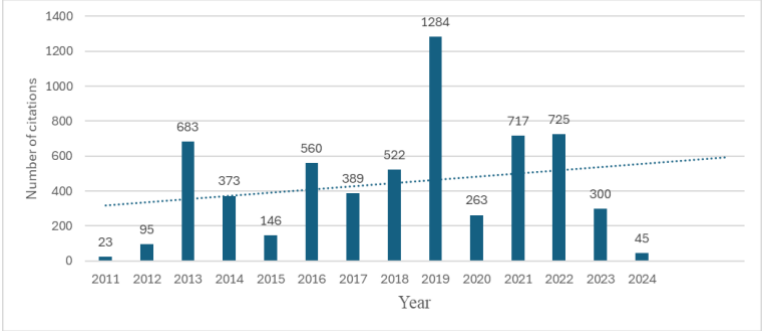

Figure 6: Change in citation over time

Table 1 elucidates the ten most frequently cited articles from 1991 to 2024, spotlighting the most influential and significant contributions to the field. The study entitled "Time series properties of an artificial stock market" by LeBaron et al. (1999) has garnered a noteworthy 457 citations (6%) in 8159 citations. Similarly, the research by Moghaddam et al. (2016), which focused on "Stock market index prediction using artificial neural network," has been cited 269 times (3%). Furthermore, it was observed that the three most cited articles were published in esteemed journals of high repute, namely the Journal of Economic Dynamics and Control, the Journal of Economics, Finance and Administrative Science, and the International Review of Financial Analysis. This observation underscores these journals' prestige and academic influence in economic and financial research.

Table 1: Top ten most cited articles

Authors	Title	Year	Source Title	Cited by
LeBaron B.; Arthur W.B.; Palmer R.	Time series properties of an artificial stock market	1999	Journal of Economic Dynamics and Control	457
Moghaddam A.H.; Moghaddam M.H.; Esfandyari M.	Stock market index prediction using artificial neural network; [Predicción del índice del mercado bursátil utilizando una red neuronal artificial]	2016	Journal of Economics, Finance and Administrative Science	269
Hernandez Tinoco M.; Wilson N.	Financial distress and bankruptcy prediction among listed companies using accounting, market, and macroeconomic variables	2013	International Review of Financial Analysis	248
Shah D.; Isah H.; Zulkernine F.	Stock market analysis: A review and taxonomy of prediction techniques	2019	International Journal of Financial Studies	202
Renault T.	Intraday online investor sentiment and return patterns in the U.S. stock market	2017	Journal of Banking and Finance	199
Moody J.; Wu L.; Liao Y.; Saffell M.	Performance functions and reinforcement learning for trading systems and portfolios	1998	Journal of Forecasting	181
Maasoumi E.; Racine J.	Entropy and predictability of stock market returns	2002	Journal of Econometrics	175
Henrique B.M.; Sobreiro V.A.; Kimura H.	Stock price prediction using support vector regression on daily and up-to-the-minute prices	2018	Journal of Finance and Data Science	174
Kim S.-H.; Kim D.	Investor sentiment from internet message postings and the predictability of stock returns	2014	Journal of Economic Behavior and Organization	157
Selvamuthu D.; Kumar V.; Mishra A.	Indian stock market prediction using artificial neural networks on tick data	2019	Financial Innovation	151

3.2.4 Bibliographic Coupling Analysis

Bibliographical Coupling is a methodological approach to examine the interrelationships among documents that share standard references. This technique facilitates the analysis of any shared links between studies, potentially providing valuable insights for future research endeavors. A bibliographic coupling analysis was conducted on a corpus of 100 documents. Utilizing the VOS Viewer software, clusters were formed, as depicted in Figure 7, representing the bibliographical coupling. Out of the 100 documents, 98 were interconnected. This analysis resulted in the emergence of seven distinct clusters. The three documents with the highest number of citations were "Time Series Properties of an Artificial Stock Market" by LeBaron (1999), "Stock Market Index Prediction Using Artificial Neural Network" by Moghaddam (2016), and "Financial distress and bankruptcy prediction among listed companies using accounting, market and macroeconomic variables" by Hernandez Tinoco (2013). These highly cited documents are distributed across three clusters containing 22, 19, and 14 items, respectively. This distribution underscores the diversity and breadth of the research landscape in this field.

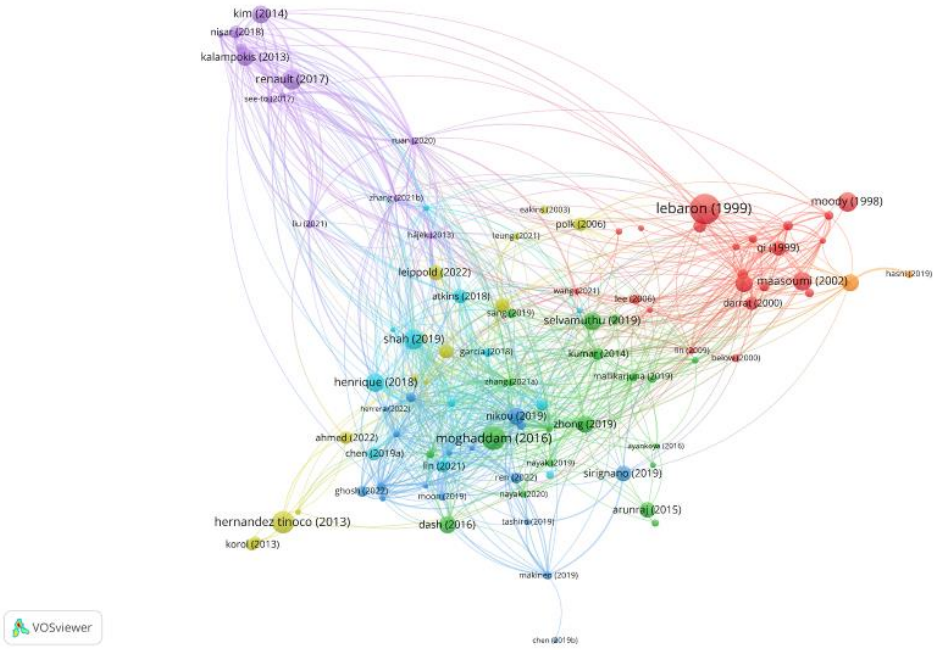

Figure 7: Bibliographic coupling analysis for documents

3.2.5 Co-citation Analysis

This section analyzes the co-citation network of journals about AI and DL resources employed in stock market prediction. The frequency with which two sources are co-cited indicates the similarity between the scope and research topics of the journals. Figure 8 depicts sources that have been cited a minimum of 35 times. Out of 7,980 journals cited in the analyzed corpus, 77 journals satisfied the citation threshold criterion. Each node in the network represents a source, with the node's size corresponding to the number of citations received by that source. The presence of an edge between two nodes indicates a citation relationship. Furthermore, the nodes are clustered based on similarity, such that sources within the same cluster (color) and in closer proximity are more analogous to one another.

The journal "Expert Systems with Applications" garnered the highest number of citations, with 812 citations and 72 links. It is noteworthy that although the scope of this journal encompasses the publication of high-quality articles across various domains and spheres, extending beyond financial markets, it is evident that authors primarily draw upon the technical details of AI systems from this journal, subsequently applying them to the subject area under investigation (Janková, 2021).

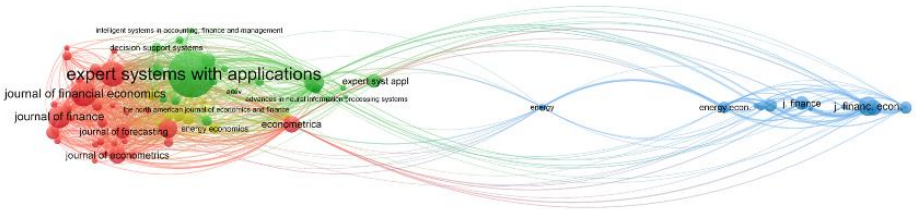

Figure 8: Co-citation analysis for sources

4. Conclusion

In this scientific exploration, we have executed a bibliometric analysis on a corpus of literature from the Scopus database, concentrating on deploying AI in stock market forecasting. The strategic selection and refinement of keywords were instrumental in our analysis employing VOSviewer, culminating in the collation of 525 relevant documents, which spanned 160 sources and encompassed contributions from 70 nations.

Our research delineates the exponential proliferation of AI and DL studies within the financial sphere, emphasizing stock market prognostication. The literature exhibits a notable escalation in research output from 2017, with China, the United States, India, and the United Kingdom emerging as the foremost contributors to

this scholarly pursuit. The network analyses conducted have unveiled a pronounced synergy amongst the various research clusters, with "machine learning," "forecasting," and "stock market" identified as the central keywords underpinning this field.

The citation analysis sheds light on the seminal contributions significantly influencing the domain. In contrast, the bibliographic coupling and co-citation analyses have rendered a holistic perspective of the research milieu. Despite its robust dataset and rigorous methodology, our study acknowledges limitations due to using a single bibliometric database. Future research should expand data sources, incorporate qualitative methodologies, adopt interdisciplinary approaches, and assess the real-world impact of AI and DL applications in stock prediction. Our study outlines the past and present of AI in stock market prediction, serving as a guide for future work and a valuable resource for scholars in AI and financial analytics.

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The Success of Transition Process: A Founder vs. Successor Perspective – A Case of Croatia

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Abstract: Family business is the most common form of business worldwide. Despite the acknowledged importance of family business in the Croatian economy, there are still no formal and reliable statistics on the national level available regarding the prevalence and impact of this ownership structure. However, it is assumed that family businesses in Croatia employ over half of the total workforce and that the majority of small companies are family-owned. Most of the family-owned companies are still first-generation family firms, owned and managed by the founders but transition processes are taking root. Since the very survival of a family business, continuity, and success depend on the transition process, a substantial body of literature focuses on the transition process and factors that will facilitate a successful transition. Therefore, this paper aims to contribute to the existing body of literature by providing a deeper understanding of the transition process specificities in Croatian family-owned companies. In this paper, we analyze differences in the perception of factors relevant to the success of the transition process on the convenience sample of Croatian family-owned companies. The sample included first-generation and second-generation owners and a questionnaire was used as the primary data collection instrument. The results of the statistical analysis show that there are significant differences in the perception of factors relevant to the success of the transition process from the founders' and successors' point of view.

Keywords: Family Business, Transition Process, Succession, Success of Transition Process.

1. Introduction

Family businesses are distinct organizational forms (Xi et al., 2015) that are vital for economic progress (Nordqvist & Melin, 2010). The most used conceptualization of family business includes a system of overlapping circles categorized as family, business, and ownership (Gersick et al., 1997) where specificities and uniqueness of this business form are considered to emerge from the clear intention for transgenerational sustainability and from the hard-to-duplicate capabilities or "familiness" (Chrisman, Chua, & Sharma, 2005, p. 557). These capabilities are from the resource-based view perspective crucial for explaining competitive advantage of family businesses. While family businesses clearly can create resources that are very difficult to imitate, at the same time, they face the threat of not being able to transfer these resources to the next generation (Filser, Kraus, & Märk, 2013, p. 258). Not surprisingly, succession issues dominate the research field (Chrisman, Chua, & Sharma, 2003).

2. Theoretical Background

The failure rate in the succession process is very high; approximately 30% of family businesses go beyond the first generation and 13% reach the third generation while only about 3% of the family businesses survive beyond the third generation (Alpeza, Grubišić, & Mikrut, 2015, p. 12) so providing an additional lens through which transition process, being one of the biggest challenges faced by family firms, could be approached is provided in this paper.

Le Breton-Miller, Miller, & Steier (2004, p. 305) state that "the succession process is often construed to encompass the actions, events, and organizational mechanisms by which leadership at the top of the firm, and often ownership, are transferred." Nordqvist et al., (2013, p. 1090) define succession as "a process in which new owners, from within or outside the owner family, enter the business as owners and add new capital and resources that have consequences for firm processes and outcomes such as innovation, entrepreneurial orientation and growth" and succession is, according to this extended definition, considered proactively as a mechanism to seize opportunities for growth and developing new ventures. This "developmental perspective" of broadened definition is especially interesting since success is not given and not transferable but have to be reinvented from generation to generation to ensure continuity and sustainability of family business.

Succession is a multidimensional process influenced by a myriad of variables that can take different forms: (1) unplanned and sudden succession, (2) rushed succession, (3) natural immersion, and (4) planned succession with the deliberate transfer of social capital (Steier, 2001). Given the fact that succession planning is one of the most

important aspects of the strategic planning process in family businesses (Sharma, Chrisman, & Chua, 1997) it should be also noted that strategic planning in family businesses can be inferior to other business forms. In that sense, the limited literature on family strategic planning indicates that these owners tend to generally avoid strategic planning (Daily & Dollinger, 1993, Geeraerts, 1984) and can view planning as unnecessary and distracting from the business (Rutherford, Muse, & Oswald 2006). In addition, research carried out by Sonfield & Lussier (2004) shows that first-generation family companies cared less for succession planning than second- and third-generation family companies. This is found to be problematic, especially considering findings suggesting that high levels of strategic planning and succession planning are beneficial to the growth of family firms (Eddleston et al., 2013).

Many successions fail so some researchers attempt to identify key factors of success (Miller, Steier, & Le Breton-Miller, 2003). De Massis, Chua, & Chrisman (2008) highlight the importance of individual factors, relationships with/between family and nonfamily members, and contextual factors including financial position. Personal characteristics of the successors; gender, age, and formal education (Porfírio, Felício, & Carrilho, 2020) have been investigated, as well as personal characteristics of the incumbent owers; gender, education, and growth orientation (Rutherford, Muse, & Oswald, 2006).

Morris, Williams, & Nel (1996) and Morris et al., (1997) found that three sets of determinants can be essential for a successful family business transition including: (1) the preparation level of the heirs, (2) the nature of relationships among family members, and (3) the types of planning and control activities.

Studies of succession usually cover subjects such as leadership, power transfer, the conflict between generations, communication, and the existence or absence of a pre-defined plan stating the rules for succession (Porfírio, Felício, & Carrilho, 2020, p. 251) where existence (or absence) of the succession plan is an indicator of the strategic planning quality (Porfírio et al., 2019).

Smooth succession is considered a prerequisite for the long-term success and sustainability of family businesses. However, it is difficult to predict success in family business succession, not only because of the difficulty in defining success but also because of the multitude of variables that can be used to measure it (Le Breton-Miller, Miller, & Steier, 2004). Smooth succession processes usually benefit from successors' willingness, the definition of the founder's and successor's roles, and effective succession planning (Sharma, Christman & Chua, 2003).

The results of Morris et al., (1997) study suggest that a smoother transition does not necessarily result in better post-transition performance, so more awareness is needed regarding factors of business dimension of the family business. To that end, this study provides insight into the importance of business-related factors that could be relevant for the overall success of the transition process.

3. Research Methodology

Since the very survival of the family business is dependent on successful transition, this research was designed and carried out to explore factors relevant to the success of the transition process. Selected family-related factors include the level of successors' readiness for the succession (Morris, Williams, & Nel, 1996, Morris et al., 1997), and incumbent owners' level of preparation for the succession along with the existence (or absence) of the succession plan (Porfírio et al., 2019) as a proxy for the strategic planning quality.

Selected business-related factors include:

1. life-cycle stage, since founders and successors face different challenges and obstacles in different life-cycle stages (Kansikas & Kuhmonen, 2008),
2. factors describing the company's competitive position, market/industry conditions, and corporate strategy to capture important strategic planning characteristics since strategic planning in family firms is complicated by the overlapping needs of family, management, and owners (Hoy & Verser, 1994),
3. managing growth and succession simultaneously since this situation can be particularly challenging given the conflicting nature of two processes; the first calling for bold and radical decisions to facilitate growth prospects, and the second demanding stability to ensure smooth succession.

Since the cognition and motivation of incumbent owners and successors directly influence succession behavior, and ultimately determine the success of the succession (Li, Wang, & Cao, 2023) differences in the perceptions of the two generations must be taken into consideration when exploring factors relevant to the success of transition process.

To meet the research goal, the main research question was formulated to address the difference in the perception of factors relevant to the success of the transition process between founders and successors of family business.

The primary data was collected using the convenience sampling method in May 2023, during the Conference on Family Business and Business Transfer held in Zagreb, Croatia. The paper survey was conducted at the event and the questionnaire was organized in three parts. The first part focused on general information about participants, the second consisted of questions regarding the company and different aspects of the transition process while the third part included questions about participants' perceptions of selected factors relevant to the success of the transition process. The level of agreement with factors relevant to the success of the transition process was rated on the five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). In total, 78 participants of the Conference fulfilled the questionnaire. After the first step, establishing that all participants represent family business companies, the initial sample was narrowed down after controlling for the important fact: whether the family business firm has undergone business transfer, or the transition process will occur in the foreseeable future. The participants who gave negative answers to this question were excluded so the final sample consisted of 60 respondents. Statistical analysis of the obtained data was conducted by the SPSS software package through descriptive analysis and the Mann-Whitney nonparametric test due to the non-normal distribution of data.

4. Results and Discussion

As seen in Table 1, research results indicate that the research sample is male-dominated, and most respondents are under the age of 40. Given the fact that 81,7% of the respondents hold university graduate or postgraduate diploma, we can conclude that family business founders and successors in Croatia have excellent educational backgrounds. The primary field of education for 48,3% of the respondents is business, while STEM accounts for nearly one-third of the sample.

While the second-generation dominates the research sample (68,3%), first-generation owners are still actively present. As for the respondents' status, research results indicate that an equal proportion (10%) of founders and founders/managers are present in the sample and that the largest proportion accounts for managers (45%). Just under one-quarter of the sample (23,3%) accounts for co-owner/manager status and 11,7% of the respondents are co-founders in their respective companies. Top management level positions are the most prevalent in the research sample (83,3%) followed by middle management positions (15%).

Table 1: General characteristics of respondents (entrepreneurs) in the sample

	Frequency	%
Gender		
Male	37	61,7
Female	23	28,3
TOTAL	60	100
Age		
21-30	11	18,3
31-40	25	41,7
41-50	8	13,3
51-60	7	11,7
61-70	8	13,3
More than 70	1	1,7
TOTAL	60	100
Level of Education		
Secondary	6	10,0
Undergraduate	5	8,3
Graduate	28	46,7

	Frequency	%
Postgraduate	21	35,0
TOTAL	60	100
Field of Education		
Business	29	48,3
Law	3	5,0
STEM	18	30,0
Other	10	16,7
TOTAL	60	100
Family Business Generation		
First	19	31,7
Second	41	68,3
TOTAL	60	100
Status		
Founder	6	10,0
Founder and manager	6	10,0
Co-founder	7	11,7
Co-owner and manager	14	23,3
Manager	27	45,0
TOTAL	60	100
Management Level		
Top	50	83,3
Middle	9	15,0
Lower	1	1,7
TOTAL	60	100

Source: Research

Regarding the general characteristics of the companies in the sample, research results (N=60) show that 73,3% are micro or small companies, an additional 23,3% account for medium companies, and 3,4% account for large companies. Research results (N=60) reveal that the companies in the sample are still fairly young (Mean=24,18; St. Dev.=9.457) which corresponds to the fact that entrepreneurship in the Republic of Croatia has been evolving since the 1990s, and Croatian family firms are just undergoing the first wave of the business transfer process. As for the industrial affiliation of the companies in the sample, research results (N=60) show that majority of the companies are in wholesale and retail (18,3%), professional, scientific, and technical activities (15%), manufacturing (13,3%), repair of motor vehicles (13,3%), and construction (11,7%), while other industries are underrepresented in the sample.

In the next step, the sample was divided into two subsamples; one comprising companies that have undergone a transition process, and the other including companies expecting the transition process.

Research results (N=60) showed that 25% of the companies in the sample have undergone a transition process (N=15), and in all cases (100%) founders have passed their business to their children. As for the duration of the business transfer process, in nearly half of the companies that have undergone the transition process (46,7%), the process itself took 3-5 years. For 40% of the companies, the process lasted 1-3 years. There was an equal proportion of companies in which the transition process took less than one year (6,7%) or more than 5 years (6,7%). Out of the companies that have undergone a transition process (N=15), 60% didn't have succession plans while 40% had clearly defined succession plans. The succession plan was a combination of a written plan and verbal agreement in 66,7% of the cases while in one-third of the companies that have undergone the transition process, the succession plan was a verbal agreement. The results showed that two-thirds of the companies that went through transition (N=10) didn't use any advisory support, and those who had (33,3%) opted for professional consultants (60%) or family members (40%). The most common reason for not using advisory

support was that founders felt that there was no need for advisory support (60%), or they didn't know whom to turn to for advice (40%).

The respondents were asked to identify the life-cycle stage in which their companies were before the business transfer process, and the results were as follows: 73,3% were in the growth stage, 20% were in the maturity stage, and 6,7% were in decline or introduction stage. Also, the life-cycle stage was checked post-transition, and the resulting stages were identical to the prior-transition period. During the transition process, 60% of the companies pursued a stability strategy while 26,7% pursued a growth strategy. In two companies (13,3%) the transition period was so turbulent that crisis strategies had to be applied. As for the post-succession satisfaction evaluation, the respondents (N=15) rated the process with very high marks (Mean=4,13; St. Dev.=.834).

Table 2: Descriptive statistics – factors of successful transition (transition undergone)

	N	Min.	Max.	Mean	St. Dev.
Level of founder readiness	15	3	5	4.47	.743
Level of successor readiness	15	2	5	4.33	.976
Succession plan	15	2	5	3.87	.915
Company's competitive position	15	2	5	3.53	.743
Market/industry conditions	15	2	5	3.47	.915
Life-cycle stage	15	2	5	3.67	.900
Corporate strategy	15	2	5	3.80	.941
Ability to manage transition process and life-cycle stage simultaneously	15	1	5	3.67	1.113

Source: Research

As seen from Table 2, from the perspective of respondents whose companies have undergone a successful transition, the most important factor of a successful transition is the level of founder readiness (Mean=4,47), followed by the level of successor readiness (Mean=4,33). Both factors are family-related factors, and all business-related factors are seen as less important.

To provide an in-depth insight into the differences in the perception of factors relevant to the success of the transition process, a comparative display of observed differences between the founders, and the successors is presented in Table 3.

Table 3: Descriptive statistics and Mann-Whitney test - transition process success factors regarding founder vs. successor perspective (transition undergone)

	FOUNDERS - 1. GENERATION					SUCCESSORS - 2. GENERATION					Test statistics	
	N	Min.	Max.	Mean	St. Dev.	N	Min.	Max.	Mean	St. Dev.	M-W U	Sig.
Level of founder readiness	**3**	**3**	**4**	**3.67**	**.577**	**12**	**3**	**5**	**4.67**	**.651**	**31.500**	**.048**
Level of successor readiness	3	3	5	4.33	1.155	12	2	5	4.33	.985	17.500	.945
Succession plan	3	4	5	4.67	.577	12	2	5	3.67	.888	6.500	.101
Company's competitive position	3	3	4	3.67	.577	12	2	5	3.50	.798	15.500	.734
Market/industry conditions	3	3	5	4.00	1.000	12	2	5	3.33	.888	11.000	.365
Life-cycle stage	3	3	5	4.00	1.000	12	2	5	3.58	.900	13.500	.536
Corporate strategy	3	4	5	4.33	.577	12	2	5	3.67	.985	10.500	.295
Ability to manage transition process and life-cycle stage simultaneously	3	3	5	4.00	1.000	12	1	5	3.58	1.165	15.500	.734

Source: Research

Differences in the perceived importance of founder readiness between the first and the second generation are evident on the descriptive level but also found to be statistically significant (Mann-Whitney U test, sig=.048). Interestingly, the level of successor readiness is perceived to be equally important from the perspective of both generations (Mean=4,33). Observed differences in the perceived importance of succession plan are also substantial, even not statistically significant due to the small sample, and suggesting that from the perspective of the first generation that had successfully undergone the transition process, a succession plan is the single most important factor (Mean=4,67) whereas, from the perception of the second generation, a succession plan is an inferior factor in terms of successful transition (Mean=3,67). Results presented in Table 3 suggest that all business-related factors were perceived to be more important from the perspective of founders compared to successors who assign greater importance to family-related factors such as the level of readiness of key actors in the transition process. Even though these observed differences weren't found to be statistically significant due to the small sample of companies that already have undergone successful transition, they are sufficiently indicative to conclude that first generation is likely to express greater reservation towards family-related factors' contribution during transition process emphasizing the role of business-related factors.

Next, the results of the analysis of companies in the sample that have transition approaching (N=45) are given. Regarding the expected occurrence of transition, results are as follows: less than a year until transition (8,9%), in 1-3 years (17,8%), in 3-5 years (33,3%), in 5-10 years (24,4%), more than 10 years until transition (15,6%). Research results indicate that only 40% of the companies have prepared succession plans, and those plans are either verbal agreements (66,7%) or a combination of written plans and verbal agreements (33,3%). As for advisory support, 57,8% have reported that they will use advisory support in the form of professional consultants (57,7%), family members (19,2%), lawyers (11,5%), and literature (11,5%). Of those who reported that they won't use any advisory support (42,2%), the majority feel that they won't need any support (68,4%) or they don't know whom they would address for help. As for the company's life-cycle stage, companies that have a transition approaching in the forthcoming years are in the growth stage (60%) maturity stage (28,9%), and introduction stage (11,1%). During the upcoming transition, the respondents expect their companies to be in the growth stage (48,9%), maturity stage (42,2%), introduction stage (2,2%), and renewal or decline stage (6,7%). When there wasn't any shift in the life-cycle stage evident post-transition compared to the prior-transition period for companies that have undergone transition, expectations about business dynamics are different for those approaching transition. Another important aspect of future transition was analyzed; a corporate strategy that would be implemented in case the growth stage overlapped transition process. Stability strategy would be pursued by 68,9% of the respondents, followed by growth strategy (26,7%) and crisis strategies (4,4%). These results indicate that only 26,7% of respondents whose companies are approaching transition fully understand the perils of the growth stage – transition process intersection; this may be the situation where even more aggressive growth strategies and/or strategic renewal along with organizational rejuvenation via corporate entrepreneurship should be applied to avoid decline.

Table 4: Descriptive statistics – factors of successful transition (transition approaching)

	N	Min.	Max.	Mean	St. Dev.
Level of founder readiness	45	2	5	4.16	.852
Level of successor readiness	45	2	5	4.29	.787
Succession plan	45	2	5	3.71	1.036
Company's competitive position	45	2	5	3.80	.894
Market/industry conditions	45	1	5	3.56	.990
Life-cycle stage	45	1	5	3.62	1.072
Corporate strategy	45	2	5	3.76	.857
Ability to manage transition process and life-cycle stage simultaneously	45	2	5	3.76	.957

Source: Research

As seen from Table 4, from the perspective of the upcoming transition, factors that are seen as the most important in terms of contribution to a successful transition are the level of successor readiness (Mean=4,29) and the level of founder readiness (Mean=4,16). Business-related factors are seen as inferior regarding their contribution to successful transition.

Table 5: Descriptive statistics and Mann-Whitney test - transition process success factors regarding founder vs. successor perspective (transition approaching)

	FOUNDERS - 1. GENERATION					SUCCESSORS - 2. GENERATION					Test statistics	
	N	Min.	Max.	Mean	St. Dev.	N	Min.	Max.	Mean	St. Dev.	**M-W U**	**Sig.**
Level of founder readiness	16	2	5	3.94	.998	29	2	5	4.28	.751	275.500	.268
Level of successor readiness	16	3	5	4.13	.806	29	2	5	4.38	.775	276.000	.256
Succession plan	16	2	5	3.50	1.095	29	2	5	3.83	1.002	274.000	.301
Company's competitive position	16	3	5	3.94	.772	29	2	5	3.72	.960	205.500	.508
Market/industry conditions	16	2	5	3.75	1.000	29	1	5	3.45	.985	630.000	.355
Life-cycle stage	**16**	**2**	**5**	**4.06**	**1.063**	**29**	**1**	**5**	**3.38**	**1.015**	144.**000**	**.030**
Corporate strategy	16	3	5	4.06	.929	29	2	5	3.59	.780	169.000	.113
Ability to manage transition process and life-cycle stage simultaneously	16	2	5	3.75	1.065	29	2	5	3.76	.912	231.500	.990

Source: Research

Finally, to explore the nature of intergenerational differences in the perception of factors relevant to the success of the transition process, research results presented in Table 5 were generated. As can be seen, family-related factors are seen as less important, in terms of their contribution to a successful transition, from the perspective of the first generation, compared to the second generation. Except for the factor - the ability to manage the transition process and the life-cycle stage simultaneously, which is almost equally important from the perspective of both generations, all business-related factors are perceived to be more important from the perspective of the first generation. Differences in the perceived importance of the life-cycle stage between the first and the second generation are evident on the descriptive level but also found to be statistically significant (Mann-Whitney U test, sig=.030). These findings may suggest that founders who are presumably preparing actively for the transition are more pushed towards "seeing the big picture" understanding that the unique bundle of resources they have at their disposal, i.e. family business resources had to be put in the right context to create next-generation competitive advantage and ultimately, sustainability of family business.

5. Conclusion

This study aims to explore key factors of successful transition from the perspective of two generations, one leaving and one taking the family business throne, respecting relevant family-related, and business-related factors.

Research results have shown that there are differences in the perception of factors relevant to the success of the transition process between the founders, and the successors. In the case that a family business has already undergone a successful transition, the single most important succession factor from the perspective of founders is the existence of a succession plan while from the perspective of successors, the single most important factor is the level of founder readiness. Both factors are family-related, and an interesting connection between these factors can be found: the very existence of the succession plan can imply the founder's level of preparation for the succession. The other interesting finding was that, aside from the importance of the succession plan from the founders' perspective, this important tool was not sufficiently used. As for the other investigated factors, the results point out that business-related factors were perceived to be more important from the perspective of founders compared to successors.

Analyzing observed differences from the perspective of approaching transition, the successors perceive family-related factors to be more important regarding their contribution to successful transition compared to founders, and the founders perceive business-related factors to be more important. Interestingly, one factor was found to be equally important from the perspective of both founders and successors in the companies approaching transition - the ability to manage the transition process and the life-cycle stage simultaneously.

Presented results suggest several interesting findings and avenues for future research. Firstly, family factors alone cannot explain sufficiently the differences in the outcomes of the transition process; they should be complemented with business-related factors to generate synergistic effects in attempts to capture the overall success of the transition process. Secondly, the "family business curse", the phenomenon of family businesses vanishing in three generations should also be approached from the "inheritance burden" perspective where underestimating (or even neglecting) the importance of business-related factors and overestimating the importance of legacy and family-related factors can contribute to business erosion over time. Finally, designating a successor may be the most important decision any incumbent owner will have to make in their professional life to ensure business continuity. Building a legacy, a dynasty should be seen as a side-effect of business sustainability; a consequence rather than a purpose *per se*, so founders must be more open to the idea of non-family successors to avoid destructive nepotism, and ultimately business decline.

Research limitations have to be addressed as well. They can relate to a relatively small research sample from one country, excluding potentially relevant factors of successful transition. Namely, ownership dimension factors were not investigated so future research should take into consideration all relevant factors underlying all three family business dimensions: family, business, and ownership. Also, post-transition performance effects, based on objective metrics, should be included in future research. Finally, the convenience sampling method limitations have to be addressed in terms of the lack of generalizability of results, but conclusions of this research can be beneficial for transitional economies.

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Double Materiality Approach and Sustainable Business Model Paradigm: A Three-Fold Analysis

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Abstract: Adopting the United Nations 2030 Agenda for Sustainable Development, governments commit to the 17 goals and 169 associated targets in areas of critical importance for humanity and planet, while companies manifest a growing interest in playing a significant role to SDGs prioritisation. Researchers, policymakers, stakeholders, and analysts are all preoccupied about responsible ways of redesigning the business model to mitigate the growing concerns, such as companies' failures, global multidimensional crisis, and sustainability-related issues. Under the light of institutional theory, legitimacy theory, stakeholder theory, the aim of this research is to investigate how environmental, social and governance (ESG) policies and practices included in a sustainable business model may respond to the double materiality approach in order to contribute to a balance among divergent interests of managers, investors, and other stakeholders. The financial materiality is conceptualized using ESG data, that mainly targets investor's needs. Stakeholder materiality, is concerned with external impact of companies, embodied in societal-level outcomes measured as the number of SDGs addressed in corporate reporting. In this study, company-year data are collected from Refinitiv Eikon database, starting with 2015, until current reporting period and analysed using frequency, univariate and correlation analyses. Based on Levene homogeneity, the ANOVA parametric t-test results are validated by Mann-Whitney Wilcoxon and Krushkal Wallis non-parametric tests. Three main research questions are responded. First, the findings examine and discuss the evolution of sustainability reporting measured with ESG scores, decomposed by the three pillars and ten categories, along with the SDGs prioritisation. Second, statistically significant differences in ESG and SDGs variables reported by various groups clustered on industry-related corporate characteristics are discussed. Third, the significant associations between ESG measures and SDGs are analysed from the double materiality perspective. The study contributes to the academic and practical understanding of the evolving business model under normative dimension of institutional theory, incorporating the decision to engage in current sustainability frameworks and policies.

Keywords: Double Materiality, Sustainable Business Model, Three-fold Analysis, SDGs Prioritisation, ESG Policies And Practices

1. Introduction

A comprehensive literature review of recently published research on sustainability materiality (Adams and Abhayawansa, 2022; Broadstock et al, 2021) shows an exponential increase, especially in the context of "multifaceted landscape of different international reporting standards" (Fiandrino, Tonelli, and Devalle, 2022, p. 684). Standard setters concentrate on investors and other stakeholders as main users of sustainability information, exposing the double materiality concept. Schaltegger, Ludeke-Freund, and Hansen (2016) consider that both researchers and practitioners reached the conclusion that sustainable development of the society may not be achieved without the sustainable development of organisations. From this perspective, corporate sustainability may be leveraged through an informative disclosure that reinforces the company's capabilities to gain competitive advantage.

At macroeconomic level, UNEP continuously updated its mission in covering sustainability issues, resulting in the 2030 Agenda for Sustainable Development. Released in 2015 to continue the millennium sustainability goals set in 2000, the sustainable development goals (SDGs) are the result of the UN's long-standing efforts to advance global sustainability (Delgado-Ceballos et al, 2023) and extend the awareness of addressing long-term rather than sort-term development (UN, 2015), in order not to compromise the wellbeing of future generations (WCED, 1987). Complementary to their societal-oriented aim, the SDGs are also relevant for companies, by providing a framework to identify challenges and opportunities, and to contribute to long-term advantages that sustainability-oriented businesses may benefit from (Delgado-Ceballos et al, 2023). Sustainability policies and practices incorporated in business models and publicly communicated respond to stakeholders' pressure (Bebbington and Unerman, 2018) and underlie companies' accountability and their legitimacy to operate. Thus, the institutional perspective may explain how the normative pressure drives changes in businesses strategy (Whittingham et al, 2023) resulting in adjusted sustainable business models.

SDGs prioritisation along with ESG policies and practices may help companies to create value for themselves and for their stakeholders. The *double materiality concept* is approached under the light of institutional theory, legitimacy theory, stakeholder theory in order to contribute to a balance among divergent interests of managers, investors, and other stakeholders. The environmental, social and governance (ESG) policies and practices, considered pillars of a *sustainable business model*, are operated to conceptualise the financial materiality. SDGs addressed in corporate reporting measure the level of corporate prioritisation for the UN 2030 Agenda goals, as a proxy for stakeholder materiality, concerned with external impact of companies. The significant differences among firms, based on institutional characteristics, may point to selection priorities and critical gaps for companies to engage with global sustainability goals.

The aim of this research extends the analysis of business' role in solving sustainability challenges and achieving the SDGs included in the Agenda 2030. Also analysed by Delgado-Ceballos et al (2023), Whittingham et al (2023), Heras-Saizarbitoria, Urbieta, and Boiral (2021) or Khaled, Ali, and Mohamed (2021), the 17 SDGs are extensively investigated in this study individually and grouped by three dimensions environmental, social and governance, and further related to ESG policies and practices. In this regard, a reflection on how societal-level goals are prioritize within sustainable business model, including the ESG concepts and the double materiality perspective, which encompasses materiality based on both financial and stakeholder aspects. To demonstrate this connection, a three-fold analysis is applied to an overall research question: *May company-level ESG policies and practices be related to specific societal-level SDGs?* Company-year data collected from Refinitiv Eikon database for the 2015-2023 period are examined using statistical analysis, including descriptive, homogeneity tests, univariate and correlation analyses.

The study contributes to the academic and practical understanding of the evolving business model under normative dimension of institutional theory, incorporating the decision to engage in current sustainability frameworks and policies. First, this research extends the knowledge about the relationship between ESG policies and practices and SDGs prioritisation at corporate level. Arguments for the lack of contributions from accounting scholars on the current SDGs academic debate may be found in Bebbington and Unerman (2018) or Pizzi, Rosati, and Venturelli (2021). Second, the practical implications of companies' engagement with the SDGs, differentiated according to industries' specifics contributes to the gap identified in previous research (Heras-Saizarbitoria, Urbieta, and Boiral, 2021). Third, this study advances the research conducted on environmental, social, and governance dimensions of corporate sustainability policies and practices in relation with sustainable development goals, for which Correa-Mejia, Garcia-Benau, and Correa-Garcia (2024), or Delgado-Ceballos et al (2023) underline a need for future research.

The structure of the remainder of the paper is as follows. In Section 2, relevant literature, underlying theories and research questions are outlined. Section 3 describes the research methodology, including data and sample, variables and statistical tests description. Section 4 discusses the results organised according to the research questions addressed. Section 5 summarizes the main findings and concluding remarks, as well as limitations and future research horizons.

2. Literature Review, Underlying Theories and Research Questions

Considered globally, the social responsibility has been addressed from an integrative point of view, by the world leaders, at the beginning of 2000's (UN, 2015). Hence, eight Millennium Development Goals (MDGs) embodied the actions to be taken in order to fight multiple poverty dimensions. With six goals related to social aspects, one to environmental sustainability and one to global partnership development, the MDGs reshaped decision-making especially in developing countries, but also in the developed ones, by putting people and their immediate needs at the forefront. Building on the MDGs, with the aim of completing the not accomplished objectives, the list of sustainable development goals was extended in areas of critical importance for humanity and planet (people, planet, prosperity, peace, and partnership) in order to achieve global sustainability (Delgado-Ceballos et al, 2023). This first step in promoting "global awareness, political accountability, improved metrics, social feedback, and public pressures" (Sachs, 2012, p.2206) was taken further by governments that committed to 17 Sustainable Development Goals (SDGs) with 169 associated targets and 231 indicators, designed under the Agenda 2030 (UN, 2015).

Academia, governments, standards setters, stakeholders, and analysts are all concerned about responsible ways of redesigning the business model to mitigate the growing concerns, such as companies' failures, global multidimensional crisis, and sustainability-related issues. Pizzi, Rosati, and Venturelli (2021) highlight the collaborative effort in applying the Agenda 2030. Major international corporate reporting standard setters and

framework providers, unified under the Corporate Reporting Dialogue Initiative have released a position paper supporting the development of better reporting guidelines for the Sustainable Development Goals (SDGs), promoting improved coherence, consistency and comparability between corporate reporting frameworks. The new standards in reporting on sustainability, released internationally and across industries, ensure high-quality environmental, social, and governance information (Fiandrino, Tonelli, and Devalle, 2022), along with the financial ones calling for companies' accountability of integrating sustainability at policy and practice levels (Nicholls, 2020). Corporate reporting may be a driver that illustrates which SDGs are relevant to a sustainable business model, creating premises to connect the environmental, social, and governance policies and practices with the prioritisation of those SDGs most likely to impact financial performance.

The materiality concept was prior used in financial reporting to identify relevant information that may influence users' decisions, or change their judgement when omitted or misstated. This approach is nowadays identified as the economic or financial perspective of materiality (Fiandrino, Tonelli, and Devalle, 2022). With the expansion of corporate activities with impact on people and planet, the sustainability perspective of materiality became more and more important in addressing corporate accountability. The double-materiality perspective has evolved into the requirement for companies to report information on how sustainability matters affect their performance, position and development (financial materiality perspective) as well as information on their impact on people and the environment (the stakeholders materiality perspective) (European Parliament, 2022). Growing interest in achieving corporate sustainability along with stakeholders' recognition of pursuing sustainability outcomes in business, contributes to the development of double materiality concept (Delgado-Ceballos et al, 2023), linking financial interests to environmental, social, and governance (ESG) objectives (MacNeil and Esser, 2022) ensuring the achievement of global sustainability.

The adoption of sustainable business model changes corporate reporting towards sustainability, strengthened by the impact of environmental and social policies on company's activities, the focus on company's stakeholders (Huang, 2021), or the newest societal worldwide arrangements claiming for double material information (Adams and Abhayawansa, 2022). Stakeholders' awareness about corporate responsibility improves the visibility, legitimacy, and reputation of companies, hence the performance through value-creation. Accordingly, stakeholder, legitimacy and institutional theories should be considered complementary, rather than competing, when trying to explain the relationship between an organisation and the society within which it operates (Fiandrino, Tonelli, and Devalle, 2022).

Stakeholder theory explains, on normative grounding, how relationships between companies and stakeholders imbed to create long-term value (Freeman, Wicks, and Parmar, 2004). *Legitimacy theory* establishes the interconnectivity between organisations and society (Deegan 2002), while the pressure of social and political expectations acts as trigger of sustainability disclosure and explain companies' overall strategy changes to ensure its legitimacy. *Institutional theory* examines organisations from the homogeneous characteristics certified by belonging to the same institutional area (DiMaggio and Powell, 1983), sharing the political, financial, educational, cultural and economic systems. Thus, the institutional perspective may explain how the normative pressure drives changes in businesses strategy (Whittingham et al, 2023) resulting in adjusted sustainable business models.

This paper reveals the importance of double materiality concept (financial materiality and stakeholder materiality) addressing the global-company sustainability nexus by connecting the United Nations' Sustainable Development Goals (SDGs) with Environmental, Social, and Governance (ESG) factors. It pursues the extent to which the society-level goals and targets expected to address grand challenges and achieve global sustainability are associated with company-level policies and practices included in the sustainable business model. The increased evidence of meaningful normative pressure exerted by changing ESG policies and practices through prioritising the SDGs (Bebbington and Unerman, 2018) invites researchers to respond to the wide recognised gap of narrow-focused previous studies (Whittingham et al, 2023; Heras-Saizarbitoria, Urbieta, and Boiral, 2021). Aiming to fill this gap and to contribute to this area, a systematic analysis of corporate sustainability data reported following the launch of the SDGs is conducted in order to answer three main research questions.

RQ1. How has the corporate sustainability reporting evolved since the launch of UN SDGs?

To answer this question the paper examines and discusses the evolution of corporate sustainability reporting measured with ESG scores, as proxies for financial materiality, decomposed by the three pillars and ten categories, along with the evolution of SDG prioritisation, measured with SDG score, as proxy for stakeholders' materiality. Additional to Whittingham et al (2023) that analyse the impact of SDGs' launch on businesses activity by considering two periods before and after 2015, and similar to Heras-Saizarbitoria, Urbieta, and Boiral (2021),

this study includes a longitudinal analysis over a 9 year-period, starting with the year 2015, when the 17 UN SDGs (UN, 2015) were released.

RQ2. How does the double materiality approach differ by reference to corporate characteristics?

The research is conducted by clustering the database according with companies features embodied in the corporate business model and comparing the ESG and SDG scores across industries, as well as considering industry's resource intensity (Whittingham et al, 2023). The significant differences among groups of companies based on institutional characteristics, may point to selection priorities and critical gaps for companies to engage with globally addressed sustainability challenges.

RQ3. Could the two perspectives of materiality be associated?

The importance of incorporating ESG aspects into sustainable business model and decision-making process may be motivated more by their impact on financial performance (financial materiality), than by ethical concerns linked to company's activity on external environments (stakeholders' materiality) (Huang, 2021). Hence, associations of ESG policies and practices with SDGs prioritisation are analysed from the double materiality perspective.

3. Research Methodology: Data and Sample, Framework, and Statistical Analysis

This research aims to investigate various facets of environmental, social and governance policies and practices along with prioritisation of sustainable development goals, framed within the double materiality approach that may contribute to changing business model towards sustainability.

Designed as a comprehensive in-depth analysis, this empirical study started with an initial sample of 52,461 company-year observations, for listed non-financial companies, included in the Thomson Reuters database collected for 2015-2023 period. This time-frame was chosen in order to explore the evolution of ESG policies and practices along with SDGs prioritisation starting immediately after the release of the UN 2030 Agenda, until the current period. Next, the observations with missing data for ESG and SDGs scores were eliminated, resulting a final sample of 36,936 company-year observations, from 88 countries around the world. For this study, data for both ESG policies and practices and SDGs prioritisation variables are collected from Refinitiv Eikon database (LSEG, 2023). The validity of this database is ensured by the complex methodology, with a history dating back to 2002, covering over 90% of global market capitalization for more than 15,500 global public and private companies, and embodying the 186 most comparable material ESG metrics collected for each company from publicly available information sources (company websites, annual reports, and sustainability reports, stock exchange fillings, or news sources).

Details on the research variables' names and acronyms and the mapping framework are presented in Figure 1. To examine the ESG policies and practices, the 10 categories delineated for measurement grouping, further defining the three pillar scores: environmental, social, and governance, integrated in ESG score (LSEG, 2023) are considered. Their values may range from 0 (the lowest) to 100 (the highest). SDGs prioritisation reflects the 17 SDGs individually collected as dummy variables (1 if SDG is reported, and 0 if SDG is not reported). Further, three scores are constructed for this study, by grouping the 17 SDGs into the three pillars of sustainability. With the starting idea extracted from the design of Delgado-Ceballos et al (2023), Khaled, Ali, and Mohamed (2021), and Pizzi, Rosati, and Venturelli (2021), SDGs to ESG mapping underlies on the 5 Ps (Planet, People, Prosperity, Peace, and Partnership) (UN, 2015; Correa-Mejia, Garcia-Benau, and Correa-Garcia, 2024) allocating the 17 SDGs to the environmental (5 SDGs), social (6 SDGs) and governance (6 SDGs) aspects (Figure 1).

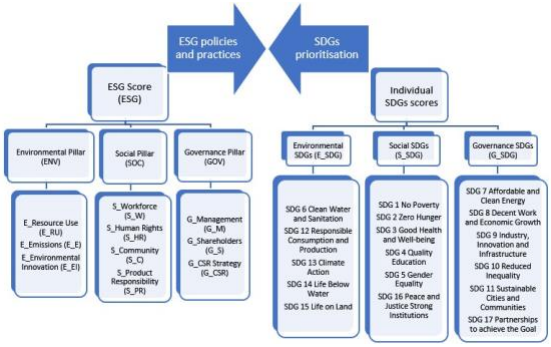

Figure 1: The research framework

To extensively examine the evolution, insights, and possible associations of ESG policies and practices with SDGs prioritisation, three research questions addressed (Section 2) are answered by operationalising variables further studied using frequency, univariate and correlation analyses. Descriptive statistics are presented for the overall sample of 36,936 observations. The analysis addressing RQ1 considers the yearly observations, also used in Heras-Saizarbitoria, Urbieta, and Boiral (2022). Industry's groups according with GICS sectors (10 sectors) and resource intensity (high and low) are examined to respond to RQ2. Muchmore, difference tests to estimate on equality of means among the industry's groups are performed to answer RQ3 using both parametric (ANOVA) and non-parametric (Mann Whitney Wilcoxon and Krushkal Wallis) tests. A first set of results is generated based on descriptive analysis, further supporting the use of static and dynamic models. Pearson and Spearman correlation coefficients complete the statistical analysis.

4. Results and Discussions

Examining the double materiality perspectives and sustainable business model, this empirical study analyses companies' potential contributions to double materiality approach and questions possible associations between ESG sustainability measures and SDG prioritisation.

4.1 Overall Analysis of ESG Policies and Practices and SDGs Prioritisation

Results are generated based on descriptive analysis of 36,936 company-year observations (Figure 2). They indicate a wide range of values from 0 (minimum) to almost 100 (maximum) for the ESG scores, with skewness and kurtosis values supporting the normal distribution of data. The ESG score has a mean value of 45.20, with governance score having the highest contribution (mean=49.23), and the environmental score, the lowest (mean=37.96). Detailing on the 10 categories, companies tend to have more policies and practices related to *Emissions* and *Resource use* for environmental pillar, to *Workforce* and *Community* for social pillar, and to *Management* and *Shareholders* for governance pillar.

Table 1: Descriptive statistics

Variables	Min.	Max.	Mean	Std. Dev.	Skewness	Kurtosis
ESG Score	0.44	95.57	45.20	20.81	0.09	-0.91
Environmental Pillar Score	0.00	99.26	37.96	28.00	0.19	-1.16
Social Pillar Score	0.23	98.78	46.65	23.91	0.09	-0.96
Governance Pillar Score	0.14	99.43	49.23	22.74	-0.05	-0.96
E_Resource Use Score	0.00	99.92	41.86	32.60	0.15	-1.33
E_Emissions Score	0.00	99.92	43.03	32.56	0.11	-1.33
E_Environmental Innovation Score	0.00	99.89	24.11	30.45	0.90	-0.56
S_Workforce Score	0.10	99.94	51.80	28.82	-0.07	-1.19
S_Human Rights Score	0.00	99.31	35.15	33.45	0.41	-1.30
S_Community Score	0.00	99.92	50.45	28.94	-0.01	-1.20
S_Product Responsibility Score	0.00	99.92	47.26	29.70	0.12	-1.19
G_Management Score	0.01	99.99	50.71	28.64	-0.03	-1.18
G_Shareholders Score	0.02	99.99	50.41	28.75	-0.01	-1.19
G_CSR Strategy Score	0.00	99.98	40.09	32.53	0.19	-1.34
E_SDG	0.00	5.00	1.18	1.67	1.09	-0.24
S_SDG	0.00	6.00	1.26	1.88	1.26	0.24
G_SDG	0.00	6.00	1.52	2.12	0.99	-0.58

Muchmore, results show that companies prioritize the governance related SDGs (with a mean of 2.12 of 6), followed by environmental related SDGs (with a mean of 1.67 of 5), while the lowest prioritisation is found for social related SDGs (with a mean of 1.88 of 6). A frequency analysis applied for the 17 individual SDGs shows that decent work and economic growth, climate action, responsible consumption and production and good health and well-being are the four most addressed SDGs in companies reporting (Figure 3).

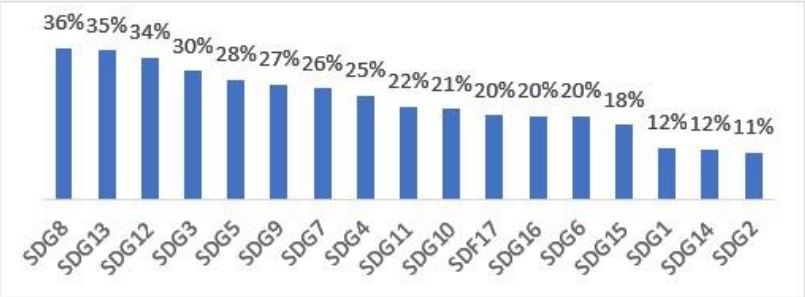

Figure 3: Frequency analysis of individual SDGs

4.2 The Evolution of ESG Policies and Practices and SDGs Prioritisation

To answer *RQ1. How has the corporate sustainability reporting evolved since the launch of UN SDGs?,* the evolutions of yearly ESG scores (proxies for financial materiality), complemented by the three pillars' scores and of the three SDG prioritisation scores (environmental, social and governance) as proxies for stakeholders' materiality are graphically analysed (Figures 4A and 4B).

Figure 4A: The corporate sustainability reporting: ESG policies and practices

Figure 4B: The corporate sustainability reporting: SDGs prioritisation

For the ESG policies and practices, overall and by pillars, the evolution shows a pick in 2018, followed by an abrupt decrease for 2019. This may be explained by relation to the health crisis started at the end of 2019 and rapidly evolving until the middle of 2020, by the time when most of the companies prepared the annual and sustainability reports for the year 2029. Data may show that companies' reporting for the year 2029 was influenced by the severe consequences faced at the beginning of 2020. Muchmore, the companies needed a four years gap before starting to link and report their sustainability policies and practices using SDGs indicators, as findings show that 2019 is the first year when companies included references to SDGs in their statements. However, starting with 2020, both ESG and SDG variables have an increasing evolution. Governance aspects outperforms social and environmental aspects, with similar evolutions until 2023, for both types of measures. Findings reveal similar rising trends for companies from Brazil, China, and India, analysed between 2010 and 2019 (Soni, 2023).

4.3 Industry Cluster Analysis of ESG Policies and Practices and SDGs Prioritisation

The research question *RQ2. How does the double materiality approach differ by reference to corporate characteristics?* is addressed by analysing the descriptive statistics of companies clustered by industry characteristics (Figure 5). Most of the company-year observations included in the sample are from Industrials and Consumer discretionary sectors, while Energy and Utilities sectors include the smallest number of company-year observations.

Table 2: Differences in the double materiality perspectives by industry

Variable	Descriptive statistics – Means of GICS sectors										Levene Statistic (a)	F-stat (b)	Chi-Square (c)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)			
ESG	42.80	45.54	47.76	45.65	39.42	45.88	44.43	46.78	47.89	49.52	15.96***	67.09***	646.86***
ENV	29.64	39.23	44.50	40.18	22.54	40.66	33.78	44.52	44.12	47.37	12.76***	301.00***	2902.11***
SOC	44.55	46.38	47.73	46.04	45.13	46.92	46.90	45.81	49.63	48.70	26.16***	11.72***	118.91***
GOV	46.48	49.27	51.16	52.68	44.00	49.82	47.79	51.85	49.82	54.07	11.36***	56.27***	498.73***
E_SDG	0.81	1.10	1.84	1.35	0.50	1.20	0.90	1.64	1.25	1.82	600.48***	238.22***	1814.69***
S_SDG	1.23	1.14	1.84	1.34	0.67	1.29	1.11	1.58	1.31	1.64	236.68***	111.61***	1011.72***
G_SDG	1.41	1.34	1.78	1.52	0.67	1.69	1.35	1.82	1.91	2.51	385.65***	168.38***	1471.73***
Observations	*2071*	*5027*	*2794*	*1908*	*4796*	*7357*	*4281*	*4310*	*2848*	*1544*			

Notes. Total number of company-year observations=36,936. (1) Communication Services; (2) Consumer Discretionary; (3) Consumer Staples; (4) Energy; (5) Healthcare; (6) Industrials; (7) Information Technology; (8) Materials; (9) Real Estate; (10) Utilities. (a) Test of Homogeneity of Variances. (b) ANOVA t test. (c) Kruskal Wallis Test.

The industry cluster analysis with companies distributed per GICS sectors indicate *Utilities* with the highest scores for policies and practices related to ESG in general, and ENV and GOV in particular, and the highest prioritisation for governance related SDGs. *Real estate* has the highest score for ESG social pillar, while *Consumer staples* highly prioritise environmental and social SDGs. *Healthcare* is outlines as the industry with the lowest means of most of the ESG and SDG variables. The differences in the mean values are tested for significance using one-way ANOVA analysis, validated by Levene's homogeneity test. For the robustness of the results, Krushkal Wallis test is applied. The results of parametric and non-parametric tests indicate statistically significant differences among the 10 sectors, for all ESG and SDG variables. These results indicate that companies from high resources intensity, as Utilities, are more interested to incorporate double materiality perspectives in their sustainable business model, while low resource intensity industries, as Healthcare, integrate ESG policies and practices and prioritise SGDs at a lower level.

In line with the research question RQ2, the sample is split in two groups: high resource intensity, including Energy, Industrials, Materials, and Utilities, and low resource intensity, including the other six sectors. When clustering the companies in the two groups, the conclusion of previous analysis is confirmed for all variables, except SOC (Figure 6).

Table 3: Differences in the double materiality perspectives by resource intensity clustering

Variable	Low intensity industry	High intensity industry	Levene Statistic (a)	F-test (b)	Z-stat (c.)	Chi-Square (d)
ESG	44.31	46.48	3.79**	97.37***	-10.48***	109.89***
ENV	34.90	42.38	189.04***	650.09***	-27.48***	755.40***
SOC	46.63	46.67	56.36***	0.03	-0.51	0.26
GOV	47.87	51.19	3.52*	191.75***	-13.63***	185.84***
E_SDG	1.02	1.41	917.19***	492.59***	-21.35***	456.03***
S_SDG	1.15	1.42	296.00***	181.18***	-14.06***	197.70***
G_SDG	1.33	1.79	657.10***	417.43***	-20.02***	400.95***

Notes. ***, **, and * indicate 1%, 5%, and 10% significance levels. (a) Test of Homogeneity of Variances. (b) ANOVA t test. (c) Mann-Whitney Wilcoxon test. (d) Kruskal Wallis test.

The results of ANOVA t-test, complemented by Mann-Whitney Wilcoxon and Kruskal Wallis tests show statistically significant differences between the companies, and support the previous statement drawn based on sector clustering analysis. Muchmore, for the social policies and practices, companies seem to behave similarly, regardless of industry characteristics.

4.4 Correlation Analysis Between ESG Policies and Practices and SDGs Prioritisation

To respond the *RQ3. Could the two perspectives of materiality be associated?*, parametric (Pearson) and non-parametric (Spearman) correlations are analysed (Figure 7), and similar values are found.

Table 4: Pearson (Spearman) correlation analysis

Variables SDG / ESG	ESG	ENV	SOC	GOV
E_SDG	0.481*** (0.509***)	0.514*** (0.535***)	0.445*** (0.472***)	0.236*** (0.249***)
S_SDG	0.443*** (0.486***)	0.455*** (0.495***)	0.422*** (0.461***)	0.221*** (0.240***)
G_SDG	0.474*** (0.509***)	0.500*** (0.521***)	0.444*** (0.469***)	0.234*** (0.245***)

Notes. *** indicates 1% significance level.

ESG is found positively correlated with all SDG scores, with significant coefficients, higher than 0.400. Muchmore, significant and positive correlations (p<1%) are identified especially between environmental policies and practices (ENV) and the three categories of SDGs (with the Pearson correlation coefficients E_SDG:0.514; S_SDG:0.455; G_SDG:0.500), the strongest association being registered for E_SDG. The weakest, however significant association is found between governance-related policies and practices and the level of SDGs prioritisation.

5. Discussions and Conclusion

Considering the topic of sustainable development as a current priority for both governments and companies, this research aims to support companies in understanding the required shift towards sustainability. It highlights the importance of connecting the ESG policies and practices with the SDGs from the double materiality perspective.

Results obtained for RQ1 delimitated two periods along the evolution of corporate sustainability reporting since the launch of UN SDGs. First, right after 2015 until 2018, companies integrated ESG policies and practices in their business model with abrupt increases and stagnant or even small decreases. No connection could be observed with SDGs prioritisation as companies accounted for a delay in incorporating the societal SDGs for the first four years since their release. Second, after an inflection point with sudden decrease in ESG policies and practices for the year 2019, companies showed a light trend increase until 2023. However, in term of SDGs prioritisation at corporate level, the year 2019 is characterised by a rapid increase.

Muchmore, similar with prior studies (Khaled, Ali, and Mohamed, 2021; Whittingham et al, 2023), the answers found for RQ2 indicate that companies operating in high resource intensity industry (Energy, Industrials, Materials, and Utilities) better integrate in their business model environmental and governance policies and practices, while they prioritize all three types of SDGs (environmental, social, and governance).

Addressing RQ3, the correlation analysis highlights that when ESG policies and practices are integrated in company's business model, all types of SDGs are prioritised, while environmental SDGs are addressed the most by companies with stronger environmental policies and practices. Moreover, companies with a social-oriented business model seem to prioritise more the SDGs, compared to companies with a governance-oriented business model.

Results support the statement that the double materiality approach could be used by companies as a mechanism connecting ESG policies and practices and SDGs prioritisation, that may further help to reconcile investors' interests in sustainability (financial materiality) with corporate external impact on the natural environment and society (stakeholder materiality). Thus, societal-level SDGs and the specific targets have become relevant to investors' decisions, making them financially material for the company. Muchmore, companies' efforts to improve corporate sustainability policies and practices, reflected by ESG scores, contribute to stakeholders' interests and advance SDGs prioritisation.

This research provides a multi-layered contribution. The empirical evidence may be used both in practice for decision-making purposes with ideas for continuously adjusting corporate business model towards sustainability. For academic research, this study contributes by integrating and discussing the evolving business model under normative dimension of institutional theory. The stakeholders and legitimacy theories are complemented by examining corporate ESG policies and practices to engage in the current sustainability framework in relation with companies' incentives of prioritising specific SDGs types. It may also contribute to supporting companies to manage their complex sustainability objectives and to position within the new trend in corporate disclosure: designing a sustainable business model by prioritising specific SDGs linked to ESG policies and practices.

Although this study sheds new light on the corporate sustainability policies and practices in relation with the level of SDGs prioritisation, limitations related to the heterogeneity of the sample, the partial reference to the

specific ESG categories and the individual SDG, as well as inside management perspectives need to be presented. These limitations open the future research perspectives towards extensive analysis of each ESG policy and practice and each SDG. A geographical clustered analysis may complement the research, while causality analysis may provide cleared linkages between ESG and SDG scores.

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Responsible Leadership: Knowledge Status and Future Research Agenda

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Abstract: The present review article deals with the highly relevant and rich research field of responsible leadership (RL). It summarizes existing literature using a wide scope of 96 peer-reviewed journal articles and subsequently provides recommendations for future research paths. The current state of knowledge is depicted in relation to five knowledge areas: In the first area, the conceptualisation of RL, works addressing fundamental views on RL, the development of frameworks and the application of specific philosophies or theories are introduced. In the second area, the operationalisation of RL, results of studies dealing with the development of measurement instruments or applying quantitative empirical study designs in order to test specific research questions are presented. The third area, RL antecedents, covers the depiction of empirically investigated antecedent variables pertaining to either a personal or a contextual level. In the fourth area, RL consequences, empirically examined impacts of RL at a micro, meso and macro level are summarised and further works dealing with effects of RL on relationships between other variables discussed. Finally, the fifth area of RL promotion presents works that are empirically testing RL development interventions that take place either in the context of higher education or work. Derived potential lines of research relate to these five areas of knowledge and address identified research gaps of content-related, empirical and methodological nature.

Keywords: Responsible Leadership, Conceptualisation, Review Article, State of the Art, Research Agenda

1. Study Background and Aim

Against the background of serious global sustainability challenges and repeatedly uncovered corporate scandals, business leaders were and are confronted with increasing and new responsibility requirements. This has paved the way for the approach of responsible leadership (RL) (Foldøy et al, 2021), which emphasizes the relationship between leaders and stakeholders and thereby goes beyond leader-subordinate focuses (Shi and Ye, 2016). The construct of RL was introduced into the scientific literature in the early 1990s and began to gain importance worldwide from 2006 onwards with a book titled “Responsible Leadership“ edited by Maak and Pless (MacTaggart and Lynham, 2018). Since then it has "emerged as a major theme in academic and practical management discourse" (Stahl and Sully de Luque, 2014, p. 236). The interest in RL has produced a rich research field with numerous publications. Nonetheless, a comprehensive understanding and consensus respective the concept of RL, its antecedents, outcomes and promotion still has to be reached.

Several researchers have conducted literature reviews on the field of RL that support the attempt to bring clarity into these issues. Those include the works of Shi and Ye (2016), Greige Frangieh and Khayr Yaacoub (2017), MacTaggart and Lynham (2018), Miska and Mendenhall (2018), Foldøy et al (2021), Han, Wang and Ni (2022) as well as Tan (2023). Although these reviews are helpful, they have some important limitations respective the literature bases used and content evaluations done: First, the scope of included papers often not exceeds 50 sources, even if more literature is existing. Secondly, the publications covered only extend up to 2022 and if so, include only a very small number of publications from this year. However, several relevant publications appeared in 2022 and subsequent years. Third, while existing reviews cover discussions on the definition of RL, its antecedents and outcomes, a review of the literature about the promotion of RL is essentially missing. Overall, this indicates that a current literature review that counteracts these limitations is needed. The following paper therefore aims to provide a more comprehensive literature review in terms of the scope and timeliness of considered publications as well as inclusion of the area of RL promotion. In addition, it derives recommendations for future research. Within this review, the focus is put mainly on RL in a business context.

2. Method

In order to achieve the above formulated research objectives, the following steps were taken: (1) search for existing literature, (2) screening of works for inclusion in a final literature base used to assess the current state of knowledge on RL, (3) examination of studies included in the final base, (4) summarisation of study results, (5) derivation of possible future lines of research.

The final literature base comprises 96 peer-reviewed journal articles written in English language. All publications are referring to the leadership approach of "RL" and are in no case dealing only with related concepts such as Corporate Social Responsibility (CSR) or responsible management. In the development of the literature base, authors were guided by several considerations including the following: First, the publications should be based on an understanding of RL that concerns responsible decisions, actions etc. of individuals. Second, in all knowledge areas highlighted in this review, except for the conceptualisation of RL, the focus should be mainly on empirical works. Third, the publications should generally refer to a business context. All articles included in the literature base, except one theory-building article from 1998, have been published between 2006 and 2024, with approx. two-thirds in the last five and approx. one-third in the last three years.

2.1 Current State of Knowledge on RL

2.1.1 Conceptualisation of RL: What is RL?

Concerning the definition and conceptualisation of RL, various publications of mainly theoretical nature can be identified. These can be classified into three different streams:

The first stream is dealing with *fundamental views on RL***.** A differentiation between so-called agent, stakeholder and converging views can be observed (Miska, Hilbe and Mayer, 2014). According to agent views, leaders are only responsible to a company´s shareholders or owners. In accordance with stakeholder views, leaders carry responsibility to a broader set of stakeholders comprising for example also employees, customers and the community (Waldman and Galvin, 2008). Converging views are attempting to reconcile the two former perspectives (Miska, Hilbe and Mayer, 2014). In line with these ideas, different models of RL orientations were introduced: Pless, Maak and Waldman (2012) distinguish four orientations named "traditional economist", "opportunity seeker", "integrator" and "idealist". Waldman, Siegel and Stahl (2020) differentiate between the two orientations "strategist" and "integrator" and Pless et al (2022) show in a case study that the "integrative RL approach" represents the morally superior choice compared to the "instrumental approach". Prominent definitions of RL include the one of Maak and Pless (2006) as well as the one of Voegtlin (2011). Maak and Pless (2006, p. 112) understand RL as "a social-relational and ethical phenomenon that occurs in interaction between a leader and a broader group of followers, inside and outside the organization". Voegtlin (2011, p. 59) describes it as following: "Responsible leadership can thus be understood as the awareness and consideration of the consequences of one´s actions for all stakeholders, as well as the exertion of influence by enabling the involvement of affected stakeholders and by engaging in an active stakeholder dialogue. Therein responsible leaders strive to weigh and balance the interests of forwarded claims". In the literature, there is a debate about how to distinguish RL from other leadership approaches such as ethical or servant leadership. De Klerk and Jooste (2023, p. 628) conclude on this that "RL is predominantly distinctive in terms of its relational focus on, as well as accountability for, active external stakeholder engagement, balancing external stakeholder interests, and building social capital and long-term sustainability of society and the natural environment".

The second stream of literature helps to build a deeper understanding of RL by developing different *frameworks of RL dimensions, roles, principles, components or practices*. Regarding RL dimensions Agrarwal and Bhal (2020), for example, present a model with four dimensions named "moral person", "moral manager", "multistakeholder considerations" and "sustainable growth focus". Concerning RL roles, for example, Voegtlin et al (2020) introduce the three roles of being an "expert", "facilitator" and "citizen". With regard to RL principles Maak and Pless (2009), for example, introduce the idea of cosmopolitan leadership principles covering eight aspects ranging from "recognition of equal worth and dignity" over "stakeholder engagement and dialogue" to "sustainability and stewardship". In terms of components, Lynham and Chermack (2006, p. 81) describe within their theory of RL for performance that "for leadership to be considered responsible, it must demonstrate, and be judged to demonstrate, effectiveness, ethics and endurance". Finally, regarding RL practices Castañeda García et al (2023) identify five core RL practices for small- and medium-sized enterprises restaurants summarized as "societal orientation", "ethics", "stakeholder involvement", "power-sharing" and "environmental orientation".

The third stream of publications is enhancing the understanding of RL by viewing the leadership approach through the *lens of within that context largely unutilized specific philosophies or theories*. It includes works using the philosophy of Levinas (Jones, 2014), the Renewed Darwinian Theory (Lawrence and Pirson, 2015) or Catholic social teaching (Marek and Jabłónski, 2021).

2.1.2 Operationalisation of RL: How can RL be Measured?

A number of publications explore the topic of the operationalisation of RL. They are either dealing explicitly with the *development* of measurement instruments or *applying* quantitative empirical study designs in order to test specific research questions pertaining to the RL field.

Very few of the reviewed studies focus *explicitly on the development of quantitative measures* to capture RL. Voegtlin (2011) developed a five-item scale of discursive RL including items such as "My direct supervisor considers the consequences of decisions for the affected stakeholders" or "My direct supervisor weighs different stakeholder claims before making a decision" that respondents have to evaluate using a five-point scale. He describes that his instrument covers mainly one dimension of RL, which becomes also obvious when looking at other instruments such as the one of Agrarwal and Bhal (2020). The latter designed an 18-item scale measuring four RL dimensions, that all have to be assessed using a five-point scale. The dimensions of "moral person" and "moral manager" are measured with five items each (e.g. "Shows consistency in words and action" or respectively "Listens to what subordinates have to say"), the dimensions of "multistakeholder considerations" and "sustainable growth focus" with four items each (e.g. "Tries to assess impact on stakeholders before making business decisions" or respectively "Communicates a vision for long-term growth for the organisation").

Studies that are not explicitly focussing the development of instruments, but *applying them in order to test specific research questions (related to e.g. RL antecedents or outcomes)*, are mostly using Voegtlin´s (2011) instrument, sometimes with small modifications. Besides, various other instruments are utilized that are either taken from previous works such as Doh, Stumpf and Tymon (2011) or that are developed by the author(s) of a study for own purposes (e.g. Voegtlin et al, 2020).

2.1.3 Antecedents of RL: What Influences RL?

In literature, several antecedents of RL have already been identified. Building on the view that RL behaviour is a function of both, the leader as a person and the environment or context in which he or she acts (Stahl and Sully de Luque, 2014), and following previous reviews (Han, Wang and Ni, 2022; Shi and Ye, 2016), these can be classified into *personal* and *contextual* factors. Only a few studies investigated RL antecedents on an empirical level, applying qualitative as well as quantitative designs and using, to a major part, European samples. In summary, these empirical studies show the following:

With regard to *personal factors*, results suggest that RL is positively influenced by the empathy of a leader (Voegtlin et al, 2020) as well as his/her hierarchical position (Voegtlin, 2011). Additionally, Crilly, Schneider and Zollo (2008) found that reasoning styles of leaders (i.e. considerations leaders use as a basis for their reasoning), influence the propensity to act responsible. Besides that, the positive affect of a leader (Crilly, Schneider and Zollo, 2008) and certain value orientations such as universalism (Crilly, Schneider and Zollo; Voegtlin et al, 2020) and benevolence (Crilly, Schneider and Zollo, 2008) were shown to have positive direct and indirect (via reasoning styles) impacts (Crilly, Schneider and Zollo, 2008). Miska, Stahl and Mendenhall (2013) detected specific intercultural competencies as, for example, "cosmopolitanism" and "social flexibility" to influence RL. Furthermore, Pless (2007) identified the role of motivational drivers for RL, which include intrapsychic (need for exploration and assertion, need for attachment and differentiation, sense of enjoyment) as well as normative drivers (need for justice, need for recognition, sense of care). Building on her work, Castillo, Sánchez and Dueñas-Ocampo (2020) finally explored the development of such drivers in more detail.

Regarding *contextual factors*, the role of institutional factors (liberal vs. coordinated market economies) (Witt and Stahl, 2016) as well as of "shared concerns" (environmental and communal, professional, employment and commercial concerns) (Meliou, Ozbilgin and Edwards, 2021) was detected.

Despite the focus of the review on empirical studies, two non-empirical studies developing comprehensive sets of potential antecedents are worth mentioning. First, Stahl and Sully de Luque (2014) have developed a theoretical model on the antecedents of RL, which comprises five different categories of antecedent variables: individual, situational, organisational, institutional and supranational factors. Second, Muff, Liechti and Dyllick (2020) have developed a set of 45 RL competencies that are clustered across five dimensions termed "stakeholder relations", "ethics and values", "self-awareness", "systems thinking" and "change and innovation".

2.1.4 Outcomes of RL: What Does RL Lead to?

With regard to the consequences of RL, numerous outcomes have already been identified in literature. These relate to different levels and can therefore be categorised into different clusters (e.g. Foldøy et al, 2021). In this

review, the following three levels or clusters are differentiated: (1) impacts of RL at the *micro level* refer to impacts on individuals within organisations, such as managers themselves or their subordinates; (2) impacts of RL at the *meso level* describe impacts on organisational units such as teams as well as on entire organisations; (3) impacts of RL at the *macro level* finally refer to impacts on external stakeholders (i.e. outside or beyond the organisation). The empirically tested direct or indirect effects of RL identified in this review are presented below. It should be noted at this point that in most of the studies, further mediating and/or moderating variables were included. However, due to the scope of this paper and for reasons of clarity, these are not discussed here.

At the *micro level*, it can be seen that RL influences a *variety of behavioural as well as other variables of employees or respectively subordinates*. Within this context, positive effects of RL on the helping intention of employees (Liu and Lin, 2018) as well as their project (Yang et al, 2022), organisational (e.g. Freire and Gonçalves, 2021), stakeholder (Agrarwal and Bhal, 2020) and community citizenship behaviour (Voegtlin et al, 2020) were presented. In addition, positive influences on the mainly work-related green/pro-environmental behaviour of employees (e.g. Xiao et al, 2024), their organisational citizenship behaviour for the environment (e.g. Zhao and Zhou, 2019) and their personal low-carbon behaviour (Zhang, Liu and Zhang, 2023) were reported. Promoting effects of RL on employee´ creative (Zulfiqar, Khan and Huo, 2023) and innovative behaviour (Dong and Zhong, 2021) as well as their whistleblowing intentions (Akhtar et al, 2021) were shown. Furthermore, positive influences on the performance of employees (e.g. Lin, Huang and Huang, 2020) were identified. Besides these positive relationships, negative influences on subordinates´ willingness to engage in unethical pro-organisational behaviour (Cheng, Wei and Lin, 2019) and performance of such behaviour (Cheng et al, 2022) were found. A paradoxical (Zhu et al, 2021) and later U-shaped effect (Zhu and Zhao, 2024) of RL on employees´ cyberloafing were detected. In terms of other than behavioural variables, also positive effects of RL on the moral courage of employees (Agrarwal and Bhal, 2020), their duty orientation (Ansong, Agyeiwaa and Gnankob, 2022), work engagement (e.g. Dong and Zhong, 2022), affective organisational commitment (e.g. Voegtlin et al, 2020) and job satisfaction (Voegtlin, 2011) were shown. Finally, negative effects on the turnover intention and turnover behaviour of subordinates (e.g. Doh, Stumpf and Tymon, 2011) were found. Secondly, although much rarer, *outcomes for leaders or managers* were investigated. Within that context, Voegtlin et al (2020) showed that RL is related to positive perceptions of leader effectiveness and attractiveness.

At the *meso level*, positive influences on the performance of teams (e.g. Lin, Ren and Ding, 2024) as well as the workforce (Cyfert et al, 2022) and strategic agility (Chang et al, 2023) were found. Additionally, positive effects on the reputation (Varma, 2021) and attractiveness of the organisation (Voegtlin et al, 2020) as well as its inclusiveness (Bhatti, Irfan and Öztürk, 2023) have been identified. Besides that, positive relationships with the general innovation performance (Castañeda García et al, 2023) as well as green/environmental innovations (e.g. Huo et al, 2022) of organisations were detected. Finally, positive consequences for the whole or parts of the triple-bottom-line performance of organisations have been shown (e.g. Xuecheng et al, 2022).

At the *macro level*, no empirically validated results were detected.

All of the studies included above have dealt with effects of RL on one or more variables. Besides these, in literature also some works can be found that empirically examine the effect of RL on relationships between other variables. In this context, especially the moderating role of RL (either alone or in interaction with further variables) in relationships between CSR and several outcome variables was investigated. While some authors have shown positive effects of RL on relationships between CSR and outcomes such as employee commitment, engagement, organisational citizenship behaviour (Bouichou, Wang and Feroz, 2022) and e.g. green behaviour (He, Morrison and Zhang, 2021), Javed et al (2020a) have found that RL negatively moderates the relationships between CSR and corporate reputation as well as financial performance. Furthermore, Javed et al (2020b) have shown inter alia that specific RL orientations strengthen the relationship between responsible governance and CSR whereas other weaken it. Finally, He, Morrison and Zhang (2019) have identified, besides others, that RL strengthens the positive effect of human resource management on employee well-being.

The majority of the here included empirical works dealing with RL outcomes was characterized by quantitative study designs, especially of cross-sectional nature. In terms of samples underlying the different studies, the large majority was conducted in Asian countries and hereby especially in China and Pakistan. Furthermore, study participants came from several industries whereby manufacturing and hospitality were particularly strong represented.

2.1.5 Promotion of RL: How can RL be "Trained"?

Concerning the promotion of RL, the literature offers some important insights on RL development interventions that take place either in the *context of higher education* (e.g. course at a university for its students) or *work* (e.g. program offered by a company for its executives). The review conducted in the framework of this study revealed that the included empirically oriented studies are, in general, describing single interventions and assessing their effectiveness in terms of one or more different learning outcomes. The latter are generally representing aspects relevant to RL such as, for example, RL related knowledge (e.g. Arruda Filho, Hino and Przybylowicz Beuter, 2019; Goryunova, 2021; Pless, Maak and Stahl, 2011), abilities (e.g. Eriksen and Cooper, 2018), competencies (e.g. Muff, Delacoste and Dyllick, 2022; Rook and McManus, 2020), values (e.g. Basson and Steenkamp, 2024), attitudes (e.g. Blakeley and Higgs, 2014) or roles (Sroufe et al, 2015). More specific, the review has revealed the following:

In the *higher education context*, several studies have examined the effectiveness of various interventions offered to students at different levels. At an undergraduate level, the effectiveness of a leadership course at a US College of Business (Muff, Delacoste and Dyllick, 2022), a social innovation workshop at a South African university (Basson and Steenkamp, 2024) and a Global Citizenship Capstone seminar at a US public university (Goryunova, 2021) were identified. Rook and McManus (2020) additionally discussed an undergraduate unit embedding a non-placement work-integrated learning project offered at an Australian university. Besides these studies, Eriksen and Cooper (2018) presented the effectiveness of a MBA course and Sroufe et al (2015) highlighted the outcomes of international study trips for MBA students. Finally, Arruda Filho, Hino and Przybylowicz Beuter (2019) have shown the positive outcomes of a seminar that includes the topic of global RL conducted at a Brazilian business school.

Regarding interventions that take place in the *context of work*, especially RL development programmes built around service learning have been empirically investigated. In this context, Pless, Maak and Stahl (2011) evidenced the effectiveness of a programme of PricewaterhouseCoopers called "Project Ulysses". Furthermore, Blakeley and Higgs (2014) showed positive outcomes of a programme run by a global professional services firm in the UK.

In sum, in terms of the study design of the mentioned empirical works, quantitative and qualitative designs were applied equally often. In addition, the study participants were members of the institutions that offered the development interventions. These institutions differed in terms of their geographical location, with North America being the most frequently represented.

3. Potential Future Research Paths

Analysing the current knowledge status on RL as depicted in the previous chapter, reveals the following implications for potential future research: First, in regard to the question how RL can be defined and conceptualised, a plurality of approaches is existent and a clear, unified understanding still has to be reached. Second, up to date there is a lack of established measurement instruments to capture RL comprehensively. Empirical works are based in particular on the scale developed by Voegtlin (2011), which only measures one aspect of RL. The further development of more comprehensive, robust instruments is therefore recommended. Third, with regard to the antecedents of RL, a great need for empirical studies is evident. In the literature review, only eight empirical works compared to over 50 dealing with RL outcomes were identified. Future empirical studies should especially investigate antecedents of the contextual level, relationships between different variables and interactive effects. Previous studies that examine RL antecedents on a theoretical level (e.g. Stahl and Sully de Luque, 2014) as well as current developments (e.g. introduction of Corporate Sustainability Reporting Directive in European context) should be taken into account when identifying potential antecedent variables for inquiry. Finally, it is recommended that the studies make greater use of quantitative research methods in order to achieve a higher generalisability of results. Fourth, regarding RL outcomes, a need for studies applying longitudinal or experimental research designs to foster the causality of relationships is evident. In addition, it is recommended that future works are conducted in diverse industries and test effects also in non-Asian contexts to promote the generalisability of results. Content-wise it is recommendable that future studies focus especially on macro level outcomes, micro level outcomes for leaders as well as by now unexplored or unclear (due to existing contradictory results) relationships between various variables (e.g. RL, CSR and performance). Finally, in regard to the promotion of RL, further interventions applying different methods have to be developed and their effectiveness tested empirically in different contexts (e.g. countries, industries, organizations, study programs). Interventions for both, work settings as well as educational settings are thereby

important, as they tackle on the one hand current and on the other hand future leaders. Interestingly, although several of these research paths have also been recommended in previously conducted literature reviews (e.g. Foldøy et al, 2021; Miska and Mendenhall, 2018) and the field has strongly developed within the last years, they still seem to be true and wait for researchers to start their way on it.

4. Conclusion

The aim of this paper was to outline the current state of knowledge on the leadership approach of RL and, building on this, to identify relevant lines of research for the future. The descriptions provided show in a structured form the breadth of the RL research field, which has developed considerably in recent years. In addition, they highlight (still) existing gaps with regard to the conceptualisation, operationalisation, antecedents, outcomes and promotion of RL, the closing of which is strongly recommended in view of the high practical relevance of this leadership approach. Although the review is based on a broad sample of 96 studies, it does not claim to be exhaustive. Readers should bear in mind that the results reported relate to the sample analysed and therefore hold only true for the context defined with it. Some of the foci chosen for this sample can be regarded as limitations of the present work that open up avenues for future studies: First, one main focus was set on RL in a business context and therefore, an extension to other areas excluded in the present review represents a promising research endeavour. Second, references other than peer-reviewed journal articles were not taken into the scope of investigation and hence, results could be enriched with findings represented in other kinds of sources. Third, only results pertaining exclusively to RL have been included here, which could be complemented by results stemming from studies researching related concepts such as CSR or responsible management. Despite these limitations and under the consideration that the literature base used potentially does not include all existing publications relevant to the defined context, it can be assumed that the study will contribute to providing the support necessary to enable RL in the future.

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Exploring Employee Experience: Millennial Human Resources Practitioners in the IT Sector

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Abstract: The labour market is going through a disruptive phase, characterised by changes in expectations about work. On the one hand, younger generations of employees value aspects such as purpose, personal development, and work-life balance, making these elements crucial to a positive experience at work. On the other hand, organisations recognise that employee satisfaction and well-being influence organisational success. Thus, the main objective of this study is to understand the employee experience of millennial human resources in the information technologies (IT) sector. As specific objectives, we intend to understand which (i) factors they consider influencing their personal and professional experience within organizations; (ii) organizational practices associated with the promotion of positive employee experience; (iii) organizational strategies adopted to promote a positive employee experience and, (iv) challenges linked with positive employee experience management. A qualitative research methodology was used to collect data, using a semi-structured interview with a group of 10 millennial human resources professionals joining the IT sector to answer the research question how is the experience of millennial human resources in the IT sector? The interviews were verbatim transcribed, and data were analysed according to thematic analysis procedures. Our findings show that human resources professionals belonging to the millennial generation express a greater interest in being part of organizations that offer a compensation and benefits system aligned with their performance, in addition to ensuring an effective work-life balance. Furthermore, they emphasize the influence of organizational behaviour on their job satisfaction, indicating that employee experience tends to be positive when the organization promotes a collaborative culture, fostering a work environment conducive to the development of strong interpersonal relationships, the creation of cohesive and dynamic teams, and a clear alignment between individual and organizational goals. Overall, the interviewees demonstrate satisfaction with their current employee experience, acknowledging that it meets their needs and interests comprehensively. Some conclusions for Human Resources Management are provided in the last part of the paper.

Keywords: Employee Experience; Millennial Generation; Human Resource Professionals; Organizational Success

1. Introduction

The labour market faces major challenges in attracting and retaining talent (Martins & Cruz, 2019). Companies, for their part, seek to be competitive through the efficiency and effectiveness of their labour activity (Kirpik, 2020), aware of the difficulties in attracting candidates who match their needs and objectives (Zahidi et al., 2020). At the same time, candidates are looking to find meaning in the workplace, while also wanting to feel happy and fulfilled (Wesarat et al., 2014). Wesarat and colleagues (2014) emphasise that there are several factors that enhance positive experiences at work. In line with Wesarat and colleagues (2014), this study aims to explore the employee experience of millennial human resources in the information technology (IT) sector.

As specific objectives, we intend to understand which (i) factors they consider influencing their personal and professional experience within organizations; (ii) organizational practices associated with the promotion of positive employee experience; (iii) organizational strategies adopted to promote a positive employee experience and, (iv) challenges linked with positive employee experience management.

This study contributes to the research in two ways. First, it helps to clarify the concept of employee experience in a specific professional group (human resources professionals) and a sector of activity with many idiosyncrasies in people management (IT). Second, it contributes to enriching the employee experience literature by adding traits, characteristics, and skills associated with the millennial generation as well as organisational factors that influence positive employee experiences.

The following section presents the existing literature on the employee experience concept and organizational factors influencers. Section three outlines the methodological approach, followed by the main study's findings, and the final section addresses the discussion and conclusions.

2. Literature Review

The literature (e.g. Morgan, 2017; Jalaja and Padashetty, 2018) suggests that the employee experience model emerges as a necessary response to improve the employee experience within an organisation. It involves a set of diverse interactions that emerge in everyday work and are influenced by the organisational culture in which the employee is immersed (Jalaja and Padashetty, 2018), enhancing or conditioning their employee experience. Many organisations believe that welcoming newly hired employees makes it possible for them to make a greater connection with the corporate strategy and organisational culture, as well as making it easier to build a network of relationships (Martins and Cruz, 2019).

The literature has been highlighting the growing importance that the employee experience can assume as a factor in attracting and retaining talent in organisations, as well as a success factor and competitive advantage in the labour market (Morgan, 2017; Jalaja and Padashetty, 2018; Martins & Cruz, 2019). On the other hand, defining the employee experience strategy within organisations can also be used as a strategic tool to better select the profile of the desired employees concerning the organisational culture (Morgan, 2017; Zahidi et al., 2020). In addition, Vallina and Alegre (2021) add that the concept of employee experience refers to the ability to encompass employees' feelings in their interactions with the organisation, to obtain better results in both attracting and retaining talent. Organisations are increasingly tending to customise and adapt their people management processes and models in order to ensure greater effectiveness in an increasingly sustainable and competitive labour market in terms of the constant search for new talent (Morgan, 2017; Martins and Cruz, 2019; Zahidi et al., 2020; Hahnsson; 2022). In line with these arguments, Hahnsson (2022) stresses that the employee experience can function as a strategic facilitator, especially valuable for the future design of the work environment, in that it will enable the organisation to design its day-to-day life and set objectives and goals to be achieved in the medium and long term. On the one hand, this argument points to the need to align the employee experience programme with the strategic objectives of the business (Sharma and Bhalkikar, 2022), and on the other hand, it must recognise the needs and meet the expectations of its employees (Hahnsson, 2022).

A variety of literature (e.g. Kırpık, 2020; Mäenpää, 2019; Wesarat et al., 2014; Zahidi et al., 2020) shows that there are a number of factors that tend to influence the employee experience within an organisation, namely: the quality of the relationships established; the objectivity and clarity of the role to be performed by the employee; the value that the employee adds to the company; workplaces that meet the physical and psychological needs of the employee, as well as the development of practices that foster and enhance employee well-being. Companies that value these factors in their employee experience programmes tend to be perceived by their employees as more inspiring, collaborative, authentic and, above all, capable of providing a meaningful experience for all their employees (Hahnsson, 2022; Morgan, 2017; Plaskoff, 2017; Tucker, 2020). One of the factors that most influences employee experience is happiness in the workplace (Kırpık, 2020; Wesarat et al., 2014). This concept is directly related to attitude at work, personal and organisational well-being, social relationships, ethical organisational culture, among others (Kırpık, 2020). Several authors (e.g. Bataineh, 2019; Kırpık, 2020; Mäenpää, 2019; Wagner and Hollenbeck, 2020) add that happy employees are also more involved, capable and responsible employees who perform their job more effectively. Associated with the concept of employee experience is the concept of job satisfaction, which is considered a fundamental factor in the individual's quality of life and well-being (Inuwa, 2016; Robbins and Judge, 2013). Job satisfaction can also be seen as a quantifiable representation of an employee's emotional response, which expresses their position concerning the company or even the role they are performing (Bataineh, 2019; Kapur, 2018). Lack of satisfaction in the workplace can be associated with (1) the stress arising from the tasks inherent in the job, (2) the poor interpersonal relationships established, (3) leadership, among others (Supriyanto et al., 2020). It is therefore necessary to consider these causes when assessing any employee's job satisfaction and not just their level of productivity. This is the only way to understand how job satisfaction influences the employee, either positively or negatively (Robbins and Judge, 2013). Also related to the concept of employee experience is the concept of organisational commitment (Cherif, 2020). According to Bataineh (2019) and Wagner and Hollenbeck (2020), organisational commitment implies that there is a force that binds the employee to the actions they are carrying out, to the extent that they meet the organisational objectives and values, demonstrating readiness, involvement in carrying out the tasks and showing an interest in staying with the company. In other words, organisational commitment is characterised by a set of mental predispositions resulting from the relationship established between employees (Vorina, et al, 2017). The concept of employee experience is intrinsically related to employee performance and responsiveness to the organisation (Alserhan and Shbail, 2020; Bataineh, 2019; Cherif, 2020; Sungu, Weng, Hu, Kitule, and Fang, 2020). In line with this argument, Cherif (2020) states that if

employees do not feel committed to the organisation, they tend to have low levels of performance. The concept of performance, therefore, succinctly translates into what an employee does or doesn't do, which involves a result over an established period.

Also associated with the concept of employee experience is the concept of Work Life Balance (Martins et al., 2018; Bataineh, 2019). These factors affect each other and can be moderated by the concept of happiness at work (Wesarat et al., 2014). Work-life balance is highly valued by employees in organisations (Haar et al., 2014; Martins et al., 2018). In turn, Sánchez-Vidal et al. (2012) suggest that companies that adopt work-life balance practices find it easier to get their employees to give back to the organisation in a positive, beneficial, and enriching way, as well as boost their performance and motivation. Several authors (Bataineh, 2019; Plaskoff, 2017; Haar, et al., 2014) state that the balance point will only be reached when the employee feels satisfied with all the roles they play. On the other hand, when employees are unable to find a balance between their personal and professional lives, they are confronted with levels of dissatisfaction and end up with conflicts in terms of the different roles they fulfill (Rodríguez and Dabos, 2016).

Compensation and benefits systems can also influence the employee experience (Plaskoff, 2017). In this way, if care is taken in planning and defining reward systems, employees will feel more involved and motivated to perform their job and subsequently contribute to achieving organisational goals (Plaskoff, 2017; Tuominen and Härkönen, 2022). Finally, leadership is recognised as another organisational factor that can influence the employee experience (Plaskoff, 2017). For this reason, several authors (e.g. Bhatti et al., 2022; Cao et al., 2020; Corriveau, 2020) suggest that leaders must appeal to and enhance positive leadership styles that meet the needs of everyday work. Specifically, leaders must demonstrate a differentiating vision about the employee experience, focused on promoting positive experiences (Plaskoff, 2017; Martins and Cruz, 2019).

3. Method

This study uses a qualitative exploratory methodology to achieve the main objective of understanding the employee experience of millennial human resources in the IT sector. More specifically, we intend to understand which factors they consider to influence their personal and professional experience within organizations; the organizational practices associated with the promotion of positive employee experience; (iii) organizational strategies adopted to promote a positive employee experience, and the challenges related to positive employee experience management.

It was used a semi-structured interview for data collection. The semi-structured interview had a set of questions for the socio-demographic characterisation of the participants and organisation, and 16 open questions related to their employee experience to achieve the study objectives. It was made questions such as “What factors that you think have an impact on your experience within an organization?”, “what can be offered by the organisations to make their employees more satisfied in the workplace?”, “How do you characterise your experience within the organisation you currently work?”, “How do you consider an asset to the organization?”, or “How does your organisation concern with enhancing a positive experience for all employees?”.

Participated in this study 10 millennial human resources professionals (six female and 4 male) working in the IT sector. Their mean age was 27,2 years old, and all of them were single. All of them had higher education studies, seven had master's courses. Their professional experience varies between seven months and seven years.

For collecting the sample, it was used a snowball technique. All the interviews were made online using Microsoft Teams. They were audiotaped and verbatim transcripts. The interviews lasted, on average, 36 minutes. Data were analysed according to thematic analysis procedures (Braun and Clarke, 2006). All ethical procedures were made.

4. Results

Our results suggest for main themes: Millennial Generation, Leadership, Human Resources Practices, and Organisational Behavior.

The Millennial Generation theme emerges from the main skills and characteristics the participants referred to as specific to this generation. It referred to skills such as communication, learning, adaptation, empathy, active listening, stress management, autonomy, confidence, and flexibility. According to our participants, these skills are crucial to have an efficient performance as we can observe in the words of Participant 7 “Communication is mandatory nowadays, you have to communicate clearly, it is very important in this organisation”. Regarding the

category characteristics, the participants were referring to specific features that allow them to define the dimensions of this generation such as information searching and work-life balance. Participant 6 said, “We learn everything very quickly because we are always searching on the internet how to do this or how to work with that”. Additionally, all the participants valued an organisation that permits them to have work-life balance as we can observe in the words of Participant 1 “For me it is very important, that was the reason for changing the organisation, I need to have time for me, and to do other things. It is important to have a company that respects my rest and working hours, that knows that I need them, I am there for them, but if I need them, they have to be there for me. I give it my all, but when I need to rest, they respect that and let me rest.”.

The Leadership theme emerges from the leader's characteristics that are vital to our millennial participants. According to them, the active listening ability of the leader is a distinctive feature because he can keep an eye on the information and details of his employees so that he can make informed decisions and guide them toward their goals as illustrated by “Knowing how to listen to people, knowing what their needs are, seeing the person as a whole not just through what they can produce in their job, in a more way” (participant 4).

The Human Resources Practices theme emerges from Job description, Recruitment and selection, Training and development, Benefits, and Career management categories. Regarding the Job description, our participants referred that this is a very important practice to collect, analyse, and systematise information related to a specific job, based on a set of necessary skills as can be illustrated by “when you have the description of the function each person who is hired knows their responsibilities and the duties they have to perform, and so there is this self-responsibility for tasks” (participant 7). The recruitment and selection process is considered central to the development of any company since this is the process responsible for attracting and selecting the employees who will become part of organisations. Throughout the interviews, turnover was one of the aspects most highlighted by the interviewees. Turnover refers to the movement of workers in the labor market. Therefore, it is possible to observe that in the IT sector, there is a high turnover rate, "In the area of recruitment in the IT sector, there is a lot of turnover, people come and go, come and go, there are a lot of difficulties in this area, but we try to address these needs through good practices to keep them within the organisation” (participant 3). The training and development category refers to the need of having further training and development opportunities inside the organisation. According to Participant 2, “We are the generation other higher graduation, but we still want to learn more, it is the knowledge generation!”. Concerning the benefits category, this should be reflected through a set of material or immaterial offers that employees receive from the organisation to the detriment of the quality of their performance. It is also necessary to show the importance of this tool within any organisation. For our participants the benefits valued are related to salary, health insurance, leisure activities, and extra vacation days as can be illustrated by “I look for a higher salary, but nowadays it is important also to have more benefits such as health insurance and leisure activities“ (participant 5). For our participants, Career management is also an important category allowing them to develop a path to achieve higher positions. The words of participant 10 illustrate this importance “I think that career progression is also an aspect that I consider to be important, and I now know that it's possible, and it only depends on me achieve these goals”.

The Organisational Behavior theme emerges from the need to understand and characterise the professional experience of human resources professionals in the IT sector, as well as to understand which organisational characteristics that have the most impact and relevance for the millennial generation. Our participants associate their professional experience with market labor with Positive experience, Satisfaction, Motivation, Professional Recognition and Appreciation, Demotivation, Mental Illness Burnout/Mental Health, Interpersonal Relationships, Teamwork, Human Experience, and Organisational Happiness. The Positive experience category was referred by most of the participants and it refers to their positive and challenging experience as illustrated by “My experience at the moment is fantastic. At the moment I consider it to be

one of the most positive experiences I have ever had in terms of work, I can say perhaps the best. I do not see myself leaving here in the next few years, I am very happy, the balance is very positive” (participant 2). Regarding Satisfaction category, this is a variable that the millennial generation seeks and values. Job satisfaction is a variable that is intrinsically related to the productivity of organisations as well as the personal fulfillment of its employees as can be illustrate by "On a personal level, I try to achieve personal satisfaction, you are doing something you believe in. And you believe that you are having an impact, even if that impact is only on a personal level. We need to work with people we identify with, who are based on my goals and values, I think these are factors that are important when looking for a job" (participant 4).

Organisational characteristics result from a set of subcategories that human resources professionals in the IT sector value within their organisations. The characteristics mentioned by the participants include organisational culture; work environment; individual and organizational objectives and work methodology as illustrated by "The culture of the organisation itself, the environment is something that both personally and professionally I think is important. In other words, understand whether the organization's culture is aligned with my values. I have to feel connected to the company's values, and objectives of the company, I have to feel that I am working towards something, that I am adding value and it is not just work and I think that's reflected in the culture of the company itself" (participant 6).

5. Discussion and Conclusions

The participants in this study value various skills, namely communication; learning; adaptability; stress management; autonomy; confidence, and flexibility. These results are in line with previous literature (Martins, et al, 2023) which indicates these competencies as determinants of employee attractiveness and retention, especially among the younger generation of professionals (Martins and Cruz, 2019; Martins et al., 2023).

The results obtained show that human resources professionals value being in organisations that allow them to find a balance between their personal and professional lives (Sánchez-Vidal et al., 2012) when they state that companies that allow this balance between personal and professional life for their professionals are simultaneously making a positive contribution to the organisation, as well as tending to show high levels of performance and motivation, reinforcing the positive feeling of employee experience. Participants in the study also showed great interest in seeking information. This evidence confirms the millennial generation's high ability to use technological platforms (Martins et al., 2023), which gives them more autonomy and self-responsibility while demonstrating the organisation's trust in its employees. Another piece of evidence from this study is the importance of leadership as a factor influencing the participants' employee experience. In addition, results suggest that the millennial generation is looking for organisations where leaders promote the continuous development and growth of their professionals, provide feedback and guarantee constant monitoring (Jalaja and Padashetty, 2018).

Participants emphasise their interest in joining organisations in which there is a clear definition of the roles to be performed, which suggests a desire to perform roles that are meaningful to the organisation, underlining the importance that effective recruitment and selection processes can have in attracting and retaining millennials (Klein and Santiago, 2018). The results suggest that the effectiveness of employee experience programmes can be strengthened when the organisation invests in training and skills development initiatives (Martins et al., 2023), compensation and benefits systems that meet employee expectations (Plaskoff, 2017; Martins and Cruz, 2019) and guarantees internal career development plans. The integrated adoption of these human resource management practices tends to positively reinforce the employee experience, contributing to the creation of more lasting and cohesive bonds between team members (Yaffe et al., 2019).

The testimonies collected also show that the main factors of satisfaction and motivation are associated with the enjoyment of performing the current job, the responsibility that this job entails, the desire to learn and progress in their career, as well as the constant challenges that are offered to them. The presence of these characteristics in the organisations where they work reduces the level of dissatisfaction with the job, mitigating the development of negative employee experiences. When, on the other hand, there are feelings of dissatisfaction and demotivation, millennial professionals tend to leave their companies, without having to consider the consequences of this decision beforehand (Klein and Santiago, 2018) and look for organisations where they feel valued and recognised personally and professionally (Kırpık, 2020). This result makes it possible to understand the importance of organisational happiness as a determining factor in the success of employee experience programs.

The organisational culture; the work environment; the alignment of individual objectives with organisational organisational goals and the adoption of flexible ways of working are identified by the participants as the organisational characteristics that most determine positive employee experiences. The participants in the study aspire to belong to organisational cultures that are aligned with their ideals and goals, which allow them to find a balance between work and personal life, as well as flexible working practices, and positive and enriching work environments (Martins and Cruz, 2019).

This study is not without its limitations. The first relates to the group of participants, limited to one sector of activity and one professional group. It is suggested that future studies diversify the participant profiles in order to identify any idiosyncrasies related to organisational and sectoral cultures and to explore any similarities and

contrasts between professional categories and sectors of activity. Another limitation can be pointed to the recent professional experience of the participants who, because they are part of the younger professional generation, may have high expectations of their current organisation and have not yet had time for organisational disillusionment. Future studies could, therefore, be carried out with participants from other generations and with at least five years' seniority in their current company. We therefore hope that the subject will arouse the interest of other researchers and that the study we are now concluding can be continued.

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Digital Transformation in the Agri-food Sector: A Comparative Analysis of Industry 4.0 Innovations by Italian Sustainability Leaders

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Abstract: The agri-food sector is a key actor in the Italian economy and plays a crucial role in rescuing and accelerating progress towards the Sustainable Development Goals (SDGs). However, diverse sustainability challenges including environmental conservation, economic volatility, political changes and regulatory constraints affect the agri-food company's competitiveness and their ability to face global sustainability challenges. Exploiting digital innovation is then essential. By facilitating more efficient management of resources, reducing waste and improving supply chain transparency, digital innovations contribute to more sustainable, inclusive and resilient agri-food systems. This paper aims to understand the ongoing digital transformation of the Italian agri-food sector through a comparative analysis of innovative practices by Italian agri-food companies that are recognized as sustainability leaders. Among the Industry 4.0 (I4.0) technologies, sensors, blockchain, cyber security, and artificial intelligence appear to be the most adopted I4.0 solutions to help companies influence the social, economic and environmental dimensions of sustainable development.

Keywords: Agri-food Sector; Digital Technologies; Industry 4.0 Technologies; Sustainability Leaders, Sustainable Development Goals (Sdgs).

1. Introduction

With the 17 Sustainable Development Goals (SDGs), the United Nations' Agenda has presented the most urgent need to safeguard a responsible future for people and society as a whole (UN, 2015; Fiandrino et al., 2022). Particularly, a large number of the SDGs' targets are closely linked to the food system and require agricultural and food-industry companies to redefine their ongoing production practices (Hassoun et al., 2022; Chandan et al., 2023). Among these, SDG 2 "Zero Hunger", calls for increased investment in innovation to end hunger and any form of malnutrition (UN, 2015). The agri-food sector is one of the main sectors in the European economy in terms of employment and financial performance (Tanda, 2018; FDE, 2023) and comprises all businesses involved from "the farm to the fork", encompassing both the production and distribution phases (Mor et al., 2018). At a national level, the agri-food Italian companies demonstrated significant potential in supporting and accelerating the progress towards the SDGs (Paoloni et al., 2023). Indeed, the Italian agri-food sector has proved remarkable resilience during the COVID-19 pandemic in 2020, maintaining its operations to supply essential goods and thereby positively impacting the Italian economy (Zollet et al., 2021).

However, different sustainability challenges, including environmental conservation, economic volatility, political changes and regulatory constraints, affect the agri-food company's competitiveness and their ability to achieve SDGs (FAO, 2017; Borsellino et al., 2020; Jindřichovská et al., 2020). By exploring the different solutions to these global issues, several studies have detected the potential of Industry 4.0 in facilitating the progress towards a sustainable transition in the agri-food sector (Klerkx et al., 2019; Bai et al., 2020; Mondejar et al., 2021; Abbate et al., 2023; Alam et al., 2023; Stefanini & Vignali, 2024). Accordingly, the concept of Agriculture 4.0 is outlined to refer to the integration of digital technologies into productive processes (Rose & Chilvers, 2018; Frankelius et al., 2019; Da Silveira et al., 2021). Based on the Internet of Things (IoT), sensors, drones, robotics, cloud computing, artificial intelligence (AI), decision support software (DSS), and blockchain (Klerkx et al., 2019), Agriculture 4.0 is recognized as the primary pathway to enhance food production while simultaneously accounting what SDGs require (MacPherson et al., 2022; Secundo et al., 2022; Fragomeli et al., 2024). Indeed, digital innovations are proving to be highly supportive in making agri-food systems more sustainable, inclusive and resilient, by facilitating more efficient management of resources (Wolfert et al., 2017), reducing waste (Kazancoglu al., 2024) and improving supply chain transparency (Walter et al., 2017; Ebinger & Omondi, 2020). In this context, effective reporting allows companies to provide clear evidence of their initiatives and performance (Calabrese et al., 2020), thereby facilitating stakeholders to assess the alignment of digital practices with sustainability needs and track progress (Rosamartina et al., 2022).

However, given the relatively recent introduction of Agriculture 4.0, there remains significant uncertainty regarding its impact on sustainability (Klerkx & Rose, 2020). Particularly, how the digital technologies are

implemented by the agri-food sector to solve the main challenges of sustainability and address SDGs is still unclear (Masi et al., 2021; Secundo et al., 2022; Cricelli et al., 2024). Thus, there emerges a need to investigate how digitalization supports sustainability transition (Klerkx & Rose, 2020) and understand how technologies are integrated into business practices (MacPherson et al., 2022). Given the key role of the agri-food sector in the Italian economy and in light of the exposed research shortcomings, the present paper aims to understand the ongoing digital transformation of the Italian agri-food sector through a comparative analysis of innovative practices by Italian agri-food companies that are recognized as sustainability leaders. Particularly, by employing a content analysis approach, sustainability reporting documents are examined in order to identify what are the I4.0 digital technologies most adopted in business practices and which SDGs these technologies aim to contribute to through their adoption.

The rest of the paper is structured as follows. The next section details the content analysis approach including data collection and coding procedure. This is followed by results and discussion. Finally, the conclusions complete the paper.

2. Data Collection and Method

2.1 Sample Selection

The Italian agri-food system has proven significant progress and a strong capacity for the sustainable management of agricultural resources (Coluccia et al., 2020). This is primarily due to the strong connection between businesses and the local context, as well as the close interaction and active collaboration with key sector stakeholders (Arru, 2020). In addition, the wide variety of high-quality products by Italian agrifood companies drives the adoption of advanced digital technologies to sustain their competitive edge (Cricelli et al., 2024). Therefore, the Italian context is well-suited to be considered for the proposed analysis. Accordingly, a set of twelve (n=12) agri-food Italian companies has been selected among those recognized as sustainability leaders during 2024 by the ranking[1] (Table 1) of the Italian financial journal "Il Sole 24 Ore". The final sample consists primarily of Large companies, with only one SME. European companies qualify as Large if they have more than 250 employees and either a turnover exceeding €50 million or a total balance sheet exceeding €43 million; otherwise, they are considered SMEs (Halkos and Nomikos, 2021).

Table 1: Selected companies

Company	Dimension	Analysed Sustainability Reporting document	Source
C1. BARILLA	Large	Report (2023)	https://www.barilla.com/it-it
C2. F.LLI CARLI	Large	Report (2023)	https://www.oliocarli.it/
C3. BF GROUP	Large	Report (2022)	https://www.bfspa.it/
C4. COLUSSI GROUP	Large	Report (2022)	https://www.colussigroup.it/
C5. ORSERO GROUP	Large	Report (2023)	https://www.orserogroup.it/
C6. LA DORIA	Large	Report (2023)	https://www.gruppoladoria.it/
C7. LAVAZZA GROUP	Large	Report (2023)	https://www.lavazza.it/it
C8. NEWLAT FOOD	Large	website	https://www.newlat.it/
C9. OLEIFICIO ZUCCHI	Large	website	https://www.zucchi.com/
C10. PIETRO CORICELLI	Large	website	https://coricelli.com/
C11. SANPELLEGRINO	Large	Report (2023)	https://www.sanpellegrino-corporate.it/it
C12. BERLUCCHI	SME	Report (2022)	https://www.berlucchi.it/

[1] The provided ranking is an extract from the "Leader della sostenibilità 2024" overall ranking by "Il Sole 24 Ore", available at the web site: https://lab24.ilsole24ore.com/leader-sostenibilita/. It features the top 240 Italian companies of various sizes and sectors, recognized as the most sustainable in the country, based on an evaluation of their sustainability reports or equivalent documents according to an assessment process detailed on the same web site.

2.2 Content Analysis Approach

Content analysis is a research tool used to investigate if certain words and concepts are present within the content of writings or visual representations (Mayring, 2015), enabling the quantification of the frequency of specific elements but also catching their qualitative interpretation (Mayring, 2004). It has been widely used in corporate sustainability accounting research (Torelli et al., 2020) as well as to understand the level of disclosure on the companies' contribution to SDGs through reporting practices (Costa et al., 2022). Sustainability reporting documents include all reports and/or ways through which companies communicate their initiatives, performance, and results regarding sustainability: periodic communications, public statements, as well as sustainability reports and information provided through dedicated sections on company websites (Siew, 2015; GRI, 2016). According to this, content analysis has been increasingly employed in business research to examine not only annual reports but also media items (Bell et al., 2022).

In this paper, both qualitative and quantitative approaches to content analysis have been adopted. The coding frame (Table 2) has been developed according to Mayring (2004). Three specific variables were identified to reach the aim of the present research. According to the "Coding Rules", these variables were coded as 'YES' or 'NO' based on whether the specific requirements outlined in the "Definition" were met or not. Particularly, to support the analysis of the "Citing I4.0 DT" variable (V1), the reference to one or more digital technologies recognized in the literature as the most widely adopted in business practices (Dantas et al., 2021; Varriale et al., 2024) are considered. In the case of 'YES' the list of the disclosed digital technologies by the company is outlined. For the "Citing SDGs" variable (V2), the presence of an explicit reference to one or more 17 SDGs is examined. In the case of 'YES' the list of the disclosed SDGs by the company is outlined. Finally, the variable "I4.0-related SDGs" (V3) was examined only if both of the previous variables were simultaneously coded as 'YES' to determine if the company reports how the adopted digital technologies contribute to the achievement of the SDGs. In the case of 'YES' the connection between the disclosed digital technologies and the SDGs they aim to contribute to, is highlighted.

Table 2: Coding frame

Id	Variable Name	Definition	Coding Rules
V1	Citing I4.0 DT	Explicit references to adopted I4.0 digital technologies in the company's sustainability reporting document, according to the relevant digital technologies listed by Dantas et al. (2021) and Varriale et al. (2024).	If at least one of the relevant I4.0 digital technologies is mentioned in the company's sustainability reporting document, it is encoded as 'Yes' ('No', otherwise).
V2	Citing SDGs	Explicit references to the SDGs (UN, 2015) in the company's reporting document.	If at least one of the 17 SDGs is mentioned in the company's sustainability reporting document, it is encoded as 'Yes' ('No', otherwise).
V3	I4.0-related SDGs	Explicit reference to the connection between the adopted I4.0 digital technologies and the SDGs in the company's reporting document.	When the company's sustainability reporting document discloses one or more I4.0 digital technologies (V1) and how they contribute to the achievement of one or more SDGs (V2), it is encoded as 'Yes' ('No', otherwise).

The coding procedure was primarily applied to the most recently published sustainability reports; in the absence of a report, the specific sustainability section of the company's website was consulted. Three qualified members, referred to as coders, performed the coding process. To ensure reliability, each coder individually followed the coding process to avoid interpretative biases related to manual coding. Regular meetings were organized among the coders to discuss the discrepancies that emerged, during which each coder reviewed the analysis of their peers (Curtó-Pagès et al., 2021). After consultations, all discrepancies were resolved, reaching a complete agreement among the coders (Krippendorff, 2018).

3. Results and Discussion

The present section describes the results of the analysis of sustainability reporting documents from the Italian agri-food selected companies. Table 3 shows the values ('YES' or 'NO') of the proposed three variables and

specifies the I4.0 digital technologies (V1), and the SDGs (V2) as well as the connection between them (V3) identified from the conducted analysis.

Table 3: Results of sustainability reporting documents by selected companies. For each variable are shown the obtained value ('YES' or 'NO') and, in case of 'YES', the list of the disclosed I4.0 digital technologies (V1), SDGs (V2) and the connection between them (V3).

Company	Citing I4.0 DT (V1)	Description	Citing SDGs (V2)	Description	I4.0-related SDGs (V3)	Description
C1	YES	3D AI Blockchain Cyber security	YES	2, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15, 17	NO	-
C2	YES	Cyber security	YES	3, 7, 8, 12, 14, 15, 16	NO	-
C3	YES	Cloud technology Cyber security Sensors	YES	3, 6, 7, 8, 12, 13, 14, 15	NO	-
C4	YES	AI Sensors	YES	2, 3, 7, 8, 9, 10, 12	NO	-
C5	NO	-	YES	2, 3, 4, 6, 8, 12, 15	NO	-
C6	YES	AI Cyber security Sensors	YES	4, 5, 6, 7, 8, 9, 10, 12, 13, 15, 17	YES	Sensors for SDG 6, 13
C7	YES	AI Blockchain Sensors	YES	5, 8, 12, 13, 17	YES	Blockchain for SDG 12, 13
C8	NO	-	NO	-	NO	-
C9	YES	Blockchain	NO	-	NO	-
C10	YES	Blockchain	YES	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17	NO	-
C11	YES	Cloud technology Sensors	YES	2, 3, 4, 8, 10, 12, 13, 15, 17	NO	-
C12	NO	-	YES	2, 4, 6, 8, 12, 13, 15, 17	NO	-

As shown in Table 3, most companies (9 out of 12) provide evidence of integrating digital technologies into their business practices (variable V1, "Citing I4.0 DT"). Among others, sensors, blockchain, cybersecurity, and artificial intelligence result as the most widely adopted digital technologies by the selected companies. These findings align with the emerging literature that has explored the application of I4.0 technologies in the agri-food sector (Hassoun et al., 2022; Yadav et al., 2022). The variable "Citing SDGs" (V2) is the most frequently met, as nearly all companies (10 out of 12) explicitly reference multiple SDGs in their reporting documents. A broad and diversified contribution emerges from the selected companies, which is not limited to just a few specific SDGs. The most mentioned SDGs are SDG 8 "Decent Work and Economic Growth", SDG 13 "Climate Action", and SDG 15 "Life on Land". Particularly, half of the sample disclosed information about SDG 2 "Zero Hunger", in line with the United Nations calls for food producers for innovative solutions to eradicate hunger and malnutrition (UN, 2015). Moreover, according to the coding procedure, for companies where both variables V1 and V2 were coded as 'YES', it is possible to determine whether there is a connection between the adopted technologies and their contribution to the SDGs (V3). As a result, only two companies met the variable "I4.0-related SDGs" (V3) communicating, albeit in a narrative form and without the use of performance indicators, how the adopted technologies aim to contribute to the SDGs. Specifically, company "C6" reports having installed wireless sensor networks for its crops to contribute to SDG 6 "Clean Water and Sanitation" and SDG 13 "Climate Action". While company "C7" highlights its commitment to achieving SDG 12 "Responsible Consumption and Production" and SDG 13 "Climate Action" by implementing solutions involving blockchain-based traceability.

4. Conclusions

To effectively address the global needs of sustainability outlined by the UN SDGs, companies of various sizes and sectors must change their business approach by adopting innovative solutions (Cordova & Celone, 2019; Menichini & Strollo 2023). The present paper aligns with the literature which identifies the I4.0 digital technologies as the main pathway to address the most sustainability urgencies (Bai et al., 2020; Ejsmont et al., 2020; Akbari & Hopkins, 2022; Brogi & Menichini, 2024). Particularly, this study focused on the agri-food sector, whose business practices directly impact people and the planet in terms of food security and nutrition, making agri-food companies' initiatives crucial for the achievement of the SDGs (Hassoun et al., 2022; Chandan et al., 2023). Thus, the proposed paper aims to address the emerging need for a deeper understanding of the I4.0 digital technologies' adoption by agri-food companies to meet SDGs (MacPherson et al., 2022). For this purpose, a quali-quantitative content analysis has been performed to examine the sustainability reporting practices by the Italian agri-food companies. Indeed, the Italian agri-food sector is recognized as crucial for the Italian economy, being one of the main players in international trade, due to its proven capacity for the sustainable management of resources (Coluccia et al., 2020) through innovative solutions (Cricelli et al., 2024). Only the Italian agri-food companies recognized as agri-food sustainability leaders, according to the "Il Sole 24 Ore" ranking, have composed the set of companies under analysis. The use of quali-quantitative content analysis allowed for the quantification of the presence of digital technologies and the most frequently considered SDGs in the documents, as well as a qualitative understanding of their connections. The obtained results show alignment with other studies concerning the evaluation of the I4.0 digital technologies' adoption to improve business practices in the agri-food sector (Hassoun et al., 2022; Yadav et al., 2022). Findings point to greater attention on SDG 8 "Decent Work and Economic Growth", SDG 13 "Climate Action", and SDG 15 "Life on Land", despite the literature highlighting SDG 2 "Zero Hunger" as crucial for the agri-food sector (UN, 2015; Paoloni et al., 2023). Additionally, in the examined reporting documents, comprehensive insights into how companies plan to use digital technologies to support the achievement of the SDGs is still lacking, confirming the scarcity of transparency on how companies operate towards these global goals (MacPherson et al., 2022).

Leveraging the key characteristics of the Italian agri-food sector, which is distinguished by the high quality and wide range of its products, as well as dynamic global trade that favours the integration of I.4 technologies (Cricelli et al., 2024) the proposed study and results can be considered as best practices that are transferable and adaptable to the analysis of agri-food companies operating in other countries with similar production diversity. Therefore, future studies could focus on the comparative analysis of agri-food companies operating in different international contexts to identify additional opportunities for implementing I4.0 digital technologies, as well as exploring innovative I4.0 solutions that could further support the achievement of the SDGs in the agri-food sector on a global scale.

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An Evaluation Framework of Industry 4.0's Impact on SDGs and its Application to AI Reporting

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Abstract: Digital technologies of Industry 4.0 (I4.0) are key drivers of sustainable development. However, addressing the impact of I4.0 on Sustainable Development Goals (SDGs) requires overcoming the challenge of lacking suitable assessment tools. Despite sustainability reporting serves to assess how companies face sustainability challenges, communicate efforts, and promote a sustainable corporate culture, a critical need arises for a comprehensive tool that clarifies the impact of I4.0 technologies on the economic, environmental, and social dimensions of sustainability. This paper proposes a conceptual framework that builds on existing literature regarding how I4.0 technologies contribute to SDGs and leverages the recognized linking between SDGs and Global Reporting Initiative (GRI) Standards to improve the reporting of SDG progress. Thus, the proposed framework identifies the GRI-based Key Performance Indicators necessary for a thorough understanding of how innovation stemming from I4.0, significantly impacts SDGs. Through a content analysis of sustainability reports of innovative companies in the electronic field, the study shows how the proposed framework can be applied in practice. Focusing on Artificial Intelligence (AI), the application case allows a comprehensive understanding of the transformative potential of AI solutions towards sustainable development.

Keywords: Industry 4.0, Artificial Intelligence, GRI Sustainability Reporting; Sustainable Development Goals (SDGs); Content Analysis.

1. Introduction

The United Nations 2030 Agenda for Sustainable Development is an action plan based on 17 interconnected goals that cover the three dimensions of sustainable development: economic growth, social inclusion and environmental protection (Giannetti et al., 2020). The 2030 Agenda aims to be transformative and universal making the private sector a key player for the Agenda implementation (Rashed & Shah, 2021). Indeed, is widely recognized that the company's technological innovation is essential for sizing business opportunities and addressing contemporary global challenges (Silvestre & Tirça, 2019; Brogi & Menichini, 2024). Prior studies highlight that Industry 4.0 (I4.0)-based innovations in companies have a direct impact on Sustainable Development Goals (SDGs) progress (Ghobakhloo, 2020) whose impact is mainly positive (Varriale et al, 2024; Mabkhot et al., 2021). Additionally, several studies suggest that the adoption of I4.0 Digital Technologies (DTs) can significantly contribute to the Triple Bottom Line (TBL) sustainability by enhancing economic factors and addressing environmental and social challenges (Khan et al., 2023; Bonilla et al., 2018). However, the need to deepen the understanding of the role of I4.0 DTs in achieving the SDGs emerges (Alhammadi et al., 2024). Implementing innovation to move towards sustainability requires companies to face different challenges among them, a quantitative approach for measuring and reporting SDG impact appears to be an escalating challenge that requires specific tools and methods to be faced; especially a call emerges for a simple tool that companies can easily adopt, such as a set of KPI linked to SDGs (Mansell et al., 2020). According to Varriale et al. (2024) tools and approaches for quantifying the sustainability performance that innovation allows to achieve, both from economic, environmental, and social perspectives are necessary to verify and monitor the progress in implementing the 2030 Agenda at company levels. Considering the informative value of sustainability reporting, which allows explaining how a company's strategies, practices and performance are achieved in line with SDGs (Bronzetti et al., 2023; Costa et al., 2022; Morioka et al., 2016), this paper proposes a sustainability reporting-based framework to quantify the impacts of I4.0 DTs on the SDG progress which are directly linked to enhanced company's economic, environmental, and social performance. Current research on the relationship between I4.0 DTs and sustainability remain largely theoretical, lacking both rigour and comprehensiveness. Prior frameworks exist in the literature, such as the one by Narula et al. (2021), which proposes a conceptual framework for integrating I4.0 technologies with the GRI sustainability reporting framework. In addition, the conceptual framework by Varriale et al. (2024) aims to clarify the relationships among DTs, business functions, processes, and SDGs in production systems. This study, conversely, aims to provide a comprehensive framework that systematically connects I4.0 DTs to SDG progress through the Global Reporting Initiative (GRI) Disclosures, covering all three dimensions of sustainability performance—economic, environmental, and social. To this end,

the proposed DTs - SDGs Progress framework considers the GRI key performance indicators, i.e. the GRI Disclosures. The GRI guidelines help firms measure their sustainability performance and the impacts of their activities on the SDGs in corporate sustainability reports, by providing a widely used common global language (Zadorozhnyy et al., 2023; KPMG, 2017). In addition, given the interconnections among innovation, managerial practices, policy, strategy, governance and stakeholder relationships (Li et al., 2022; Sun et al., 2022; Morioka et al., 2016) the proposed framework makes explicit the connection between a company's contributions to the SDGs and the strategic, governance, and stakeholder engagement areas defined by GRI Standards, which are involved in the innovation process. Starting from evidence in the literature on how I4.0 DTs impacted SDGs (Bai et al., 2023; Beier et al., 2021; Mabkhot et al., 2021; Oláh et al., 2020; Bonilla et al., 2018), and the GRI Guideline that links SDGs with informative economic, social and environmental GRI Disclosures (GRI, 2022a), the proposed DTs - SDGs Progress framework has been developed to connects I4.0 DTs to the SDGs, and thus identify those GRI Disclosures that better allow companies to measure and monitor economic, social, and environmental performances as well as monitor the managerial areas (activities and workers, governance, strategy, policies and practices, and stakeholder engagement), influenced by the adopted I4.0 innovations. This research is primarily grounded in the TBL theory, which provides a comprehensive framework for evaluating the economic, environmental, and social dimensions of sustainability (Braccini & Margherita, 2018). This theory is particularly relevant as it aligns closely with the multifaceted SDGs (Khan et al., 2023). Additionally, this study draws on legitimacy and stakeholder theory, dealing with the importance of aligning corporate actions with stakeholder expectations towards sustainable development (Michelon & Parbonetti, 2012). By combining TBL and stakeholder theories, the proposed framework offers a robust analytical lens to explore how I4.0 DTs can be integrated into innovative business practices and innovation strategies intended to achieve sustainability goals, as it makes explicit the link between the technologies and SDG progress, while also enhancing transparency and accountability through sustainability reporting, particularly via the GRI standards. Among the existing I4.0 DTs, the validation stage of the proposed framework focuses on Artificial Intelligence (AI) that emerges as largely related to SDG (Peng, 2023; Chutcheva et al., 2022; Isabelle et al., 2022; Sætra, 2021; Vinuesa et al., 2020; Ghallab, 2019). The validation procedure follows a systematic multi-step content analysis process (Hsieh & Shannon, 2005) applied to a set of GRI sustainability reports of the Boston Consulting Group's 2023 Most Innovative Companies operating in the electronics sector.

The remainder of the paper is structured as follows. In Section 2 the methodology is presented as the research flow of the study. The DTs - SDGs Progress framework is provided in Section 3. An illustrative application with AI reporting by innovative companies is conducted in Section 4 to validate the framework. Finally, the managerial implications are discussed, and the conclusions together with future developments.

2. Methodology

The research methodology encompasses three phases and five stages (Table 1). The phases are (i) exploratory; (ii) framework conceptualization; and (iii) validation. Aligned with these phases, the stages refer to the literature gap identification and the research problem definition (first phase); the literature review and the development of the DTs - SDGs Progress framework (second phase); data selection and method (third phase). Table 1 shows the research flow used to conduct the research.

Table 1: The research flow of the study.

Exploratory Phase	**Literature Gap Identification:** State of scientific research and identification of research gaps and unsolved problems concerning measurement and analysis of DTs impacts on SDGs
	Research problem Definition: Develop a conceptual framework that explains the impact of I4.0 DTs on the SDGs progress directly linked to an enhanced company's economic, environmental, and social performance
Conceptual Framework Phase	**Literature Review**: Conduct a comprehensive review of existing literature to identify how I4.0 DTs impact SDGs. Focus on key DTs such as AI, Big Data, blockchain, Internet of Things (IoT), and Additive Manufacturing (AM)

	Development of the DTs - SDGs Progress framework: Selecting Industry 4.0 DTs with a recognized impact on SDGS and linking DTs-impacted SDGs with informative GRI Disclosures, according to the GRI guidelines (GRI, 2022a). The GRI disclosures allow for the differentiation of the impact of DTs on TBL in terms of sustainability performance (economic, environmental, and social) or managerial areas influenced by the adopted I4.0 innovations
Validation Phase	**Data selection and method** **1. I4.0 DT and Industry Selection** 1.1 Identification of AI keywords from literature to perform quantitative content analysis 1.2 Among the Boston Consulting Group's 2023 ranking of the most innovative companies, select those operating in the electronics sector **2. Sustainability report selection** Collection of sustainability reports based on the selection criterion: compliance with GRI Standards **3. Quantitative content analysis** Identification of sentences that mention AI and cross-referencing theme with the GRI Disclosures listed in the GRI Index section of the sustainability reports **4. Qualitative content analysis** Analysis and interpretation of information involving three experts that independently analysed the AI-related sentences to determine whether AI solutions relate to the sustainability performance or managerial areas (activities and workers, governance, strategy, policies and practices, and stakeholder engagement) explained by the GRI Disclosures

3. DTs - SDGs Progress Framework

The proposed DTs - SDGs Progress framework (Table 2) shows the main studies on how a single I4.0 DT or multiple I4.0 DTs contribute to SDGs (Varriale et al., 2024; Bai et al., 2023; Mabkhot et al., 2021). Then, the GRI-based key performance indicators that allow for capturing the impacts of companies' activities and operations on SDGs are provided, taking into consideration the GRI Guideline (GRI, 2022a). These indicators - the so-called GRI Disclosures, are categorized into different dimensions of sustainability performance (i.e. economic, social, and environmental), and managerial practice (i.e. activities and workers, governance, strategy, policies and practices, and stakeholder engagement) which clarify how I4.0 influences management areas and explicitly contributes to SDG progress (GRI, 2022b; Fonseca et al., 2014). As emerges from the literature, I4.0 DTs impact all the SDGs (Table 2). The proposed framework highlights the dimensions of sustainability performance and managerial areas directly linked to each SDG (GRI, 2022a). For instance, achieving gender equality (SDG5) relates to the economic and social company's performance, as well as to the company's governance. Therefore, the potential I4.0 contribution to SDG5 can be explained through those economic GRI Disclosures (202-1, 203-1) or social (401-1, 401-1-a, 401-2, 401-3, 404-3-a, 405-1, 405-2-a, 406-1, 408-1-a, 409-1-a, 414-1-a, 414-2) or Governance (2-9-c, 2-10).

4. Validation Through AI Reporting by Innovative Companies

The proposed DTs - SDGs progress framework is validated through a content analysis of the selected reports, to quantify and analyse the presence, meanings, and relationships of words, themes, or concepts related to AI. As emerges from the literature (Table 2) AI has a relevant impact on SDG achievement while improving a company's performance and practice is a suitable technology for validation purposes. Content analysis is a research method used to systematically and objectively analyse the content of various forms of data to extract meaningful insights, patterns, and relationships (Gao et al., 2021). Qualitative-quantitative content analysis combines qualitative and quantitative approaches to analyse data. By integrating both qualitative and quantitative elements, researchers gain a deeper understanding of the data under study (Hsieh & Shannon, 2005). The present study employs a qualitative-quantitative-combined content analysis to uncover evidence of the impact of companies' adoption of AI on the company's contribution to SDGs as conceived in the proposed DTs - SDGs progress framework (Table 2).

Table 2: Conceptual framework

Main References	I4.0 DTs	SDGs	GRI Disclosures
Bai et al., 2023; Mabkhot et al., 2021	Multiple DT	1 - No Poverty	Economic Performance: 202-1, 203-2, 207-1, 207-2, 207-3, 207-4 Social Performance: 413-2-a
Saetra, 2021; Vinuesa et al., 2020	AI		
Alami et al., 2024; Muth et al., 2023	AM		
López-Vargas et al., 2020	IoT		
Chandan et al., 2023	Blockchain		
Bai et al., 2023; Mabkhot et al., 2021	Multiple DT	2 - Zero Hunger	Social Performance: 411-1, 413-2-a
Vinuesa et al., 2020; Ghallab, 2019	AI		
Alami et al., 2024	AM		
López-Vargas et al., 2020	IoT		
Chandan et al., 2023	Blockchain		
Giordano et al., 2023	Robotics		
Bai et al., 2023; Mabkhot et al., 2021	Multiple DT	3 - Good Health and Well-being	Economic Performance: 203-2 Environmental Performance: 305-1, 305-2, 305-3, 305-6-a, 305-7, 306-1, 306-2-a, 306-2-b, 306-2-c, 306-3-a, 306-3-b, 306-3-c, 306-4-a, 306-4-b, 306-4-c, 306-4-d, 306-5-a, 306-5-b, 306-5-c, 306-5-d Social Performance: 401-2-a, 403-6-a, 403-6-b, 403-9-a, 403-9-b, 403-9-c, 403-10
Vinuesa et al., 2020; Ghallab, 2019	AI		
Alami et al., 2024; Muth et al., 2023	AM		
López-Vargas et al., 2020	IoT		
Chandan et al., 2023	Blockchain		
Giordano et al., 2023	Robotics		
Bai et al, 2023	Multiple DT	4 - Quality Education	Social Performance: 404-1-a
Saetra, 2021; Vinuesa et al., 2020	AI		
Muth et al., 2023	AM		
López-Vargas et al., 2020	IoT		
Bai et al., 2023	Multiple DT	5 - Gender Equality	Governance: 2-9-c, 2-10 Economic Performance: 202-1, 203-1 Social Performance: 401-1, 401-1-a, 401-2, 401-3, 404-3-a, 405-1, 405-2-a, 406-1, 408-1-a, 409-1-a, 414-1-a, 414-2
Vinuesa et al., 2020	AI		
López-Vargas et al., 2020	IoT		
Bai et al, 2023; Mabkhot et al., 2021	Multiple DT	6 - Clean Water and Sanitation	Environmental Performance: 303-1-a, 303-1-c, 303-2-a, 303-3-c, 303-4, 303-5-a, 303-5-b, 304-1-a, 304-2, 304-3-a, 304-3-b, 304-4-a, 306-1, 306-1-a, 306-2-a, 306-2-b, 306-2-c, 306-3-a, 306-3-b, 306-3-c, 306-5-a
Saetra, 2021; Vinuesa et al., 2020; Ghallab, 2019	AI		
Parmentola et al., 2021	Blockchain		
López-Vargas et al., 2020	IoT		
Giordano et al., 2023	Robotics		

Bai et al., 2023; Mabkhot et al., 2021; Modgil et al., 2020; Oláh et al., 2020; Bonilla et al., 2018	Multiple DT	7 - Affordable and Clean Energy	Environmental Performance: 302-1, 302-2, 302-2-a, 302-3-a, 302-4-a, 302-5-a
Varriale et al., 2024; Chutcheva et al., 2022; Sætra, 2021; Vinuesa et al., 2020	AI		
Alami et al., 2024	AM		
Parmentola et al., 2021	Blockchain		
López-Vargas et al., 2020	IoT		
Giordano et al., 2023	Robotics		
Bai et al., 2023; Beier et al., 2021; Mabkhot et al., 2021; Modgil et al., 2020; Oláh et al., 2020	Multiple DT	8 - Decent Work and Economic Growth	Activities and workers: 2-7-a, 2-7-b, 2-8-a Stakeholder engagement: 2-30 Economic Performance: 201-1, 202-1, 202-2-a, 203-2, 204-1-a Environmental Performance: 301-1-a, 301-2-a, 301-3, 302-1, 302-2-a, 302-3-a, 302-4-a, 302-5-a, 306-2-a Social Performance: 401-1, 401-2-a, 401-3, 402-1, 403-1-a, 403-1-b, 403-2-a, 403-2-b, 403-2-c, 403-2-d, 403-3-a, 403-4-a, 403-4-b, 403-5-a, 403-7-a, 403-8, 403-9, 403-10, 404-1-a, 404-2, 404-3-a, 405-1, 405-2-b, 406-1, 407-1, 408-1, 409-1, 409-1-b, 414-1-a, 414-2
Peng, 2023; Chutcheva et al., 2022; Sætra, 2021; Vinuesa et al., 2020	AI		
Alami et al., 2024	AM		
López-Vargas et al, 2020	IoT		
Giordano et al., 2023	Robotics		
Bai et al., 2023; Beier et al., 2021; Mabkhot et al., 2021; Modgil et al., 2020; Bonilla et al., 2018	Multiple DT	9 - Industry, Innovation and Infrastructure	Economic Performance: 201-1, 203-1
Peng, 2023; Sætra, 2021; Vinuesa et al., 2020; Ghallab, 2019	AI		
Parmentola et al., 2021	Blockchain		
Muth et al., 2023	AM		
López-Vargas et al., 2020	IoT		
Giordano et al., 2023	Robotics		
Bai et al., 2023; Mabkhot et al., 2021; Modgil et al., 2020	Multiple DT	10 - Reduced Inequality	Activities and workers: 2-7-a, 2-7-b Economic Performance: 207-1, 207-2, 207-3, 207-4 Social Performance: 401-1, 404-1-a, 404-3-a, 405-2-a
Vinuesa et al., 2020	AI		
López-Vargas et al., 2020	IoT		
Bai et al., 2023; Mabkhot et al., 2021; Modgil et al., 2020	Multiple DT	11 - Sustainable Cities and Communities	Economic Performance: 203-1 Environmental Performance: 306-1, 306-2-a, 306-2-b, 306-2-c, 306-3-a, 306-4-a, 306-4-b, 306-4-c, 306-4-d, 306-5-a, 306-5-b, 306-5-c, 306-5-d
Sætra, 2021; Vinuesa et al., 2020	AI		
Alami et al., 2024	AM		
Parmentola et al., 2021	Blockchain		
López-Vargas et al., 2020	IoT		
Giordano et al., 2023	Robotics		

Bai et al., 2023; Beier et al., 2021; Mabkhot et al., 2021; Oláh et al., 2020; Bonilla et al., 2018	Multiple DT	12 - Responsible Consumption and Production	Environmental Performance: 301-1-a, 301-2-a, 301-3-a, 302-1, 302-2-a, 302-3-a, 302-4-a, 302-5-a, 303-1-a, 303-1-c, 305-1, 305-2, 305-3, 305-6-a, 305-7, 306-1, 306-2-a, 306-2-b, 306-2-c, 306-3-a, 306-3-b, 306-3-c, 306-4-a, 306-4-b, 306-4-c, 306-4-d, 306-5-a, 306-5-b, 306-5-c, 306-5-d Social Performance: 417-1
Varriale et al., 2024; Isabelle et al., 2022; Di Vaio et al., 2020; Vinuesa et al., 2020; Ghallab, 2019	AI		
Varriale et al., 2024; Chandan et al., 2023; Parmentola et al.,	Blockchain		
Alami et al., 2024; Varriale et al., 2024; Muth et al., 2023	AM		
Varriale et al., 2024; López-Vargas et al., 2020	IoT		
Giordano et al., 2023	Robotics		
Bai et al., 2023; Mabkhot et al., 2021; Oláh et al., 2020; Bonilla et al., 2018	Multiple DT	13 - Climate Action	Economic Performance: 201-2-a Environmental Performance: 302-1, 302-2-a, 302-3-a, 302-4-a, 302-5-a, 305-1, 305-2, 305-3, 305-4-a, 305-5-a
Chutcheva et al., 2022; Isabelle et al., 2022; Vinuesa et al., 2020; Ghallab, 2019	AI		
Alami et al., 2024	AM		
Varriale et al., 2024; Chandan et al., 2023; Parmentola et al.,	Blockchain		
López-Vargas et al., 2020	IoT		
Varriale et al., 2024; Giordano et al., 2023	Robotics		
Bai et al., 2023; Mabkhot et al., 2021	Multiple DT	14 - Life Below Water	Environmental Performance: 304-1-a, 304-2, 304-3-a, 304-3-b, 304-4-a, 305-1, 305-2, 305-3, 305-4-a, 305-5-a, 305-7
Isabelle et al., 2022; Sætra, 2021; Vinuesa et al., 2020	AI		
Chandan et al., 2023; Parmentola et al., 2021	Blockchain		
Muth et al., 2023	AM		
López-Vargas et al., 2020	IoT		
Giordano et al., 2023	Robotics		
Bai et al., 2023; Mabkhot et al., 2021	Multiple DT	15 - Life on Land	Environmental Performance: 304-1-a, 304-2, 304-3, 304-4-a, 305-1, 305-2, 305-3, 305-4-a, 305-5-a, 305-7, 306-3-a, 306-3-b, 306-3-c, 306-5-a
Chutcheva et al., 2022; Isabelle et al., 2022; Sætra, 2021; Vinuesa et al., 2020	AI		
Chandan et al., 2023; Parmentola et al., 2021	Blockchain		
López-Vargas et al., 2020	IoT		
Giordano et al., 2023	Robotics		
Bai et al., 2023; Mabkhot et al., 2021	Multiple DT	16 - Peace, Justice and Strong Institutions	Governance: 2-9-c, 2-10, 2-11, 2-12, 2-15 Strategy, policies and practices: 2-23-a, 2-23-b, 2-26 Economic Performance: 205-1, 205-2, 205-3, 206-1 Environmental Performance: 307-1-a Social Performance: 403-4-a, 403-4-b, 403-9-a, 403-9-b, 403-9-c, 403-10, 408-1, 410-1, 414-1-a, 414-2, 415-1-a, 416-2, 417-2, 417-3, 418-1, 419-1-a
Peng, 2023; Vinuesa et al., 2020	AI		
López-Vargas et al., 2020	IoT		
Bai et al., 2023; Mabkhot et al., 2021	Multiple DT	17 - Partnerships for the Goals	Economic Performance: 207-1, 207-2, 207-3, 207-4
Peng, 2023; Ghallab, 2019	AI		
Alami et al., 2024	AM		
López-Vargas et al., 2020	IoT		

The validation procedure follows a systematic multi-step process of content analysis applied to a set of GRI sustainability reports. The recent sustainability reports compliant with GRI Standards of companies operating in the electronics sector ranked in the BCG's 2023 Most Innovative Companies (Manly et al., 2023) were considered. The BCG ranking was selected on the assumption that highly innovative companies should have thoroughly and extensively implemented the innovations introduced by I4.0 (Piccarozzi et al., 2023). Consequently, they should also be capable of critically assessing their contribution to environmental, economic, and social sustainability goals, making the selected set of companies suitable for the DTs - SDGs Progress framework validation purpose. Furthermore, the electronics sector was chosen due to its reputation as a high-velocity environment, where demand, competition, and technology are constantly and rapidly evolving (Sánchez et al., 2011). Initially, a quantitative content analysis was conducted, searching for AI-related keywords based on the terms proposed by Li et al. (2023), and herein reported in Table 3. Nevertheless, the keywords of further I4.0 DTs under analysis can be taken into account, for example, those present in the literature (Varriale et al., 2024). This search was performed within the sustainability reports of the four companies in our sample: Apple (2022), Samsung (2022), Xiaomi (2022), and Sony (2022). The goal was to identify sentences mentioning AI and to cross-reference these with the GRI Disclosures listed in the GRI Index section of the sustainability reports, according to the proposed DTs - SDGs Progress framework (Table 2). Following this, a qualitative content analysis was carried out by a research team of three coders. An example of AI sentence aligned with GRI Disclosures and the corresponding SDGs is shown in Table 4 in order to clarify the coding process. Indeed, Table 5 synthesizes the output of the coding process, with the first and second columns showing the connections of AI technologies with the specific GRI Disclosure in the company's sustainability report. Moreover, Table 5 illustrates the application of the proposed framework, where the bullets represent the connection among GRI Disclosures and SDGs. The bullets' colours show the sustainability performance (i.e. economic in purple, environmental in green and social in orange) or management practices (black) impacted by the adoption of AI technology.

Table 3: AI-Related Keywords Used in the Search for Sustainability Reports.

Reference	AI-keywords
Li et al., 2023	Artificial intelligence (AI), business intelligence, computer vision, investment decision assistance systems, intelligent robots, expert system, machine learning, semantic search, biometrics, face recognition, Identity verification, unmanned driving, autonomous driving, electronic design automation, natural language processing (NLP), customer relationship management, manufacturing resource management system, enterprise resource management, production information management System, Digital Control, Office Automation, Product Lifecycle Management, Robotic Process Automation, Enterprise Resource Management Software System, Financial System, Financial Management System, Kingdee, UFIDA, intelligent, intelligent office, intelligent technology, intelligent identification, intelligent manufacturing, intelligent terminal, robot, automatic control, intelligent equipment, intelligent workshop, intelligent factory, intelligent decision making, flexibility, integration, numerical control industrialization, fine management, industrial intelligence, intelligent system, intelligent operation and maintenance, intelligent warehousing.

Before starting, a comprehensive understanding of the GRI Disclosures, which compose GRI Standards, is essential for the effective application of the DTs – SDGs Progress framework. The GRI Standards are freely accessible at the following link, https://www.globalreporting.org/standards/.

Each coder independently analysed the AI-related sentences to determine whether they conveyed that AI contributed to the GRI Disclosures. Each coder reviewed and verified the documents initially analysed by their peers to ensure accuracy and consistency throughout the process (Curtó-Pagès et al., 2021). Discrepancies among coders were discussed and resolved to uphold reliability and Krippendorff's Alpha was used to measure Inter Coder Reliability (Krippendorff, 2018). The resulting high alpha value indicates strong agreement among the coders, thereby confirming the robustness and reliability of the analysis. Nonetheless, in order to allow an unambiguous categorization of the AI sentences (i.e., the sentences in the report in which a keyword among those listed in Table 3 appears) in terms of assignment of a GRI Disclosure, it was necessary to proceed with a comparison between the coders which led to a univocal assignment.

Table 4: Example of AI sentences aligned with GRI Disclosures and their corresponding SDGs.

GRI Disclosure – AI sentence	GRI disclosure	Impacted SDGs
"Samsung Innovation Campus operates a range of curricula, from programming to AI, in different countries. In cooperation with the local ministry of education, schools, and NGOs, we work to adapt the program to the local educational environment and conditions. The program contributes to nurturing workplace capabilities in youth by offering theoretical and hands-on IT training for programming, AI, IoT, and big data. [...] A total of 39,182 students in 28 countries received technological training in 2021. In Turkey, in particular, 86% of Samsung Innovation Campus graduates succeeded in being recruited, and some started their own businesses." Samsung 2022 SR, p. 43	203-2 Significant indirect economic impacts (GRI, 2022a)	1, 3, 8

Table 5: Coding process.

AI Sentence	GRI Disclosure	Sustainable Development Goals (SDGs) Impact																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Apple SR 2022, p.27	404-2 Programs for upgrading employee skills and transition assistance programs								●									
Apple SR 2022, pp.51,52, 54	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships								●									
Apple SR 2022, p.68	201-1 Direct economic value generated and distributed								●	●								
Apple SR 2022, p.68	203-2 Significant indirect economic impacts	●		●					●									
Samsung SR 2022, p.27	302-4 Reduction of energy consumption							●	●				●	●				
Samsung SR 2022, p.29	302-5 Reductions in energy requirements of products and services							●	●				●	●				
Samsung SR 2022, pp.42-43	203-1 Infrastructure investments and services supported					●				●		●						
Samsung SR 2022, pp.42, 43	203-2 Significant indirect economic impacts	●		●					●									
Samsung SR 2022, pp.73	404-2 Programs for upgrading employee skills and transition assistance programs								●									
Xiaomi SR 2022, p.113	302-5 Reductions in energy requirements of products and services							●	●				●	●				
Xiaomi SR 2022, p.117	201-2 Financial implications and other risks and opportunities due to climate change													●				
Xiaomi SR 2022, pp. 121, 148	203-2 Significant indirect economic impacts	●		●					●									

Xiaomi SR 2022, p. 128, 132	2-23 Policy commitments															●	
Xiaomi SR 2022, p. 145	404-2 Programs for upgrading employee skills and transition assistance programs								●								
Xiaomi SR 2022, p. 148	203-1 Infrastructure investments and services supported					●				●		●					
Xiaomi SR 2022, p. 148	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships								●								
Sony SR 2022, pp.34,47,48	302-4 Reduction of energy consumption							●	●				●	●			
Sony SR 2022, pp.47,48	305-1 Direct GHG emissions			●									●	●	●	●	
Sony SR 2022, pp.47,48	305-2 Energy indirect GHG emissions			●									●	●	●	●	
Sony SR 2022, pp.47,48	305-3 Other indirect GHG emissions			●									●	●	●	●	
Sony SR 2022, pp.47,48	305-4 GHG emissions intensity													●	●	●	
Sony SR 2022, pp.47,48	305-5 Reduction of GHG emissions													●	●	●	
Sony SR 2022, p.67	202-1 Ratios of standard entry level wage by gender compared to local minimum wage	●				●			●								
Sony SR 2022, pp.67-71-72-73	405-1 Diversity of governance bodies and employees					●			●								
Sony SR 2022, p.71-72-73	404-1 Average hours of training per year per employee				●				●		●						
Sony SR 2022, p.71-72-73	404-3 Percentage of employees receiving regular performance and career development reviews					●			●		●						
Sony SR 2022, p.88-89	406-1 Incidents of discrimination and corrective actions taken					●			●								

5. Managerial Implications

The proposed DTs - SDGs Progress framework allows comparisons among companies and their contribution to SDGs. Results are reported in Table 6, showing that AI solutions by innovative companies in the electronics sector influence all the SDGs except for SDGs 2, 6 and 17. In line with the previous literature (Table 2), AI solutions in the electronics sector contribute to SDG 1, SDG 3 and SDG 8 for all the analysed companies. Some SDGs (4, 10, 14, 15, 16) are relevant only for Sony while SDG 16 is only for Xiaomi. It is also possible to observe that Apple

has a more focused contribution to some SDGs while Sony explains a more widespread contribution, followed by Xiaomi and Samsung. It emerges that the more innovative the company is, the more the contribution to the SDGs is focused on some SDGs.

Table 6: AI contribution to the SDGs for each company.

Positioning in the BCG ranking	Company	Impacted SDGs															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Apple	•		•					•	•								
7	Samsung	•		•				•	•	•		•	•	•				
29	Xiaomi	•		•		•		•	•	•		•	•	•			•	
31	Sony	•		•	•	•		•	•		•		•	•	•	•		

In addition, the framework allows comparison among the coverage of the AI reporting practices. Table 7 shows, for each company, the number of AI keywords in the sustainability reports, the number of AI sentences containing AI keywords and, finally, how many AI sentences were considered relevant to inform about SDG contribution according to the proposed content process (Table 1). The measure of AI centrality, determined by the ratio between the number of useful AI sentences after applying the coding process (i.e., AI sentences that relate to SDGs) and the total number of AI sentences, indicates that both the most innovative company (Apple) and the least innovative (Sony) report on the adoption of AI more adherent to the GRI disclosures (around 31% and 36.7%). The other companies show a lower level of AI centrality and the same level of reporting adherence (16 and 21%).

Table 7: Comparative analysis of AI reporting.

Company	Apple	Samsung	Xiaomi	Sony
Positioning in the BCG ranking	1	7	29	31
# AI keywords	5	7	9	8
# AI sentences	13	31	33	30
# AI sentences that relate to SDGs	4	5	7	11

Additional comparisons can be considered in terms of dimensions of sustainability performance that drive AI solutions towards SDG achievement. The impact of AI on the sustainability performances of the overall set of companies shows a balanced contribution in the three dimensions (Figure 1): economic 30.8%, environmental 34.6%, and social 34.6%.

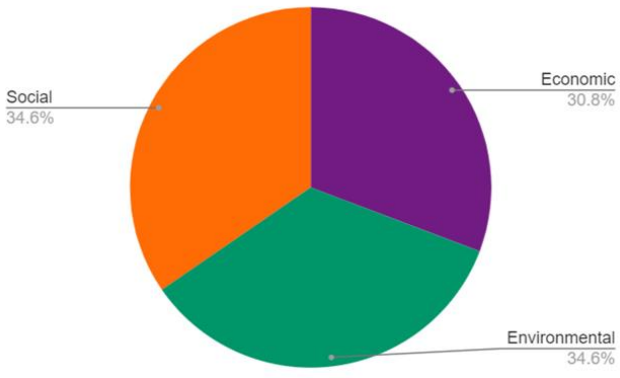

Figure 1: Impact of AI on sustainability performances in the electronics sector, overall set of companies.

However, the most innovative company does not present environmental reporting of the adopted AI solutions (Table 8). The AI contribution to the relevant SDGs (4 SDGs in the case of Apple) is reported in terms of economic and social performance through 4 GRI Disclosures (201-1, 203-2, 402-4, 403-7, see Table 5). The other companies report on all the dimensions of sustainability performance although with different percentages of presence. The relevance of the social dimensions is indirectly linked to the innovativeness of

the company: Sony presents the highest level of social reporting (36%). On the other hand, it emerges that only in the case of one company (Xiaomi), AI contribution to SDG is explained in terms of managerial practice (strategy, policies, and practices) by means of the GRI Disclosure "2-23 Policy commitments" (see Table 5).

Table 8: AI contribution to the sustainability performance of each company.

Positioning in the BCG ranking	Company	Total Sustainability Performance GRI Disclosures related to AI	Total impacted SDGs	AI impact on sustainability performance
1	Apple	4	4	Economic (50%), Social (50%)
7	Samsung	5	9	Economic (40%), Environmental (40%), Social (20%)
29	Xiaomi	6	10	Economic (50%), Environmental (17%), Social (33%)
31	Sony	11	11	Economic (9%), Environmental (55%), Social (36%)

6. Conclusions

This study contributes to the existing body of knowledge by providing new TBL-based analytical perspectives on the impacts of I4.0 DTs on SDGs through a framework that leverages the recognized linkage between SDGs and GRI Standards. While several studies, such as Varriale et al. (2024) and Mabkhot et al. (2021), explore the impact of I4.0 DTs on SDGs, and Narula et al. (2021) show how I4.0 DTs influence GRI Standards adoption, the present study shifts attention to managerial practices. By adopting the GRI Standard Disclosures, the proposed DTs - SDGs Progress framework enables the quantification of sustainability performance across TBL dimensions, as well as the influence of I4.0 innovations on managerial areas. Additionally, the focus on AI in the electronics sector offers new insights into how companies in the field contribute to SDGs through AI-based innovations. The framework allows companies to evaluate and track the impact of adopted Industry 4.0 solutions towards SDGs while explaining sustainability performance achieved and how the innovative AI solution relates to managerial areas (activities and workers, governance, strategy, policies and practices, and stakeholder engagement). Through a multi-step content analysis of sustainability reports by BCG's 2023 Most Innovative Companies operating in the electronics sector, the study shows the practical application of the DTs - SDGs progress framework. The framework allows comparisons among the company's contributions to SDGs. By focusing on AI, the application case reveals that AI solutions mainly influence SDG 1 (No Poverty), SDG 3 (Good Health and Well-being) and SDG 8 (Decent Work and Economic Growth) but also contributions emerge for SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 7 (Affordable and Clean Energy), SDG 9 (Industry, Innovation, and Infrastructure), SDG 10 (Reduced Inequality), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14 (Life Below Water), SDG 15 (Life on Land), SDG 16 (Peace, Justice and Strong Institutions). The impact of AI on the sustainability performances of the overall set of companies shows a balanced contribution in the three dimensions (economic 30.8%, environmental 34.6% and social 34.6%) although some differences among the selected companies emerge. The company's innovativeness does not imply environmental reporting of the adopted AI solutions while the relevance of the social dimensions is indirectly linked to the innovativeness of the company. The coverage of the AI reporting practices also shows that the AI centrality in reports is not directly linked to the company's innovativeness. By leveraging the GRI Standards, the proposed framework is useful to improve the reliability and transparency of the company's reported information (Watts, 2014). The framework allows comparability among companies and facilitates communication with stakeholders (Adams, 2022). Communicating how digital innovation contributes to SDG progress allows companies to improve their reputation and build stronger relationships with stakeholders who prioritize sustainability issues, such as investors or customers (Hamidi et al., 2023; Menichini & Salierno, 2023). Managers can use the proposed framework to obtain clearer and consistent information on the company's sustainability efforts, making it easier for stakeholders to evaluate and compare the company's practices and performance. Indeed, transparency about the company's impacts on sustainable development is crucial to maintaining the social license to operate and achieve long-term business success (Băndoi et al., 2021; Calabrese et al., 2020). Although the proposed framework is designed to be applicable to companies of any size and sector, as it is based on the GRI Standards (Halkos & Nomikos, 2021), the application in this study is specifically focused on the electronics sector and AI technologies. Another limitation of this study consists of the

framework based on contributions from the existing scientific literature, which means not all potential applications and case studies may have been captured, as some opportunities related to achieving the SDGs might not yet have been explored by researchers. Furthermore, the study concentrates exclusively on the positive impacts of digital technologies, potentially leading to a partial view and introducing bias into the research. Future research should broaden the scope of the analysis to include a broader range of sectors and a more diverse set of I4.0 DTs. This will provide a more comprehensive understanding of how I4.0 enables the private sector to contribute to sustainable development. Additionally, longitudinal studies analyzing trends over multiple years, including subsequent reports of the most innovative companies ranked in future BCG Most Innovative Companies reports, will be essential. Moreover, future analysis could consider how specific technologies from different sectors contribute to the achievement of specific SDGs in those sectors. This extended analysis will validate the framework in various contexts, improving its robustness by considering sector-specific practices and technological advances. In this way, the framework will remain adaptable and relevant, addressing both its strengths and potential limitations. This approach will ensure a comprehensive understanding of the interaction between I4.0 technologies and sustainability in different sectors, contributing to the broader goal of sustainable development.

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Effectiveness of Student Teams: The Role of Team Personality Diversity

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Abstract: In current educational landscapes, group work has emerged as a cornerstone of pedagogical strategies, offering students opportunities to cultivate essential skills for future professional endeavors. Central to the success of collaborative efforts lies the intricate interplay of team dynamics, with team personality diversity emerging as a significant factor influencing team effectiveness. Building upon existing research highlighting the critical role of team personality in driving team effectiveness (Kozlowski and Bell, 2003), this study delves into the nuanced relationship between team personality diversity, team processes and emergent states, and collaborative outcomes within student teams. Acknowledging the multifaceted nature of team dynamics, this research adopts a comprehensive approach, drawing upon established theoretical frameworks, such as the input-process-output model (Hackman, 1987; Ilgen et al, 2005), to elucidate the mechanisms through which team personality diversity influences team effectiveness. Through a thoroughly designed two-wave methodology and a group-level analytical approach, data were collected from 57 student teams enrolled in undergraduate and graduate courses across diverse academic disciplines during semester 2 of 2022/2023. Our findings reveal that emotional stability diversity within teams exerts a significant yet indirect influence on team satisfaction through its impact on communication openness. Specifically, greater emotional stability diversity leads to diminished communication openness, subsequently leading to reduced levels of team satisfaction. This intricate chain of effects underscores the importance of managing team personality diversity to foster open communication and ultimately enhance satisfaction among team members. While our results align with established theoretical underpinnings, they also prompt critical reflections on team interdependence and the duration of collaborative engagements within academic settings. Consequently, we advocate for further exploration into the potential of team personality diversity within student teams, with an emphasis on longitudinal studies to capture the temporal dynamics of collaborative interactions. This study contributes to the growing body of literature on team dynamics in educational settings, offering valuable insights for educators and practitioners seeking to optimize student experiences, enhance group learning outcomes, and prepare students for their future careers.

Keywords: Group-level Approach, Team Personality Diversity, Team Processes, Team Effectiveness

1. Introduction

Group work has been increasingly integrated into educational landscapes, as it enables students to develop their soft skills and engage with plural viewpoints and perspectives (Urionabarrenetxea et al, 2021). By working in teams, students improve their ability to foster effective communication within the group and learn to support and assist the progress of their peers (Baviera et al, 2022).

One critical factor influencing team effectiveness lies in the personality of its members. Specifically, since the 1990s, research has growingly emphasized that personality influences teams through the mixture it causes within them (Moynihan and Peterson, 2001). This blend is often operationalized to reflect team personality diversity, corresponding to the variability of individual personality attributes, and becomes more important as teams collaborate over time (Harrison et al, 2002). Moreover, it is one of the most common methods for aggregating individual personality scores and describing team personality composition (Prewett et al, 2009).

Despite the assertion that team personality composition is more predictive of team behaviors, functioning, and processes than of its outcomes (Prewett et al, 2009), studies investigating the relationship between team personality and team effectiveness rarely adopt an input-process-outcome model (LePine et al, 2011). However, addressing the intervention of processes such as communication and conflict is crucial for achieving a comprehensive understanding of the association between forms of team personality diversity and team effectiveness (Triana et al, 2021). Therefore, to better understand how team personality diversity influences team effectiveness, our goals are to: (i) test the effects of the factors that comprise the Five-Factor Model of personality (McCrae and Costa, 2008) on team effectiveness, (ii) describe the effects carried by these factors on

different measures of effectiveness, and (iii) gauge the role of team processes and emergent states in this relationship.

2. Literature Review

2.1 Team Effectiveness

Team effectiveness refers to the final stage of research on group dynamics (Hackman, 1987). Although various approaches measure team effectiveness, it typically encompasses two types of criteria, be it internal and external, or proximal and distal (Kozlowski and Bell 2003). Among all the definitions, the one proposed by Hackman (1987) stands out as the most prominent.

Under this definition, team satisfaction and viability are internal criteria, whereas task performance is an external criterion. In educational contexts, external criteria assess student teams' knowledge and learning, reflecting teachers' or institutions' perspectives, while internal criteria arise from students' perceptions (Urionabarrenetxea et al, 2021).

Task performance of student groups is commonly measured through assignment grades, indicating whether the set standards are met or exceeded (Hackman, 1987). Whereas team satisfaction is widely studied in education and includes satisfaction with the team and with the project, team viability acquires more relevance in long-term teams (Bell and Marentette, 2011). In effect, authors should prioritize perceived learning when researching the effectiveness of student teams, as it represents an expected outcome in this context (Urionabarrenetxea et al, 2021).

2.2 Team Personality Diversity

Team personality diversity calculations are based on fundamental personality traits that form the core of a universal system, shaping patterns of thoughts, feelings, and actions (McCrae and Costa, 2008). These individual characteristics exert an influence on how team members contribute to tasks and interact with one another during group work (Molleman et al, 2004; Prewett et al, 2009). Traits are organized hierarchically from narrow and specific to broad and general dispositions, with extraversion, agreeableness, conscientiousness, openness to experience, and neuroticism at the top (McCrae and Costa, 2008). Neuroticism is often reversed to indicate emotional stability (Moynihan and Peterson, 2001).

According to McCrae and John (1992), people who score high on extraversion tend to be warm, cheerful, and ambitious, while those scoring lower may be quiet or shy. Agreeableness involves characteristics such as altruism, nurturance, and emotional support at one end, and self-centeredness and jealousy at the other. Conscientiousness combines prudence with the willingness to achieve, so that conscientious individuals are often characterized by thoroughness, organization, and goal-oriented behavior, whereas those low in conscientiousness may lack self-discipline. Emotional stability reflects the propensity to experience distress, with high scorers being relaxed and even-tempered, while low scorers are prone to negative emotions. Openness to experience involves imagination and intellectual interests, contrasting with conservative values at the lower end. Students frequently underscore the significance of these dispositions, observing that effective teams are those whose members coordinate different types of people and adeptly manage individual character traits (e.g.: Baviera et al, 2022).

Group personality composition is regarded as a resource available to teams because it reflects the attributes of its members (Kozlowski and Bell, 2003). Personality traits, as deep-level attributes, are rooted in psychological characteristics not readily observable (Harrison and Klein 2007; Triana et al, 2021). Authors such as Triana et al (2021) underline that the theoretical underpinnings of the research on deep-level diversity are the ones described by Williams and O'Reilly (1998). On the one hand, social categorization and similarity/attraction theories highlight the risks of high diversity levels, such as increased cognitive biases and communication challenges. On the other hand, the information and decision-making perspective suggests diversity augments the information available for problem-solving and enhances creativity (Williams and O'Reilly, 1998).

Although these three theories are prominent in the literature focused on the consequences of diversity in personality characteristics, Prewett et al (2009) and LePine et al (2011) suggested that, depending on the trait, team personality diversity can both promote and hinder team effectiveness. For instance, expanding on this trait-oriented perspective, Humphrey et al (2007) argued that diversity in extraversion can benefit teams by

enabling role differentiation, while higher levels of diversity in conscientiousness might jeopardize teamwork due to diverging goals.

H1: Team personality diversity is directly related to team effectiveness.

2.3 Processes and Emergent States

Kozlowski and Bell (2003) understand compositional variables as factors with a powerful influence on team processes and outcomes. Instead of moderating the link between group composition and effectiveness, team processes are likely caused by team personality or demographic composition, particularly in student teams with fewer external constraints (Kozlowski and Bell 2003).

In alignment with this perspective, personality diversity, as a form of personality composition, may hold a more pronounced influence on processes associated with the quality of team functioning than on team effectiveness variables (Prewett et al, 2009; LePine et al, 2011). Ilgen et al (2005) describe these processes as twofold: i) behavioral processes, including task-focus, communication, and conflict, are cognitive, verbal, and behavioral activities aimed at achieving goals through interdependent interactions among team members (Marks et al, 2001); ii) team emergent states, like cohesion, capture motivational tendencies, relationships between members of the same group and affective reactions rather than describing how individuals interact (Marks et al, 2001). Consequently, personality diversity shapes a broad range of social and task-related processes, influencing task execution, attachment to the team, and task commitment.

H2: Team personality diversity directly impacts team processes and emergent states.

Beyond capturing interpersonal dynamics fundamental to group work, team processes and emergent states indicate how a group collectively advances toward task completion (Hackman, 1987) and serve as mechanisms through which teams combine resources and capabilities (Ilgen et al, 2005; Kozlowski and Bell 2003; Marks et al, 2001), playing a pivotal role as drivers of team effectiveness. Furthermore, research also suggests that team personality diversity affects team effectiveness through social integration, group processes quality, and states formed during group interactions (Guillaume et al, 2012; Triana et al, 2021).

H3: Team processes and emergent states directly influence team effectiveness.

H4: Team processes and emergent states mediate the impact of team personality diversity on team effectiveness.

3. Methodology

We employed a quantitative approach, implementing a two-wave study to mitigate method bias. Consistent with procedures followed by Mohammed and Angell (2003), personality measures were collected in the first half of the semester, and data on team functioning and effectiveness were gathered two months later.

3.1 Sample and Procedure

To focus on groups with strong performance incentives, we targeted students enrolled in courses where at least 30% of the final grade depended on a group assignment. To be included, participants needed to respond fully to both waves of data collection. Additionally, understanding diversity as a distribution of differences (Harrison and Klein, 2007), only teams in which at least three and more than half of the members provided completed data were accepted. Finally, the groups included were the ones whose members showed a high level of agreement when evaluating group constructs.

Altogether, the final sample consisted of 57 teams of 221 undergraduate and graduate students from a Portuguese Business School, averaging 3.88 complete answers and 4.66 members per group.

3.2 Measures and Operationalization

Table 1 summarizes the study dimensions and measurements. Group scores were aggregated from individual scores.

Personality was assessed using the 50-item set of Big-Five factor markers (Goldberg et al, 2006). Acknowledging differences in personality as part of the separation type of diversity (Harrison and Klein, 2007), we used standard deviation to quantify within-group diversity of personality characteristics, while team effectiveness was

measured through group assignment grades, team satisfaction, and perceived learning. To control for the potential influence of the specific context of each curricular unit on the final grades of the assignments, these were normalized by course.

Table 1: Variables included in the study.

Variables	Dimensions	Scale	Group Score
Personality	Extraversion Agreeableness Conscientiousness Emotional Stability Openness to Experience	Goldberg et al (2006)	Standard Deviation
Processes And Emergent States	Task-focus	Barry and Stewart (1997)	Arithmetical Average
	Communication Openness	O'Reilly and Roberts (1977)	
	Cohesion	Barrick et al (2007)	
	Task-conflict	Jehn (1995)	
Team Effectiveness	Team Satisfaction	Peeters et al (2006)	Arithmetical Average
	Perceived Learning	Bravo et al (2019)	
	Group Assignment Grade	Not applicable	Normalization of course grades

4. Results

4.1 Preliminary Analyses

When aggregating team constructs by mean, we required consensus among members of the same team. To validate the aggregation, it was necessary to verify whether average scores exhibited acceptable levels of reliability and agreement (Van Mierlo et al, 2009). Therefore, intraclass correlation coefficients (ICC) were calculated to assess reliability, while rWG(J) was used as a measure of within-group agreement (Bliese, 2000).

In this context, evaluations of team perceived learning were not sufficiently influenced by working in a group (ICC(1) = 0.155), nor did they derive reliable group means (ICC(2) = 0.416). Thus, this construct was removed from further analyses. All other constructs (i.e., task-focus, communication openness, cohesion, task-conflict, and team satisfaction) yielded ICC(1), ICC(2) and rWG(J) values of over 0.2, 0.6 and 0.9, respectively, supporting their aggregation to the group level. Table 2 presents a summary of the results related to the measures of reliability and agreement.

Table 2: Validation of the aggregation to the group level

Construct	ICC(1)	ICC(2)	rWG(J)
Task-focus	0.297	0.621	0.9242
Communication Openness	0.378	0.702	0.8957
Cohesion	0.486	0.786	0.9518
Task-conflict	0.295	0.619	0.9344
Perceived Learning	0.155	0.416	0.9685
Team Satisfaction	0.431	0.756	0.9011

Concerning personality variables, a principal component analysis (PCA) was conducted on individual data in order to identify the traits underlying the five-factor structure of personality (McCrae and Costa, 2008). After eliminating items with communalities below 0.47, the final solution only kept 3 of the 10 items used to measure conscientiousness and openness to experience, and 2 of the items intended to measure agreeableness. Since Saucier and Goldberg (2002) suggested a minimum of 4 items to define personality dimensions, agreeableness, conscientiousness, and openness to experience were excluded from the final model of the study.

4.2 Path Analysis

The results of the preliminary analyses, coupled with the hypotheses outlined in Chapter 2, led to the creation of the path diagram depicted in Figure 1. To enhance readability, only significant coefficients, denoted by solid lines, are presented. Conversely, relationships lacking statistical significance are represented by dashed lines. The variables were standardized prior to the analysis, and all effects were estimated through the bootstrapping technique.

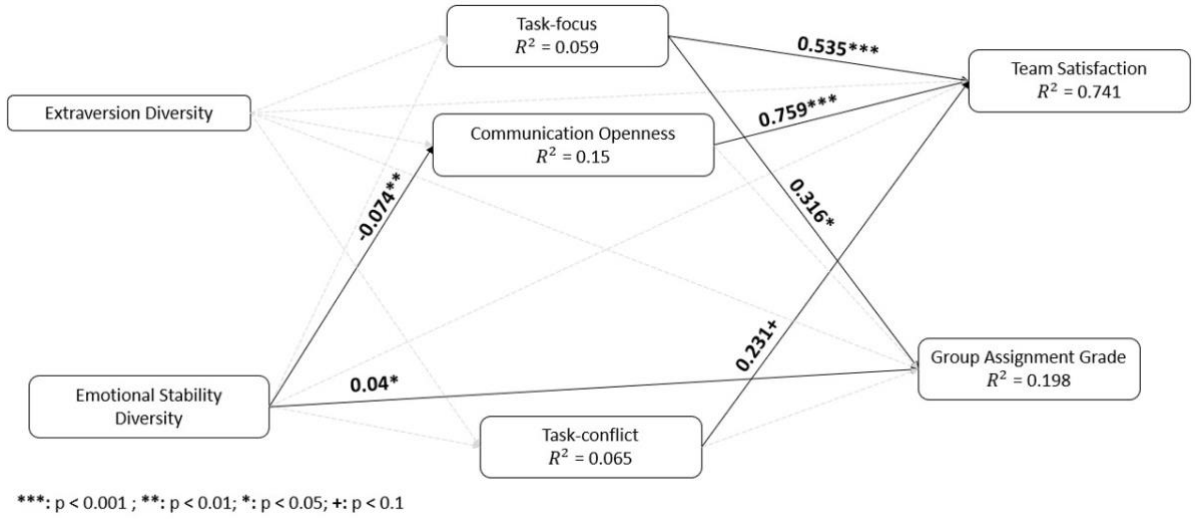

Figure 1: Path Diagram

Starting from the direct effects of personality diversity, only emotional stability influenced team processes and team effectiveness factors. Despite being significant (β = 0.04; p = 0.0423), the 95 percent confidence interval for the effect of emotional stability diversity on the grades obtained by teams includes 0 (95% CI =]-0.003; 0.077[), which does not preclude the possibility that the real effect is null.

Conversely, emotional stability significantly reduced communication openness within groups (β = -0.074; p = 0.009), while communication openness (β = 0.759; p < 0.001) and task-conflict (β = 0.231; p = 0.092) promoted team satisfaction, albeit the latter only marginally. Notably, task-focus significantly influenced both team satisfaction (β = 0.535; p < 0,001) and group grades (β = 0.316; p = 0.023). Despite this, H2 and H3 received limited or partial support.

As for H4, our results suggest that emotional stability diversity indirectly reduces team satisfaction through its negative impact on communication openness (β = -0.056; p = 0.011). This indirect effect arises from the decrease caused by emotional stability diversity in communication openness, coupled with the subsequent increase in team satisfaction resulting from enhanced communication openness. The 95 percent confidence interval for the indirect effect reinforces this conclusion, as it does not include 0 (95 % CI =]-0.102; -0.014[), and the result remains consistent even after correcting for eventual asymmetries on the bootstrap distribution (95% CI =]-0.116; -0.022[).

5. Discussion

In light of the growing recognition of group work as a means of fostering soft skills among students (Baviera et al, 2022; Urionabarrenetxea et al, 2021), with some universities already implementing tailored programs to enhance students' ability to confidently face the challenges associated with it (Baviera et al, 2022), we intended to investigate the degree to which personality diversity impacts team effectiveness. Acknowledging that personality features may exert a stronger influence on behavioral variables that drive group functioning (Prewett et al, 2009), known as team processes, we posited that team personality diversity would relate to team effectiveness through these variables. This is consistent with the leading models in the field of group work (Ilgen et al, 2005; Kozlowski and Bell 2003). Likewise, as we aimed to establish relationships between compositional factors and team effectiveness criteria, statistical procedures were adopted to measure all the constructs at the team level (Prewett et al, 2009).

The indirect effect of emotional stability diversity on team satisfaction aligns with the predicted outcomes of social categorization and similarity/attraction theories (Triana et al, 2021). In effect, the findings of Gerlach and Gockel (2022) can help explain the decrease in communication openness caused by emotional stability diversity. According to these authors, members within teams diverse in emotional stability may feel discomfort due to perceived differences in communication styles, which likely reduces the propensity of team elements to seek and engage in helping behaviors. In turn, the positive effect of communication openness on team satisfaction may have occurred because open communication enables teams to orchestrate their work and perform effectively (Barrick et al, 2007). Molleman et al (2004) further suggest that diversity in emotional stability creates structural differences in working methods within teams, with members who score higher on this trait feeling confident when facing ambiguous tasks, while low scorers tend to feel insecure.

However, most of the tested relationships were not statistically significant. This lack of results might be related to the circumstances under which personality plays a more meaningful role. Following this line of reasoning, Prewett et al (2009) propose that all forms of personality composition acquire more relevance in tasks requiring high levels of interaction and coordination from teams entrusted with them. Task interdependence thus increases opportunities for team members to interact, either making differences in deep-level attributes more salient (Guillaume et al, 2012) or amplifying the complexity of coordinating those interactions (LePine et al, 2008). As a moderator of the potential relationships between personality diversity and team processes and between team processes and team effectiveness, task interdependence may not have reached sufficient magnitude in this study.

Furthermore, student teams usually work for short periods of time, thereby having lower temporal stability (Hollenbeck et al, 2012). Seeking benefits such as efficiency in responding to assignments (Sjølie et al, 2022), they are tempted to allocate tasks individually, with each member performing their assigned task independently. Moreover, as they work for brief spans, student teams may not always feel the necessity to engage in extensive discussions or exchanges of ideas, which could potentially result in a weakening of the connection between the quality of their functioning and the outcomes they achieve.

Despite these limitations, the indirect effect of emotional stability diversity on team satisfaction, an internal criterion of team effectiveness, is in line with the proposition made by LePine et al (2011) regarding the transmission of effects from personality composition to team effectiveness. In addition, the direction of the effect is consistent with predictions under similarity/attraction and social categorization theories (Guillaume et al, 2012; Harrison and Klein 2007) and with recommendations for low levels of diversity in emotional stability (Moynihan and Peterson 2001).

6. Limitations and Future Research

The methodology employed in this study, wherein every student was required to fully respond to the relevant items of both questionnaires, resulted in a meaningful portion of the initial sample not being retained. This limitation is considerable, as it precluded the retention of the complete composition of certain teams. Additionally, the duration of the disciplines in which some students were enrolled, as well as the projects assigned to them, was short. This circumstance may have hindered the emergence of personality diversity because deep-level attributes typically become more salient throughout the course of team collaboration (Harrison et al, 2002).

In addition to the brevity of the group assignments, many were comprised of a singular assessment stage. It would be valuable to examine the proposed relationships in a longitudinal study involving teams with multiple assessments and demanding deadlines, such as student project teams (Peeters et al, 2006). The presence of multiple assessments can prompt team members to address biases or reinforce the advantages of diverse personalities, as outcomes from one task can serve as inputs to the following (Ilgen et al, 2005). This setting allows teams to refine their processes between tasks, adjusting them to the compositional characteristics they possess, and, conceivably, fosters collaboration skills in students.

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How Does Secure-base Leadership Influence Employee Well-being?

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Abstract: To improve their operations in fast-paced business environment, organizations need leaders who embed the required changes into corporate strategy and implement it accordingly to maintain competitive edge. However, organizational change is disruptive and have a significant impact on employee well-being, unfortunately, the literature does not provide a comprehensive answer on what kind of leadership can be more effective to support employee well-being in environmental uncertainty. To ensure a smooth transition in dynamic environment, among several influential leadership styles, recent research found that employee well-being in the organization can be improved through secure-base leadership. Since, secure-base leadership recognizes the value of employees and provide them with secure-base support in organization. However, the literature is silent on the attributes of secure-base leadership. Therefore, to explore the attributes of secure-base leadership and how these attributes affect employee overall well-being, the study conducted a thematic analysis, data was purposively collected via interview from eight respondents. The study found that secure-base leadership is characterized by the elements such as (1) autonomy to make decisions (2) maintaining healthy work life balance (3) open communication (4) handling conflicts (5) recognizing and appreciating employees (6) promoting employees wellbeing and mental health (7) collaboration and teamwork and (8) working on a challenging project, among others. All these attributes are positively related to employee overall well-being, for example secure-base leaders fulfil employee psychological needs by providing autonomy through trust and empowerment, fostering competence through feedback and development opportunities, and promoting relatedness through open communication and interpersonal support. Fulfilment of employee psychological needs positively affect intrinsic motivation which in turn lead to higher level of job satisfaction and employee overall well-being. Findings of the current study enriches the literature on the relationship between secure-base leadership and employees well-beings. Further, the study shed light on key attributes possess by secure-base leaders, therefore, HR manager should formulate selection criteria for mangers in which priority should be given to candidates with secure-base leadership attributes.

Keywords: Secure-base Leadership; Employee Well-being; Secure-base Leadership Attributes; Environmental Uncertainty

1. Background

Over the years, competition in the business sector has witnessed major changes regarding the way businesses carry out their operations. These changes place new demands on leadership and created a need to explore leadership and the leadership theories that have evolved. Consequently, the trend has been moved from a reliance on autocratic leadership and transactional leadership to a more comprehensive leadership style which seeks to consider the psychological and emotional needs of employees. The need to emphasize more secure leadership is a concept that has arisen from attachment theory and emphasizes that leaders who create a safe and secure environment for their employees enable them to take risks, explore, and express dissent without fear of negative consequences. Despite the wide range of available research on secure-base leadership, extensive studies have been needed to establish the impact of secure-base leadership on employee overall well-being (Zhang & li, 2024; Dong et al., 2023; Li & Zhang, 2023; Liu et al., 2022; Tu et al., 2022; Zhisong et al., 2021). Transformation leadership and the attachment theory have been instrumental in providing the background on leadership and the manner in which leadership is executed (Tan & Wu, 2022; Minhaj et al., 2019). However, research on how secure-base leadership operates within organizational settings remains limited. In addition, the changes in the workplace setting and the evolution of the job sector today are characterized by evolving workplace dynamics, including remote work arrangements and diverse workforce compositions. Adapting these changes warrant an investigation on secure-base leadership to ensure that organizations long-term goals are being met. Therefore, this study seeks to extend the research on secure-base leadership by exploring the attributes of secure-base leadership and the influence of secure-base leadership on employees overall well-being, thus providing insights for leaders and organizations concerning how they can promote a positive work environment in today's business world.

The study contributes to the existing literature in the following ways. First, the study demonstrate the attributes of secure-base leadership. Second, the study explore the significance of secure-base leadership on the employee well-being by examining the ways in which secure-base leaders can create a winning culture within organizations. Examining secure-base leadership through this study will provide leaders deeper insights into how they can foster employee satisfaction and promote employee well-being. This research has potentially far-reaching implications in leadership and in scholarship application by expanding the research on secure-base

leadership. Thirdly, exploring the influence of secure-base leadership on employee well-being and ultimately organizational performance can enhance our knowledge on effective leadership strategies that companies can implement in an ever-changing business environment and adjust their strategies and practices accordingly. Finally, this study will provide insights into how secure-base leadership can help organizations in promoting positive employee outcomes while providing further information on how to improve the relationships between the leaders and the employee in the workplace.

2. Literature Review

2.1 Theoretical Background

Secure-base leadership positively impacts employees' psychological needs and intrinsic motivation from self-determination, and attachment perspectives. Self-determination theory (RyanM & Deci, 2020; Yip et al., 2018; Ng & Ng, 2015) is linked to secure-base leadership as it is based on the foundation of personal fulfilment and establishing an environment where employees can experience a supportive and nurturing environment. For instance, promoting autonomy, relatedness and competence, secure-base leadership directly contributes to fulfilling these psychological needs, secure-base leadership also helps to establish a supportive and nurturing environment, promoting positive relationships within the team as they demonstrate accessibility, approachability, and genuine concern for their employees (Tafvelin & Stenling, 2021). This, in turn, affect well-being (Sodagar & Nastiezaie, 2021).

Similarly, employees in the organizations might see their leaders as attachment figures (Andriopoulou & Prowse, 2022; Mayseless & Popper, 2019; Hinojosa et al., 2014) thereby leading to positive work behaviours. The perception of employees about their leaders as a secure-base can lead to positive work outcomes. In this sense, we can argue that secure-base leadership has a direct link with the attachment theory in that it helps in creating elements such as support, trust, and safety, which are positively influencing the employees' day-to-day activities (Wu, & Parker, 2017).

3. Methodology

3.1 The Research Design

This study used a qualitative research approach to explore how secure-base leadership can be utilized to enhance employee well-being of a manufacturing organization. Semi-structured interviews served as the primary data collection technique. This approach allowed participants to share their narratives in an open manner. A total of eight employees were interviewed from various departments: Information Technology Department; Marketing Department; Manufacturing Department; Research and Development; Customer Service; Operations Department; Human Resources Department; Accounting and Finance Department. The selection of participants reflected a diversity in roles, departments, and tenure within the organization. This inclusive approach helped provide a comprehensive understanding on how secure-base leadership is functioned across various organizational departments and in the day-to-day operations. Participants were provided with clear and accessible information about the study's purpose, procedures, and potential outcomes. Informed consent was obtained, emphasizing the voluntary nature of participation and the confidentiality of their stories.

3.2 Thematic Analysis

As part of the research process the results were codified based on the themes related to secure-base leadership. The first step of the thematic analysis involved familiarizing ourselves with the data by reading and re-reading the interviews. This was key, as it allowed us to expand different elements, which included gaining a comprehensive understanding of the content and identifying initial ideas or patterns related to secure-base leadership. The next step in the thematic analysis was to interpret and contextualize the themes within the broader framework of secure-base leadership, and through this we examined the relationships between themes, explored variations in participants' perspectives, and identified any significant insights or patterns that emerged from the data.

4. Results and Discussion

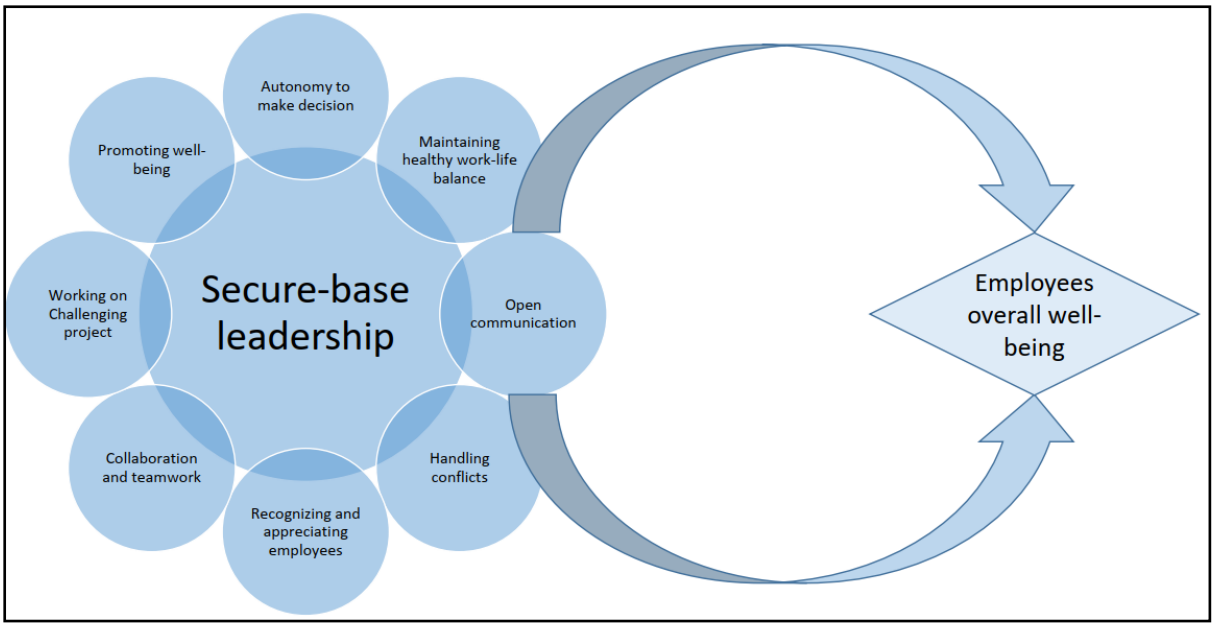
The results highlighted that communication and coordination are important in the workplace, and that it is the role of the leader to ensure that constant communication is occurring. Results show that the leaders were able to make sure that all departments were in constant communication. This was done through regular updates, meetings, and sometimes digital communication platforms, which helped maintain project alignment and transparency. Moreover, secure-base leaders also ensure that there must be a seamless flow of information between different departments and external vendors, and this is vital in aligning objectives and timelines. The results collaborate with the research by Wahid et al. (2024), Khalijian et al. (2023), Lee et al., (2015) who found that secure-base leadership is an important part of the company's success and that communication and coordination are vital to long-term success since they help to guarantee the happiness of employees.

Another finding of this research is the significance of strategic planning and execution, where the leaders provide clear directions and milestones and help the team understand expectations and the timeline, which is crucial for planning and prioritizing tasks. The results also indicated that organizations should come up with measures to promote flexibility in planning and execution, and that the leaders' flexibility helped the team navigate unforeseen challenges without derailing the project. Flexibility in the workplace is a crucial concept of secure-base leadership. These results are supported by another study (Wen et al., 2021) that points out the importance of flexibility in an organization setting.

A study by Messmann et al. (2022) shows the importance of autonomy in the decision-making process and how it can cultivate employee motivation. This is supported by the present study, which shows that with significant autonomy in decision-making, the leader was able to swiftly address issues, reallocate resources as needed, and adjust project timelines, all of which are crucial for keeping a project on track. On the other hand, the concept of resource and task management was evident from the research, which showed that effective delegation is fundamental to project management and hence, the leader's ability to assign tasks appropriately maximized efficiency and was paramount to project execution. Therefore, secure-base leaders should have the ability to work with limited resources, and as evidenced by this study, the leader's ability to manage and allocate limited resources effectively ensured that the project did not suffer despite constraints, showcasing skillful resource management. Managing resources in the workplace, allocating limited resources, and supporting employees were traits that were found to be aligned with secure-base leadership (Alblooshi et al., 2021; Joullié et al., 2021; Attia & Hadi, 2020).

Motivation was one of the key elements that emerged in the research and its connection to team dynamics and the implications this may have on the company. The results show that the leaders' efforts to encourage high performance and recognize contributions will probably boost morale and productivity while also fostering a culture of creativity (Tu et al., 2022; Cui Zhisong et al., 2021) and collaboration. In addition, the leader also relied on strategies such as recognition and professional development, providing opportunities for growth and regularly recognizing achievements greatly enhanced team satisfaction and loyalty (Kwarteng et al, 2024; Al Subaie & Hadi, 2024; Al-maaitah et al., 2021). Secure-base leaders have the ability to create a culture that promotes the employee motivation and at the same time identifies different ways to ensure that the employees are given opportunities, as evident from the research. This is align with (e.g., Ye et al., 2022; Malibari & Bajaba, 2022; Amina et al., 2021) findings.

The research also shows the necessity of risk and conflict management and that the leader's approach to handling conflicts through open communication and active listening helped in maintaining a harmonious work environment and employee well-being. Conflict resolution is important as it helps in improving the relationships between the employees and sees to it that conflicts are handled in a fair and transparent manner, which also has ability to impact the employee performance. Secure-base leadership can help in conflict resolution, which is key to a healthy work environment (Cvenkel, 2021) promoting these practices can also contribute to team cohesion. Özkan et al. (2023) indicated that managing conflict in the workplace is vital as it helps ensure that such conflicts have been managed effectively and timely. Secure-base leadership has the ability to ensure that employees have excellent work-life balance. This is consistent with (Alabdulazeem and Hadi, 2024).



Source: authors own compilation

Figure 1: Conceptual Framework

5. Conclusion

The purpose of this study was twofold; the study first explored the attributes of secure-base leadership and found that secure-base leadership is characterized by autonomy to make decision; maintaining healthy work environment and work life balance; open communication; handling conflicts; recognizing appreciating employees; promoting mental health; collaboration and teamwork and working on challenging projects. Results of thematic analysis also revealed that secure base leadership is positively related to employee well-being. For instance, secure-base leaders fulfil employee psychological needs and positively affect their intrinsic and extrinsic motivation which lead to employee job satisfaction and employee well-being; autonomy is a key component of secure-base leadership therefore, cultivating autonomy in the workplace helps cultivate the element of trust in the workplace, which will ultimately improve the relationship between the employees and the leaders. Secure-base leadership in the context of work-life balance involves creating an environment where employees feel supported in managing their professional and personal responsibilities. Similarly, communication and transparency are important parts of secure-base leadership, leaders foster transparency in the workplace by considering employees in the communication process. Transparency in the organization thus fosters trust and reduces uncertainty and anxiety among team members thereby leading to employee-wellbeing. Secure-base leadership can help in conflict resolution, which is key to a healthy work environment. By focusing on mental health and creating a supportive work environment, the leader ensured that the team remained healthy and productive. Secure-base leaders are able to provide the employees with the support they need for project execution, thus empowering employees to work on challenging projects.

5.1 Implications

The research undertaken shows that secure-base leadership plays a key role in improving the organization and the ability of the employees to function well within the organization and thus propelling the organization to success. While there are positive instances where leaders have contributed to employee well-being, motivation, and a sense of security (Moriano et al., 2021), there are also areas that need attention and improvement. The use of secure-base leadership can be an effective strategy for organizations to address their shortcomings while improving their overall effectiveness. Secure-base leaders have the ability to transform the organization. This can occur when the elements of trust and communication have been fostered. The importance of trust, transparent communication, and effective conflict resolution cannot be miscalculated. Moreover, an organization's commitment to employee well-being, both physically and mentally, is a key factor in creating a secure and supportive work environment. Therefore, secure leadership provides an environment that helps the employees focus on their individual strengths and secure-base leadership should continue to address identified

areas for improvement, and maintain an ongoing dialogue with employees to adapt to evolving needs. By doing so, the organization can foster a culture of secure leadership that not only meets the current expectations of employees but also prepares them for future challenges. However, regular feedback loops and open communication channels will be crucial in sustaining and enhancing the positive aspects of leadership identified through these interviews. It is the responsibility of the leader to provide the employees with the directions they need so that they can meet the goals that have been set.

5.2 Recommendations

Secure-base leaders should strive at all times show care and concern and in the process, they should be accepting as this helps instill employees with the confidence they need to navigate through the challenging situations they might face. Secure-base leaders have the knowledge, expertise, and experience they need to inquire and listen to the employees while relying on strategies such as the use of empathy, active listening, and open communication. Therefore, leaders should strive to create an environment where the employees feel appreciated and cared for, which will and help employees feel free to express themselves as well as their concerns. With this in mind, secure-base leaders also have the ability to focus on the elements such as positivity as this helps in motivating the employees to ensure that they are able to execute the set task as per the required standards. One of the main issues that often impacts employee performance is lack of support and the fear of negative consequences, which can severely hinder their ability to perform well.

In an organizational context, secure-base leaders have the ability to structure leadership in a way that promotes teamwork and collaboration. This is essential given that leaders should lead by example by demonstrating a healthy work-life balance themselves to set a precedent for the rest of the team. Moreover, leaders need to communicate the importance of work-life balance and encourage their teams to prioritize it, which will ultimately contribute to improving employee performance levels. However, the goal in this case is the feedback mechanism and the manner in which the communication has been structured to ensure that regular feedback mechanisms gauge the effectiveness of current policies and identify areas that may need adjustment. Secure leadership can enhance the work-life balance by relying on the proactive and adaptable approach and by acknowledging the diverse needs of employees, offering flexibility, improving communication, and leading by example, leaders can contribute significantly to creating a work environment that supports both professional success and personal well-being. As a result, the leaders should regularly assess the policies and refine policies based on employee feedback, in order to maintain a culture that values and prioritizes work-life balance. Once the policies have been modified, secure-base leaders develop the ability to promote and support work-life balance, which contributes not only to employee satisfaction but also to long-term organizational success and resilience.

According to secure leadership, teamwork not only enhances job satisfaction but also fosters a positive work culture, where employees feel valued and supported. Secure-base leaders have the ability to promote collaboration and teamwork within the company. This results in sharing ideas and coming up with strategies that target the achievement on the long-term goal of the company. Therefore, the support from the leaders is crucial to creating an employee culture within the company that promotes collaboration and teamwork, ultimately improving company performance. Finally, a leader is responsible for formulating policies and providing the resources that help in safeguarding their employee well-being and employee mental health. Through secure-base leadership, an organization can focus on the well-being and mental health and prioritize mental health to promote a healthy and supportive work environment, positively impacting employee morale and productivity.

5.3 Research Limitations

Although the study was a success overall, one of the main limitations was the sample size, which limited the amount of information collected. Another key limitation is that the study relied on the middle managers as the key respondents and did not include the perspectives of top management. Moreover, the research focused on a manufacturing company and did not explore other industries such as the service industry or other non-manufacturing industries. The qualitative nature of the study is also the main limitation however, the literature on secure-base leadership is not matured yet.

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Towards a Strategic Management Framework for Enhancing South Africa's Seafarer Development Programme: Addressing Placement Challenges

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Abstract: The global shortage of qualified seafarers, particularly at the officer level, presents both a challenge and an opportunity for South Africa. Despite the country's strategic location along critical international trade routes, South African seafarers face significant challenges in obtaining placement upon completion of their training. This article presents a systematic literature review on the placement challenges experienced by seafarers, supplemented with qualitative insights from South African stakeholders. The findings highlight the structural issues within South Africa's seafarer development programme and propose a strategic management framework to improve the placement and competitiveness of South African seafarers in the global maritime industry.

Keywords: Seafarer Development, Placement Challenges, Strategic Management Framework, Seafarer Cadetship, Ship Technology

1. Introduction

South Africa's 4000 km coastline offers potential for a competitive seafarer labour market. Despite a global shortage, South African cadets face difficulties in securing vessel placements, critical for their careers (Ruggunan & Kanengoni, 2017). While the economy relies on shipping and ocean resources, South Africa is not recognised as a major maritime nation and has yet to capitalise fully on its maritime potential.

As a leading African economy and active International Maritime Organisation (IMO) member (IMF, 2018), South Africa has not translated its ocean resources into substantial economic growth or job creation (Odeku, 2021). By 2018, only four South African-flagged vessels were registered (SAMSA, 2022), despite being on the IMO Whitelist for compliant training.

Mokhele (2015) highlighted the need for maritime development to reduce unemployment, but challenges persist. While initiatives like Operation Phakisa aim to enhance investment and job creation in the sector, placement difficulties remain (Ruggunan & Kanengoni, 2017).

This study investigates the challenges in seafarer placement and proposes a strategic management framework. It combines literature review and qualitative insights to address the central question: What obstacles do South African seafarers face in securing placements?

2. Methodology

This study combines an empirical literature review with qualitative analysis from stakeholder interviews in South Africa. The literature review covers academic publications, industry reports, and policy documents on global and South African seafarer development and placement challenges. Qualitative insights were derived from discussions with seafarers and maritime industry leaders.

Data Collection:

- *Sample*: Purposive sampling of 20 stakeholders, including education providers, industry leaders, and seafarers with 1-10+ years of experience.
- *Interviews*: Conducted 15 semi-structured interviews via Zoom, lasting 60-90 minutes, from June to August 2023.
- *Participant Selection*: Based on their roles in the seafarer development programme and experience with placement challenges.

Interview Structure:

- Semi-structured, focusing on barriers to placement, training gaps, gender disparities, and technological skills. Key questions explored challenges in the placement process and the role of education.

Ethical Considerations:

- Ethical approval from the University of KwaZulu-Natal's Research Ethics Committee. Informed consent ensured confidentiality and privacy, with anonymised data.

Data Analysis:

- Thematic analysis using NVivo, following Braun and Clarke's six-step process. Themes included 'barriers to female seafarer employment,' 'technological skill gaps,' and 'training opportunities.'

Validity and Reliability:

- Data triangulation through interviews and policy documents. Member checking and peer debriefing enhanced reliability. Limitations include potential participant bias and the regional focus on South Africa, affecting generalisability.

3. Literature Review

The 2021 BIMCO/ICS Seafarer Workforce Report highlights a global shortage of seafarers, particularly skilled officers for specialised vessels. Demand for these roles exceeds supply (Caesar et al., 2021). High turnover among officers is attributed to personal, organisational, and industry-related challenges, including isolation, family separation, and difficult working conditions (Gu et al., 2020; Cahoon et al., 2014).

Seafaring, once seen as a stable career, is no longer considered a lifelong occupation, especially among youth in developed countries, while developing countries dominate the supply of seafarers (Baum-Talmor, 2021; Wang & Yeo, 2016). Exploitation by crewing agencies, particularly in the Philippines and China, contributes to dissatisfaction and attrition (Zhao & Amante, 2005; Nguyen et al., 2014). Reduced training commitments from shipping companies and a decline in national fleets further exacerbate cadet training delays (Ghosh & Bowles, 2013).

The shortage of officers and oversupply of ratings results from mismatched demand and competition from land-based employers (Caesar et al., 2015). The cyclical nature of shipping often affects inexperienced seafarers seeking employment. Caesar et al. (2015) also note increased ship-to-shore mobility due to declining welfare standards. Addressing these imbalances requires coordinated action and strategic management to ensure sustainable training and employment opportunities.

3.1 The Role of Maritime Education and Training Institutions in Seafarer Training and Placement

Caesar, Baum-Talmor, and Kitada (2014) note ongoing quality issues in seafarer training despite STCW standards, emphasizing the need for updated training to ensure competency. Fei and Caesar (2018) point out that short sea tenures discourage investment in training, while Ghaderi (2019) suggests autonomous technologies could help address crew shortages.

Improving training could create sustainable career paths and reduce turnover. Caesar, Cahoon, and Fei (2014) call for MET systems that align with career needs, while Ghosh (2017) argues that traditional STCW assessments fail to develop industry-required skills, advocating for practical tests and simulators.

Islam et al. (2019) highlight the need for syllabus reviews, better onboard training, and advanced simulators. Maritime administrations must ensure compliance with STCW standards. Onyemechi and Nwokedi (2014) criticize West African training for focusing mainly on explicit knowledge, advocating for a mix of practical and academic approaches (Manuel, 2017).

Bauer (2008) warns that pressures like smaller crew sizes and fast turnaround times reduce training effectiveness, risking safety and performance (Nguyen et al., 2014; Fan, 2017). In Bangladesh, seafarers face employment barriers due to a lack of vessels and training resources. Islam et al. (2019) recommend expanding MET capacity to address these issues. Caesar et al. (2014) suggest that MET should address career sustainability to meet evolving industry needs. Van der Westhuizen (2023, 2024) emphasises the importance of youth accessibility to education and training.

3.2 Technology Developments in Shipping

Shipping, as a global industry, is heavily influenced by technological advancements. Smart vessels and automation are increasingly prevalent, offering potential solutions to the seafarer shortage (Kitada & Baum-

Talmor, 2019). With digitalisation and the Fourth Industrial Revolution, maritime stakeholders must adapt to new technologies (Abidin & Ismail, 2021; Hopcraft, 2021).

Technological progress has reshaped shipping work environments, encouraging cost reduction and regulatory compliance (Anvari, 2007; Ghaderi, 2019). Automation has reduced crew sizes, cutting costs but also leading to job dissatisfaction as tasks become routine (Cahoon & Haugstetter, 2008). Strengthening cyber security remains critical for shipping companies (Caralli et al., 2004).

Maritime businesses are investing in new technologies to improve efficiency, expecting crews, especially officers, to operate ships with greater precision (Kitada & Baum-Talmor, 2019). Despite automation, human intervention remains essential for tasks like customer service and safety, particularly on cruise ships.

Future seafarers will need advanced skills in navigation, robotics, and automation (Abidin & Ismail, 2021). Even with automation, roles such as maintenance and emergency operations will still require human input (Belcher et al., cited in Kinthaert, 2017).

Maritime Autonomous Surface Ships (MASS) aim to enhance safety and working conditions (Lee, Yun & Hong, 2019). The IMO defines four levels of autonomy, from semi-automated to fully autonomous ships (Rodseth, 2017; Ghaderi, 2019). MASS development will require Shore Control Centres (SCC) with skilled personnel (Kim et al., 2020). MET institutions must prepare seafarers to manage both automated and manual systems, as the shift to remote operations creates more land-based jobs and safer conditions (MarketsandMarkets, 2021).

4. Findings

4.1 Access to Cadetship

Caesar et al. (2014) point to limited availability and high competition for berths, leading to challenge when seafarers are requiring cadetship which is necessary for securing employment. This study found that one of the most significant challenges facing South African seafarers relates to the lack of training berths which require a collaborative approach by engaging with various stakeholders to address this challenge (SAMSA, 2022; SAIMI, 2024). The challenges with cadetship stems from the lack of merchant fleet owned by South African shipping companies or registered to fly the country's flag.

Furthermore, participants noted that although South Africa's training vessel, the **MV Agulhas**, has helped alleviate some of the bottlenecks, it remains unfunded and cannot accommodate all cadets seeking placements. This led to SAMSA as the maritime authority, having to carry the cost of managing and operating the training vessel. This has led to frustration and despair among aspiring seafarers, who having completed their coursework, have to spend years waiting for cadetship. Many of these seafarers are forced to seek employment outside the maritime industry with others ending up in sectors such as retail.

4.2 Employment Access and Gender Disparities

Working with the International Maritime Organisation, the specialised agency of the United Nations. the maritime industry has invested a lot of time, energy and effort on developing and increasing women participation in maritime. Women still constitute around 2% of the global seafaring workforce. The findings of this study reveal significant barriers to employment for South African seafarers, particularly for women and those from disadvantaged backgrounds. Female seafarers, in particular, face both structural and cultural barriers that limit their opportunities in the industry, despite global initiatives aimed at promoting gender equality (Ryals, 2023). Whereas shipping companies are often reluctant to employ women due to perceived risks and a lack of gender-sensitive working environments onboard vessels (MacNeil & Gosh, 2017), respondents of this study seem to agree that employment of women in maritime is an ongoing challenge, requiring more interventions.

4.3 Technological Skills and Capacity

Technological advancements in the maritime industry, including the shift towards automation and the development of **autonomous ships**, are reshaping the skill requirements for seafarers, with the industry seeking candidates with specialised technical skills to operate modern sophisticated and specialised vessels (Aboul-Dahab, 2021; Vagale, Osen, Brandsæter, Hovden, Kristiansen, & Bye, 2022). This study found that whereas the local maritime education and training institutions produce quality seafarers, they felt the need to upgrade their capacity to meet the technological developments in terms of human and infrastructural needs. The high cost of

modernising the training institutions negatively impact on the production of specialised seafarers which are globally needed.

4.4 Despondency, Vulnerability and Recruitment Scams

Due to the global competitiveness of seafarers, the challenge of finding employment has increased, leading to many graduates struggling to find cadetship and employment opportunities. Due to the long time it takes to find training and berth opportunities, some of the seafarers develop despondency and vulnerability. This study found that such despondency leads to vulnerability of being exploited by unscrupulous recruiters and scammers pretending to be maritime employers. Despondency also led to seafarers giving up on finding a job opportunity within a maritime environment, and opting for opportunities not related to their field of study.

4.5 Lack of Coordination and Management

Whereas SAMSA has led the seafarer development programme for the past years, SAIMI was later established with the purpose of coordinating and driving research and seafarer training. The study found that the challenges of ensuring that graduates access cadetship gets driven by SAIMI, whilst how completion of the training translate into an employment opportunity has no specific entity that champions it. There seems to be programmes of creating employment opportunities across the country, driven by respective entities and private organisations, with no central figure to champion a country delivery.

5. Discussion

5.1 Strategic Partnerships for Cadetship and Placement

To address the cadetship bottleneck, South Africa needs to invest in expanding training opportunities and partnerships with international shipping companies. Such an arrangement will assist in creating a pool of vessels that may be used to advance the training of seafarers. Also critical for such partnerships to flourish, is the need to provide policy clarity on building a vibrant maritime economy, which encourages market competitiveness. The country needs to offer incentives needed to rebuild its ship register competitiveness so as to attract shipowners to fly the South African flag on their merchant vessels. By engaging with other maritime nations, South Africa may also negotiate bilateral and multilateral agreements that seek to advance seafarer cadetship, including placement. Establishing strong internal and external partnerships is essential to achieve strategic success (Chiwawa, Wissink & Fox, 2021).

5.2 Capacitating Maritime Training Institutions for the Changing Role of the Seafarer

Whereas countries such as Denmark and Japan have successfully implemented the dual-purpose seafarer training (Sugimoto, 2004), the study found that there is no best type of training, as job opportunities existed for both training types. South Africa implemented the traditional specialised seafarer training type. With the need to increase the number of seafarers who are able to work on modern sophisticated specialised vessels, training institutions require the update and upgrade their technological infrastructure. Such upgrade would also require the purchasing of new simulators to mimic the new specialised vessels. Through this process, institutions may also be able to offer a wider reach of participants through using the respective technological platforms.

Considering the challenges that seafarers face at sea and how these contribute to their short career life span, maritime institutions need to integrate awareness and coping mechanisms into their curriculum to ensure that cadets and seafarers are trained and taught how to deal with stressors at sea. Gu et al. (2020) indicate such stressors include burnout, piracy, risky conditions, occupational diseases, workplace noise, cross-cultural communication, interpersonal stress, sleep deprivation, time pressure and being separated from family (Tavacıoğlu, Eski, & İnan, 2022). Furthermore, maritime employers must also be empowered through education and coaching on how to motivate seafarers to stay longer onboard vessels.

5.3 Overcoming Gender Barriers

To enhance gender diversity within the maritime industry, South Africa should implement targeted policies that promote the recruitment, retention, and advancement of female seafarers. This could include the development of **mentorship programmes**, gender-sensitive workplace policies, and partnerships with global organisations such as **Women in Maritime (WIMA)** (Kitada, 2021). The recruitment of females needs to be advanced by

investing in young females, setting up recruitment and support mechanisms. The study found the need to have mentors in the seafaring environment to guide the young seafarers to navigate the environment. Having such support systems equip the new young graduates with skills needed to deal with various social and economic challenges that they may experience as they transition their seafaring journey. The inability to manage these challenges leads to some crew members being overwhelmed and deciding to quit the profession (Gekara, 2009; Ljung, 2010; Caesar et al., 2015).

5.4 Decisive Leadership for Managing Seafarer Development Programme

Considering that the country is losing some of its prospective seafarers to other industries, not related to maritime, there is a need to have government intervention, providing strategic and decisive leadership. Through government leadership, the country may make it compulsory for certain cargoes to be handled by vessels which prioritise training and placement opportunities for South Africans. Creating and facilitating a safe environment for investing in the country' seafarers is critical to ensure preference of the local citizens. The establishment of a centralised **seafarer recruitment system** could also help streamline the placement process and reduce the time it takes for graduates to find cadetship and employment. Such a system will also create a safe platform for job seekers and potential employers to engage in employment relationship. With a centralised seafarer recruitment system, the country may also benefit from knowing the whereabouts of their citizens especially during natural disasters such as the recent Covid-19 pandemic. Also critical is the need to ensure that the promotion of the country's maritime gets driven at the highest level e.g. at the presidential level to ensure that it is part of the national agenda.

5.4.1 Developing a Strategic Response Model

Understanding the challenges that are experienced by seafarers is critical to ensure that the country develops policies and strategies that will assist in addressing such challenges. The highlighted key issues indicate the need to further explore and develop a programme aimed at ensuring training of seafarers translate into employment. With the growth potential of the maritime economy as detailed in the Operations Phakisa Oceans Economy programme, noting the high unemployment rate of South Africa which according to Stats SA's Quarterly Labour Force Survey had reached 33.5% in the second quarter of the year 2024, and the global seafarer shortage, there is a need to focus on maritime as a sector positioned to contribute immensely to reducing high unemployment. Developing the country's seafarer development programme, requires that inputs be gathered from various stakeholders on the respective aspects that require attention and proper management. The government adopted the comprehensive maritime transport policy which seeks to strategically position South Africa as one of the recognised maritime nations. Figure 1 provides a proposed strategic response model that the country should pursue in progressing this work.

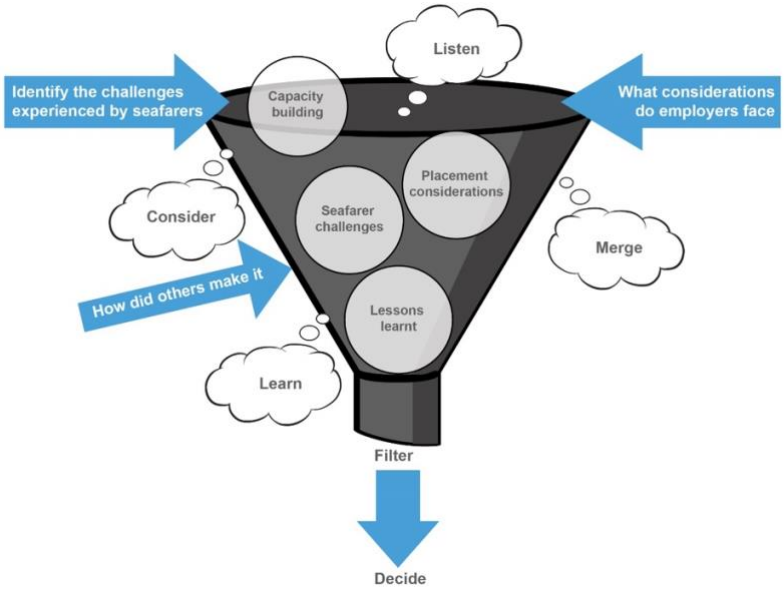

Figure 1: Strategic Management Framework

Source: Author's compilation

To develop a strategic response to the challenges seafarers encounter, there is a need for South Africa to conduct an assessment, analysis and development of a seafarer development programme which is informed by inputs from multiple stakeholders such as:

5.4.1.1 Seafarers and Labour Unions– to Identify the Challenges That They Experience in Finding Placement and in Their Careers.

Seafarers form an integral part of the programme, from the stages of training and development to working and developing sustainable seafarer capability. Seafarers has to ensure that they learn the trade, undertake their work with distinction, mentor the new generation of seafarers and impart their knowledge, skills and competencies by participating in the formal training and development of tomorrow's seafarers. In participating in the programme, seafarers need to strive to achieve quality seamanship and project a positive South African brand. It is also worth noting that seafarers may be represented by the labour union when dealing with matters of labour, including for bargaining purposes. This happens when the challenge of placement has been dealt with and issues of labour, conditions of working and salaries are concerned. Labour Unions are there to understand the labour challenges that their members experience in undertaking their daily operations.

5.4.1.2 Maritime Employers – to Understand What Managerial Considerations They Take in Placing Seafarers.

Maritime employers benefit from the training institutions producing quality seafarers and the government policies that aim to develop the seafarer development programme. In forming partnerships with the training institutions, maritime employers can provide insight into their business needs, guide the seafarers about the factors they consider in placement and provide training (cadetship) and job opportunities for seafarers. Maritime employers are responsible for ensuring that cadet and employment opportunities are made available to local seafarers.

5.4.1.3 Maritime Education and Training Institutions – to Understand how They Prepare Seafarers for the World of Work.

Maritime training institutions are essential to the programme, as they have to ensure that seafarers are properly trained to undertake their work and use new technologies. These institutions require setting up mechanisms that allow seafarers and employers to converge, thus enabling training that meets industry requirements. Training institutions need to ensure that they provide access to the industry (shipping companies, researchers, technology companies, etc.) to have input in developing training programmes. They need to develop strategies and plans to ensure they are well-capacitated to undertake their responsibilities. It is the responsibility of the training institution to provide quality training to seafarers and the industry in general. Additionally, the universities have to ensure that their seafarer training curriculum structure aligns with the National Qualifications Framework (NQF) to ensure recognition and portability of qualifications as required by the South African Qualifications Authority (SAQA). This will require that potential seafarers be allowed to meet their STCW requirements and acquire additional educational competencies that are required in the world of work, ranging from administrative, leadership, management, social and commercial.

5.4.1.4 Government and Maritime Administrations – to Understand and Learn how Others Have Managed to Develop Their own Seafarer Programmes

The government has a responsibility to facilitate ease of doing business. It has to implement regulations, policies and incentives that allow stakeholders to use their skills, knowledge and competencies to advance the seafarer development programme. The country needs to continue to develop and fast-track the maritime industry's transformation by putting the interests of South African citizens at the forefront, including facilitating ship ownership and registration. In growing the ship register, the government needs to assist with the preferential acquisition of cargo for the relevant shipping companies. It has to also assist the industry in building a particular brand of South African seafarers, as is the case with the other nations such as Philippines. The government is required to strive for the country to ratify conventions that apply to seafarers, domesticate these Conventions, and enforce compliance for a progressive seafarer development programme. In engaging with global partners, the government has to use its high offices (e.g. the presidency, ministerial and international relations, etc.) to promote the seafarer development programme.

5.4.1.5 Shipbuilders – to Understand What Technologies are Being Developed and Used Onboard Vessels, Impacting on the Current Role of Seafarers.

Engaging with shipbuilding companies is also essential for informing maritime education and training institutions on improving the skills and competencies required in operating the new built vessels, including the improved technological advancements.

To fully respond to the challenges, South Africa as a maritime nation need to listen to the inputs made by the respective stakeholders. It is also important to engage with other maritime nations to learn how they have managed to build their competitive advantage and positioned themselves as preferred labour suppliers. What is required is for South Africa to consider the respective inputs, analyse and merge the issues raised, including filtering them as part of developing and deciding on the strategic response that the country need to undertake. The role of government in facilitating and inculcating the fertile climate of investment is critical in this regard.

6. Conclusion

This study acknowledges limitations in terms of the geographical focus on South Africa and the limited sample size of stakeholders. Future research could broaden the scope to include comparative analyses with other emerging maritime nations to explore best practices in addressing placement challenges. Additionally, further quantitative studies could provide deeper insights into the impact of technological training on employment outcomes. By refining the strategic management framework through continuous stakeholder engagement, South Africa can progressively enhance the career prospects of its seafarers.

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Reflecting on the Journeys of Women in Higher Education Leadership: A Case Study in South Africa

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Abstract: Indra Nooyi (2021, p. 273/4), former Chairperson and CEO, PepsiCo, wrote in her biography on why she accepted as many invitations as possible to conferences in support of and to advance women: "These events are important for keeping society's inequities in the spotlight and for supporting women as they manoeuvre in tough careers. But they do more than that. They build our sisterhood. Women share. We gain resolve when we hear others' stories and meet people who sympathize with our struggles". This paper shares the stories of four women who have achieved the highest levels of leadership in South Africa's public universities. The sharing the journeys and experiences of two deputy vice-chancellors and two vice-chancellors, pick up on themes that echo through time, in supporting and advancing equity in and towards leadership. In a society where patriarchy still dominates and holds a violent, oppressive grip over women and girl-children, women's stories of struggle and achievement need to be told. In their navigation and victories over their own challenges, these women become the role models for young women and girl-children. Their achievements affirm women, their resilience and strength. Their determination and courage in taking up apex positions in universities, affirm women as equal members of society, debunking patriarchal notions of gendered roles and spaces. The paper highlights their lessons learnt, and contributes to the body of knowledge on the intrinsic and extrinsic attributes and drivers that women develop and adopt on these journeys.

Keywords: Commonalities, Ethics, Patriarchy, Experiences, Decisions

1. Introduction

Thirty years after the first South African democratic elections, despite one of the most democratic constitutions (South Africa, 1996) which embeds gender equality, South African public higher education institutions (HEIs) continue to reflect dismally in the number of women in positions of senior/executive leadership. Literature and engagements with leadership in these HEIs hold the promises and intentions of active engagement and the establishment of supportive and enabling structures towards advancing women in leadership Moodly, 2022, 2021a and b, Toni and Moodly, 2019, Moodly and Toni, 2017, a, b and c). However, gender equity in leadership has not been achieved. In 2014 (Moodly, 2015), 17 percent of HEIs were women. Ten years later and thirty years into the South African democracy, though there has been an increase to 26, 9 percent (as per a desktop review), the figure is way below fifty percent despite women being 51.3 % of the population (World Data Atlas, 2023).

Women in leadership are critical towards the advancement of a more socially just and equal society. Women contribute to the socio-economic advancement of society, and it is common knowledge that, amongst others, they are also heads of households, and are more often than not single/sole income earners carrying their families. Yet, as expanded in the literature below, women and girl-children continue to be viewed and treated as unequal to men and boy-children, in the home, social and workplace contexts. This is an injustice to women and girl-children and hold women in positions of subjugation. This is destructively and sadly manifested in the alarming and unacceptable acts of gender-based violence and femicide (GBVF). Tragically there continues to be an increase in GBVF in South Africa. Clifford, Nair and Sefara, (2022), reported that, "quarterly crime statistics released in June 2022 for January to March, showed "murders of women rose 17.5% year on year, with 898 women killed in the period. Rapes increased 13.7% with 10, 818 reported cases". They associated GBVF with the inequalities of a predominantly patriarchal society. It is for this and several reasons that it is argued that women must be encouraged and supported towards and within spaces of leadership. In challenging and debunking these views of women and girl-children as inferior and subservient, government and general society must act to stop patriarchy and its associated oppressive practices. As more women take up spaces of leadership beside men, and at times may outnumber men in these spaces, these positions of power and influence must be used responsibly towards a more just and equal society. It is in physically occupying spaces of authority and leadership, that the strongest message reverberates that women occupy these spaces as capable and competent and are deserving of acknowledgement. The paper does not seek to subjugate men nor boy-children. It seeks to affirm and position girl-children and women as equal members to men and boy-children in society.

1.1 Gender

Though the paper does not seek to argue a position on gender, it is acknowledged that gender is referred to in binary terms of men/boy-children and women/girl-children. Gender identity may not always be experienced according to these binaries.

1.2 Literature Review

1.2.1 Women's Enfranchisement in South Africa

It may be something that South Africans now take for granted, but black people in general and white women did not always have the right to vote. Women of all race classifications were excluded from voting up until 1930, when white women were enfranchised. Black people (classified according to those of mixed race "coloured", Indian and African) remained disenfranchised under the apartheid (separate) system to early 1992 (Dall, 2022). In 1892, in the Cape House of Assembly there was a call to "enfranchise women". The response was "cheers and laughter" with traditional "sayings and scripture" quoted condemning the proposal "out of hand". In 1930 white women were granted the power to vote despite the objections of some senators, and reluctant acceptance by others who argued that "the bill was 'a movement away from the home', as a woman who 'occupied a professional position … kept a man out of a position, shirked the responsibility of marriage and prevented a man from marrying because he did not earn the income which would make it possible for him to marry". Though these senators were in the minority and the Women's Enfranchisement Act was passed, it is a disturbing thought that such patriarchal, sexist views still prevail. Sadly, though this Act signaled a move away from sexism, it was an indication of the rise of racism. It took a further 64 years before all South African men and women had the right to vote.

1.2.2 Marginalisation of Women

Women still suffer in all aspects, including economically and socially. Mazibuko (2022), paints a sad and pathetic picture of the impact of the COVID-19 pandemic on women's economic participation, quoting statistics that reflect that "women's economic participation has yet to recover to pre-pandemic levels, while men's had recovered by March 2021". She cites a report by the World Economic Forum that states that "it will take 132 years at the current pace of change to achieve gender equity" in the areas of economic participation and opportunity, educational attainment, health and survival, as well as political empowerment. Whereas with the run-up to 2020, gender parity was forecasted within 100 years, with the 18 months of the pandemic "we have squandered 32 years' progress". She further states that all "five of the best -ranking countries in the WEF global gender gap report have a woman head of government". She concludes that "it's clear that one of our most important priorities for gender equality must be women's political representation".

Barkhuizen, E.N, G Masakane, and L van der Sluis (2022), state that even though more women are entering the SA professional job market, they continue to experience challenges to obtain "leadership or senior executive positions." Women only hold 23.5% senior management positions and 34.5% of executive positions. They further state that part of the challenges in the SA workplace is that it requires "female leaders to challenge patriarchal systems and foster pluralistic leadership cultures that embrace transformation". "The majority of gender inequality practices in organisations result from our societies". Society perpetuates women's marginalisation by fostering oppressive beliefs and values that continue to be unjust to women, with the "predominance of men in our social, political, cultural and economic spheres tending to "aggravate this". They go on to state that "a more significant representation of women leaders can improve (women's) self-perceptions of career progression and boost self-confidence in their performance in male -dominated environments". Significantly, they cite research which indicates that "it is possible that increasing the number of women in senior leadership positions will help to reduce incidents of sexual harassment" and that "companies with a higher representation of female directors experienced less female harassment". This re-affirms and extends the argument that women need women as role models and that women in positions of leadership, together with male counterparts, must exercise agency and positional power to amplify the voices calling for social justice for women, girl-children and those who are marginalised.

2. Four Women's Journeys Towards the Highest Levels of Higher Education Leadership

This paper presents part of a long-term project of conversations with men and women in HE leadership. In total, to date, six men and thirteen women in leadership, formed part of the project of individual conversations. This paper presents conversations focused on the pathways followed by four women. For anonymity they are known as Participants A, B, C and D. The women were identified as part of a broader process of identifying women in the positions of Deputy Vice-Chancellor (DVC) and Vice-Chancellor (VC) in the twenty-six public South African universities. Invitations were extended to participate in individual conversations on their journeys and experiences towards and within leadership.

2.1 Profiles

The four participants were all in the age group 50-65, at the time of the conversations. One declared her marital status as married, one as single, and the others did not share this information. Two had two children each, with one having one child and one having none. Participants A and C started out in middle management (as Heads of Department) in the early 2000s. Eventually Participant C took up an executive leadership role in 2019. Participant D took up an executive leadership role as Dean which she held for a number of years, after which in 2019 she became a Deputy Vice-Chancellor (DVC), onwards to becoming a Vice-Chancellor (VC). Participant B had been in middle management in a faculty leadership position (around 2000s); then took up an external senior position in government, to come back to HE in a DVC position onwards to VC in the period 2017 onwards.

2.2 Methodology

Questions were based on themes as reflected in literature, with an open-ended approach to allow for in-depth probing or further sharing as the conversation flowed. An analysis of the questions as clustered according to themes, revealed areas of commonalities, lessons learned and challenges as outlined below.

3. Findings

This section comprises areas of commonality and lessons learned. Commonalities are clustered as common positive areas and common barriers and challenges. The word count limitation permits only a selection of experiences for discussion.

3.1 Positive Areas of Commonality

The women in the came into the positions of DVCs and VCs from the period 2017, while in the age group 50-65. None were VCs during the Fallist period, in which many historically white institutions experienced traumatic and violent protest action and instability with VCs bearing the brunt of the pressures of the time (Jansen, 2017). All had been in middle management positions from the early 2000s for several years.

3.1.1 Positions of Leadership Start off at a Young age

Participant C was a monitor and a prefect at school. This grew to other positions of leadership such as deputy principalship, onwards to university positions of leadership at middle management level. Participant B was also a leader at school, though interestingly she stated that "school leadership positions found me". She had never thought of herself as a leader. She credits her university student leadership trajectory to her school leadership foundation. She had captained the sports team, was involved in student societies, where she was exposed to "leadership development". Still, she did not realise that it was "a significant part" of her "being". When she looked back, she realized that these roles were "raising the awareness within me" that this was leadership and with training, and a deeper awareness of a "body of knowledge" around leadership developed.

3.1.2 Developing an Identity of Leadership Through Career Trajectory

All participants had held various positions of responsibility within the university setting. Participant B, for example, had held various positions as a coordinator, also becoming involved in the broader university sector through projects. It was then only that she began to understand that "leadership was part of my identity".

3.1.3 Women are Supported Towards Leadership

A theme that also reverberates through literature, participants shared how through support within both a formal and informal nature, formed part of their journey and developed their leadership. Participate C indicated that an "astute head of department" gave "me opportunities". This included timetable coordination, in which some of the skills learnt included "negotiating with people". Participant D indicated that interventions were put in place, such as conference attendances and presentations. Exposure and collaboration contributed towards strengthening her career trajectory as she gained a more global perspective of her field, becoming an associate professor in the early 2000s. She started in a DVC position in 2019.

3.1.4 Mentors/ Lack of Mentors/ Role Models/Lack of Role Models

Participant B indicated that her journey to leadership started when she decided to become an academic. Her supervisor (a male) was a mentor to her, and at the time, there were not many black women in her field, so as "to engage" and "to understand the space (of work)". Her journey was "difficult" and there were not many black women as role models/ mentors in her chosen field, but she was "determined to become an academic.

3.1.5 Ethical Values

Participant C also shared that her "humble beginnings" made her the woman she had become. These beginnings taught her to be "assertive", "hardworking", "empathetic", "firm and steadfast of values", which were learnt. She cited her three key values, as "hard work", "integrity and dependability (*and)* respect".

3.1.6 Leadership is not Always Planned

Most participants indicated that they had not consciously thought of or planned to follow leadership paths in HE. Participant A indicated that nothing for her "has ever been planned", though her career was not "haphazard". What drove her were "issues of humanity" and "working with knowledge… in spaces it can make a difference". Working in academia was an opportunity to use knowledge to make a difference. Participant B described herself as a "reluctant leader" and that she did not "realise" that she was a leader. The vice-chancellor had encouraged her to consider a position of executive leadership. It was around 2012 when she started aspiring towards positions of HE leadership. This was as she was working within a university environment where transformation and policy matters were being addressed, and in which "an environment *was created*" where she could understand the milieu and the roles of a vice -chancellor. This gave her the courage to consider such a role and to see herself in such a position. With the fallist movement of 2015/16 and the protest action, she assumed that such jobs were for men and that she did not want to find herself in that space (of leadership during a time of violent protests). She did not want to be "terrorised". She acknowledged that men who held such positions at the time were experiencing a harrowing time and that she was not ready nor willing to put herself in such a position. However, in attending leadership courses as offered by HERS-SA (a higher education leadership academy established as a support structure for women in HEIs), she started planning for a career in HE executive leadership. Participant D indicated that her trajectory towards executive leadership was also not planned. Though she was in the HE space, she did not know what a VC was until "years later when she became a chair of department". As women move on an academic leadership trajectory, it is *then* that the idea of executive leadership becomes a tangible possibility that they start to consider. Participant D indicated that she wanted to learn as much as possible and to "volunteer for almost everything", and in doing so, she realized that "it *can* be done", that she could become a DVC and VC.

3.1.7 Positive Experiences

Participant B indicated expressed positivity in "being able to get challenging things done, putting together new structures, and working collaboratively with people in these. In the COVID-19 pandemic context she had to find "approaches" other than face-to-face meetings to communicate, encourage and motivate academics. She looked at options of breakaways with HoDs and Deans, to form a "cohesiveness around the academic project". This included writing letters to academic staff during the lockdown. This assisted giving direction and making sense for herself and others of what everyone was experiencing during the pandemic. This was also more engaging than emails. Participant C found "being affirmed by those people" she regarded as "great in higher education", was a positive experience. Also, working with international scholars and being invited to do presentations and to apply for "key roles". Being acknowledged by being nominated for special awards was affirming. It also made one "reflect deeply on what you're doing and your purpose". Participant D indicated

that being in the academic space, presented opportunities which may not be presented in any other space. She cited the flexibility of not having to be at work all the time, but also having time to work from home without abusing the practice. Also, working with "brilliant academics", in a space of "ideas and knowledge". It was also a space of students who "who have a very interesting way of making you look at life in a very different way". This excited participant D.

3.1.8 About Being a Role Model

When asked whether the participants saw themselves as role models, the responses were as follows:

Participant B who had indicated she did not see herself as a leader for a very long time, indicated that she thought she had become a role model. She described herself as a "reluctant leader" until she had to take an "upfront leadership role". Her experience was of younger generation, particularly women approaching her and indicating they have been able to learn from her. They looked at her approach, followed her advice on literature, and they shared literature with her as well. Participant C was enthusiastic in her response, ÿes of course I am"…for all women, not only black women." She saw herself also as modeling (as in a role model) for men and young boys. Young people often sent her messages of support, thanking her for her mentorship and support. Participant D also agreed that she saw herself as a role model for young women, encouraging them and helping them to achieve their goals.

3.2 Barriers and Challenges as Areas of Commonality

3.2.1 Patriarchy and Male Dominance

All participants spoke of patriarchal experiences. Participant B described how her "male counterparts, with fewer qualifications were offered permanent employment", whereas she, with a Master's degree at the time, "battled to get a permanent appointment". Her environment was not particularly enabling" to women, being male dominated and she left as soon as an opportunity presented itself. Yet, she experienced similar challenges in her new environment. Not only was her workspace male dominated, it was also reminiscent of the apartheid era. She was on her own, pursuing a PhD without a "community of women" in her field, with whom she could work and who could encourage her. It was just her and her "ambition" and it was a "struggle". As she worked and read towards her PhD, her first supervisor was a white male, who met her once and when she told him what she wanted to do, he responded that she was "ambitious" and that it was not "going to happen". She got "discouraged" and did not tell her dean that she was no longer going to pursuit her studies. Her dean, a woman, somehow discovered that she had become discouraged, engaged her, listened to the challenges, picked up the phone and contacted her counterpart at the other institution, and got her a female supervisor (a white woman). Having a female supervisor who "understood" what she wanted to do, was a key factor to her successful completion of her studies, otherwise as she stated, "I would have given up".

3.2.2 Being Undermined as a Woman

Participant A, who at the time "managed teams of men", indicated that she tried to "mix" the team, but that there was always someone who "undermined you". This was as a "woman" and not necessarily as a "leader". However, she was not deterred. She addressed these matters in a "non-confrontational way", treating persons with respect as "you always want them to respect you back". She described herself as a "gender activist" and indicated that she used "the platform" (her position) to "speak to the issues". Participant C stated that she was undermined as a woman, and in particular, as a black woman. She cited the allocation of black students only in her roles as supervisor; as well as being excluded by language. Afrikaans (an indigenous South African language not spoken by all persons) was commonly used as a means of communication both formally and informally. Earning lower salaries than male counterparts was also part of the discrimination she experienced. This made her realise that "as a woman you would always be at the bottom", regardless of your portfolio. Participant C further shared that she worked well with men, and "as long as they got some benefits of some kind from that working relationship, it was fine". But when she became "assertive – when you spoke up against things you did not like… it (the relationship) was not so good".

3.2.3 Balancing Family and Career

Participant A shared that challenges of balancing family and career were both "emotional and physical". She decided not to choose between the two but to "get all the help" that she could in navigating the challenges.

3.3 Lessons Learned

3.3.1 Managing People Issues and Making Firm Decisions – Finding the Balance

Participant B indicated that she had to find a balance between being firm and being caring, indicating that one had to be "encouraging…, reassuring" and "tough minded". It was initially difficult in the position of leadership with five men within her division and she also had to learn "assertiveness", which extended to the student leadership who had once "barged in" on a meeting. Participant C advised at looking at the positive side in challenging situations and how to these into opportunities, as well as not to "panic". She used informal mentors and "learning by watching" as strategies in the absence of appointed mentors. She got "involved" in projects and advised that one "work hard and keep your integrity." She encouraged focus and to "make it difficult for people who want to bring you down." Participant D emphasized on holding people accountable, but always being "humane", to be kind, and "not (to) compromise your integrity." Just as with participant C, she advised that one does what is right, and not what is popular. Decisions based on popularity are "not sustainable and may compromise you in the end".

3.3.2 Support of Family and at Work

Participant A acknowledged the support of her partner as her children were still growing up. She also described "an ecosystem of friends and colleagues" who supported her "symbolically" and through assisting with transporting children to and from school and other events/occasions. This taught her to "use help and reciprocate". Participant B spoke of support of HoDs, rotational responsibilities, working as a team and creating a supportive environment.

3.3.3 Watching /Observing

As in the case of participant C, participant B watched "different leaders to see what I could learn". Her VC at the time was a male, who could use his "height and voice to command presence". As she was short and soft-spoken, she had to learn to "use her voice more". She shared an experience where, with students during the fallist protest actions, she would assert authority in meetings through "having them sitting at table patterned in a circle with her standing in the middle, which gave her a "sense of height". It was "exposure to great leaders" in HE rather than mentorship and reading that assisted her in her leadership journey.

3.3.4 Exposure at the University Level

Participant C shared that getting involved in committees and representing the university in external meetings and with organisations prepared her towards leadership. She saw this as "good exposure" and a form of " "indirect mentoring". She also indicated that at a former institution, she was also encouraged to attend conferences to present papers (a non-negotiable as part of attendance). While at a Conference she was encouraged to visit other places such as universities and libraries to further develop herself. She co-published with her mentors, and "thrived on the positive words of great scholars and people in academia". Participant C acknowledged that it was positive words of encouragement, such as from one her former VCs (a man), that inspired her confidence. By being encouraged and being willing to participate in committees external to her university, the exposure to those "structures" and the people who served on them, also contributed to her growth. Participant C's decision to take up these opportunities also speaks to *exercising self-agency and making use of opportunities*.

3.3.5 Sheer Determination to Improve, Crisis and Leadership

For participant D, in the absence of mentors, it was her "sheer determination … to improve" that drove her, together with the help of the Dean. Participant B was in executive leadership at the time of the fallist movement. She described this as a "defining moment". This is where all her learning on leadership came together.

4. Discussion and Conclusion

From the themes it is argued that those in positions of power and influence are still the gatekeepers to women's pathways towards leadership. Part of the success stories of these women, is their intrinsic drive, but also the motivation, exposure and support by those in leadership. This power and influence, when positively exercised, encourages, supports and motivates women towards and in positions of leadership. The women who participated in these conversations also had the courage to use their agency, were driven and worked towards

their goals. They were propelled by others in leadership who guided and mentored them. This speaks to the journey of leadership as both an individual and collective one. Leadership did not start at the point of the positions towards which they aspired. It is their entire journey, from the time of their youth, and driven by decisions that they made, with guidance. From their journeys come the lessons to learn, observe, read and practice the ethical strategies of those who have achieved, despite patriarchy and its oppressive culture. The journeys also affirm that women come into leadership positions, not always through a conscious goal or trajectory, but arrive at this through their academic journeys, and as guided by others in leadership. Each person's voice matters. The achievements affirm women as capable and competent in leadership. It reaffirms that one should not give any person power over oneself and should not be deterred towards aspiring to the highest levels of academic leadership, not only as self-affirmation, but also as an affirmation of women and girl-children.

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Governance and Leadership in Advancing Entrepreneurial Universities: Exploring Awareness and Change Dynamics in South Africa

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Abstract: This research explores the role of awareness, as framed by the ADKAR (Awareness, Desire, Knowledge, Ability, and Reinforcement) change management model, in driving the transformation of South African higher education institutions (HEIs) into Entrepreneurial Universities (EnU). The study focuses on the critical question of whether raising awareness of entrepreneurship among academics can catalyse transformative changes within universities, fostering an entrepreneurial mindset and practices across the institution. In the context of South Africa's socio-economic challenges, such as high unemployment and inequality, entrepreneurial universities are seen as key drivers of innovation and economic development. The research findings underscore that awareness, the foundational step of the ADKAR model, is essential for initiating the entrepreneurial shift within HEIs. Academics who are aware of the importance of entrepreneurship are more likely to engage in activities that promote innovation, student entrepreneurship, and industry collaboration. However, the study also highlights that awareness alone is insufficient for a full institutional transformation. Leadership commitment and active involvement are critical in moving beyond awareness to implement sustainable entrepreneurial initiatives. Without strong leadership that aligns institutional governance structures and policies with entrepreneurial objectives, the entrepreneurial agenda may struggle to gain traction. The research concludes that while raising awareness among academics is a necessary first step, leadership at universities must also be equipped with the skills and understanding to champion entrepreneurship at an institutional level. Comprehensive leadership training, continuous evaluation of entrepreneurial initiatives, and fostering cross-departmental and external collaborations are essential for sustaining momentum towards the full realisation of Entrepreneurial Universities in South Africa. This study contributes to the broader discourse on entrepreneurship in higher education by providing insights into the specific challenges and opportunities facing South African universities as they navigate the path towards becoming entrepreneurial institutions.

Keywords: Entrepreneurial University, ADKAR Change Model, Awareness, South Africa, Higher Education, Change Management

1. Introduction

The rapid evolution of knowledge-based societies has significantly transformed the role and function of higher education institutions, particularly universities (Baporikar, 2022). No longer are universities merely centres for the dissemination of knowledge, focusing solely on teaching and research. Instead, they are increasingly expected to play a pivotal role in national economic development, becoming essential actors in driving innovation and economic growth (Khoshhal, Yaghoubi, and Salarzehi, 2024). This shift reflects the broader understanding that universities are foundational to the progress of civilisation, with their education systems shaping the values, beliefs, and skills necessary for national development (Khoshhal, Yaghoubi, and Salarzehi, 2024). As a result, the concept of the *entrepreneurial university* has gained prominence, particularly within global education and innovation systems (Van der Westhuizen, 2023, 2024).

Unlike traditional universities, entrepreneurial universities are characterised by their adaptability, responsiveness to external environments, and ability to foster collaboration across disciplines and industries (Van der Westhuizen, 2023, 2024). They serve as incubators for entrepreneurial thinking and skill development, actively engaging both staff and students in managing innovative projects. Moreover, entrepreneurial universities are not solely reliant on government funding; they are proficient in generating income from diverse sources, which supports their capacity for sustained innovation (Van der Westhuizen, 2023, 2024). This paradigm shift reflects a growing recognition of the need for universities to contribute more directly to solving socio-economic challenges.

In the South African context, universities face additional pressures stemming from deep-rooted socio-economic challenges, historical legacies, and the ongoing effects of globalisation. High unemployment rates, particularly among youth, and socio-economic inequality necessitate a reimagining of the role of universities as drivers of social and economic change. To meet these demands, South African universities are increasingly encouraged to adopt entrepreneurial paradigms, positioning themselves as critical enablers of socio-economic development through innovation, job creation, and community engagement. However, this transformation is not automatic,

requiring deliberate and sustained efforts to raise awareness of entrepreneurship among academics. Building this awareness is particularly important in overcoming historical inertia and driving the necessary cultural shift towards entrepreneurship within these institutions.

This paper examines the role of awareness, as articulated in the ADKAR change management model, in fostering the development of Entrepreneurial Universities (EnU) in South Africa. The ADKAR model (Awareness, Desire, Knowledge, Ability, and Reinforcement) highlights awareness as the first step in enabling meaningful organisational change. Within the university context, increasing academics' awareness of the importance of entrepreneurship is a crucial element in cultivating an entrepreneurial mindset across the institution. By focusing on the current levels of awareness and their subsequent impact on entrepreneurial activities within South African universities, this study aims to contribute to the broader discourse on transforming higher education institutions into entrepreneurial universities. The objective of this research is to determine whether raising awareness of entrepreneurship among academics catalyses transformative change, enabling universities to better respond to national development needs through entrepreneurial practices.

2. Literature Review

2.1 The Concept of Entrepreneurial Universities

There is no consistent definition of an entrepreneurial university. According to Hannon (2013), the entrepreneurial university can take on many different forms. There is no one definition for it because it is complex (Volpe, 2018). Due to the various needs of universities around the world, as well as the variations in how each country's cultures and socioeconomic situations have developed, establishing a global definition would not be suitable (Sultan, 2017). Entrepreneurial universities need to be explored in their context, however the journey from the traditional university to the entrepreneurial university is not an easy one and requires strategies and processes (Baporikar 2022). Four opportunities present itself for universities in Africa to be entrepreneurial according to the Economic Commission for Africa (2023) 1) Higher education in Africa is expanding at a rapid high rate, (2) Africa has a young population of which is likely to be more entrepreneurial in nature and drive demand for higher education, (3) the high unemployment rate in Africa puts pressure on universities to be entrepreneurial in nature(4) African research and development system are the developmental stage and higher education, and the public sector are the key stakeholders in development and research (5) the increase in demand for knowledge has positioned universities to be at the center of national innovation systems. (6) universities are crucial in solving global and national challenges.

In the South African context , developing entrepreneurial universities is essential to combat the country's high unemployment rates and socio-economic disparities.

Despite different definitions, entrepreneurial universities are defined by their ability to foster innovation, collaboration, and entrepreneurial mindsets among their staff and students.

The concept of an entrepreneurial university has gained traction globally, particularly as higher education institutions are increasingly expected to contribute to national economic development through innovation and entrepreneurship (Etzkowitz, 2008). In the South African context, the shift towards entrepreneurial universities is critical given the socio-economic challenges, including high youth unemployment and the need for new knowledge-driven economic growth (Mokoqama, 2024; Wangenge-Ouma & Tawana, 2020). South African universities must develop institutional capacities that foster entrepreneurial mindsets among staff and students to align with global trends of innovation and social impact (Mutanda, Lekhanya, & Moyo, 2018).

An entrepreneurial university in South Africa is characterised by its ability to balance traditional academic roles with the demand for industry collaboration, innovation, and student entrepreneurship (Van der Westhuizen, 2023). Van der Westhuizen's **Ecosystem Theory** highlights the importance of creating synergies between academic institutions, government, and industry to build supportive ecosystems that foster entrepreneurial thinking and practical application of entrepreneurial skills (Van der Westhuizen, 2023, 2024).

2.2 The ADKAR Change Model

ADKAR, a model for change management. The ADKAR model was developed for Prosci in 2004, and Haitt later wrote a book on it in 2006 (Kiani & Sha, 2014). Hiatt, who spent several years in the field of change management, deliberately began to immerse himself in understanding why employees resist change. From this quest, he discovered that the most challenging problems dealt with people and not things (Hiatt, 2006). Thus, the catalyst

for the conception of the ADKAR model was a response to the several change management approaches developed by different authors and consultants (Hiatt, 2006). Furthermore, the approaches dwelt more on activities to manage change, such as communication, assessments and coaching (Hiatt, 2006), thus describing how the conception of ADKAR was brought to life because of wanting an approach more results orientated. The model is centred on the notion that the individual changes, not the organisation (Chen & Osei, 2018). However, these same principles can be applied in a group setting or the entire organisation (Calder, 2013). ADKAR is an acronym for awareness, desire, knowledge, ability and reinforcement (Calder, 2013). This model provides simple action-based steps to control change (Boca, 2013). Awareness is the foundation, as individuals and organisations cannot change if they are unaware of the need for change (Prosci, 2003). In the context of South African universities, raising awareness among academics is vital to initiating entrepreneurial transformation.

The ADKAR model (Awareness, Desire, Knowledge, Ability, and Reinforcement) is a widely recognised framework for managing change in organisations (Prosci, 2003). In higher education, especially in South Africa, the awareness component is crucial, as it lays the foundation for any transformative change towards entrepreneurship. Raising awareness among academics of the need for entrepreneurial initiatives is the first step in fostering a culture of innovation within universities (Nistler, 2014).

Research by Wangenge-Ouma and Tawana (2020) emphasises that many South African universities still operate under governance structures rooted in colonial and apartheid legacies, which can hinder transformation. Awareness campaigns are essential to dismantle these outdated structures and promote a modern, entrepreneurial mindset among both academics and leadership (Wangenge-Ouma & Tawana, 2020). This aligns with Van der Westhuizen's findings, which argue that ecosystem-based awareness strategies help build a collective understanding of the value of entrepreneurship within the academic community (Van der Westhuizen, 2023).

2.3 Governance and Leadership in Higher Education

Kotter (2007) says that when one thinks of change, one thinks of leaders, and unless the head of the organisation actively supports the change, it will not be possible. This aligns with Cameron and Green (2004)those who describe that leaders are at the center of these three outcomes: "outcomes: developing and delivering clear outcomes; Interests: mobilizing influence, authority, and power; and emotions: enabling people and culture to adapt."

Thus, leadership plays a pivotal role in fostering a culture of awareness within institutions. There has to be a level of commitment to the entrepreneurial agenda, and an indicator of commitment could be someone in leadership, such as the dean, who is tasked with being responsible for the entrepreneurial agenda (OECD, 2012). Higher education governance in South Africa, shaped by colonial legacies and modern socio-economic challenges, often requires significant shifts in leadership attitudes and strategic priorities to create conducive environments for entrepreneurship.

Leadership is a critical determinant in shaping the entrepreneurial orientation of universities (Clark, 1998). In the South African context, higher education governance is undergoing a transformation to meet the demands of a rapidly changing socio-economic environment (DHET, 2017). However, leadership in many institutions still lags behind in supporting entrepreneurship at the institutional level, which can impede progress towards becoming an entrepreneurial university (Mutanda et al., 2018).

Mokoqama (2024) argues that the effectiveness of governance and leadership in driving entrepreneurship in South African universities relies heavily on leaders' ability to embrace change management frameworks like ADKAR. The alignment between governance structures and entrepreneurial goals is essential for creating an environment where entrepreneurship can thrive. This includes institutional policies that support entrepreneurial research, teaching, and external partnerships (Van der Westhuizen, 2023)

Wangenge-Ouma and Tawana (2020) further highlight that leadership in higher education institutions must play an active role in fostering awareness, not just among academics, but across the entire governance structure. This ensures that entrepreneurial initiatives are sustained and that universities contribute meaningfully to economic and social development.

3. Methodology

This study employs a convergent mixed-methods approach to explore the role of awareness in shaping entrepreneurial universities. A combination of quantitative (survey of 353 academics from four South African universities) and qualitative (eight interviews with Deputy Vice-Chancellors of Research and Innovation and incubation leaders) data were collected. Quantitative data was analysed using descriptive statistics, while qualitative data was analysed thematically using NVivo 12.

South African universities into Entrepreneurial Universities (EnU). The quantitative component includes a survey of 353 academics from four universities, measuring levels of entrepreneurial awareness and engagement. The qualitative aspect comprises in-depth interviews with Deputy Vice-Chancellors of Research and Innovation and incubation leaders, providing insights into leadership perspectives on fostering entrepreneurial culture within universities. The convergent design enables a comprehensive understanding of both the prevalence of awareness among academics and the contextual insights from leadership, thus identifying the alignment (or gaps) between faculty and governance. The expected benefits of this approach are multifaceted: it provides actionable data on the awareness levels necessary to catalyse change, highlights leadership's role in institutional alignment, and offers a foundation for strategic frameworks that can be implemented to enhance the entrepreneurial orientation of universities across South Africa.

4. Results

4.1 Quantitative Findings

The survey revealed a high percentage of academics in all four universities. A composite t-test was used to test all the composites to determine their agreement and whether it was significant at a scale of mean scale of 6. There was a significant agreement for awareness at the University of Johannesburg at 4.81, the University of KwaZulu-Natal at 4.65, Nelson Mandela University at 5.09, and Stellenbosch University at 4.36 indicated a strong awareness of entrepreneurship and its relevance to the university's mission. This awareness is positively correlated with an increase in entrepreneurship-related activities and initiatives.

- **Awareness of Entrepreneurship**: Academics reported a high level of awareness about the need for entrepreneurial initiatives within their universities. This awareness led to various entrepreneurship-related projects, from student start-up competitions to research commercialisation efforts.
- **Entrepreneurship Development**: Institutions with higher levels of academic awareness showed more tangible outcomes in terms of entrepreneurship programmes and partnerships with industry.

4.2 Qualitative Findings

The ADKAR change model highlights that for any change to occur, there is a need for individuals to be aware of the need for change. Interviews with Deputy Vice Chancellors (DVCs) and incubation leaders, however, indicated a gap in awareness among senior leadership and decision-makers, which could hinder broader institutional transformation. While academics are generally aware of the importance of entrepreneurship, there is a need for more robust communication strategies to align leadership with academic perspectives.

5. Discussion

5.1 The Role of Awareness in Entrepreneurial Development

Awareness is the critical first step in change management, as per the ADKAR model, and its importance cannot be understated. The action emphasizes the necessity of prepared communication and illustrates the reasons and thought that underlie a necessary change (Boca, 2013). Poor communication can foster uncertainty, a lack of vision and direction, and even a lack of faith in the change process (Chandler, 2013). According to research, communication is both the most important aspect and the most common reason why organizational change fails (Hasanaj & Manxhari, 2017). Theorists Kotter and Schlesinger have extensively studied communication in the context of the transformation process (Hasanaj & Manxhari, 2017). It is essential that staff are informed of the change's implementation timeline, timing, and motivational strategies throughout the communication phase.(Hasanaj & Manxhari, 2017).The results show that when academics are aware of the need for entrepreneurship, they are more likely to engage in entrepreneurial activities. However, awareness must be

followed by leadership support and institutional alignment to ensure that entrepreneurship is embedded into the university's structure.

There is a need to raise more awareness among universities about entrepreneurship and the need for universities to be more entrepreneurial. This could be in various ways and strategies, such as creating workshops for leaders such as academic leaders and faculty deans that will educate more on the need to accept entrepreneurship. There is also a need to create awareness among the university community, not just academics. If there is to be a significant change in the organisation, all the stakeholders must be involved. These stakeholders include students. There are several ways to raise awareness about entrepreneurial development, such as awareness campaigns. At this stage, the leadership's role is crucial in ensuring that the university community buys into this idea of change. The university is a large, diverse and complex institution that requires leaders who will be entrepreneurial champions to drive this agenda. The VCs and DVCs of research, faculty deans and HODs play a role in ensuring students and staff are aware of the need to change. It is not only business departments that must change but the various departments. Leaders can raise awareness by communicating the need to change through workshops and meetings. It is their responsibility to envision how they, as a department, can contextualise their need to change

5.2 Challenges in Implementing Awareness

For any higher education institution (HEI) to become an EnU requires first considering the first step, which is to be aware of the need to change into an EnU. Change management seeks to consider the individuals in the organisation in the change process. If the individuals in the organisation do not see the need to change, there will likely be resistance to change. Whenever there is organisational change, there is bound to be resistance to it (Caruth & Caruth, 2013). Resistance to change is common in organisations and academia. Resistance to change from individuals in the institution is due to the fear of altering tradition and losing meaning (Caruth & Caruth, 2013). Thus, successfully building awareness of the need to change at this stage means eradicating misconceptions, rumours, and different perspectives about the current situation (Nistler, 2014). This should happen to avoid any disagreement about the need to change (Nistler, 2014). During this phase, it is also an opportunity to eradicate resistance to change in the university setting. It is thus critical at this phase that academics across the university departments are aware that entrepreneurship development is a priority for the university.

During the awareness phase, it is important that there is a general sense in the university to become entrepreneurial. Remaining in a comfort zone will not change the universities. The ADKAR theory and Kotter's theory encourage the need to communicate the strategy and vision across the organisation to create employee awareness and acceptance (Ramasamy, 2018). The literature shows that building awareness of the need to change is more than just effective communication but includes several factors such as the persons' views of the current state, how a person perceives problems, the credibility of the sender, circulation of misinformation or rumors and contestability of the reasons for change (Hiatt, 2006).

Figure 1: Factors influencing awareness of the need for change

Source: (Hiatt, 2006)

Despite the high levels of awareness among academics, qualitative findings show that awareness alone is insufficient to foster a fully entrepreneurial university. The gap between academic awareness and leadership action presents a significant barrier to holistic transformation. Leadership must not only endorse entrepreneurial initiatives but also participate actively in awareness campaigns and support strategic entrepreneurship goals.

5.3 The Importance of Leadership in Fostering Entrepreneurship

Leadership within higher education institutions plays a critical role in advancing entrepreneurial development, particularly in the South African context. The ADKAR model underscores the importance of leadership in not only guiding but also inspiring change within organisations (Hiatt, 2006). However, research suggests that many university leaders in South Africa have yet to fully grasp the strategic value of entrepreneurship (Wangenge-Ouma & Tawana, 2020). Despite progress made through initiatives like the EDHE (Entrepreneurship Development in Higher Education) programme, which convenes Deputy Vice-Chancellors (DVCs) to discuss entrepreneurship, more is needed to embed this understanding institution-wide. The EDHE programme illustrates the potential of leadership to drive entrepreneurial agendas, but its scope should be broadened to include ongoing, structured leadership development programmes that empower leaders to act as entrepreneurial champions (DHET, 2017).

For entrepreneurial initiatives to thrive, university leadership must align governance structures and institutional policies with entrepreneurial goals. This alignment can incentivise entrepreneurial behaviour among academics, who are key to embedding entrepreneurship in curricula, research, and community outreach. Mokoqama (2024) argues that South African universities must establish clear policies that promote entrepreneurship, supported by resources that enable faculty to pursue innovative, entrepreneurial activities. Moreover, leadership should be proactive in creating environments where entrepreneurial initiatives are not only endorsed but actively supported by providing infrastructure such as incubation centres and innovation hubs (Mutanda et al., 2018). Without such leadership commitment, the transition towards entrepreneurial universities will remain incomplete.

5.4 Sustaining Entrepreneurial Momentum Through Collaboration and Continuous Evaluation

The long-term success of entrepreneurial transformation in South African universities relies heavily on fostering collaboration across various stakeholders, both within and outside the institution. As Van der Westhuizen (2023) posits, strong synergies between academia, leadership, government, and industry are vital to nurturing an ecosystem that supports entrepreneurial thinking. Internally, fostering cross-departmental collaboration ensures that entrepreneurial initiatives permeate different academic disciplines, encouraging a broader uptake of entrepreneurial mindsets. This multidisciplinary approach allows for diverse entrepreneurial solutions that align with the socio-economic needs of South Africa, such as addressing youth unemployment and socio-economic inequality (Wangenge-Ouma & Tawana, 2020).

Externally, collaboration with industry and government can unlock resources and opportunities, including funding for start-ups and internships for students. The involvement of external stakeholders ensures that entrepreneurial initiatives remain practical and responsive to real-world challenges. However, to ensure the effectiveness of these collaborations, universities must establish robust systems for continuous monitoring and evaluation. These systems should assess the impact of entrepreneurial activities, such as the number of successful start-ups, partnerships with industry, and contributions to local communities (Mokoqama, 2024). By integrating evaluation mechanisms into their strategic plans, universities can ensure sustained entrepreneurial momentum and adapt their strategies to meet evolving socio-economic challenges. Furthermore, these evaluations should align with South Africa's broader developmental objectives, ensuring that universities contribute meaningfully to national goals such as job creation and innovation-led economic growth (DHET, 2017).

6. Recommendations

6.1 Strengthening Awareness Campaigns

South African universities must develop robust and context-specific communication strategies aimed at both academic staff and institutional leadership. These strategies should highlight the importance of entrepreneurship not only as a tool for economic empowerment but also as a means to address persistent socio-economic issues, such as unemployment and inequality. Campaigns should draw on examples of successful

entrepreneurial initiatives both locally and globally, underscoring their relevance to national development goals. Furthermore, awareness-building efforts must be continuous and evolve with the changing dynamics of higher education and industry partnerships.

6.2 Leadership Training on Entrepreneurship

It is essential that higher education leadership, including Vice-Chancellors, Deputy Vice-Chancellors, and Deans, receive targeted training to better understand the pivotal role entrepreneurship plays in shaping modern universities. In South Africa, the EDHE (Entrepreneurship Development in Higher Education) programme offers an annual forum for university leadership to discuss strategies for fostering entrepreneurial ecosystems. Expanding the scope and reach of such programmes, while incorporating specific South African case studies, will ensure that leaders are equipped to implement strategic frameworks that prioritise entrepreneurial development at their institutions.

6.3 Collaboration Between Academics and Leadership

For entrepreneurial initiatives to be fully embedded within university structures, there must be stronger collaboration between academic departments and leadership. South African universities often operate in silos, which can stifle cross-disciplinary innovation. A culture of collaboration should be fostered, where academic staff are actively engaged in strategic conversations about entrepreneurship and encouraged to incorporate entrepreneurial thinking into curricula, research, and community outreach. Such collaborations will enable more cohesive, institution-wide entrepreneurship strategies that are responsive to local and regional needs.

6.4 Continuous Monitoring and Evaluation

Universities must establish and implement metrics to regularly assess the effectiveness of awareness campaigns and entrepreneurial initiatives. These evaluations should not only focus on the immediate outcomes, such as the number of start-ups or partnerships with industry but also measure long-term impacts like job creation, societal benefit, and sustainability of the entrepreneurial ecosystem. By aligning evaluation frameworks with the specific socio-economic context of South Africa, institutions can ensure that their entrepreneurial activities are contributing meaningfully to national development priorities.

6.5 Enhancing Entrepreneurial Education and Curriculum Integration

Entrepreneurial thinking should be embedded within the broader academic curriculum across all disciplines, not just within business schools or entrepreneurship programmes. South African universities should prioritise the development of entrepreneurial mindsets among students and staff by integrating entrepreneurship into a wide range of courses, from engineering to social sciences. This can be achieved through curriculum reforms that encourage project-based learning, internships with start-ups, and industry partnerships. Furthermore, a focus on social entrepreneurship, which aligns with South Africa's pressing developmental needs, should be emphasised (Nyamunda and Van der Westhuizen, 2020).

6.6 Building Stronger External Partnerships and Funding Opportunities

Universities should actively seek to establish and strengthen partnerships with external stakeholders, including industry, government, and international organisations. These partnerships can provide not only financial resources but also opportunities for knowledge exchange, research collaboration, and real-world entrepreneurial experience for students and staff. In the South African context, universities must also explore alternative funding models to support entrepreneurial ventures, especially given the limited public funding available for higher education. Establishing innovation hubs, incubators, and accelerators in partnership with the private sector can enhance the entrepreneurial ecosystem within universities.

7. Conclusion

The outcome from the study showed that awareness must be raised in the university community about the need for the university to change with the times and be more entrepreneurial. As much as the world is constantly evolving and changing, this has affected higher education as an institution. If the awareness of change is not communicated, then it will be a costly assumption to think the university community knows they need to change. This study also highlights the critical role of awareness in fostering the development of entrepreneurial

universities in South Africa. While awareness among academics is generally high, there remains a need for more strategic efforts to align this awareness with leadership priorities. Effective governance and leadership are key to ensuring that universities can navigate the complexities of entrepreneurship development and contribute meaningfully to socio-economic growth.

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State-led Maritime Governance, Education and Training Nexus in South Africa

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Abstract: The maritime environment has a significant socio-economic impact on nations, regional and global economies. However, it also experiences many challenges related to safety, security, Education and Training (E & T) which stakeholders such as businesses and government through State institutions play a crucial role in addressing. In addition to high global labour demands, E & T challenges have related to the decreasing number of youth taking up maritime E & T. In addition, technological advancements affect costs, standards, and quality of maritime ET. The Republic of South Africa (RSA) has not been immune to these challenges. Public higher E & T institutions in RSA are the primary providers of tertiary maritime E & T but remain confronted by numerous challenges tied to organisational resources, State funding and the growing demand for increased internal and external capacity. This study's objective was to examine maritime State-led interventions and challenges in selected public higher E & T institutions offering maritime studies in the coastal province of KwaZulu-Natal (KZN), RSA. Guided by a Systems Thinking approach, this empirical study adopted a qualitative research methodology utilizing interviews with key knowledge holders and secondary data. It was found that there exists a consensual view that higher E & T institutions offering maritime studies in the province are well positioned to play a more meaningful role in addressing the country's high unemployment rate. However, the current conditions in maritime E & T have undermined this and resulted in the pursuit of international partnerships to address local deficiencies. These findings are significant to stakeholders involved in maritime higher E & T, State-led maritime interventions, policymaking, governance, management, leadership and administration. The findings of the study also point to the need for a holistic understanding of maritime issues and challenges as maritime E & T is a complex global social space. This could eventually facilitate innovation, enhance leadership and contribute to meaningful and crucial partnerships between developed and more developing nations.

Keywords: Maritime Education & Training, Partnerships, Technological Advancements, South Africa, Systems Thinking, Causal Loop Diagram

1. Introduction

The Republic of South Africa (RSA) is home to the African continent's most developed maritime industry and infrastructure. However, the country experiences numerous socio-economic challenges, including high levels of unemployment, poverty, and inequality (collectively referred to as the Triple Challenge). This is compounded by limited access to higher education, especially amongst the youth (Mthuli, Singh & Reddy 2023; Girardi, Rubbo, Broday, Arnold & Picinin, 2024). The maritime sector is seen as having the potential to bridge the employment gap (SAMSA, 2017; Mthuli & Biyela 2019). Post-Apartheid, the country's democratization led to the development of grand policies in RSA such as the current National Development Plan (NDP) which presented the State's vision for 2030. The NDP states that: "Education, training and innovation are central to South Africa's long-term development, and higher education is the major… linked to economic development. However, education is much more than a simple instrument of economic development" (NDP, 2012: 261-262). Public higher education institutions in RSA are Constitutionally mandated to contribute to the strengthening of industries in the country (Mthuli, 2018) by providing programmes in various fields and disciplines, including Maritime Education and Training (MET). However, in RSA, MET is limited to a handful of secondary schools and higher education institutions (HEIs). Furthermore, awareness and opportunities thereof amongst the youth is limited (Mthuli 2018; Mthuli, Nzimakwe, Biyela & Khambule 2018; Worm, et al., 2021).

2. The Maritime Industry and Maritime Education and Training in RSA

RSA's location at the southern-most tip of Africa favours the country as it offers access to other African countries and to the Southern Hemisphere and Europe doing turbulent times, spilling onto the Bab-el-Mandeb strait between Yemen on the Arabian Peninsula and Djibouti in the Horn of Africa - a maritime chokepoint influencing access to the Suez Canal in Egypt (Mthethwa, 2003; Mthuli & Biyela, 2019; Lott, 2021). The country has eight commercial ports (Meyiwa & Chasomeris, 2020) and every year, three hundred million tons of cargo move through the country's ports in both imports and exports. Furthermore, 1.2 million tons of liquid fuels such as

crude oil, gas and petrol move along the country's coast, making it well situated to take advantage of maritime opportunities in the region, such as East-West cargo traffic and the booming African offshore oil and gas industry (RSA Department of Environmental Affairs, 2017). Thus, RSA "is a maritime nation" (Sink, et al., 2021: 4). RSA is one of the leading African countries in terms of maritime transport; hence the need for trade implies the need for skills (SAMSA, 2011; Mthuli et al. 2018; Mthuli & Biyela 2019).

MET in RSA has a long and complex history. Changing politics and the associated shifting priorities significantly influenced the direction MET has taken since its establishment in 1922 (SOMMSA, 2016). Post 1994, the government's approach to the maritime sector in the country is geared towards racial transformation and equity (Ruggunan, 2008; Ruggunan, 2010; Mthuli et al. 2018). Bonnin and Woods (2002) noted that post 1994, "training and development in the South African shipping industry had to take on not only the exigencies of global competition and new certification regimes, but also the pressing need to promote equity and above all, to facilitate the upward mobility of black seafarers" (Bonnin and Woods, 2002: 5). It is generally acknowledged that in terms of education, training and standards, MET in RSA's public higher education institutions has an outstanding status. In addition, because it is an English-speaking country, it has been seen as a favourable country regarding maritime assurance in terms of its MET certificates (Bonnin & Woods, 2004). This has resulted in the country having sixty-two accredited training providers offering a range of courses, some of which are Standards of Training Certification and Watchkeeping (STCW)-compliant, whilst others are more industry specific (SOMMSA, 2016).

Maritime studies comprise either maritime education (ME) or maritime training (MT), or a combination, of both in the form of maritime education and training (MET). Such programmes exist in isolated pockets in several large public higher education institutions (universities) in RSA (SAMSA, 2017; Mthuli et al. 2018; Mthuli 2018). Furthermore, there is also no evidence of joint degrees, qualifications or foreign aligned or accredited qualifications being offered in local higher education institutions (SAMSA, 2011). RSA has no single public tertiary institution that provides MET on a scale and level that can promote it as the dominant or primary service provider of the maritime industry and related sectors (Mthuli et al. 2018). Furthermore, many of the institutions have programmes in similar fields, with only limited specialisation (SAMSA, 2011; Mthuli 2018). MET in RSA lacks coordination and focus that could contribute substantially to the benefit of the sector and the individual institutions (SAMSA, 2011). RSA has seven public higher education institutions that provide maritime education (ME) or maritime training (MT). There are also public post-school providers of ME or MT, including Further Education and Training (FET) institutions, and Government and Parastatal Organisations, such as Transnet. However, at tertiary level, RSA has no solely MET-dedicated public higher-education institution and there are many challenges facing the maritime industry and State-led MET in the country.

3. Challenges Facing MET in RSA

There are many hurdles facing tertiary institutions in RSA, with the most noted been the lack of funding or underfunding, and slow transformation post-Apartheid. Habib (2016) estimated that the RSA's tertiary institutions receive merely R22 billion in funding/government subsidies, whereas the Higher Education and Training Department of the country requests on average R37 billion.

Another problem that has long faced MET in the country is that of attracting qualified academic staff (see Bonnin and Woods, 2002) due to the high-scale salaries maritime professionals earn as practitioners; as was the case with MET institutions such as the Durban University of Technology (DUT) and the University of KwaZulu-Natal (UKZN) (Mthuli, 2014) which were forced to recruit internationally. However, this presented its own challenges, such as the slow process of issuing work visas/permits which frustrated prospective MET lecturers resulting in them turning down placements in RSA (Mthuli, 2014). In the case of UKZN, the difficulty in recruiting maritime academics was augmented by salaries that were not competitive according to industry standards, with the University of Cape Town's (UCT's) Maritime Law programme experiencing similar issues (Mthuli, 2014). According to Mthuli (2014): "the weaknesses that exist in Durban's higher education institutions are a stumbling block to the growth of the broader maritime industry to a point that, there is an inability to produce the required human capital in some professional areas…" (Mthuli, 2014:124). In addition, these institutions face many curriculum challenges and struggle to keep up with industry-related technological advancements (Phewa, 2021).

Companies that usually offer sea-time training (training berths) for the country's MET students have overtime decreased the number of available training spaces in their ships, with students therefore being unable to complete their qualifications (Bonnin and Woods, 2002; SAMSA, 2014; Mthuli, 2018). The province of KwaZulu-Natal (KZN) has a thriving maritime culture and industry and is home to the DUT, one of only two public higher-

education institutions in RSA offering seafaring – sea-going MET. The other is Cape Peninsula University of Technology (CPUT) and apart from one other institution in Egypt, they are the only providers of seafaring diplomas on the African Continent. DUT and CPUT were collectively of the view two decades ago that government had to become involved in the issue of the availability of berths in the country because of the magnitude of negotiation involved (see Bonnin & Woods, 2002). It was identified that the government could negotiate bilateral agreements like the one the government of Indonesia had with a worldwide shipping line in training a certain number of Indonesian cadets annually (CPUT, 2002 cited in Bonnin and Woods, 2002).

The shortcomings of the MET system in RSA have presented an opportunity for 'fly-by-night' private MET institutions, which are often not accredited (Mthuli, 2014). Furthermore, RSA has limited maritime study options, especially for inland and or disadvantaged communities. As a result, most young people still do not consider professions in its maritime industry, considering the vast economic opportunities it presents, hence the need for greater State-government interventions.

4. The Maritime Industry and the State-government MET Nexus in RSA

Globally, governments through State institutions - govern and develop their MET under unique social-economic circumstances, reacting in different ways to global changes in the shipping and broader maritime industry. These interactions are distinctive, because States are very different socially, economically, and politically, and have undergone unique historical trajectories (Ruggunan, 2010), hence Ruggunun (2008:285) notes that: "…State institutions that service the seafaring industry have had very little impact on the restructuring of the labour market for South Africa 's seafarers, nationally and especially globally", thus "racial equity transformation of the national seafaring labour market are key goals of the post-apartheid State as opposed to more ambitious and concerted efforts to engage in job creation strategies to export South African mariners into the global market".

While changes to the maritime industry in terms of labour market demands and certification occur globally, (Ruggunan, 2010; 2016), state institutions are key players in shaping and restructuring labour markets. Ruggunan's notion supports Standing (1999) and Botlanski and Chiapello's (2007) arguments that because labour markets are imbued with institutional arrangements, they tend to be more more complex. Today more than ever universities are now seen as key drivers of change, with RSA universities having forged links fostered by State institutions such as the South Africa International Maritime Institute (SAIMI) and the eThekwini Maritime Cluster (eMC). These Institutions are seen as significant in bridging the skills gap in RSA as they bring together industry and MET institutions to foster cooperation and coordination. In this way, they collectively work towards achieving the goals of national strategies and policies such as Operation Phakisa and the National Development Plan (NDP). Operation Phakisa which was launched in 2014, with the starting point been the surrounding vast ocean in the country that had not been fully taken advantage of, and the huge economic potential of this untapped resource (South Africa's Department of Planning, Monitoring and Evaluation, 2017) as these oceans have the potential to contribute up to 177 billion Rands to the Gross Domestic Product (GDP) and to create just over one million jobs by 2033 (Moorcroft, 2017; South Africa's Department of Planning, Monitoring and Evaluation, 2017).

5. Methods

The objective of this research was to examine State-led maritime interventions and challenges in select public higher education MET institutions in KZN, RSA. Guided by Systems Thinking, this study adopted a qualitative exploratory design, utilising primary interview data and secondary data from academic journals, books, official government reports, policy documents, newspaper articles and internet sources. Systems Thinking is based on principles pertaining to holism, interconnection, communication, and emergence (Singh, 2021). It moves away from conventional reductionistic approaches by exploring phenomena in a holistic manner by identifying overall system patterns and structures (Hjorth & Bagheri, 2006; Singh, 2021).

An interpretivist philosophical approach was deemed necessary for achieving this study's objective. All public higher education institutions in KZN, RSA offering MET, as well as all government institutes and departments involved in the coordination and promotion of MET in the country were targeted. A non-probability sampling strategy, applying a purposive – judgmental sampling technique in which only individuals with certain characteristics such as particular strategic positions and knowledge apropos the provision of MET at public higher education institutions, government departments and institutes in KZN, were sampled for interviews (Mthuli, Ruffin & Singh, 2021). The process of thematic analysis was conducted to organise and interpret the data. After the collected data was read, organised, analysed and coded, themes were constructed after which

the Systems Thinking methodology was applied to guide the final analysis of the research. Overall, the study's limitations included the proximity of the researcher to certain maritime institutions, gaining access to these institutions and the lack of recent research on maritime E & T in the South African context.

6. Findings

This study's findings are aligned with its purpose, that of examining maritime State interventions and challenges in selected public higher maritime education and training institutions in RSA's coastal province of KZN. A key theme that emerged was the dynamics related to State-led MET. Understanding government policy positions on the maritime environment and related socio-economic challenges remain at the core of this study's findings, as well as the role of the State and its respective institutions. One participant expressed that:

> *"The maritime industry is one of the strategic pillars of government, so it is key priority area and remember as a province we have the KwaZulu-Natal Integrated Maritime Strategy which is a road map for the robust development of the provincial maritime industry, which has four main goals for the maritime industry. The first being infrastructure development, the second deals with subsector development, the third being transformation and the fourth looks at skills development and research"* (Interviewee: 5).

A participant expressed that for training and skills development to be achieved in the maritime industry in KZN, the first stage in the process is industry promotion. While another participant mentioned that:

> *"The majority of the population in South Africa, especially the African people, they were deprived of information. As a result, state institutions involved in facilitating maritime skills development and sustainability start at basic education, where they educate the youth, about the different careers and opportunities available within the maritime industry because it's important to make them aware of such at an early stage of their education"* (Interviewee: 2*).*
>
> *"We facilitate the working together of both industry experts (both local and international) and MET institutions to work together to identify the skills gaps, needed skills and training, as well as education necessary to bridge the gap"* (Interviewee: 2).

The process of working together involves shaping MET curriculum to inform the qualifications that are deemed necessary based on the information these stakeholders provide. The participants expressed that MET facilitation and coordination by state institutions also involves conducting a skills audit of MET lecturers to capacitate them to teach newly developed MET programmes. The need for facilitating and collectively addressing MET issues is further identified by a participant who asserted that:

> "*MET students are being produced as seafarers. However, you find that there is a limitation because of the availability of berths resulting from South Africa not having ships, so after the students complete their theoretical work and now require practical training to complete their seafaring qualification, where will they get the sea-hours (practical training) they need"* (Interviewee: 2).

While another participant indicated that:

> *"…the technological side of simulations involves financial commitment - which we do not have"* (Interviewee: 3).

Participants see the relationship with State institutions as of mutual interest with two participants indicating that:

> *"…we are part of the same whole"* (Interviewee: 7).
>
> *"We love working with public higher education institutions that are planning to offer new MET qualifications, because when we work with them, we can assist them shape the qualification in a way that it is informed by the industry needs, so that by the time they produce the first graduate, industry is expecting them"* (Interviewee: 2).

However, the State's influence has been very limited with one participant saying:

> *"They come and ask us for stats"* (statistics) *and we give them and they ask us what we need, and we tell them. How many more staff you need and how many more simulators and classrooms we*

> *give this information but things are never sent and we never get feedback to say when they are going to give us the things we need"* (Interviewee: 1).

It was further identified that there was a disconnect between government policy in facilitating maritime development and sustainability, industry skills demand and MET supply:

> *"There is a disjuncture, a separation or disconnection between where industry is at in terms of speed, updates, applications and systems and how the university teaches" (Interviewee: 7).*

Participants acknowledged that there is a partial disjuncture between MET programmes provided by public higher education institutions in KZN and the needs of the industry, especially regarding rare or scarce maritime skills such as maritime finance, architecture, etc. These findings reveal that MET public higher education institutions feel that much more must be done by the State to promote and assist in the coordination of MET, in the form of for example, resource provision.

7. Discussion

Systems Thinking utilizes Causal Loop Diagrams (CLDs) to make sense of and communicate system-wide dynamics, feedbacks and relationships. CLDs are qualitative tools (Schuster, 2003) and graphical representations of the interconnected and continually interacting elements comprising the 'system' (Singh, 2014; Singh & Mthuli, 2021). The CLD in Figure 1 was constructed based on interview and secondary data to reveal the interconnected dynamics related to State-led MET in RSA. Key variables in the diagram are in bold in the ensuing discussion. The plus signs (+) indicate variables that influence each other in the same manner, whilst minuses (-) indicate variables that have an inverse relationship to one another.

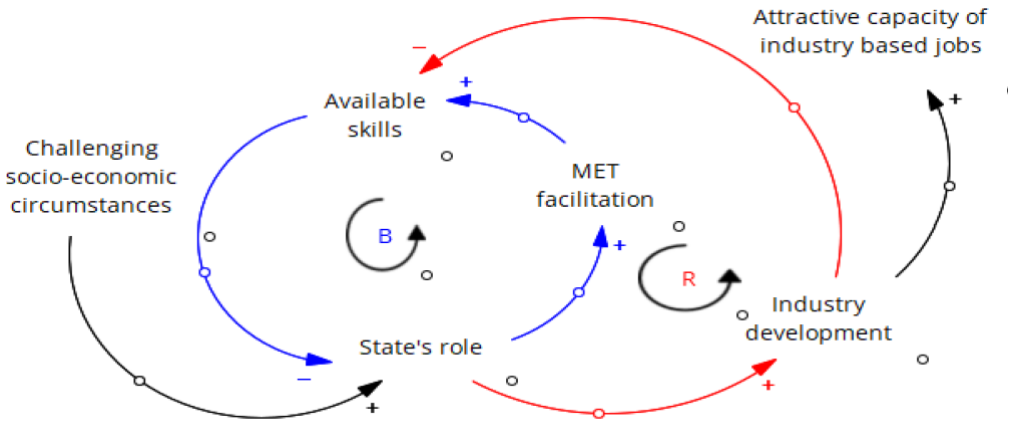

Figure 1: Causal Loop Diagram of the dynamics of state-led MET in RSA (Source: Authors' own)

The Systems Thinking based CLD suggests that **Challenging Socio-economic Circumstances** increase the **State's Role** in the maritime industry, which in turn encourages **Industry Development**. This is not unique to RSA as the maritime governance of many European nations has been re-oriented towards 'blue growth' (Guerriero, 2021). In Canada and Indonesia (Chen, 2000; Bonnin and Woods, 2002) where the government prioritises MET to deal with chronic unemployment, training in fisheries, navigation, oil, and gas operations have been prioritised, which has improved MET in these countries. Maritime **Industry Development** increases the **Attractive Capacity of Industry Based Jobs**. However, it decreases **Available Skills**, because as skilled people become employed, the remaining stock of skilled people available to be employed dwindles. Thus, the industry absorbs skilled people at a faster rate than MET institutions can supply them. The State must then intervene once again. Thus, a decrease in **Available Skills** increases the **State's Role** in the maritime industry, which in turn increases its **MET Facilitation** at public higher education institutions. Once again, this increases **Available Skills** while the **State's Role** in the maritime industry then decreases as they see statistics improving. These dynamics create a Balancing feedback loop (B) and a Reinforcing feedback Loop (R) which constantly balance each other out. Thus, the CLD implies that whilst there could be effort from the State which leads to improvement in the system (improved statistics for example), other dynamics comprising the system may operate collectively to eventually bring the system to equilibrium. Thus, the system will demonstrate rapid improvement in the short-term, followed by periods of stability or stagnation in the long-term.

The role of State and industry in MET is a result of many issues in the maritime industry. In Nigeria for example, the government and industry believe that MET institutions are not in the position to provide adequate maritime training for the country's demands (Dada, 2008). Therefore, Ihenetu-Geoffrey (2012) asserts that the Nigerian State ought to play a principal role in the development of the countries MET, by providing security and a conducive environment for teaching and learning, and by formulating policies and strategic plans that will enable the growth and sustained improvement of MET institutions. This necessitates the State's investment in MET, which has been the case in RSA, as the findings suggest. As Struwig, Van den Berg and Hadia (2024: 12) assert "Investment…in South African institutions and stakeholders responsible for ocean economy growth, remain key."

In RSA, national policies such as the New Growth Path - which focuses on creating work opportunities - have the potential to create employment at a large scale (Alpeni & Baur, 2023). In other countries, such as Brazil, MET tuition fees are waived and students are provided with accommodation and a monthly stipend (Lobrigo and Pawlik, 2012) and State institutions such as the Department of Ports and Coasts (DPC) go as far as deciding how many first-year students are recruited into the country's MET institutions. In Greece, the State plays a key role in facilitating funding for MET through contributions from vessels registered in the country and from the European Union (SAMSA, 2011). These strategies, although expensive, have been adopted with the acknowledgement that the maritime industry is key in these countries economic prosperities.

RSA is aiming at securing a competitive spot in the international green hydrogen market by 2050 (Prause, 2024). Thus, the maritime industry has the economic potential to contribute tremendously to development. Various grand national developmental policies and plans including the current National Development Plan (NDP), Operation Phakisa, and the KZN Integrated Maritime Strategy have been adopted by the South African government and operationalised by State institutions as efforts in this direction. However, as the CLD demonstrates, continuous involvement of the State is central to the sustained development of the industry and MET.

8. Conclusion

Maritime industries exert a significant influence on global dynamics and state-led MET institutions influence how such industries operate. Thus, the issues and challenges confronting such institutions are of vital importance in improving the industry and the country as a whole. Significant financial capital is required to obtain the necessary human and physical resources, but this is beyond the grasp of MET public higher education institutions in RSA. Furthermore, these institutions are perceived as neither domestically responsive nor internationally competitive with some calling for more efficiency and effectiveness in universities (Habib, 2016). Furthermore, MET is complex, encompassing physical, social, economic, political elements, etc. and therefore requires the ability see the big picture (Alop, 2021). Thus, Systems Thinking - in its ability to embrace complexity and discern holistic relationships - presented a worthwhile approach for exploring the nexus between State-led maritime education and training, governance and administration in the Republic of South Africa.

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Business Educators' Critical Reflection on Leadership

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Abstract: It is axiomatic: Leadership is pivotal for positive organisational results. Pervasive literature can guide, yet many organisations suffer unsatisfactory results. It is a question of the gap between intent and execution. Mountains of leadership literature obfuscate versus clarify. This distortion demands scrutiny. Our research question is: "What is leadership?" Our research methodology was reflection (Dewey and others), attempting clarification to improve understanding and guide successful action. Our findings demonstrate that literature inconsistently defines leadership which impacts understanding and practice. Leadership is often studied from the perspective of either (a) the *person*, specifically their competence, i.e., knowledge, skills, attitude, experience, and behaviour about (i) themselves, (ii) cultivating positive relationships with others, (iii) nurturing effective teams, and (iv) business/technical/job-related content, or (b) *function*, i.e., attaining organisational results by goal achievement through coordination of organisation-wide activities supported by the free-willed cooperation of all organisational members, or (c) *social influence*, that is leadership behaviour impacting the functioning of the organisation. Research primarily examines leadership as social influence. These three perspectives are seldom integratively studied, suggesting mutually exclusive domains. However, person, function, and social influence are interconnected. Our findings imply leadership as an interplay between the person, the collective, and contextual conditions impacting organisational results. Therefore, studying leadership from the combined perspectives of person, function, and social influence is more useful. Doing so provides a holistic understanding that ensures attaining positive organisational results. The value of the study includes that reflection, an underused research method examining leadership, can limit proliferation of superfluous literature that often produces confusion. Both academics and practitioners can question their thinking, assumptions, and actions to guide better actions and to approach better results. We recommend further study to hone reflective practice and learning.

Keywords: Leadership; Business Results; Strategy Execution Failure; Leadership Competence, Functions, Behaviour; Critical Reflection

1. Introduction

Axiomatic: *Leadership* is pivotal for positive *organisational*/*business results*. Business results refer to realising the intent to *create and deliver value* – economic, functional, psychological, or a combination – for all stakeholders (Busulwa et al, 2021; Nienaber and McNeill, 2023). Business results are expressed in terms of goals and aim at the long-term thriving of the business and its members (March and Simon, 1958; Hogan et al, 2021). Leadership attains business results through adept strategy execution. Strategy is executed by suitably competent employees performing their daily duties in a *coordinated* system of *cooperation* that aligns key actions and strategic intent through the mechanism *structural dimensions of organisation for executing strategy* (Nienaber and McNeill, 2023). Coordination and cooperation are central to c*ompetitive advantage* (Nienaber and McNeill, 2023; Thompson et al, 2022). Competitive advantage means a business creates and delivers (offers) value better or differentially than its rivals and it is contingent on the specific market served, customer-sought-value, and access to requisite value-creating resources. Thus, competitive advantage facilitates strategy execution and ensures positive business results (Thompson et al, 2022).

Copious extant literature can guide; however, many businesses continue to suffer unsatisfactory results (Deng et al, 2023; Gentry et al, 2021; Kaiser and Hogan, 2010). CEO and top management team turnover is a consequence of delivering, or expecting to deliver, unsatisfactory business results (Blumenfeld, 2024; Gentry et al, 2021; Jenter and Kanaan, 2015). CEO departures reached a record high in the 4th quarter of 2023 (Blumenfeld, 2024), often indicating a failure to attain positive business results. Unsatisfactory business results are a question of the gap between intent and execution. This gap arises from either incompetence or malfeasance (Gentry et al, 2021; Hogan et al, 2021; Jenter and Kanaan, 2015). Incompetence includes the mismatch between CEO ability to lead the business or failure to anticipate and adapt to changing environmental conditions (Hogan et al, 2021; Jenter and Kanaan, 2015).

A well-meaning deluge of leadership literature is not helpful in supporting leadership to return positive business results. On one hand, literature explodes with nanoscopic additions to address purported morality issues (Deng et al, 2023). On the other hand, many leadership assessment tools are not helpful in supporting them in attaining positive business results. Some of these tools measure approval and not results. Others measure behaviour or

actions and do not account for integrity issues (Collins, Algaze and Posner, 2023; Kaiser and Hogan, 2010; Kaiser, Hogan and Craig, 2008). These leadership literature shortcomings are aberrant and deviant because integrity is integral to business literature while business results can be objectively measured (CIPD, 2016; Nienaber and McNeill, 2022).

Uninhibited leadership literature often obfuscates versus elucidates. Perplexion demands scrutiny. Our research question is: "What is leadership?" Our focus is on business, specifically from a general management perspective, because leadership is accountable for business results (Jarzabkowski, Seidl and Balogun, 2022; Thompson et al, 2022). The significance of our study derives from a concern that inept leadership menaces the long-term thriving of the business and its members, particularly the mental health of members, which is the contemporary health crisis (Gallup, 2024; Hogan et al, 2021). We studied the research question by *reflection* (Cunliffe, 2016; Dewey in Sage, 2014; Roberts, 2008) and addressed next. The paper closes with conclusions, contributions, limitations, and recommendations for future research.

2. Reflection

Reflection has many different meanings depending on the source consulted. We see reflection as the process of questioning and critically thinking about cognition and sentiments in terms of (a) who we are, our behaviours or actions, interactions with people with diverse capacities, needs, aspirations, and thus diverse realities, decisions, attitudes, beliefs, values, (b) our assumptions underpinning business policies, practices, structures, (c) the impact that these (a and b) have or may have, whether intended or unintended, and (d) the consequent development of new insights or conclusions which shape different thinking, action, interactions, etc. to improve future outcome effectiveness (Cunliffe, 2016; Greenberger, 2020; Mortari, 2015; Roberts, 2008; Sage, 2014).

This description of reflection is compatible with the views of scholars such as Dewey (1910, 1933), Gibbs (1984), Kolb (1984), Mezirow (1998), and Schön (1983) (Sage, 2014). Reflection is associated with learning as, too, is leadership itself (Cunliffe, 2016; Kjellström, Stålne and Törnblom, 2020; Roberts, 2008; Sage, 2014). In Dewey's view, thinking and learning happens in perplexing, doubtful, uncertain, or problematic situations that require solutions (Mortari, 2015). Hence, reflection integrates theory and practice, especially by learning from experience, that cultivates ongoing competency mastery (Cunliffe, 2016; Greenberger, 2020; Roberts, 2008). Consequently, reflection is a suitable method of studying leadership, which is an ongoing learning process, to improve leadership effectiveness, i.e., attaining positive business results (Cunliffe, 2016; Kjellström, Stålne and Törnblom, 2020; Roberts, 2008).

There are many ways to practice reflection, yet it is infrequently undertaken owing to a lack of skill. One way to operationalise reflection is by applying a framework consisting of three basic questions, namely:

- Observation: Identify and describe an experience – i.e., what happened or what struck me, what was my role, what emotions surrounded the situation?
- Analysis and synthesis: Making sense and reinterpret the observation from different perspectives – i.e., what were the setting/context and primary elements observed? What is the relevance of prior learning in terms of theory and/or experience to paint the 'bigger picture' to understand or question one's assumptions – i.e., what does this mean or why do I think this happened? How does this relate to theory? Are all elements accounted for? How does this connect to my understanding of this issue?
- Evaluation and application: New learning and understanding resulting in different actions related to personal and/or professional lives - i.e., in what areas did I make progress in terms of what I have learned from this experience and what will I do differently in future? What are the weak points that I need to explore further? (Cunliffe, 2016; Greenberger, 2020; Mortari, 2015; Roberts, 2008; Sage, 2014).

We use the above reflection framework to organise our study.

2.1 Reflective Observation: Identify and Describe an Experience

Leadership, as concept, has been around for centuries. However, it is still defined in numerous, and sometimes conflicting, ways (Collins, Algaze and Posner, 2023; Deng et al, 2023; Hogan and Sherman, 2020; Kjellström, Stålne and Törnblom, 2020). Leadership is often conceptualised as (a) a position requiring a formal role/function accountable for business results, (b) the person occupying the formal role and specifically the competence required to be effective in the role, or (c) social influence exhibited in their style and behaviour that impact the functioning of the business (Collins, Algaze and Posner, 2023; Deng et al, 2023; Hogan et al, 2021; Hogan and Sherman, 2020; Northouse, 2021). Research primarily examines leadership as social influence (Collins, Algaze

and Posner, 2023; Deng et al, 2023; Hogan and Sherman, 2020). These three perspectives are seldom studied integratively, thus erroneously suggesting mutually exclusive domains. This is odd, as the perspectives person, function, and social influence in some combination, are central in leadership definitions proposed by influential leadership scholars (Collins, Algaze and Posner, 2023; Deng et al, 2023; Hogan et al, 2021; Hogan and Sherman, 2020; Northouse, 2021).

As business educators, we find the observation that the three leadership perspectives are seldom integratively studied perplexing. People and actions are interconnected – the corporeal person filling a position, discharging a positional function, and exerting social influence while doing the job are interwoven. This statement is echoed in the general management definition of leadership adopted in this study, namely: "Leadership is the employees' perception of the capacity of their hierarchical superiors (which stems from the superiors' behaviour) to direct their subordinates' activities and behaviours to pursue a desired outcome (like a business goal); and the outcome is pursued in an (intended) coordinated system of cooperation in conjunction with other resources, all of which are interlinked" (Morkel, Nienaber and McNeill, 2021:26). Consequently, this perplexing observation requires renewed scrutiny.

2.2 Reflective Analysis and Synthesis: Reinterpreting the Observation From Different Perspectives

Here we address our setting and the literature we use to inform our understanding, as encapsulated in our definition of leadership.

2.2.1 Our Setting/Context

We are business educators teaching leadership to prepare future leaders to effectively discharge their accountability, i.e., attain positive business results. Leadership, from the perspective of general management, is an applied science. Thus, leaders must integrate (multi-disciplinary) theory and practice to be effective. Given the complexity of the business environment, it is impossible to conceive of and predict every possible future situation that leaders may encounter. However, to ensure effective responses, including responses to unpredictable and unknown situations, one continuously learns from experience (actual or perceived) that can probabilistically improve intended outcomes. Reflection is a method educators can use to improve their professional practice as well as prepare their students to be effective leaders (Cunliffe, 2016; Roberts, 2008).

2.2.2 The Literature

We focus our reflection on relevant and recent literature, citing seminal authors, as used in our teaching. In this way, we ensure that we do not omit important sources (Goldman, 2023). Our sources include general management, finance, organisational behaviour, operations management, psychology, and human resources. Thus, we cover a range of perspectives on leadership to provide a holistic account that includes most, if not all, relevant elements affecting business results. This holistic account provides a more complete understanding of leadership, enabling a sound theoretical explanation and allowing the skilful application of theory (Jaccard and Jacoby, 2020).

To restate our leadership definition: "Leadership is the employees' perception of the capacity of their hierarchical superiors (which stems from the superiors' behaviour) to direct their subordinates' activities and behaviours to pursue a desired outcome (like a business goal); and the outcome is pursued in an (intended) coordinated system of cooperation in conjunction with other resources, all of which are interlinked" (Morkel, Nienaber and McNeill, 2021:26). This definition is consistent with management and other scholars. This definition synthesises and encapsulates leadership as (a) corporeal person, (b) function, and (c) social influence, impacted by personality, reputation, and competence, to attain business results by executing strategy through the structural dimensions of organisation.

The following elaborates on the three key elements of our definition of leadership. First, we discuss characteristics of each definitional element from a singular perspective. Second, while not denigrating the importance of each element's characteristics, we question each element's strengths – as viewed in singularity - to adequately understand the complexity of leadership.

2.2.2.1 Leadership as Corporeal Person

Leadership is naturally linked to a *corporeal* person – that is, a whole, physiological, and bodily person (cf. Hogan and Kaiser, 2004). *Person* refers to the individuality occupying the *formal* leadership position, performing that

function, and impacted by his/her *personality* which is idiosyncratic to the person (Hogan et al, 2021; Hogan and Sherman, 2020). Personality is generally classified according to the taxonomy of the Five-Factor Model of Personality (and consistent with the Hogan Personality Inventory measuring personality) viz. (a) agreeableness (interpersonal sensitivity) – trusting, accommodating, caring; (b) extraversion (ambition and sociability) – sociable, assertive, active; (c) conscientiousness (prudence) – reliable, dependable, hardworking; (d) emotional stability (adjustment) – adjusted, composed, resilient; and (e) openness to experience (inquisitiveness) – educated, imaginative, unconventional (Kaiser and J. Hogan, 2011).

Personality comprises *identity* and *reputation* (Hogan and Kaiser, 2004; Hogan and Sherman, 2020). Identity refers to how a person views him-/herself and is reflected in consistent inclinations to think, feel, and behave, catalysed by the person's inherent traits and in responding to the environment (Hogan and Sherman, 2020; Kaiser and J. Hogan, 2011). Reputation refers to the consensus of others' (dis)approval of leadership's behaviour, i.e., how others, such as subordinates, view leadership success based on leadership competence (Hogan, 2015; Hogan and Kaiser, 2004; Hogan and Sherman, 2020). Reputation (others' view) is deemed more important than identity (self-view) in achieving business results, as the degree of member cooperation is influenced by reputation (Hogan and Sherman, 2020).

Competence, sometimes called competency, is variously defined (George, 2021). The consensus explanation of competence is that it comprises knowledge, skills, experience, and behaviour essential to perform a job productively (Nienaber and McNeill, 2023). Hogan and Warrenfeltz's (2003) competence taxonomy covers all competency frameworks and models. It comprises four domains, viz., (a) intra-personal competence (self-awareness) corresponding to the personality factors emotional stability and conscientiousness, (b) interpersonal competence (cultivating positive relationships with others) corresponding to the personality factors extraversion and agreeableness, (c) leadership competence (nurturing effective teams), corresponding to the personality factor openness, and (d) technical competence (business/technical/job-related content), corresponding to all personality factors. These competence domains are intertwined (Nienaber and McNeill, 2023). However, mastery of intra-personal competence is essential to master all other competence domains and is also the most challenging to master (Hogan and Kaiser, 2004; Hogan and Warrenfeltz, 2003).

Competence is one of the inborn motivational levers of all humans (Hogan and Sherman, 2020; Nienaber and McNeill, 2023). Competent leadership ensures that every business member (a) understands his/her role and purpose in attaining business results, (b) is allowed to apply their competence autonomously (willingly and fully) in performing their role and purpose, (c) thrives by continuously improve their performance through enhancing their competence, and through (a) to (c) nurtures sound interpersonal relationships (Hogan and Sherman, 2020; Nienaber and McNeill, 2023). Consequently, every business member can perform at their best, i.e., they are engaged and thus experience high levels of well-being and contribute optimally to the business' competitive success (CIPD, 2022; Hogan and Kaiser, 2004; Hogan and Sherman, 2020; Nienaber and McNeill, 2023).

In essence, competent leadership has integrity and is, therefore, *trustworthy* – they do not abuse their position – they earn their members' respect and autonomous cooperation because they are sensitive to the needs and rights of others, including their subordinates, and thus enhance people's well-being (Hogan and Kaiser, 2004; Kaiser and J. Hogan, 2011; Kouzes and Posner, 2021; Northouse, 2021; Padilla, Hogan and Kaiser, 2007). Integrity is reflected in the personality factors conscientiousness, agreeableness, and emotional stability (Kaiser and Hogan, 2010). Trustworthy leadership complies with "The theory of moral sentiments" (Smith, 2010[1759]) and is consistent with Barnard's (1948) notion of morality (Nienaber, 2019).

Leadership, as corporeal person, has its challenges when studied from a singular perspective. Leadership departures (turnover) based on poor performance and malfeasance support the observation of Hogan (2015) that people assigned to formal leadership positions are not necessarily effective as they do not achieve positive business results (Blumenfeld, 2024; Gentry et al, 2021; Jenter and Kanaan, 2015). Therefore, leadership competence (inherent in the corporeal person) should be matched to the business function.

2.2.2.2 Leadership as Function

Leadership, as *corporeal person*, should be 'up to the task,' i.e., attain positive business results through collectively outperforming the competition (Hogan and Kaiser, 2004; Hogan and Sherman, 2020; Thompson et al, 2022). Leadership, as *function*, means being effective in attaining business results through goal achievement by *coordination* of business-wide activities and supported by the autonomous *cooperation* of all business members. Both of these accomplishments align key organisational actions with strategic intent (Morkel, Nienaber and McNeill, 2021; Nienaber and McNeill, 2023; Thompson et al, 2022).

Coordination, according to Kaiser and J. Hogan (2011), relates to task-oriented behaviour (e.g., roles, responsibilities, and factors facilitating production). They add that the personality factors conscientiousness (prudence) and emotional stability (adjustment) are central to task-oriented behaviours. Coordination is critical to effective leadership (Hogan and Kaiser, 2004). Cooperation is associated with (a) interpersonal behaviour, both forceful and enabling (e.g., concern for the welfare of subordinates, soliciting subordinates' input, and maintaining relationships with the group) as well as (b) transactional leadership, while the personality factors extraversion (ambition and sociability) and agreeableness (interpersonal sensitivity) are central to interpersonal behaviour (Kaiser and J. Hogan, 2011). Coordination and cooperation are the crux of leadership (Goldman, 2023). This description of leadership as function denotes attaining *competitive advantage* over rivals.

Competitive advantage means that the business delivers customer-value better (lower cost) or differently (differentiation) than the competition, which arises from the execution of value-creating activities (Nienaber and McNeill, 2023; Thompson et al, 2022). Competitive advantage consists of three interrelated dimensions viz. (a) the market where the business chooses to compete, (b) customer value, whether economic, functional, psychological, or a combination, and (c) access to resources particularly people, and pertinently their competence, to transform resources along with other inputs into customer-valued offerings (Morkel, Nienaber and McNeill, 2021; Nienaber and McNeill, 2023). As such, competitive advantage facilitates strategy execution and produces financial returns greater than average industry profits (Thompson et al, 2022). Competitive advantage is the particularity of a sound strategy. Hence, it is reasonable that competitive advantage is contingent on the direction of the business, viz., the purpose, vision, mission, goals, and values (Nienaber and McNeill, 2023; Thompson et al, 2022). Direction setting is associated with change in behaviour and the personality factor openness (inquisitiveness) is central. Openness also fosters innovation, that is, initiating and adapting to change to ensure the long-term survival and thriving of the business and its members (Kaiser and J. Hogan, 2011).

The mechanism to attain competitive advantage is *structural dimensions of organisation for executing strategy* that govern value-creating activities and form the basis of the business' operational plan (Collier and Evans, 2020; Kaiser, Hogan and Craig, 2008; Nienaber and McNeill, 2023). Structural dimensions of organisation for executing strategy consist of 'framework' and 'processes.' The framework dimension of organisation is fairly stable and arranges coordination. Coordination harmonises all organisational activities to produce efficient functioning (Kaiser and J. Hogan, 2011; Nienaber and McNeill, 2023). 'Framework' comprises 'structure' and 'systems' (Morkel, Nienaber and McNeill, 2021). Structure encompasses (a) the formal organisation of roles and responsibilities reflected in job design, subsuming authority accompanying the job, (b) policies and procedures that support effective job performance, (c) leadership, explicitly creating an environment conducive to activating thriving employees, and (d) culture, expressly permitting appropriate risk-taking that delivers innovation which in turn fosters thriving employees and businesses (Bosley, 2023; Hogan and Kaiser, 2004; Parker and Knight, 2023). Systems allocate resources to execute tasks productively through their constituting parts, i.e., (a) budgets, (b) management information, (c) training (learning and development), and (d) operational controls in striving to realise planned performance (Collier and Evans, 2020). To be effective, the constituting parts of the framework structural dimension of organisation for executing strategy should be congruent. Moreover, the framework and processes dimensions of organisation for executing strategy should also be congruent, as interplay exists between these dimensions.

The processes dimension of organisation for executing strategy governs cooperation. Cooperation involves individual behaviours and reflects the relationships between business members (Kaiser and J. Hogan, 2011; Nienaber and McNeill, 2023). Cooperation impacts business members' thriving to the degree that they are permitted to apply their competence autonomously (willingly and fully) in pursuit of business results through strategy execution, i.e., they are engaged and not alienated (Cunliffe, 2016; Hogan et al, 2021; Kahn, 1990; Kaiser and J. Hogan, 2011). Cooperation consists of interaction and sanctions, which are ephemeral. Interaction involves communication, and sanctions involve rewards and punishments. Communication includes consultation with relevant stakeholders (Jarzabkowski, Seidl and Balogun, 2022), particularly business members, about the strategic (a) content, (b) process, and (c) outcome. Strategic content involves *what* of strategy, e.g., growth, maintenance, divesting, focus, low cost, differentiation (Thompson et al, 2022). Strategic process involves the *who* (internal and external stakeholders), *how* (sophistication, formality, deliberate/emergent/combination), *where* (context, e.g., stable/volatile, national, regional, global, variables from the economic, technological, social, legal environments impacting strategy), and *when* (frequency) of strategy formulation, execution, and control. Strategic outcome refers to whether and degree to which planned goals were realised (Thomspon et al, 2022). Sanctions involve power and rewards or punishments that rely on and simultaneously impact competence,

autonomy, and relatedness, the motivational levers of human behaviour, allowing or obstructing people to execute strategy (Hogan, 2015; Hogan and Sherman, 2020; Jarzabkowski, Seidl and Balogun, 2022; Nienaber and McNeill, 2023). To be effective, the constituting parts of the processes dimension of organisation for executing strategy should be congruent.

Leadership, as function, has its challenges when studied from a singular perspective. Research suggests that leadership, as *function*, fails given the persistent strategy execution failure (Tawse and Tabesh, 2021). Many reasons are offered for this failure with the (a) strategy formulation-execution divide, (b) absence of suitably competent people to execute strategy, and (c) indifference to customer-sought-value at the top of the list (Nienaber and McNeill, 2023; O'Boyle, 2023; Tawse and Tabesh, 2021). These reasons are central to the business's direction and are accomplished through coordination and cooperation. Consequently, the strategy execution failure can be summarised as leadership failing to attain a competitive advantage vis-á-vis rivals (Morkel, Nienaber and McNeill, 2021).

The observation (leadership as function fails) supports Hogan (2015) and Kaiser, Hogan, and Craig (2008) that there is a difference between successful leaders – persons assigned to leadership positions based on their approval – and effective leaders – persons who attain business results. Approval is subjective, while effectiveness can be objectively measured in terms of business results (outcomes) attained, such as profit, customer satisfaction, productivity, innovation, and employee satisfaction to mention a few (CIPD, 2016; Kaiser, Hogan and Craig, 2008, Nienaber and McNeill, 2022). These outcome measures reflect value delivery and how well the planned performance was realised. However, these outcome measures are often overlooked (CIPD, 2016; Nienaber and McNeill, 2022). As set out here, leadership, as function, relies on task-behaviour, interpersonal-behaviour, and change behaviours which are commensurate with strategic, operational, and interpersonal behaviour styles and contingent on all four competence domains (Hogan and Warrenfeltz, 2003; Kaiser and J. Hogan, 2011). Leadership style is intrinsically conjoined with social influence, addressed next.

2.2.2.3 Leadership as Social Influence

Leadership, as *social influence*, is the dimension most often studied (Deng et al, 2023). Social influence is defined differently. For example, 'process of influence' (Northouse, 2021), 'leadership style' (Morkel, Nienaber and McNeill, 2021), and 'behavioural style' (Yukl, 2006 in Kaiser and J. Hogan, 2011). These different definitions share a commonality, namely that social influence flows from a leader's behaviour (or actions) that spawns a consequent reputation and corresponding follower inducements to cooperate (or resist) toward a common goal (Collins, Algaze and Posner, 2023; Kouzes and Posner, 2021). As discussed earlier, cooperation is accomplished through the processes structural dimension of organisation for executing strategy.

Further, influence valence is not adequately defined. The literature seemingly suggests that influence is predominantly positive. It often ignores or diminishes the fact that influence can be alienating - especially in cases of leadership incompetence or malfeasance (Hogan et al, 2021; Hogan and Kaiser, 2004; Jenter and Kanaan, 2025; Padilla, Hogan and Kaiser, 2010). Nevertheless, influence refers to *how* leadership leads accompanied by consequent effects on business performance (Hogan and Kaiser, 2004; Kaiser and J. Hogan, 2011).

How leadership leads depends on a leader's personality and competence, which receives little attention in leadership literature. As mentioned, personality is generally classified according to the Five-Factor Model (corresponding to the Hogan Personality Inventory), namely, agreeableness (interpersonal sensitivity), extraversion (ambition and sociability), conscientiousness (prudence), emotional stability (adjustment), and openness to experience (inquisitiveness). As pointed out, the personality factors correspond to the competence domains, and as follows (i) intra-personal competence (self-awareness) corresponds to the personality factors emotional stability and conscientiousness, (ii) interpersonal competence (cultivating positive relationships with others) corresponds to the personality factors extraversion and agreeableness, (iii) leadership competence (nurturing effective teams), corresponds to the personality factor openness and (iv) technical competence (business/technical/job-related content), corresponds to all personality factors. In addition, intrapersonal competence is associated with a *forceful behavioural style*, interpersonal competence is associated with an *enabling behavioural style*, and technical/business competence is associated with *strategic and operational behavioural styles*. Forceful and enabling behavioural styles are linked to *how* leaders lead, while strategic and operational behavioural styles are linked to *what* leaders lead (Kaiser and J. Hogan, 2011).

In sum, personality, i.e., who we are, foretells how we lead (leadership style), whereas leadership style influences employee attitude and degree of cooperation and reflected in the level of employee engagement that drives business performance (Gallup, 2024; Hogan and Kaiser, 2004). Further, effective leadership creates an

environment conducive to advancing employee competence by encouraging appropriate risk-taking behaviours that spur innovation, that mobilizes employee engagement (Kaiser, Hogan and Craig, 2008; Nienaber, 2022). Employee engagement means people are available – physically, cognitively, and emotionally - to use their competence autonomously in performing value creation activities, that is, doing their daily jobs, which constitutes strategy execution, which is aimed at attaining business results (Hogan, 2015; Hogan and Sherman, 2020; Jarzabkowski, Seidl and Balogun, 2022; Kahn, 1990; Nienaber, 2022).

Leadership, as social influence, has its challenges when studied from a singular perspective. It needs to be pointed out that most studies on leadership as social influence do not specify the context in which the business operates (Collins, Algaze and Posner, 2023; Deng et al, 2023), suggesting that leadership happens in a vacuum. The reality is that businesses operate in an environment (macro, market, and micro) with variables impacting business results (Thompson et al, 2022). Notable variables impacting business results include the economic conditions (boom or bust), technology (AI), customers, specifically what they value, and the competition. Leadership should account for these variables, and particularly the changes brought about by these variables, in striving to attain positive business results (Jenter and Kanaan, 2015; Thompson et al, 2022). Thus, *what* (operational domains) leaders lead should simultaneously be considered with *how* to lead (Hogan et al, 2021; Jenter and Kanaan, 2015; Kaiser and J. Hogan, 2011). As stressed, *what* one leads is integral to leadership as function and discussed in the previous section.

Leadership as social influence is an ignominious failure considering the global low levels of employee engagement. According to the latest Gallup Report (2024) only 23% of the global workforce was engaged. By implication 77% of the global workforce was not engaged or even alienated. Hence, we assert, that leadership as social influence – at least in 2024 - was ineffective in attaining positive business results.

2.3 Reflective Evaluation and Application: Our Learning

Our discussion demonstrates the interdependency of leadership as synthesised corporeal person, function, and social influence, thus, enabling an integrated study of leadership. Research results show that leadership is failing to attain positive business results. This indicates that the practice of studying leadership solely from a singular perspective – only as person, function, or social influence – represents mutually exclusive domains, which is an incomplete and unproductive pursuit.

Studying leadership from the combined perspectives of corporeal person, function, and social influence is more useful. Doing so provides a holistic understanding that ensures attaining positive business results. To succeed in studying leadership holistically means examining literature from all disciplinary domains informing leadership. These include general management, organisational behaviour, operations management, finance, human resource management, psychology, and industrial and organisational psychology.

However, we acknowledge that the different disciplines focus on different epistemologies. Ontology (reality studied) overlaps, but epistemology (knowledge) is distinct. Thus, integration of sorts is necessary to advance effective leadership with a commensurate positive impact on businesses and societies. Our study, an extension of the work of R. Hogan and colleagues, provides the groundwork to do so.

2.3.1 What Will we do Differently

In future, we will expand on and integrate leadership and the theory of moral sentiments, addressing integrity, which is critical for effective leadership. In addition, we will explore business results measurement about business results attained, to provide clearer linkages.

3. Conclusions, Contribution, Limitations, and Recommendations for Future Research

Leadership as corporeal person, function, and social influence are syncretistic. Further, as portrayed in the literature, the different leadership conceptualisations - person, function, and social influence - have more commonalities than differences than is generally expected. The different leadership conceptualisations can be seamlessly integrated and holistically studied to improve leadership effectiveness. Our study's contribution includes using reflection as an alternative and underutilised research methodology reveals new insights to leadership. These insights improve our understanding of leadership that can benefit academics and practitioners, and potentially support long-term positive business results. The study's main limitation is the time-consuming nature of the reflection methodology, thus restricting nanoscopic attention to the quotidian leadership conceptualisations. We recommend further research guided by the adage "Excellence is difficult to achieve."

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Governance and Leadership in Enhancing SME Resilience in Ghana: A Systematic Literature Review

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Abstract: Small and medium enterprises (SMEs) are especially susceptible to pandemics. Consequently, resilience and adaptability to shocks from pandemics like COVID-19 are crucial. Nonetheless, although SMEs have strategies to cope with these, there is still a dearth of research on the nature and effectiveness of these coping strategies. Thus, it remains unclear how leadership and governance frameworks reduce SMEs' vulnerability and increase their resilience to pandemic risk. This academic article provides a systematic literature review on the role of governance and leadership in enhancing the resilience of small and medium enterprises (SMEs) in Ghana. The review explores existing literature on SME resilience, environmental uncertainty, and the impact of governance frameworks. The article also focuses on how leadership practices in the Ghanaian context contribute to building SME resilience in times of crisis, such as the COVID-19 pandemic. The study analysis revealed that there are opportunities for SMEs to adopt better governance and leadership practices that foster long-term resilience. Governance practices, such as formal structures, board diversity, and leadership, enable SMEs to respond to crises and navigate challenging situations. Moreover, leadership styles that prioritize governance procedures, especially transformational leadership, empower SMEs to maintain agility and innovation, thereby securing their survival and growth in a rapidly evolving environment. The review highlights the need for stronger governance frameworks and leadership development programs that equip SME owner-managers with the tools to navigate environmental uncertainties.

Keywords: SME Resilience, Governance, Leadership, Environmental Uncertainty, Ghana, Systematic Literature Review

1. Introduction

SMEs in Ghana are a critical engine for economic growth, accounting for 70% of the country's GDP and employing a significant portion of the population (Agyapong et al., 2024). Despite their importance, Ghanaian SMEs face numerous challenges, including limited access to finance, inadequate managerial skills, and environmental uncertainties (Nketsiah, 2018). The COVID-19 pandemic has exacerbated these issues, revealing the vulnerabilities of SMEs to external shocks. In this context, governance and leadership are increasingly recognised as key factors in enhancing the resilience of SMEs. Resilience, defined as the ability to adapt and recover from adverse conditions, is essential for SMEs operating in environments characterised by volatility and uncertainty (Saad, et. al 2021). This review aims to provide a comprehensive analysis of the existing literature on governance and leadership's role in fostering SME resilience, focusing on Ghana.

Our review has three main strengths. First, systematic literature reviews (SLR) summarise findings better than individual research. This SLR formalises these main themes by their fields of activity and categories, which are missing in previous reviews. Second, by synthesising findings from all included studies and according to the pandemic risks-coping strategy-resilience nexus among SMEs, we provide a clear, detailed, and unique summary of the current evidence and knowledge gaps on governance and leadership's role in enhancing SMEs' resilience in a developing country context. Additionally, in contrast to previous studies, our systematic review focuses only on how leadership practices in the Ghanaian context contribute to building SME resilience in times of crisis, such as the COVID-19 pandemic.

Researchers, policymakers, and business owners can find this SLR beneficial. This study's findings could be used to formulate and execute policies for SMEs as institutions and organizations in charge of SMEs could rely on the findings to create and execute policies, support services and practices that will strengthen SME's resilience during environmental unpredictability. Furthermore, within the academic community, it provides direction for future research.

In this study, we assess and synthesize literature-based theoretical and conceptual foundations, identify dominant content issues, and define outcomes. Four research questions guide our analysis.

1. What is the relationship between SME resilience and environmental uncertainty?
2. To what extent does governance frameworks affect SME resilience?
3. What role do leadership practices play in enhancing SME resilience?
4. What are the challenges and opportunities for resilient SMEs in Ghana?

2. Methodology

This article employs a systematic literature review approach to synthesise current knowledge on SME resilience and governance. The review process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. This is because PRISMA ensures rigorous, transparent, and unbiased systematic reviews by comprehensively covering relevant literature.

2.1 Research Sample and Scope

This SRL covers peer-reviewed English articles, books, and conference papers from 2016-2024, examining SME resilience and its evolving governance and leadership landscape in Ghana from historical and contemporary perspectives.

2.2 Search Strategy and Article Selection

Relevant academic journals, government reports, and industry publications were systematically searched using databases such as Google Scholar, Scopus, and JSTOR. The search focused on terms including "SME resilience," "governance," "leadership," and "Ghana." The inclusion criteria include peer-reviewed publications written in English based on relevance to the title of the study i.e. SME resilience, governance and leadership; publications from 2016-2024 that provides epistemological and empirical evidence or theoretical analysis. The authors assert that these criteria would facilitate the inclusion of a maximum number of relevant publications, considering the fragmented nature of existing knowledge. Exclusion criteria include SME studies that did not focus on SME resilience, governance and leadership; peer-reviewed articles prior to 2016, even if they were SME focused as well as SME resilience-focused publications in other languages apart from English language.

2.3 Sample Size

The preliminary search produced a total of 1024 records, encompasses 466 in JSTOR, 304 in Scopus and 254 in ProQuest. Following the elimination of duplicates (n = 168), 856 articles remained. Following a review of titles and abstracts, 634 papers that failed to satisfy the inclusion criteria were excluded. A total of 222 papers were evaluated based on the inclusion criteria, resulting in the final selection of 64 articles that satisfied all inclusion criteria for the systematic review.

2.4 Method of Data Extraction and Analysis

Data from the selected articles were extracted using a structured data extraction form. Key information gathered included the study title and objective, year of publication, epistemologies, methodologies, governance and leadership strategies examined, and findings related to SME resilience. Tables 1-4 (see Appendix) synthesize the epistemological positions and findings of each study, providing a comprehensive view of how governance and leadership enhance SME resilience across different contexts and methodologies**.**

Thematic analysis was utilized to examine the selected articles. This method was selected for its efficacy in detecting, interpreting, and reporting patterns in qualitative data. It facilitated a comprehensive grasp of the governance and leadership strategies that enhance SME resilience. The themes derived from the analysis were integrated to present a coherent narrative of the governance and leadership strategies that have demonstrated efficacy in enhancing SME resilience within the Ghanaian context.

2.5 Limitations

Among the limitations of this systematic review include:

i. *Language Limitation*: The review was restricted to articles published in English, potentially excluding relevant studies published in other languages.
ii. *Publication Bias*: The review primarily included peer-reviewed articles, which may lead to the exclusion of valuable grey literature such as government reports and working papers.
iii. *Contextual Limitation*: The study is focused on Ghana, limiting the generalizability of findings to other developing economies with different socio-economic and political contexts.

3. SME Resilience and Environmental Uncertainty

Resilience is defined as the ability of SMEs to withstand and recover from shocks, whether economic, social, or environmental Saad, et. al (2021). Environmental uncertainty refers to unpredictable changes in external conditions that affect business operations. According to Tweneboah-Koduah and Adusei (2016), these uncertainties can stem from economic fluctuations, regulatory changes, market dynamics, technological disruptions, environmental or climate-related shocks and unforeseen crises such as the COVID-19 pandemic.

In Ghana, resilience is particularly crucial due to the high level of uncertainty in the business environment. Studies show that SMEs in Ghana are highly vulnerable to external shocks such as the COVID-19 pandemic, which led to a significant reduction in customer purchases and increased financial strain on businesses. Research by Boohene (2018) highlights the need for SME managers to develop resilience strategies that allow them to navigate these uncertainties and sustain business operations.

The economic disruptions caused by the COVID-19 pandemic from 2020 onwards brought significant attention to the resilience of SMEs in the face of environmental uncertainty. A study by Atiase, Agbanyo, Ganza, et al. (2023) reports that to promote the financial resilience of SMEs, issues such as research and development, effective tax policies, as well as accounting and assessment services must be prioritised. Furthermore, the study also emphasises that SMEs with stronger financial management practices, access to contingency funds, and the ability to reduce operating costs quickly were more resilient. SMEs that managed to diversify their product offerings or adopt flexible supply chain strategies were better able to survive the economic turbulence brought by the pandemic. These findings suggest that financial preparedness is a critical determinant of SME resilience in periods of environmental uncertainty.

A study by Tumaku and Agbeko (2024) stressed that to achieve resilience during economic disruption and downturns like COVID-19, SMEs must be agile and adopt prevention by minimizing losses and taking calculated risks with proper mentorship. The study also emphasised the importance of leadership in creating an innovative and adaptive culture, especially in times of crisis.

4. Governance and SME Resilience

Governance frameworks provide the structural foundation for enhancing resilience in SMEs. Effective governance systems ensure that SMEs can respond to crises by promoting transparency, accountability, and strategic decision-making. A study by Fatoki (2018) emphasised that good governance is linked to increased resilience, as it equips SMEs with the tools to make informed decisions in uncertain environments. In Ghana, governance challenges such as weak legal systems and lack of access to finance continue to hinder SME resilience. However, recent policy efforts aim to improve governance structures within the SME sector, thus promoting greater resilience. A study by Neequaye (2020) highlights that SMEs that have formal governance structures in place—such as defined ownership and control systems, risk management procedures, and financial reporting—have a higher chance of getting funding from banks and investors. He further posits that well-managed SMEs are easier to get financing for, especially in uncertain economic times, because lenders view them as less risky and more dependable. The study also emphasises the significance of governance in managing SMEs' interactions with financial institutions. These entities can more effectively communicate their financial needs and prove their ability to repay loans when they have well-defined governance structures.

Similarly, according to Singh and Pillai (2022), SMEs that have established corporate governance frameworks—such as formalised risk management procedures, board supervision, and distinct decision-making hierarchies—are better able to handle crises and adjust to changing external conditions. Robust governance frameworks foster adaptability within organisations by guaranteeing responsibility and facilitating well-informed choices during situations of uncertainty. The study also shows that a lot of SMEs, especially in developing nations, do not have strong governance structures, which impedes their effort to respond favourably to external shocks.

The structure of SME boards and the diversity of membership have become significant governance elements that enhance resilience. A study by Pongelli, Majocchi, Bauweraerts, et al. (2023) contend that SMEs with more diverse boards, including members of various genders, races, and professional backgrounds, had superior crisis response and adaptability to evolving market conditions. This was ascribed to the diverse array of perspectives and experiences that contribute to strategic decision-making. Odehnalová and Pirožek (2018) affirm that board diversity correlates with enhanced innovation, risk-taking and creativity in problem-solving, which is essential for SME resilience.

5. Leadership in Enhancing SME Resilience

Leadership plays a critical role in shaping how SMEs respond to environmental uncertainties. Resilient leadership involves fostering a culture of adaptability and encouraging proactive responses to crises. Korankye (2020) found that SMEs led by resilient leaders were more likely to survive the economic downturn caused by the COVID-19 pandemic. Leadership development programs that focus on building resilience among SME managers can significantly enhance their ability to cope with external shocks. Van der Westhuizen (2017) emphasised the importance of entrepreneurial self-efficacy in promoting resilience. Leaders who believe in their ability to influence outcomes are more likely to take decisive action in the face of challenges. This suggests that leadership training aimed at boosting self-efficacy could be a vital component in strengthening SME resilience in Ghana. According to recent research, transformational leadership is one of the best ways to boost SME resilience in Ghana. Marfo, Armah, Ofei, et al. (2024) posit that transformational leaders inspire ownership and accountability in their staff, which helps organizations change. The study found that transformational leadership promotes proactive crisis management in Ghanaian SMEs, enhancing resilience.

Servant leadership, characterised by leaders prioritising the needs and well-being of employees and stakeholders, is increasingly acknowledged as an effective strategy for fostering resilience in Ghanaian SMEs. Kaiser (2023) analyses the role of servant leadership in enhancing the relationship between SMEs and their communities, a factor essential for sustainability in times of crisis. In Ghana, where numerous SMEs depend significantly on informal networks and community support, servant leadership cultivates trust and collaboration, thereby enhancing resilience. In light of Ghana's informal economy, the study suggests that servant leadership for SMEs increases their internal resilience and fortifies their external support network. Also, Amaglo (2019) discovered that leaders who place a priority on innovation, creativity, and continuous learning can assist SMEs in adapting to changes in the market, disruptions caused by technology advancements, and global crises.

6. The Ghanaian Context: Challenges and Opportunities

The Ghanaian SME landscape is characterised by both challenges and opportunities. While SMEs play a crucial role in the country’s economy, they face several barriers to growth, including limited access to finance, poor infrastructure, and weak governance frameworks. However, there are opportunities for improvement, particularly through the adoption of better governance and leadership practices. Initiatives such as entrepreneurship education and systems thinking offer promising avenues for enhancing the resilience of SMEs in Ghana.

Multiple studies indicate that those who have undergone entrepreneurship education exhibit a higher propensity to establish their enterprises, possess enhanced creative abilities, and demonstrate a more resilient response to challenges than those without such training. A study by Araba (2023) emphasizes that an education in entrepreneurship provides SMEs with vital business management skills, marketing strategies, networking abilities and financial literacy. These are crucial for improving operational efficiency, accessing markets, and obtaining financial resources. Adeeko, (2023) argues that entrepreneurship education takes various forms, such as undergraduate and/or postgraduate programmes. Research has demonstrated that entrepreneurship education enhances an individual's self-confidence, entrepreneurial mindset, and ability to adapt (Kisubi et al., 2020).

Research undertaken in Ghana has shown that providing education in entrepreneurship has positive outcomes for enhancing SME resilience. Anim et al. (2023) discovered that SME owner-managers who had undergone formal education in entrepreneurship exhibited superior company performance metrics, such as increased sales growth and profitability, compared to SME owner-managers without formal entrepreneurship education.

Similarly, Adu, Boakye, Suleman et al. (2020) highlight that entrepreneurial training courses provided by universities and research institutions centre on teaching strategic planning, risk management, and innovation. They argue that entrepreneurs who get such training are better equipped with the competencies required to handle crises better. This helps them deal with economic downturns and shocks, such as the COVID-19 pandemic, by expanding their product lines or entering new markets. A study by Tumaku (2024) reports that entrepreneurs must possess essential abilities such as creativity, perseverance, flexibility, and effective communication to navigate challenges and take advantage of favourable circumstances effectively. These essential attributes may be developed by fostering important traits by integrating experiential learning activities, reflective practice, and personal development components. These provide opportunities for SMEs to be more resilient. Recent studies by Boohene (2020) highlight the role of social capital and emotional intelligence in

promoting SME performance, suggesting that strengthening these areas could also contribute to greater resilience. Additionally, government initiatives aimed at supporting SME growth, such as the National Board for Small-Scale Industries (NBSSI), provide an important framework for improving governance and leadership within the sector.

Furthermore, systems thinking offers promising avenues for enhancing the resilience of SMEs in Ghana. System thinking is a method of comprehending and examining the interconnectedness and fluctuations of different components within a system, including individuals, procedures, resources, and the environment. System thinking enables SME owner managers to discern the underlying causes of issues, predict the outcomes of actions, and develop efficient solutions that consider the entire system rather than its components. A study by Mhlomgo (2021) on a systems thinking approach to entrepreneurial leadership highlights the need for SME owner-managers to possess systems thinking skills to tackle these ever-changing complexities effectively. He argues that entrepreneurs need to possess systems thinking abilities to make effective business decisions and adapt to the world's increasing complexity. These skills allow them to understand how the structure of complex systems, such as an entrepreneurial system, influences their behaviour and sustains the system. Similarly, a study by Mhlongo and Daya (2023) on entrepreneurial leadership as a success factor for SMEs highlights some of the benefits of system thinking practice to enhance SME resilience. They argue that system thinking practice gives a better understanding of the business environment, improves decision-making, has the potential to explain complex phenomena and clarify ambiguous relationships, and helps SMEs adapt to changes in their business environment.

Despite these opportunities, Anjorin, Raji and Olodo (2024) highlight limited access to finance as one of the most significant challenges faced by SMEs in emerging markets. Due to their size, lack of collateral, and inconsistent credit history, traditional banks view SMEs as high-risk borrowers. This reputation makes it difficult for SMEs to obtain the needed funding, which limits their ability to expand, hire more people, and invest in new technology. This eventually hinders their growth and market competitiveness. However, to remain resilient, Laar, Kolog, Agbedemnab and Bayitaa (2023) contend that SMEs in Ghana shift to digital lending platforms and microfinance institutions for funding. Digital lending platforms simplify loan applications, giving SMEs access to funds that may not be available from traditional banks.

Another major challenge SMEs in Ghana face is limited access to formal entrepreneurship education programs, especially in rural and underserved areas. A study by Mensah, Fobih, and Adom (2019) highlights that even though more business training is available in cities, many SME owners in rural areas lack access to these capacity-building workshops. Access problems make it difficult for small businesses in rural areas to learn the skills they need to be resilient such as financial management, strategic planning and crisis management. Asamoah and Darko (2022) contend that inadequate infrastructure and policy support represent another difficulty for Ghana's SMEs. Ghana's government is currently developing its support for entrepreneurship education, and SMEs frequently do not have access to the infrastructure that these programs require to be successful. Hence, despite efforts to advance entrepreneurship education, many SMEs are either ignorant of government-run programs or are unable to access them because of institutional bureaucracies.

7. Discussion

7.1 What is the Relationship Between SME Resilience and Environmental Uncertainty?

This review emphasizes that while environmental uncertainty poses significant challenges to SMEs, it also presents opportunities for growth and innovation (Saad, et al., 2021). SMEs that prioritize agility, strong leadership and governance systems are better equipped to navigate uncertainty (Tumaku & Agbeko 2024). As businesses continue to face an increasingly complex and unpredictable global environment, enhancing resilience through these mechanisms will remain vital for their long-term sustainability.

7.2 To What Extent do Governance Frameworks Affect SME Resilience?

The systematic review reveals that governance and leadership are key determinants of SME resilience in Ghana. Effective governance provides the structural foundation for SMEs to make informed decisions and navigate uncertainties (Neequaye, 2020). Leadership, particularly resilient leadership, plays a critical role in shaping how SMEs respond to crises. Leaders who exhibit high levels of self-efficacy and adaptability are better equipped to manage external shocks, such as the COVID-19 pandemic. Governance is essential for enhancing SME resilience, as demonstrated by research conducted in the last decade. Essential governance elements, including formal

structures, board diversity, and leadership, enable SMEs to respond to crises and navigate challenging situations (Pongelli, et al., 2023). Robust governance frameworks facilitate SMEs in enhancing access to finance, risk management, and stakeholder trust, hence fostering long-term resilience (Singh & Pillai, 2022). This study underscores the importance of board diversity in enhancing inventive problem-solving and strategic decision-making, which is essential for addressing external shocks.

7.3 What Role do Leadership Practices Play in Enhancing SME Resilience?

Moreover, leadership styles that prioritize governance procedures, especially transformational leadership, empower SMEs to maintain agility and innovation, thereby securing their survival and growth in a rapidly evolving environment (Korankye, 2020). In contrast to servant leadership, which develops community relationships and stakeholder participation, transformational leadership encourages innovation and empowers employees (Marfo, et al. 2024). Also, in the Ghanaian setting, leadership plays an essential role in not just creating internal resilience but also establishing external networks and seeking assistance from the community. Leaders who prioritise strategic financial management and maintain good relationships with financial institutions or informal funding sources are in a better position to navigate through times of financial crisis (Amaglo, 2019).

7.4 What are the Challenges and Opportunities for Resilient SMEs in Ghana?

It came to light that while SMEs play a crucial role in the country's economy, they face several barriers to growth, including limited access to finance, poor infrastructure, and weak governance frameworks (Boohene (2018; Nketsiah, 2018). These constraints hinder the ability of SMEs to implement robust governance and leadership practices, thereby affecting their overall resilience. However, the studies also point to several opportunities. For instance, SMEs that leverage strong governance and leadership frameworks can better position themselves to access funding, build strategic partnerships, and expand into new markets. Additionally, initiatives such as entrepreneurship education and systems thinking offer promising avenues for enhancing the resilience of SMEs in Ghana (Anim et al., 2023; Tumaku, 2024). Furthermore, strategic approaches can help SMEs in emerging markets overcome hurdles and explore market opportunities. By improving access to finance, investing in infrastructure, implementing governance reforms, and adopting digital transformation, Ghanaian SMEs can build resilience and contribute to economic growth in emerging markets.

However, the review also highlights significant gaps in the current literature. While there is a growing body of research on SME resilience, few studies have focused on the specific governance and leadership practices that enhance resilience in the Ghanaian context. Future research should explore these areas in greater depth, with a particular focus on how governance frameworks and leadership development programs can be tailored to the needs of Ghanaian SMEs.

8. Conclusion

This systematic literature review highlights that SME resilience is a multi-dimensional construct influenced by various internal and external factors, including governance frameworks, leadership practices, and environmental uncertainties. The review underscores the need for stronger governance frameworks and leadership development programs that equip SME managers with the tools to navigate environmental uncertainties. As Ghana continues to recover from the economic impact of the COVID-19 pandemic, building resilient SMEs will be critical to ensuring sustainable economic growth.

Governance is a key factor in how well small and medium-sized businesses can handle uncertainties, unpredictability in the market, and other issues. The studies reviewed show how important it is to set up formal governance frameworks that promote access to finance and encourage board diversity. Small and medium-sized businesses will continue to face tough problems in a world that is becoming less stable. Good governance will be essential for their long-term survival and success. Also, the transformational leadership style, which emphasizes innovation, flexibility, and employee empowerment, is particularly effective in promoting resilience.

9. Recommendations

To enhance SME resilience in Ghana,

i. SME owner-managers must view environmental uncertainty as an opportunity for strategic adaptation through innovation and proactive planning.

ii. enhancing governance frameworks and leadership practices is crucial, in conjunction with tackling infrastructural, financial, and skill-related difficulties.
iii. leadership practices must focus on transformational and systematic thinking strategies, encouraging innovation and employee empowerment through entrepreneurial education.
iv. Policymakers must put in strategies to improve access to finance, invest in infrastructure, implement governance reforms, and adopt digital transformation.

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Appendices

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Navigating Resistance to Technological Change in Organizations: A Holistic Approach

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Abstract: Organizational change driven by technological advancements presents both opportunities and challenges for modern enterprises. A key obstacle is a resistance to adopting new technologies, which can manifest through scepticism, fear of job displacement, perceived loss of control, and concerns about competence. This resistance poses significant barriers to the successful implementation and integration of technological innovations, leading to delays, inefficiencies, and missed opportunities for organisational growth and competitiveness. This research proposes a holistic approach to address the complex challenge of resistance to technological change. Drawing on theoretical frameworks such as the Adaptive Cycle of Resilience (ACoR) model, Maslow's Motivation Theory, and Keidel's organisational model, as well as practical strategies, the study examines the interplay between individuals, different management, organisational and societal needs in the context of technological transformation. The research explores the dynamic and uncertain nature of technological change, identifying the specific stages within the ACoR model where resistance is most likely to occur and the implications for effective management. It also investigates the role of various management styles in addressing resistance and uncovering the skills and knowledge individuals and teams require to navigate this challenge successfully. Furthermore, the paper delves into the diverse stakeholders involved in the technological change process, analysing their needs and concerns and offering strategies to balance these competing interests. The importance of information systems in facilitating organizational change and their influence on the change process and outcomes is also examined. By synthesising these insights, the study presents a comprehensive framework for organisations to foster innovation, inclusivity, and social responsibility in the face of resistance to technological change. The findings offer valuable guidance for practitioners and scholars seeking to enable successful technological transformations and promote positive outcomes for all stakeholders.

Keywords: Organizational Change, Resistance to Change, Technological Change, Adaptive Cycle of Resilience, Change Management

1. Introduction

The initial perception of organizational change is often that it is a straightforward process involving the implementation of new technologies or procedures to enhance efficiency or productivity (Leana & Barry, 2000). However, deeper into the change process, organizations frequently face resistance from various stakeholders, such as employees, managers, and external partners. This resistance can appear in forms ranging from skepticism to outright opposition, creating significant challenges to the adoption and integration of innovations (Lines, 2005).

It becomes evident that change is not a simple, linear progression but a complex and dynamic process influenced by many factors (Piderit, 2000). Scholars and practitioners have highlighted the necessity for a more nuanced understanding of change, recognizing its nonlinear and iterative nature. Instead of viewing change as a sequence of distinct events, organizations must see it as a continuous journey involving ongoing adaptation, experimentation, and learning (Chawla & Kevin Kelloway, 2004).

Consequently, the concept of change management has expanded to include a variety of approaches and methodologies for effectively navigating the complexities of organizational change. Organizations are increasingly adopting diverse strategies, including traditional change management models and modern frameworks like agile and design thinking, to address resistance to technological change and cultivate a culture of innovation and resilience (Burke et al., 2008; Wanberg & Banas, 2000). By embracing a holistic and

multifaceted approach to change management, organizations can better position themselves for success in a dynamic and uncertain business landscape.

In this article, we thoroughly investigate organizations' challenges when confronted with change and delineate the essential strategies necessary to navigate these difficulties effectively. To establish a robust framework for these strategies, we employ the ACoR model introduced by Abcouwer and Parson (2011), which provides a comprehensive approach to managing organizational change. Our analysis extends to proposing specific strategies to enhance the management system, facilitate continuous education during transition periods, foster organizational resilience, and empower employees. These strategies are designed to equip organizations with the tools and capabilities required to adapt to change dynamically and maintain operational stability and growth.

2. Problem Statement

The rapid pace of technological advancements presents organizations with significant challenges, particularly in managing resistance to change (Millar & Lockett, 2014). This resistance can arise in various forms and stages, creating uncertainties that complicate the change process. There is considerable ambiguity regarding the appropriate management styles, roles, and strategies for addressing this resistance, which can lead to inefficiencies, delays, and missed opportunities for growth. Additionally, understanding the level of risk associated with technological change and identifying the stages where resistance typically occurs, as described by the Adaptive Cycle of Resilience (ACoR) model, remain critical yet unresolved issues.

Furthermore, the role of information systems in facilitating organizational change and their impact on the process and outcomes is not well-defined. Identifying stakeholders, understanding their needs, and balancing these needs during the change process are also challenging tasks that require more research (Shaft et al., 2008). Developing the necessary skills and knowledge for individuals and teams to navigate resistance effectively is essential for successful technological adoption. Comprehensive research is needed to explore these dynamics and develop effective management strategies to foster successful technological integration within organizations.

3. Context

In stable environments, organizational operations rely on expertise to meet customer needs and predict future requirements (Ro & Chen, 2011). Strategies under predictable conditions involve goal setting and building confidence for anticipated changes. However, the future is often unpredictable, requiring innovation and intuition from employees to manage unforeseen developments. Addressing potential challenges promptly, with cooperation from managers and colleagues, is crucial for maintaining progress or exploring new opportunities (Obeng, 2003). This collaboration necessitates strong leadership and a culture of trust, encouraging information exchange and enhancing predictability, ensuring successful current and future operations.

Our topic addresses the resistance to technological change within organizations. Technological advancements offer increased efficiency, productivity, and competitiveness but disrupt established workflows, processes, and cultures, leading to resistance. This resistance, stemming from skepticism, fear of job displacement, or perceived loss of control, can delay the implementation and integration of innovations, causing inefficiencies and missed growth opportunities. Organizations must foster a culture of innovation and continuous learning to overcome resistance, provide training and support to enhance digital literacy and promote open communication. Organizations can navigate technological change confidently and maintain competitiveness in a digital world by prioritizing employee engagement and inclusion.

3.1 Key Characteristics: Organizational Challenges

An organization’s ability to handle disruptions depends on the type of problem it faces, categorized as well-defined or ill-defined challenges.

Jonassen (1997, 2000) and Simon (1973) stated that well-defined challenges have laid out problem elements, including known starting and goal states, with established solution methods and criteria for evaluating solutions. These involve structured concepts and predictable knowledge domains., Jonassen (1997, 2000) and Kitchner (1983) stated that ill-defined challenges involve conflicting assumptions, evidence, and opinions, leading to multiple potential solutions or none. These challenges are characterized by uncertainty in concepts, rules, or principles needed for a solution and a lack of clear starting points or guaranteed answers.

Resistance to technological change is an ill-defined problem due to several characteristics of such challenges:

- Rapid Technological Advancements: The fast pace of technological change creates uncertainty about which technologies will be adopted and their impact on processes and structures.
- Diverse Organizational Responses: Varying attitudes, skills, and capabilities among individuals lead to uncertainty in their responses to technological changes.
- Evolving Market Dynamics: Changing market conditions, customer preferences, and competitor strategies contribute to uncertainty about the relevance and effectiveness of technological innovations.
- Complex Interactions: Technological changes often interact with existing systems, creating uncertainty about these interactions and their ultimate impact.

Decision-makers face several problems, including navigating the tension between embracing technological innovation and maintaining organizational stability, making informed decisions amidst uncertainty to keep the organization adaptable and competitive, addressing resistance to change from employees, stakeholders, or within the decision-making ranks, and allocating resources judiciously to balance the need for innovation with strategic objectives and financial constraints.

3.2 Change and AcoR Model (The Adaptive Cycle of Resilience)

The study conducted by Abcouwer et al. (2022) provides valuable insights into identifying the necessary management skills and knowledge required for organizations based on their current developmental stage. Their utilization of the Adaptive Cycle of Resilience (ACoR) model elucidates a comprehensive understanding of organizational change dynamics. Unlike the traditional "want-must-can" tensions, the ACoR model portrays organizational development as a cyclical process, emphasizing the continuous nature of change. This framework offers a nuanced perspective, highlighting that organizations progress through distinct stages, each demanding specific management approaches. By leveraging the ACoR model, organizations can tailor their management strategies to align with their current stage of development, fostering resilience and facilitating successful adaptation to technological advancements.

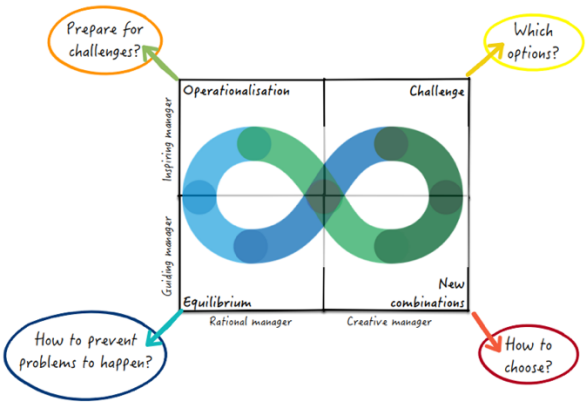

Figure 1

Organizations grappling with technological advancements find themselves in a perpetual state of flux within the Adaptive Cycle of Resilience (ACoR) model. Rapid technological advancements continuously disrupt equilibrium, prompting frequent transitions between ACoR stages. Market dynamics, regulatory changes, competitive pressures, and organizational learning also contribute to this dynamic environment. Shifting consumer preferences, emerging competitors, global economic trends, and evolving regulatory landscapes necessitate adaptation to strategies, operations, processes, and technologies. Intense competition drives the imperative for constant innovation and agility, reinforcing the need for continual technological adaptation and optimization. Each cycle within the ACoR model presents learning opportunities, shaping future adaptations and strengthening the organization's resilience in navigating technological change.

When we are facing uncertainty, we can not continue with the old and traditional way, and in our case, we need a new way of thinking and approach to dealing with the challenge. We need new strategies that shift our way of thinking to a more innovative mindset. We suggest a plan in 8 steps to face this challenge:

1. Acknowledge the Need for Change: Recognize the necessity of embracing innovation to remain competitive and relevant. Communicate this importance throughout the organization.

2. Create a Compelling Vision: Develop a clear and inspiring vision for innovation that aligns with the organization's mission and goals. Effectively communicate this vision to all stakeholders.
3. Cultivate a Culture of Innovation: Foster a work environment that values creativity, experimentation, and continuous learning. Encourage open communication and collaboration across teams.
4. Provide Resources and Support: Allocate adequate resources and offer training to support innovation efforts. Ensure employees have the tools and skills needed to innovate successfully.
5. Address Resistance and Overcome Barriers: Identify sources of resistance to change and proactively manage them through effective change management strategies. Engage stakeholders and seek feedback to build support.
6. Encourage Experimentation and Iteration: Promote a culture of experimentation and iteration. Implement agile methodologies to enable rapid prototyping and testing of innovative ideas.
7. Celebrate Success and Learn from Failure: Recognize and celebrate achievements and milestones reached through innovation. Embrace failure as a valuable learning opportunity for improvement.
8. Align Innovation with Business Goals: Ensure that innovation initiatives align with strategic priorities and business objectives. Establish clear metrics to measure innovation's impact on overall business outcomes.

3.3 Managing Change and Identifying the Problem Space

It is critical for effective change management as it offers a comprehensive understanding of underlying issues, challenges, and opportunities (Abatecola et al., 2020). By delineating this space, organizations can pinpoint specific areas requiring attention, focusing efforts, resources, and initiatives on addressing root causes of resistance to change. Organizations can develop proactive strategies and contingency plans by anticipating and mitigating potential risks and challenges associated with change, ensuring smooth implementation and desired outcomes. We suggest this to identify the problem space:

Table 1

Step	Description
Identify and Clarify Alternative Opinions	Recognize diversity of opinions on technological change and thoroughly research to clarify reasons for resistance.
Generate Possible Problem Solutions	Implement training programs, prioritize transparent communication, stakeholder involvement, and foster a culture of innovation.
Assess Viability of Alternative Solutions	Evaluate solutions based on effectiveness, feasibility, costs, and alignment with objectives.
Monitor the Problem Space and Solution Options	Continuously monitor organizational dynamics and feedback mechanisms.
Implement and Monitor the Solution	Roll out solutions incrementally, establish clear metrics for progress tracking.
Adapt the Solution	Remain agile and responsive, encourage ongoing feedback and collaboration, ensure sustained success in addressing resistance.

Organizations must recognize the importance of adopting alternative working methods that promote specialization alongside multidisciplinary collaboration in managing resistance to technological change. By cultivating a workforce with deep expertise and broad perspectives, organizations can enhance their capacity to innovate, adapt, and thrive in an increasingly complex and uncertain environment.

3.4 Managing Style for This Challenge

In the specific context of addressing technological challenges within organizations, the ACoR model delineates distinct phases that require the involvement of various professionals. Effective execution of this process relies on skilled leaders or managers leading the way, supported by diverse specialists whose cooperation fosters creativity in devising innovative solutions. Selecting appropriate intervention strategies and ensuring efficiency demand the expertise of proficient business professionals working as a cohesive team. Hence, the selection of competent leaders/managers and team members is crucial for the successful planning and execution of the

change process, highlighting the importance of tailored approaches in navigating the complexities of the ACoR model.

In this case, leadership and stewardship are crucial. Leadership propels change and innovation, while stewardship ensures ethical direction and long-term success. By integrating these principles, organizations navigate technological change confidently and sustainably, achieving strategic objectives while upholding core values.

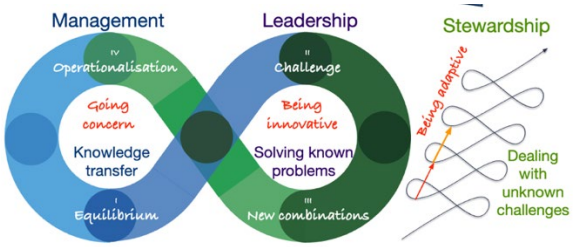

Figure 2

3.5 The "me, we, all Approach"

Abcouwer et al (2022) introduced the "Me, we and All" perspectives as means to identify a paradigm shift in society. One of the basic assumptions in organizational theory is that organizations form the linking pin between individuals and society. Putting the individual in the center of the universe, as we did for decades in our individualistic society, does not help us understand the complexity and future orientation necessary for modern society to survive.

Abcouwer et al (2022) also state that Human-centered development makes education and well-being the most fundamental pillars for resilience as a solution to challenges. Education proves vital in becoming more resilient and establishing better living conditions. Technological developments made enormous progress in today's way we live in society.

In this challenge, first, we explain who are the stakeholders in our case:

Table 2

Me (Individuals): People who are working in all companies	**We (Organizations): All companies and Organizations**	**All (Society)**
• Employee • Managers • Customers/Clients • Suppliers • Advisors/Governance bodies	• Traditional Retailers • Manufacturing Companies • Healthcare Institutions • Financial Institutions • Educational Institutions • Government Agencies • Transportation Companies	The combination of companies and people and their families. They are all connected and they are forming the whole society.

To define the responsibilities of individuals within an organization who are facing this challenge, we suggest using the theory-U state by Scharmer (2007), which is widely experienced as a relevant approach to understanding the importance of the human factor in any organizational change. It emphasizes the importance of the human factor in organizational change, helping managers develop skills for solving ambiguous challenges and guiding people in the change process. Scharmer distinguishes between learning from the past, a well-established method, and presenting, which blends presence and sensing. Presenting involves sensing and acting from one's highest future potential, fostering a connection with emerging future possibilities. This requires an open mind, heart, and will, along with the ability to cooperate, to effectively navigate and implement change.

These are the responsibilities individuals should have in our challenge based on the U-theory:

Table 3

Downloading	Workers and managers should begin by absorbing information about technological trends and changes in their industries and gathering insights from various sources.
Seeing	Reflect on personal experiences and observations regarding technological change, recognizing the signs and signals of change within their organizations and industries
Sensing	Cultivate an open and receptive mindset to sense the deeper shifts and patterns underlying technological change, tuning into one's intuition and gut feelings about the potential impact and implications.
Presencing	Connect with a deeper source of wisdom and intuition to presense the emerging future possibilities enabled by technology, letting go of past assumptions and limitations to embrace new opportunities
Crystallizing Vision and Intentions	Clarify personal and professional goals in the context of technological change, crystallizing a clear vision of the desired future state and setting intentions for how to align actions with that vision.
Prototyping	Experiment with new technologies and digital tools to prototype innovative solutions and approaches, taking small, low-risk steps to test ideas and gather feedback in real-world settings.
Performing	Take proactive steps to apply newly acquired skills and knowledge in the workplace, performing effectively in the face of technological change and contributing to positive outcomes for oneself and the organization.
Co-Evolving	Engage in collaborative dialogue and co-creation with colleagues, and managers to co-evolve inclusive strategies for navigating technological change, collective intelligence to address challenges and seize opportunities together.

3.6 Value and Norms

In addressing resistance to technological change, organizational values and norms are crucial. Values guide actions and decisions, anchoring change initiatives in core principles, such as innovation, which fosters a culture of experimentation. Norms, the unwritten behavioral rules, shape collective mindsets and patterns. Norms promoting openness and collaboration facilitate technology adoption, while resistant norms hinder progress. Embedding supportive values and norms is essential for overcoming resistance and embracing change (Neap & Celik, 1999).

Furthermore, Abcouwer et al (2022) state that values and norms enhance organizational resilience by fostering cohesion and adaptability amid technological disruption. Well-defined values and positive norms provide a shared decision-making framework, aiding navigation through uncertainty. Aligning change efforts with these values and fostering adaptable norms increase an organization's capacity to respond to technological challenges and thrive in dynamic environments. Thus, values and norms are foundational, shaping responses to technological change and driving resilience.

In this challenge, managers should focus on understanding value systems by assessing current organizational values, evaluating their alignment with market demands, and identifying gaps for adaptation. They must facilitate the transition by fostering agility, supporting employees, and providing necessary resources. Choosing appropriate approaches involves selecting suitable methodologies, leveraging technology-enabled solutions, and streamlining processes for enhanced collaboration. To inspire confidence, managers must guide the transition with strong leadership, clear communication, and addressing concerns and resistance. Recognizing long-term development paths requires balancing short-term and long-term goals to align with market demands. Additionally, supporting the change team with necessary resources, coaching, mentoring, and fostering collaboration is essential for effective change management.

At the same time, individuals and team members should align their efforts with organizational goals, recognizing the importance of technological adaptation. They should develop relevant skills, embrace continuous learning, and foster cross-functional collaboration. Embracing change with flexibility and resilience is crucial, as is supporting colleagues through encouragement and skill development. Driving innovation involves contributing ideas and championing creative problem-solving, while effective communication requires maintaining open channels, sharing updates, and seeking team feedback.

3.7 Making Balance

According to Keidel's framework (1995) of cooperation, autonomy, and control, the best way to address resistance to technological change is through a balanced approach incorporating all three dimensions. Cooperation among stakeholders is essential, as fostering open communication, teamwork, and shared ownership of change initiatives can harness collective expe§rtise and insights. This collaboration encourages buy-in, promotes a sense of ownership, and facilitates identifying and resolving barriers to change.

Empowering individuals and teams with autonomy and decision-making authority helps overcome resistance by allowing employees to take ownership, experiment with new approaches, and adapt to evolving circumstances. This decentralization fosters a culture of agility, creativity, and adaptability, which is crucial for navigating technological change. However, maintaining a certain level of control is necessary to ensure alignment with strategic objectives, compliance with regulatory requirements, and risk mitigation. Control mechanisms such as performance metrics, feedback loops, and accountability structures provide the necessary oversight and governance. By balancing cooperation, autonomy, and control, organizations can create an environment conducive to overcoming resistance, driving innovation, and achieving sustainable change outcomes.

Focusing on purpose, development, innovation, well-being, diversity, ethics, collaboration, responsiveness, sustainability, and community engagement is crucial for organizational success in today's complex world. Establishing a clear purpose guides decision-making and attracts stakeholders who share the organization's vision. Prioritizing development ensures agility and adaptability, empowering employees to navigate change effectively. Embracing innovation fosters competitiveness and unlocks growth opportunities. Furthermore, prioritizing well-being and diversity creates an inclusive environment that enhances creativity and collaboration. Upholding ethics and promoting collaboration build trust with stakeholders, while sustainability practices and community engagement demonstrate responsible business conduct, contributing to long-term success and societal value.

3.8 Knowledge and Skills

Takács et al. (2018) argue that education and knowledge serve as vital cornerstones for organizational success, fostering innovation, adaptability, and competitiveness in today's rapidly changing business landscape. Organizations must prioritize continuous learning and knowledge-sharing initiatives to remain agile and drive sustainable growth. Investing in employee education and development programs equips the workforce with the necessary skills and expertise to address current challenges and adapt to future trends. By providing diverse learning opportunities and fostering a culture of collaboration, organizations encourage knowledge exchange and innovation, enabling employees to contribute effectively to organizational goals. Leveraging technology further facilitates seamless knowledge sharing, empowering employees to access relevant information efficiently.

According to Maslow's Motivation Model (McLeod, 2007), bridging the knowledge gap in organizations resistant to technological change necessitates fulfilling employees' higher-level needs for self-actualization and personal growth. This involves providing opportunities for professional development, autonomy in learning, and recognition of contributions to innovation and knowledge sharing. Organizations can offer educational resources and training programs to enhance employees' skills in technological advancements while granting autonomy empowers them to pursue areas aligned with their aspirations and organizational goals. Moreover, recognizing and rewarding employees for their efforts can motivate them to engage actively in learning and sharing activities, fostering a culture of curiosity and innovation. By aligning education and recognition initiatives with employees' higher-level needs, organizations can empower their workforce to embrace technological change and drive organizational success.

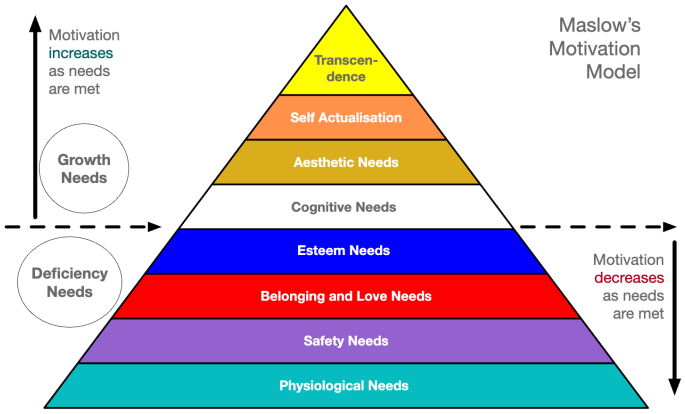

Figure 3

3.9 Traps and Thresholds

Traps represent organizational states where resistance to change, inertia, or unsustainable practices hinder adaptability and growth. These traps, such as siloed structures or entrenched cultural norms, restrict the organization's ability to evolve and respond effectively to dynamic environments. In contrast, thresholds signify pivotal points of transition or transformation within the adaptive cycle. Crossing a threshold denotes a shift from one phase to another, marking changes in conditions, opportunities, or constraints. While thresholds pose challenges, they also present opportunities for organizations to confront traps, break barriers, and embrace new approaches. Navigating these thresholds demands organizations to rethink strategies, foster innovation, and cultivate resilience to traverse the adaptive cycle successfully.

Understanding both traps and thresholds is imperative for organizations aiming to navigate change and enhance resilience. By identifying potential traps and recognizing thresholds, organizations can preemptively anticipate obstacles, mitigate risks, and seize opportunities for adaptation and innovation. Proactively addressing traps and leveraging thresholds empowers organizations to foster agility, embrace change, and thrive amidst uncertainty and disruption, ultimately bolstering their capacity to navigate the complexities of dynamic environments.

As we investigate, there are 5 ways of getting stuck in these traps. This can be named as the organization's behavior in the dynamic of change which should be known and aware of:

Table 4

Resistance	• Fear of the unknown, concerns about job security, or reluctance to disrupt established processes. • Passive-aggressive behavior, lack of cooperation, or outright refusal to adopt new technologies
Selective Adoption	• Adopt new technologies in certain areas while maintaining traditional approaches in others. • Leverage the benefits of technology where it makes the most sense while minimizing disruption to established practices.
Complacency	• Sticking to familiar routines and outdated technologies, even in the face of evolving market trends and technological advancements. • leads to stagnation and loss of competitiveness in the long run
Innovation Leadership	• Forward-thinking organizations embrace innovation leadership, actively seeking out opportunities to disrupt their industries and drive technological change.
Incremental Change	• Making small adjustments to existing processes and technologies rather than embracing radical innovation. • It may also hinder organizational agility and responsiveness to changing market dynamics

4. Conclusion

The exploration of organizational change and resistance to technological advancements underscores the intricate dynamics that shape organizational success in today's fast-paced environment. From purpose-driven leadership to fostering collaboration and innovation, each aspect contributes to a comprehensive strategy for navigating change effectively and making a positive societal impact. Prioritizing employee well-being and cultivating trust are crucial elements in overcoming challenges and achieving sustainable success. When individuals feel supported and valued within their organizational context, they are more inclined to embrace change, drive innovation, and contribute to collective progress. This interconnectedness between individual well-being, organizational success, and societal impact highlights the importance of nurturing a culture of care, compassion, and collaboration within organizations.

Fostering environments that prioritize holistic well-being, growth, diversity, and ethical leadership can help organizations create ecosystems where individuals thrive, teams excel, and communities flourish. As we navigate technological change and organizational transformation, it is imperative to recognize the significance of human-centered approaches and the cultivation of environments built on trust, respect, and collaboration. By embracing these principles, organizations can adapt to change and contribute positively to the well-being of individuals, organizations, and society as a whole, fostering resilience and prosperity in the process.

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Linking Non-Financial Performance Determinants with IPO Underpricing: Evidence from Indonesia

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Abstract: Study Background/Rationale: This study aims to investigate the determinants that may influence the underpricing in Initial Public Offerings (IPO), a phenomenon found in stock exchange markets globally. Underpricing occurs when the intrinsic value is higher than the offer price set by the issuing firm. As a result, the share's price skyrockets upon its market debut, offering an instant profit to investors, but potential damage to the company itself. Method: The focus of this study is the Indonesian stock market, which is seen as one of the leading growth economies among emerging markets and other developing economies, with accelerated GDP and having topped the list of Southeast Asian (ASEAN) countries regarding the number of IPOs. This research utilises multiple linear regression models and samples of firms that engaged in IPO in the Indonesia Stock Exchange (IDX) between 2018 and 2022. Findings: Using prospectus' non-financial performance determinants, this study finds that underwriter reputation, public ownership, and firm size have a positive influence on underpricing; additionally, offering size and firm age have a negative and statistically significant influence on underpricing. Furthermore, this study adds to the existing research by emphasising how various determinants are linked to IPO underpricing in Indonesia. In addition, this study demonstrates that prospectuses provide relevant information to minimise information asymmetry and ex-ante uncertainty between firms and shareholders. Conclusion: Considering the present shortage of studies on the determinants of IPOs underpricing as a starting point, this empirical research can be valuable since it could enhance the existing research by providing latest data for comparisons across nations.

Keywords: IPO, Underpricing, Underwriter reputation, Ex-Ante Uncertainty, Information Asymmetry, Indonesia.

1. Introduction

Some research that attempted to uncover the determinants of IPOs underpricing in Indonesia primarily used old data sets or studied just certain variables, such as data sets from 2003 to 2011 (Darmadi and Gunawan, 2013), data sets from 2009 to 2013 (Indriani and Marlia, 2014), data sets from 2006 to 2015 (Hanafi and Setiawan, 2018), and a recent study by Bandi et al. (2020) investigating the effect of underwriter reputation on IPOs underpricing in Indonesia from 2010 to 2017. Considering the present shortage of studies on the determinants of IPOs underpricing as a starting point, this empirical research would be valuable since it could enhance the existing research by providing the latest data for comparisons across nations. Drawing upon the research background and the Indonesian context, this research aims to address the main research question, "What are the non-financial performance determinants influencing IPOs underpricing in Indonesia between 2018 and 2022?" Numerous variables were selected based on the existing literature which investigated the same topic. To the best of the authors' knowledge, this research will be the first to investigate IPOs underpricing in Indonesia using the most recent data set.

2. Literature Review

2.1 IPOs and Underpricing

IPOs mark the public debut of private firms and allow entities to acquire essential resources to boost their performance (Brau and Fawcett, 2006; Luo, 2008; Bancel and Mittoo, 2009; Aslan and Kumar, 2011; Feng et al., 2020). Additionally, besides gaining capital, IPOs also shift the firm's ownership from private to public (Poulsen and Stegemoller, 2008; Carbone et al., 2022), making the current shareholders less power over the company (Souitaris et al., 2020).

During IPOs, there are two common methods that firms can choose. The first one is a best-effort offering (BEO) method, where the underwriters sell as many shares as possible and earn a percentage of the offer proceeds, while the other one is a firm-commitment offering (FCO) method, where the underwriters purchase all shares from the issuing company at a negotiated discount and guarantees sale (Welch, 1991; Dunbar, 1998; Kim, 2021).

Dunbar (1998) investigated whether the firms' choice between FCO and BEO methods resulted in a successful offering, and he expected firms to choose the offering methods with the lowest direct issue costs: underpricing and underwriter compensation. This research focuses on the first cost, which is the underpricing.

2.2 Agency Theory and Information Asymmetry

In a systematic literature review, Carbone et al. (2022) discovered that among researchers, the agency theory is the most commonly utilised theory for studying IPO performance. The theory was developed by Jensen and Meckling (1973), as they tried to deepen Adam Smith's idea, and defined the agency relationship as a condition in which shareholders transfer managerial authority to managers. In further research, Panda and Leepsa (2017) discovered a similar finding and believed that Adam Smith was most likely the first figure to recognise the appearance of the agency problem.

2.3 Determinants of IPO Underpricing

2.3.1 Underwriter Reputation and Multiple Lead Underwriters

Underwriters are crucial during the IPO process (Brau and Fawcett, 2006). Firms will seek underwriters who will promote their shares, and further analyse the market condition and demand for the IPO firm's shares, before determining an offer price (Volberda et al., 2010), as well as the number of shares that firms would issue (Megaravalli, 2023).

Numerous research had found negative relations between the underwriter's reputation and underpricing. As highlighted by How et al. (1995), reputable underwriters are willing to charge a premium to reflect the higher quality services they offer. In this context, high quality refers to the underwriter's ability to "correctly" price the IPO, set the offering price near to its intrinsic value, to maintain their reputation in the market (How and Yeo, 2000).

H_1: Underwriter reputation is negatively associated with IPO underpricing.

In certain circumstances, firms would hire more than one underwriter, something known as Multiple Lead Underwriters (MLU). They collaborate by sharing their knowledge, networks, and expertise to manage and ensure the IPO's success. In the Indonesian context, the average appearance of MLU from 2018 to 2022 is 28.14%, with the years 2021 and 2022 exceeding 30%. There is a consensus among social scientists that there is a link between MLU and underpricing itself. IPO firms that use MLU have a lowered degree of underpricing (Jeon et al., 2015) and better long-run performance (Vithanage et al., 2016). In 2007, Hu and Ritter discovered evidence using 532 US IPO firms from 2001 to 2005, that MLU IPOs achieve a better offer price and decreased underpricing (Hu and Ritter, 2007).

H_2: MLU has a negative correlation with IPO underpricing.

2.3.2 Offer Size

Offer size can be an instrument to measure the ex-ante uncertainty (Beaty and Ritter, 1986), which can be obtained by multiplying the total shares offered by the IPO price (Rathnayake et al., 2019). Previous studies have shown that the offer size negatively affects underpricing (Chen et al., 2004; Chi and Padgett, 2005; Yu and Tse, 2006; Su and Bangassa, 2011; Lin and Tian, 2012; Alanazi and Al-Zoubi, 2015; Komenkul and Siriwattanakul, 2016; Rathnayake et al., 2019). In contrast, other studies found contradicting findings, as a positive association appears among them (Heerden and Alagidede, 2012; Boonchuaymetta and Chuanrommanee, 2013).

H_3: There is a negative association between offering size and IPO underpricing.

2.3.3 Warrant and Stock Options

Warrants provide investors the right to purchase additional shares at a certain price over a set time. According to popular belief, warrants are "sweeteners" to promote the IPOs (Chemmanur and Fulghieri, 1997; Lee et al., 2003; Fung et al., 2004; Garner and Marshall, 2005; Madyan et al., 2020; Chen, 2021). Chemmanur and Fulghieri (1997) discovered that firms express their risk and future cash flow expectations to investors through warrant issuance. Since warrants are linked with increased risk for issuers, issuing them will lead to higher underpricing. Additionally, studies by How and Howe (2001) and Lee et al. (2003) also find a positive relationship between warrants and initial returns.

In the context of Indonesian IPOs, the Indonesian State Law Number 8 of 1995 concerning Capital Market stated that warrants can be converted into shares six months after the issuance. However, little research has been conducted to investigate the impact of warrant issuance on IPOs underpricing in the Indonesian market. Madyan et al. (2020) conducted the most recent study, which evaluated the impact of warrants on market performance and discovered a positive association, in a short-term period, between the two.

H_4: Warrant and stock options are positively affecting IPO underpricing.

2.3.4 Public Ownership

Research by Michel et al. (2014) recognise that greater public ownership not only can increase external shareholders' monitoring function and improve the firm's performance, but also encourages insiders to engage in activities that tend to only benefit them at the cost of external shareholders. According to Jain and Kini (1994), lowering public ownership also increases the incentives for management to perform effectively.

Yet there has been little research examining the impact of public ownership on IPOs underpricing in the Indonesian market. The most recent study is by Madyan et al. (2020), who investigated the impact of public ownership on market performance and came to a mixed conclusion, with a positive correlation with short-term market performance but no relationship with long-term market performance.

H_5: There is a positive link between public ownership and IPO underpricing.

2.3.5 IPOs' Purpose

This research believes that if the IPO funds were used to settle debt, it would not attract investors, thus, resulting in lowered underpricing. This is supported by Wyatt's (2014) and Alyasa-Gan and Che-Yahya's (2022) study which found that the 'use of proceeds' for financing operations does not indicate projected future cash flows and can deliver negative signals that enhance the ex-ante uncertainty of future cash flows. Numerous studies have found a mixed relationship between financing purpose and underpricing, as some found a positive relationship (Amor and Kooli, 2017), while others found the contrary (Wyatt, 2014; McGuinness, 2019; Ahmad-Zaluki and Badru, 2021).

H_6: The debt financing purpose and IPO underpricing have a negative correlation.

2.3.6 Institutional Shareholder

Previous research on IPOs underpricing has found that the presence of institutional shareholders in firms has a positive impact on underpricing. Bird and Yeung (2010) studied Australian firms from November 1995 to December 2004, Lin and Chuang (2011) studied Taiwan firms from 2000 to 2005, while Ong et al. (2020a) studied Malaysian firms from 2000 to 2018, concluding that institutional shareholder could be signalling the firm's quality to the investors. However, further studies using Indonesian data found that institutional shareholders negatively impact IPOs underpricing (Darmadi and Gunawan, 2013; Hanafi and Setiawan, 2018), implying that institutional shareholder can use their expertise to set the share price close to their intrinsic value.

H_7: There is a negative link between institutional ownership and IPO underpricing.

2.3.7 Corporate Governance

Many researchers believe that board size is one of the various corporate governance instruments capable of minimising agency problems between managers and shareholders, or between majority and minority shareholders (Darmadi and Gunawan, 2013). This is consistent with the findings of Koufopoulos et al. (2008) and Ali (2018), who discovered that board size is positively related to overall company performance.

Research on corporate boards, whether in the circumstances of IPOs or not, has been predominantly centred on the one-tier board system (Kusumastati et al., 2022). However, the results may differ in Indonesia because the country employs a two-tier board system in which firms must have two boards in their structure: the Board of Commissioners, whose purpose is to explicitly supervise the Board of Directors as well as the corporation in general, and the Board of Directors, who manage the corporation daily (Indonesian Financial Service Authority, 2014). Each of these two boards must have different members so that there is no overlap between the two boards. Research in Indonesian IPOs suggests that board size is negatively associated with underpricing (Darmadi and Gunawan, 2013).

H_8: Board size is negatively associated with IPO underpricing.

While a larger board size allows firms to have a diverse range of skills and backgrounds, it also raises the issue of "over boarded" firms (Field et al., 2013), in which a board member also serves on the other companies' board, resulting in a busy board. Firms with busy boards are defined as those with a majority of independent directors holding three or more directorships, according to Fich and Shivdasani (2006).

Ferris et al. (2003) observed that busy boards contribute to the firm, not only in strengthening its networking connections and maintaining its partnerships with other parties but also in building the firm's reputation (Fama, 1980; Fama and Jensen, 1983). Additionally, well-connected directors act as intermediaries for information between issuers and investors, reducing the information asymmetry and ex-ante uncertainties surrounding the IPO (Cai et al., 2012). However, recent studies in Indonesian firms reveal a contrary finding, as excessive directorships may leave directors with little time to monitor management, resulting in lower firm performance (Harymawan et al., 2019; Trinugroho et al., 2022).

H_9: Busy board is positively linked with IPOs underpricing.

Further study found another issue in corporate governance where gender bias, particularly regarding the appearance of female board members, can negatively impact corporations. Some research implies that the participation of female board members has a positive impact on firm value (Carter et al., 2003; Groening, 2019; Park and Byun, 2022) as it increases the firms' reputation (Hillman et al., 2007; Brammer et al., 2009), while others are less convincing (Miller and Triana, 2009; Matsa and Miller, 2013; Li and Chen, 2018). Female representations on boards were seen as less capable than their male counterparts, notwithstanding their qualifications and IPOs managed by female boards were viewed as less appealing investments (Bigelow et al., 2014).

H_{10}: Female board members are negatively associated with IPO underpricing.

2.3.8 Firm Age and Firm Size

Older companies may provide investors with greater information regarding the firms' activities (Loughran et al., 1994), as the previous study by Beaty (1989) and Ritter (1991) believed that a firm's age might reduce the ex-ante uncertainty. The firm's age shows the length of time the company was operating before IPO which can be measured as the difference between the date of listing and the date of incorporation (Dhamija and Arora, 2017). The abundant information provided might lead to lower information asymmetry, hence, numerous research has shown that it negatively influences underpricing (Chen et al., 2004; Yu and Tse, 2006; Killins, 2019).

H_{11}: Firm age is negatively associated with IPO underpricing.

According to Beaty and Ritter (1986), smaller companies have less information available than larger companies, which increases ex-ante uncertainty. Previous research, however, by Anderson et al. (2015), demonstrated a positive relationship between firm size and underpricing using the natural logarithm of total assets as measurement. This is supported by Badru and Ahmad-Zaluki (2018) who studied the IPOs firms listed in the Bursa Malaysia from 2005 to 2015 and found a positive and significant relationship. They contended that rather than measuring ex-ante uncertainty, firm size is often used to signify the company as a whole. On the other hand, a study by Rathnayake et al. (2019) shows an insignificant relationship.

H_{12}: Firm size is positively associated with IPO underpricing.

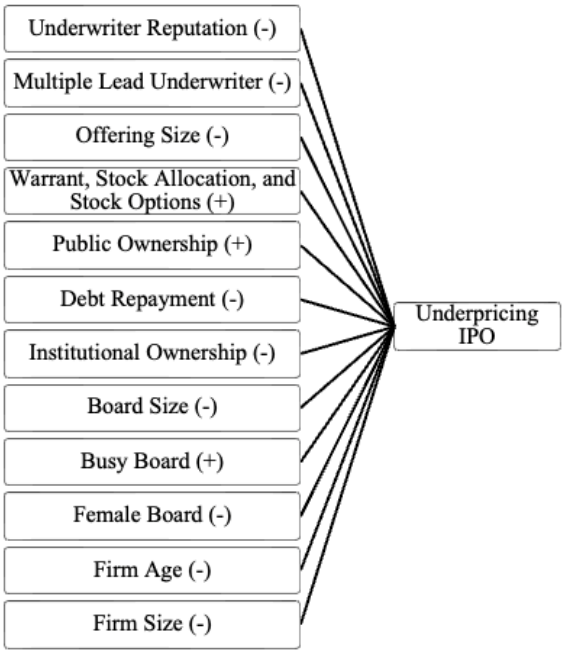

Figure1: Research Model

3. Methodology

3.1 Data and Sample

This study uses secondary data, primarily from the firms' prospectuses. Prospectuses are obtained through the Perfect Information (PI Navigator) database. Data on the share price on the first trading day are necessary to calculate underpricing, and it is taken from both Yahoo! Finance and Bloomberg. Furthermore, most of the necessary data is hand-collected and manually obtained since this research focuses on the use of prospectuses.

To capture the most recent trends in Indonesian IPOs, this study's initial sample includes all 276 firms that performed IPOs in Indonesia's equity market between 1 January 2018 and 31 December 2022. A further firm elimination left 229 firms that fit the criteria.

Table 1: Research Sample Selection

No.	Criteria	Total	Unit
1.	Total IPO companies from 2018 to 2022	276	Firms
2.	Companies not suffering from IPO underpricing	(28)	Firms
3.	Companies in the financial sector	(11)	Firms
4.	Companies using other than Indonesian Rupiah currency	(7)	Firms
5.	Companies with not sufficient data	(1)	Firm
Total samples (observations)		229	Firms

3.2 Research Method and Research Model

This study used quantitative research methods, where theories and hypotheses are developed and then tested empirically (Newman and Benz, 1998). The following research model is provided based on the hypothesis development and variable definitions:

$$Underpricing = \beta_0 + \beta_1 UnderwriterReputation + \beta_2 MLU + \beta_3 OfferingSize + \beta_4 WarrantOptions + \beta_5 PublicOwnership + \beta_6 DebtRepayment + \beta_7 InstitutionalShareholder + \beta_8 BoardSize + \beta_9 BusyBoard + \beta_{10} FemaleBoard + \beta_{11} FirmAge + \beta_{12} FirmSize + \varepsilon$$

Taking the research question as a starting point, the research model of this study employs twelve constructs and utilises cross-sectional research.

3.3 Variables Definition

3.3.1 Dependent Variable

This research uses IPO underpricing (*Underpricing*) as the dependent variable, which is defined as the difference between the closing price on the first trading day and the offer price (Certo et al., 2001; Loughran and Ritter, 2004; Bruton et al., 2009; Moore et al., 2010; Lin and Chuang, 2011; Tian, 2011; Roosenboom, 2012; Park and Patel, 2015; Boone et al., 2016; Vithanage et al., 2016). Therefore, it is calculated by dividing the offer price by the difference of the closing price minus the offer price on the first trading day. The *Underpricing* formula is as follows:

$$Underpricing = \frac{(Closing\ price - offer\ price)}{Offer\ price}$$

3.3.2 Independent Variables

The independent variables considered in this study are the determinants predicted to represent the cause of underpricing in Indonesian IPOs, which are the underwriter reputation (*UnderwriterReputation*), multiple lead underwriters (*MLU*), the offer size (*OfferingSize*), warrant, stock allocation, and stock options (*WarrantOptions*), public ownership (*PublicOwnership*), debt repayment purpose (*DebtRepayment*), institutional shareholder (*InstitutionalShareholder*), board size (*BoardSize*), busy board (*BusyBoard*), female director (*FemaleBoard*), firm age (*FirmAge*), and firm size (*FirmSize*).

UnderwriterReputation is a binary variable that equals 1 if the firm's IPO is underwritten by the top five underwriters and 0 otherwise. The data derives from the Bloomberg League Table, which ranks underwriters based on the value of securities issues underwritten during the sample period (Darmadi and Gunawan, 2013).

Table 2: Underwriter League Table (Bloomberg)

No.	2018	2019	2020	2021	2022
1.	CITIC Securities	UOB Kay Hian Pvt Ltd	BCA Sekuritas PT	Bank Mandiri	Trimegah Securities
2.	Indo Premier Securities	Sinarmas Securities PT	Jasa Utama Capital PT	Buana Capital PT	Indo Premier Securities
3.	UOB Kay Hian Pvt Ltd	NH Investment & Securities Co Ltd	NH Investment & Securities Co Ltd	BRI Danareksa Sekuritas PT	Bank Mandiri
4.	Ciptadana Sekuritas	Jasa Utama Capital PT	UOB Kay Hian Pvt Ltd	Trimegah Securities	Credit Suisse
5.	Bank Mandiri	Kresna Sekuritas PT	Pacific Sekuritas Indonesia PT	CITIC Securities	DBS Group

However, this study believes that underwriter rank is dynamic, with ups and downs, and that the top five underwriters will shift moderately each year. Thus, this study will employ two different measurements for *UnderwriterReputation*, as *UnderwriterReputation1* will use the overall rank within the research's time frame, and *UnderwriterReputation2* will use the rank for each year. The underwriter league table for each year is presented in Table 3-2 above. The other independent variables are as follows:

- *MLU* is a binary variable that equals 1 if the firm's IPO has more than one lead underwriter and 0 otherwise (Jeon et al., 2015; Vithanage et al., 2016).
- *OfferingSize* is the natural logarithm of offering size, calculated by multiplying the total number of shares offered by the IPO price (Rathnayake et al., 2019); the offering size figure is also stated on the prospectus' front page.
- *WarrantOptions* is a dummy variable that equals 1 if the firm's IPO includes warrants, stock allocations, stock options, or any combination of these, and 0 otherwise (Madyan et al., 2020).
- *PublicOwnership* is the proportion of shares held by the public after the IPO, excluding the fraction of shares offered through warrant offers (Madyan et al., 2020).
- *DebtRepayment* is a binary variable that equals 1 if one of the firm's IPO purposes is debt repayment and 0 otherwise (Amor and Kooli, 2017).
- *InstitutionalShareholder* is the percentage of institutional shareholders before the IPO (Darmadi and Gunawan, 2013; Hanafi and Setiawan, 2018).

- *BoardSize* is the number of persons who sit in boardrooms. Because of Indonesia's two-tier board structure, this study covers members of both the Board of Directors and the Board of Commissioners (Darmadi and Gunawan, 2013).
- *BusyBoard* is a dichotomous variable that captures the presence of a busy board in the firm, as described by Fich and Shivdasani (2006) as those with three or more directorships. In this study, it equals 1 if at least one of the board members is classified as busy, and 0 otherwise.
- *FemaleBoard* is defined as the percentage of the female to total boards in boardrooms (Li and Chen, 2018; Badru et al., 2019).
- *FirmAge* is the number of years since incorporation (Ritter, 1991; Dhamija and Arora, 2017).
- *FirmSize* is measured as a natural logarithm of the firm's total assets (Anderson et al. (2015).

4. Results and Discussion

4.1 Overall IPO in Indonesia

According to Ernst and Young's (2018-2022) global IPO report, Indonesia has continuously led the overall performance of publicly traded firms in ASEAN and is among the Top-10 Asian countries with the most IPO performances. Table 4-1 illustrates the overall IPO performance in Indonesia from 2018 to 2022.

Table 3: Overall IPO Performance in Indonesia

No.	Year	Total IPO	Underpriced	%	IPO Proceeds (in Billion IDR)
1.	2018	57	54	94.74	16,009.84
2.	2019	55	51	92.72	14,779.42
3.	2020	51	51	100.00	5,578.34
4.	2021	54	46	85.19	62,608.40
5.	2022	59	46	77.96	32,867.57
Total		276	248	89.85	131,843.57

4.2 Descriptive Statistic Analysis

Table 4-2 summarises the descriptive statistics for each variable in the model.

Table 4: Descriptive Statistics (N=229)

VARIABLES	Mean	SD	Min	p25	Median	p75	Max
Underpricing	.403	0.208	.004	.248	.35	.502	.7
UnderwriterReputation1	.122	0.328	0	0	0	0	1
UnderwriterReputation2	.323	0.469	0	0	0	1	1
MLU	.262	0.441	0	0	0	1	1
OfferingSize	25.337	1.164	23.208	24.425	25.171	26.022	30.718
WarrantOptions	.598	0.491	0	0	1	1	1
PublicOwnership	.232	0.091	.005	.2	.2	.294	.52
DebtRepayment	.201	0.402	0	0	0	0	1
InstitutionalShareholder	.704	0.390	0	.426	.951	1	1
BoardSize	6.183	1.881	4	5	6	7	13
BusyBoard	.786	0.411	0	1	1	1	1
FemaleBoard	.177	0.169	0	0	.167	.286	.75
FirmAge	15.31	11.776	1	7	12	22	64
FirmSize	26.44	1.511	23.005	25.269	26.391	27.419	32.63

4.3 Regression Results: Underpricing and The Determinants

Table 4-3 presents the regression results from the research's model. This table depicts the research model, which includes two measurement variations of underwriter reputation as independent variables, namely *UnderwriterReputation1* and *UnderwriterReputation2*. The coefficient of determination (R-squared) of the model regression is 0.273 and 0.285 for models with *UnderwriterReputation1* and *UnderwriterReputation2* as independent variables, respectively. When multiple proxies of underwriter reputation are used, the model can explain about 27.3% and 28.5% of the variation in Underpricing. Furthermore, if we use adjusted R-squared, the R-squared for equations (1) and (2) are slightly lower, at 0.233 and 0.245, respectively.

This research will examine the model's goodness-of-fit by assessing the overall significance of the regression (F-test) (Lind et al., 2012). In equations (1) and (2), the p-values for the F-test are less than the 1% significance level. This implies that all independent factors have a significant effect on IPO underpricing at the same time; in other words, the model in this study can be interpreted to fit the data. However, the F-test cannot identify which independent variable has a significant effect on the dependent variable. As a result, the single parameter test (t-test) is used to identify how each independent variable influences the dependent variable.

According to the regression results in Table 4-3, the *UnderwriterReputation* has a mixed effect on *Underpricing* in equations (1) and (2). In equation (1), using Darmadi and Gunawan's (2013) measurement (*UnderwriterReputation1*) in this sample set yields a negative association with *Underpricing* that is not statistically significant. Furthermore, this study employs and modifies the measurement. Since the underwriter's reputation is dynamic, the top five underwriters are expected to differ for each year (*UnderwriterReputation2*). The result shows that underwriter reputation has a statistically significant positive association with *Underpricing* at the 5% significance level.

Based on the empirical findings, the *UnderwriterReputation1* coefficient is negative and aligns with the $\mathbf{H_1}$. Previous research on IPOs underpricing in Indonesia also discovered the same results (Tanjung et al., 2019; Bandi et al., 2020; Setya et al., 2020). However, it is not statistically significant; in other words, it has less of an impact on underpricing. It would be preferable if issuing firms did not use this measurement to determine which underwriter they should partner with. The empirical findings in equation (2) reveal that the *UnderwriterReputation2* coefficient is positive and rejects the $\mathbf{H_1}$. According to Table 4-3, using the top five underwriters will increase the underpricing by 0.056%.

It appears that top underwriters tend to purposely underpriced IPOs between 2018 and 2022 to achieve a larger market share (Loughran and Ritter, 2004; Jones and Swaleheen, 2010), rather than minimising ex-ante uncertainty. By intentionally underpricing the IPO, it may attract investors and ensure the IPO's success. Previous research also found similar results (Hoberg, 2007; Chang et al., 2008; Boulton et al., 2010; Banerjee et al., 2011; Dimovski et al., 2011). This significant finding shows that issuing firms may use this measurement to decide which underwriters to collaborate with to minimise the potential of leaving money on the table. Providing a significant impact on underpricing, the following determinants will be explained using equation (2) results.

According to Table 4-3, the *MLU* coefficient is negative, showing that using multiple lead underwriters can reduce underpricing. To the best of the author's knowledge, no research has been conducted to determine the relationship between these two variables in the context of Indonesian IPOs. This result backs up prior research (Hu and Ritter, 2007; Jeon et al., 2015; Vithanage et al., 2016; Sahoo and Sahoo, 2022) and adds to the existing literature. Despite confirming $\mathbf{H_2}$, the evidence indicates that the relationship between these two variables is statistically insignificant.

Based on the evidence in Table 4-3, the *OfferingSize* has a highly significant negative impact on underpricing. It also supports $\mathbf{H_3}$ and previous findings (Chen et al., 2004; Chi and Padgett, 2005; Yu and Tse, 2006; Su and Bangassa, 2011; Lin and Tian, 2012; Alanazi and Al-Zoubi, 2015; Komenkul and Siriwattanakul, 2016; Rathnayake et al., 2019) that *OfferingSize* is negatively influence the underpricing. The impact is statistically significant at the 1% significance level, as increasing *OfferingSize* by 1% reduces underpricing by 0.093%. It appears that investors use the *OfferingSize* as the instrument to minimise the ex-ante uncertainty (Beaty and Ritter, 1986), in which they may be less eager to participate in the IPO or demand a lower starting price if they perceive the larger offering size as a signal of future dilution or a higher number of outstanding shares.

Table 5: Regression Results

VARIABLES	(1) Underpricing	(2) Underpricing
UnderwriterReputation1	-0.035	
	(0.042)	
UnderwriterReputation2		0.056**
		(0.028)
MLU	-0.025	-0.030
	(0.031)	(0.030)
OfferingSize	-0.084***	-0.093***
	(0.017)	(0.016)
WarrantOptions	-0.035	-0.033
	(0.025)	(0.025)
PublicOwnership	1.176***	1.134***
	(0.173)	(0.174)
DebtRepayment	-0.041	-0.042
	(0.031)	(0.031)
InstitutionalShareholder	0.037	0.037
	(0.032)	(0.032)
BoardSize	-0.005	-0.005
	(0.008)	(0.007)
BusyBoard	0.039	0.038
	(0.030)	(0.030)
FemaleBoard	0.009	0.006
	(0.074)	(0.073)
FirmAge	-0.002**	-0.002**
	(0.001)	(0.001)
FirmSize	0.098***	0.095***
	(0.014)	(0.014)
Constant	-0.305	0.015
	(0.352)	(0.357)
Observations	229	229
R-squared	0.273	0.285
Adjusted R-squared	0.233	0.245
F-test	6.77	7.16
Prob > F	0.0000	0.0000

Notes: This table shows the association between IPOs underpricing and their determinants. The dependent variable is *Underpricing*, which is shown in two different equations since one of the independent variables is proxied using two different measurements, which are *UnderwriterReputation1* and *UnderwriterReputation2*. The standard errors are shown in brackets. ***, **, and * represent significance levels of 1%, 5%, and 10%, respectively.

Previous research has demonstrated that warrant issuance and stock options can be used as a "sweetener" in IPOs to encourage investors to buy shares in firms that attract little public attention (Chen, 2021), hence this study predicts a positive association between *WarrantOptions* and *Underpricing*. Logically, investors dare to bid a higher price if they know they will receive a warrant or stock options. However, the study's findings presented in Table 4-3 clearly show that issuing warrants or implementing stock options could minimise underpricing given that the *WarrantOptions* coefficient is negative but statistically insignificant, rejecting the **H_4** suggested. Based on the previous studies, Certo et al. (2003) as well as Sanders and Boivie (2004) believe that stock options grants boost a firm's credibility in the eyes of investors. It could also be seen as an approach for reducing firm risks and moral hazards by matching the interests of boards and shareholders (Beatty and Zajac, 1994), therefore it reduces the underpricing. The result also suggests that investors may have seen it for the same reason that *OfferingSize* did. Warrants are redeemable for shares, increasing the number of outstanding shares. If they view a higher number of outstanding shares as a signal of future dilution, they may be unwilling to participate in the IPO or demand a lower offering price.

According to Hsieh et al. (2011), investors appear to react negatively to publicly owned shares (*PublicOwnership*), believing that there is a higher chance of a corporation being taken over by third parties. Not only does a greater proportion of outstanding shares increase the shareholder's monitoring function, but it also leads to behaviours that benefit insiders at the cost of external shareholders (Michel et al., 2014). However, this study finds that *PublicOwnership* is positively associated with *Underpricing,* and it is statistically significant at the 1% level of significance. While the result confirms the **H_5** suggested, the evidence indicates that every 1% increase of *PublicOwnership* will increase 1.174% of underpricing. The highly significant level could indicate that investors view this as a risky factor and are therefore demanding a larger return. This finding is consistent with Bradley and Jordan's (2002) study, as well as Madyan et al.'s (2020) research, which discovered that *PublicOwnership* is positively related to short-term market performance in Indonesia.

As stated in the previous chapter, this research suggests that if IPO funds were utilised as *DebtRepayment*, it would not attract investors, resulting in decreased underpricing. This study provides the same results and confirms the **H_6** suggested. Rather than reducing the ex-ante uncertainty, investors appear to see this as a negative signal that financing purpose does not indicate projected future cash flows; in other words, if investors

saw any possibility of *DebtRepayment* activities in the prospectus, it leads to a lower underpricing. However, the result is statistically insignificant, implying that this variable does not have enough explanations to influence underpricing. Using different data samples, this finding is consistent with previous studies (Wyatt, 2014; McGuinness, 2019; Ahmad-Zaluki and Badru, 2021; Alyasa-Gan and Che-Yahya, 2022).

The presence of *InstitutionalShareholder* in firms, based on previous research (Bird and Yeung, 2010; Lin and Chuang, 2011; Ong et al., 2020a), has a positive impact on underpricing. They argue that rather than reducing ex-ante uncertainty, institutional shareholders can be utilised as a positive signal, indicating that they will boost the firm's value through more effective monitoring by utilising their experience and resources. Investors may believe that institutional shareholders can signal the firm's quality, leading them to bid for the shares at higher prices than their intrinsic value. These could be the reasons why *InstitutionalShareholder* has a positive value, confirming earlier studies, and rejecting the $\mathbf{H_7}$ proposed. Although it differs from earlier research in the Indonesian context (Darmadi and Gunawan, 2013; Hanafi and Setiawan, 2018), the influence of *InstitutionalShareholder* on *Underpricing* in this study is statistically not significant.

Using data from Indonesia from 2018 to 2022, it has been demonstrated in Table 4-3 that *BoardSize* has a negative impact on underpricing, although the relationship is not statistically significant, and confirms the $\mathbf{H_8}$ proposed. The result is consistent with Darmadi and Gunawan (2013) who believe that the larger the *BoardSize*, the more investors perceive it can minimise ex-ante uncertainty because larger boards are believed to provide more effective monitoring (Boone et al., 2007). Furthermore, larger boards may help firms to better manage the complexity of their business processes, lowering doubts about firm value. As a result, a high-quality IPO firm will employ signals other than a huge board size to demonstrate the issue's quality.

While investors believe that a larger board will reduce the underpricing, a contrary result appears when it comes to busy boards, as the results show a positive association between *BusyBoard* and *Underpricing.* Previous studies in Indonesian firms reveal that excessive directorships may leave boards with little time to monitor management, resulting in lower firm performance (Harymawan et al., 2019; Trinugroho et al., 2022). From the investors' perspectives, the situation fails to reduce the ex-ante uncertainty and signalling a lower future firm's performance and riskier firm's future performance, thus, leading to a higher underpricing. Although the relationship is not significant, it is aligned with $\mathbf{H_9}$ proposed and confirms previous findings by Feng et al. (2019).

The presence of *FemaleBoard* is another corporate governance indicator that has been shown to be positively associated with underpricing. Previous research has suggested that female boards are regarded to be less capable, making female-led IPOs less tempting investments (Bigelow et al., 2014). This research is expecting the investors will interpret this as a bad indicator for future performance, thus they will not bid for a higher offering price, resulting in a lower underpricing. The results, however, clearly show that *FemaleBoard* is positively linked with underpricing and rejects the $\mathbf{H_{10}}$ suggested, albeit not statistically significant. It confirms Reutzel and Belsito's (2015) finding that the appearance of female board members in US firms might increase underpricing. They argue that the negative signal from female leadership in the boardroom, who were perceived to have a negative impact on the IPO firm and viability, as Amatucci and Crawley (2011) also believed that female directors are often seen as being less confident than men in terms of financial decision-making. A recent study by Teti and Montefusco (2022) also found similar findings in Italian companies where they believe the presence of female directors indicates uncertainty and perhaps less favourable results to investors, leading to greater underpricing as compensation.

Initially, this study expected *FirmAge* and *FirmSize* to have a negative and positive connection with *Underpricing*, respectively. The research conducted here reveals a similar outcome to the expectations and verifies the $\mathbf{H_{11}}$ and $\mathbf{H_{12}}$ hypotheses. More importantly, the results imply that both determinants have significant effects on *Underpricing*. *FirmAge* is seen as a method for reducing ex-ante uncertainty. While the majority of IPO firms are young, it is common to see older companies go public as well. Previous research has found that the longer the time of incorporation, the more information about the firm is available in the market, and vice versa, the younger the firm, the greater ex-ante uncertainty and greater underpricing due to issuer uncertainty (Karlis, 2000; Kirkulak and Davis, 2005). The results demonstrate that increasing the *FirmAge* by one year old reduces the *Underpricing* by 0.002%, and it is statistically significant at the 5% level of significance, corroborating previous findings (Chen et al., 2004; Yu and Tse, 2006; Killins, 2019). Unlike *FirmAge*, which can minimise ex-ante uncertainty, *FirmSize* appears to indicate to the investor that the larger the firm, the riskier it is. This could be because larger firms often face more complex business processes and obstacles, resulting in a riskier situation, and as a result, investors demand greater returns through a higher offer price. Table 4-3 demonstrate that increasing the *FirmSize* by 1% increases the *Underpricing* by 0.102%, and it is statistically significant at the 1%

level of significance, corroborating previous findings (Anderson et al., 2015; Badru and Ahmad-Zaluki, 2018).

5. Conclusion

This study intends to investigate the non-financial performance determinants that may influence the IPO underpricing phenomenon in the context of the Indonesian stock market. Using IPOs data from 2018 to 2022, this study adds to the existing literature by providing data for further cross-country comparisons.

The dependent variable in this study is the IPOs underpricing. Underwriter reputation, multiple lead underwriters, offering size, warrant, stock allocation, stock options, public ownership, debt repayment purpose, institutional shareholder, board size, busy board, female director, firm age, and firm size are the independent variables used in this research. The underwriter's reputation is measured in two different proxies, resulting in a significant result for one of both proxies.

A multiple linear regression model is used in this study to assess the Based on the regression analysis, this study concludes that underwriter reputation, public ownership, and firm size have a positive influence on underpricing; additionally, offering size and firm age have a negative and statistically significant influence on underpricing; however, the other determinants have no or little influence on underpricing.

This research cannot be considered without weaknesses; some limitations can be identified during this study. The first limitation is the relatively small sample size. The sample size was limited by a five-year time frame. With the Indonesian capital market being particularly strong in the Asian market, especially in Southeast Asia, a longer time frame is expected to provide better results and explanations of the research question in this study.

The second limitation is represented by the variable selection. The variables considered in this research model do not adequately capture the majority of the potential determinants of underpricing.

Indeed, given the limited research time, it was not possible to collect relevant information from a bigger sample and utilise more criteria in the research model.

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Gen Z's Digital Literacy in the Development of Proactive Personality: HR Management Perspective

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Abstract: The digital literacy is required for the efficient functioning of an individual in the digital world. Digital transformation changes people's attitudes and behaviors, strengthening or weakening some of them. The continuous research in this field is justified by the fundamental changes that digitalization is bringing about in the global labor market, professional activities, and work structures. An interesting question is whether digital skills can be helpful in shaping specific attitudes and behaviors of employees as e.g. proactivity. The concept of proactivity is an important phenomenon considered within the framework of corporate entrepreneurship. A proactive organization focuses on seizing opportunities in a competitive market, implementing innovations in practice and managing market expectations. For an organization to be proactive, it is necessary to implement proactivity at all levels of the organizational structure, which may be more effective if we employ employees with a high level of proactive personality. It remains unknown whether digitization is connected with an individual's proactivity. The current study aims to examine the dependency between elements of the digital literacy and the development of proactive personality of young individuals of Gen Z, an attitude that may to emphasize the importance of proactiveness as a desirable feature in the professional life. The research was conducted in the form of a survey using the CAWI method among 370 individuals of Gen Z in Poland in 2024. Regression analysis confirmed a statistically significant dependency between the digital literacy and the proactive personality in the studied group of respondents, however, not all predictors within the model have a positive dependency with the proactive personality. The main limitations of the study are visible in not fully representativeness of the research group, and hence the inability to generalize the conclusions and make certain assumptions regarding the probable use of a proactive personality in the workplace.

Keywords: Digital Literacy, Digitization, Proactive Personality, Proactivity, Gen Z.

1. Introduction

According to Sahu et al (2018), digital transformation refers to the change of an organization's structure, functions, processes, and business models brought about by the implementation of digital technologies like augmented reality, machine learning, artificial intelligence, and in-memory computing. Because of the unique nature of digital technology, managers and decision makers face numerous problems throughout digital transformations (Abedin & Babar, 2018).

Continuous research in this field is justified by the fundamental changes that digitalization is bringing about in the global labor market, professional activities, and work structures. Many workplaces have integrated digital technologies to perform tasks such as communication, information sharing and simulation of business processes (Morgan et al, 2022). Organizations are forced to implement digital solutions, but the real challenge related to digitalization is not only technology, but employee skills (Nikou et al, 2022). This creates space for activities within human resources management. Organizations need to equip their workforce with digital skills to meet the organizational objectives if they want to benefit from their investments in technologies (Cetindamar Kozanoglu & Abedin, 2021). Digital literacy (DL) therefore refers to the ability to access, manage and integrate various aspects of the digital world (Lahiri et al, 2022). Meanwhile, managers emphasize that the literacy level of employees is insufficient to meet the DL requirements of the future workplace (Farrell et al, 2021).

DL is important for every member of society because almost everyone today uses some form of digital media in their daily activities. However, digital disparities are evident in both developed and developing countries. To promote digital inclusion for all citizens and reduce existing digital disparities, there is a need to focus on improving citizens' digital skills, especially in the education system (Reddy et al, 2023). Continuous development of digital skills for Gen Z and younger generations will be not only a natural but also a necessary process to function in the workplace.

An interesting question is whether digital skills can be helpful in shaping specific employee attitudes and behaviors. If so, it could become an element of the education system which, through appropriate development of digital skills, would additionally shape the desired features of the employee. One of such features could be proactivity, identified as a dimension of entrepreneurial orientation (Kraus et al, 2023). Thus, the main research aim of this study is to examine the dependency of elements of DL and the development of the proactive personality (PP) of the Gen Z individuals. The novelty of the study is visible in an approach used when examining

the relationship between DL and PP at the stage of education in business-related areas. Such a diagnosis allows for modifications in the education of future employees.

2. Literature Review

2.1 Digital Literacy

Digital literacy of employees refers to an individual's or a social group's knowledge, skills, and capacities when engaging with digital technologies (Stordy, 2015). DL focuses on how people interact with technology and utilize ICTs for information retrieval and utilization (Nikou et al, 2022).

According to recent surveys, the biggest obstacle to digital transformation and innovation in many firms is figuring out how to reinvent the employee experience and improve their level of DL (Kane et al, 2019). It becomes necessary to reorganize HR management principles and tools.

Despite a wide recognition of DL importance, past research has merely examined it from the individual perspective and hence discounted its organizational dimension (Wagner et al, 2014). Organizational dimension of employees' DL is important, as individuals' skills and knowledge about possibilities of digital technologies develop and shape from interactions with other employees within the organization. Eden et al (2019) stress on the organizational dimension of DL, and found that organizations need to develop an ongoing digital workforce transformation competences as well as support workforce transformation to create a proper organizational culture, which enables staff to deal with turbulence, and provide a continuous response to change.

Individuals not only can conceive possibilities arising from digital technologies but also put them into use and learn from interactions to adapt their behavior and find new ways of using technologies through their daily practices (Du et al, 2019). Employees' interactions with technology are influenced by their ongoing personal and social evaluations and perceptions of suitability for the technology, which together shape organizational skills at the group level.

As the work of Murawski and Bick (2017) highlights, the main management challenges is to adapt organizational culture, mind-set, and competences to the new, digital way of working instead of to disruptive innovations, changing customer behavior, or technology trends. The emphasis on culture, mindset, and competencies necessitates particular attention to personnel.

DL is a system of skills and strategies used by individuals in the digital environment, which is a set of three dimensions: technical, cognitive and socio-emotional. In the technical dimension, individuals should be able to use digital technologies and ICTs. The cognitive dimension includes understanding of moral and ethical dilemmas in the information domain, critical use of digital technology, and the ability to assess and manage digital information. In turn, the social-emotional dimension is the capacity to use the Internet sensibly for learning, socializing, and communication, as well as to respect others' privacy and behave ethically in a variety of settings (Neumeyer et al, 2021). An extension of this DL division is the study of (Aydınlar et al, 2024), which classifies this variable into 7 fields: software and multimedia, hardware and technical problem solving, network and communication/collaboration, ethics, security, artificial intelligence, and interest-knowledge. This division focuses on specific skills rather than their nature. Among the frameworks attempting to identify the multiple dimensions of DL, A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2, proposed by UNESCO is also very popular among scientists dealing with digitization issues (Law et al, 2018).

Companies with higher employee DL communicate and internally cooperate more efficiently, predict future business needs and innovate before their competitors (Lei et al, 2023). A successful digital transformation requires the organization to cultivate DL among employees to quickly respond to market demand (Rialti et al., 2019). The application of digital technology gives workers the chance to grow and learn, and it also motivates people to see their own worth (Urbinati et al, 2020), which, in turn, improves employees' sense of belonging to the organization and provides the conditions and motivation for employees to improve their DL (Lei et al, 2023).

People's lives are currently changing due to the rapid growth of technology, giving rise to a new generation known as "digital natives." These people are always linked to the Internet, can process information fast and easily, and are completely dependent on digital technology. The requirements and way of life of digital natives are creating a social model that calls for competency with technology and substantial contributions in a range of spheres of existence. In addition, the web is becoming a dynamic, open, connected, and flexible hub for

interaction and communication, which is causing a revolutionary change in the social communication patterns inside communities (Budiman & Syafrony, 2023).

Expanding the DL of the academic community is crucial in a digital learning setting. Universities play an essential role in helping future employees become digitally literate. Universities must offer sufficient resources, infrastructure for information and communication technology, and facilities. Information and communication technologies must be used by tutors to facilitate successful and fulfilling learning activities (Budiman & Syafrony, 2023). Generation Z was educated with widespread access to data and knowledge and has never lived without the Internet. They have excellent multitasking skills with a variety of digital devices. Education today should equip young people to be human resources that the workplace will value—people who can think critically, act creatively, take initiative, solve issues, and collaborate and interact with others more effectively than computers can. This is something that human resources can do if they are really technologically proficient. Because of this, in order to improve competencies and skills in business domains, new integrated digital literacy needs to be increased and strengthened (Dewi et al., 2021).

2.2 Proactive Personality

The concept of proactivity, which is one of the aspects of entrepreneurial attitude, is typically connected to the field of corporate entrepreneurship. It is suggested that because of its proactive approach, the enterprise is concentrated on seizing chances in an aggressive marketplace, putting innovations into practice, and managing expectations of potential demand that would transform and have an impact on the environment (Al-Mamary & Alshallaqi, 2022). For an organization to be proactive, it is necessary to implement proactiveness at all levels of the organizational structure. This will be easier if we hire employees with a high level of proactive personality (PP).

The most productive work behaviors are those that adapt quickly to the dynamic, global environment in which organizations function. Workplace proactivity grows in significance in response to this problem (Coun et al., 2021), as proactive employees take on activities on their own initiative and with a future- and change-oriented behaviors. Employee initiative, for instance, in pointing out problems or suggesting creative solutions, guarantees organizational efficacy in quickly changing marketplaces (Ontrup et al, 2022). Employees with high levels of proactivity will fit in better in innovation-based businesses than those with lower levels of proactivity because of their behavioral and cognitive abilities, such as determination and perseverance in the face of hurdles as well as active, forward-looking planning and thinking (Lasisi et al, 2020).

Along with to work design, an individual's personality influences their motivational attitudes in the workplace, and proactive personalities are in fact the ones that are studied the most when it comes to work performance. Proactive personality is a major factor in determining proactive behavior that influences creativity and innovation since it is believed that proactive personnel can recognize and solve problems as well as initiate change (Suseno et al, 2020). PP describes a person's active actions and endeavors to influence their external environment while successfully changing the current state of affairs, spotting chances, overcoming obstacles, and achieving their objectives (Shi et al., 2023). In comparison to individuals with less proactive personalities, those with greater PP are more emotionally stable, more able to handle stress in the environment, and more likely to generate opportunities to improve performance (Bateman & Crant, 1993). Individuals with high PP are more likely to take initiative, solve issues, and adjust to their interests, whereas those who have low PP are more likely to adjust to the world around them, react to it passively, and allow environmental influences to shape them (Crant, 2000).

It is possible to cultivate positive discretionary behavior through HR practices (Meijerink et al., 2020). By giving workers and teams opportunities and motivation to contribute, HR practices can "access" appropriate organizational behavior through the lens of strategic HR management (HRM) (Combs et al., 2006). Measuring the target behavior is a necessary step before providing appropriate practices and assessing their efficacy, as it is impossible to assess the need for new HR practices or the efficacy of current ones without data on proactive behavior levels or changes (King, 2016).

Research from the field of education shows that PP significantly affects the career variables of university students by raising their academic self-efficacy, boosting their confidence in making career decisions and conducting job searches, and lowering their career uncertainty (Park, 2015). Success can be attained by those who are highly proactive because research has shown that these individuals have higher levels of affective commitment, perceived autonomy, career and creative self-efficacy, and intrinsic motivation (Shi et al, 2023), and higher job and career satisfaction (Wang & Lei, 2023). Previous studies also indicate that PP plays a

significant role in moderating the relationship between proactive career planning and proactive career enacting (Presbitero, 2015), which emphasizes the role of shaping PP already at the education stage so that the individual can achieve the benefits of proactivity in professional life.

2.3 Hypothesis Development

According to other studies (Chughtai & Buckley, 2011), there is a general correlation between employees who have a strong learning goal orientation and engaging in proactive work behaviors. Employees focused strongly on learning are more likely to take the initiative and learn new skills and thus are likely to engage in proactive actions (Maden, 2015). In turn, a company's knowledge capacities may have an impact on how well it can recognize and implement new digital technologies in response to its proactive strategy. For instance, a company with high levels of digital literacy might be better able to recognize and assess emerging technologies that complement its strategic goals, as well as apply and capitalize on such technologies to effectively accomplish its objectives (Hashem et al, 2024).

Currently, the relationships between DL and many organizational variables are being studied due to the fact that digitalization is a new context of business activity. In the subject of the current research, the links between proactive attitudes and behaviors and digital skills have been studied previously. Hıdıroğlu et al (2021) confirmed a statistically significant correlation between the technical skills of secondary school science teachers and proactive personality, in the context of the effectiveness of the education system. Another example was a study of students in Indonesia shows that DL can be used to predict students' level of proactivity. The results of the study clearly showed that digital skills should be promoted to enhance students' proactiveness (Siswanto et al, 2022). Therefore, DL is an element encouraging proactive action.

A slightly different approach is presented in the study that focused on e-leadership. It was recognized that e-leadership supports the free flow of information by digitizing processes and offering new ideas, which in turn promotes proactive employee behavior in the organization (Said & Kamel, 2023). In turn, Ostmeier and Strobel (2022) conducted interesting research using cognitive-affective personality system theory to test the model combining the digital maturity of the industry and proactive skill development indirectly through the interpretation of the concept of digitization by employees. The above allows for the following hypothesis:

H1: There is a dependency between digital literacy and the development of the proactive personality of Gen Z individuals.

3. Methods

To address the research goal, a survey using the CAWI method was conducted in 2024 among 370 Gen Z individuals in Poland. The respondents expressed their opinions on a 5-point Likert scale. The survey questions were prepared based on a literature review. The variable of proactive personality (PP) consists of 9 items, developed based on Crant and Kraimer (1999). The variable of DL is prepared as multidimensional variable, which consists of 7 group of items: Software and Multimedia (DL1); Hardware (DL2); Network (DL3); Ethics (DL4); Security (DL5); AI (DL6); and Interest-Knowledge (DL7). Each group of DL consist of 2-4 items, developed based on Aydınlar et al (2024).

The internal consistency of variables was investigated using Cronbach's alpha coefficient, which level seems to be satisfactory (Table 1).

Table 1: Cronbach's alpha reliability test

PP	DL1	DL2	DL3	DL4	DL5	DL6	DL7
0.896	0.783	0.731	0.750	0.772	0.882	0.807	0.857

For data analysis, the typical statistical methods for social science research were used such as descriptive statistics, correlations (Kendall Tau correlation coefficient), and multiple regression. The calculations were carried out using the Statistica 13.3 statistical software.

4. Results

The first step of the analysis was the presentation of descriptive statistics for the analyzed variables. The PP variable was rated relatively high by the respondents - the average response was 3.63 on a 5-point Likert scale.

When assessing digital skills, it can be indicated that they are high in the group of surveyed Gen Z individuals, but they are not the same in all surveyed areas. Thus, the highest average response was in the Security area (mean = 4.06) and Hardware (3.85). In turn, the lowest score is recorded in the Software and Multimedia area (3.40) and Network (3.57) (Figure 1).

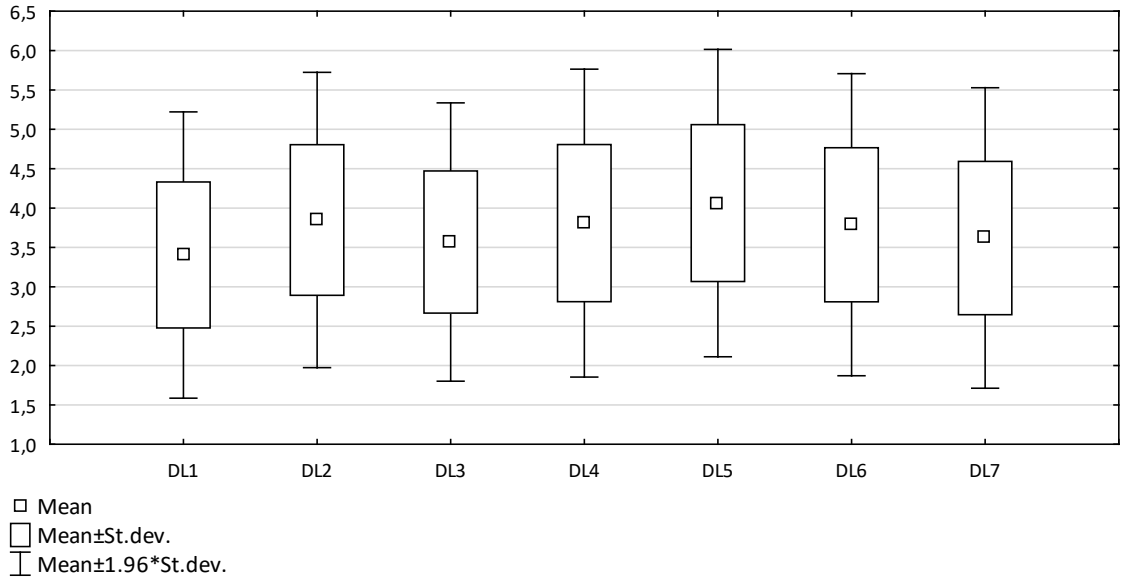

Figure 1: Elements of digital literacy (n=370)

The next research step was to determine the correlation between the variables, in particular the dependent variable and the independent variables. For this purpose, the non-parametric Kendall Tau correlation coefficient was used, due to the Likert scale used for the assessment in the survey. The results of Kendall Tau correlation show moderate positive dependency between PP and DL variables. The correlation results are very similar for all DL areas, except for the DL2 (Hardware) area (see Table 2).

Table 2: Correlation Matrix (n=370; p<0.01)

	PP	DL1	DL2	DL3	DL4	DL5	DL6	DL7
PP	1.00							
DL1	0.30	1.00						
DL2	0.24	0.61	1.00					
DL3	0.31	0.50	0.49	1.00				
DL4	0.30	0.47	0.47	0.45	1.00			
DL5	0.32	0.45	0.48	0.51	0.66	1.00		
DL6	0.32	0.45	0.41	0.50	0.54	0.59	1.00	
DL7	0.30	0.53	0.60	0.51	0.48	0.52	0.53	1.00

The analysis of the relationships between variables was deepened using the multiple regression analyses. The DL was the independent variable, and PP level of Gen Z individuals was included in the regression as a dependent variable. The summary of the multiple regression model (see Table 3) confirmed that the entire model was statistically significant ($p < 0.05$). Moreover, the entire model explained 25.3% of the response variability, which seems to be a satisfactory result. Based on this result it is possible to confirm the research hypothesis, i.e. there is a dependency between digital literacy and the development of the proactive personality of Gen Z individuals.

Table 3: Multiple Regression Model Summary

R Square	Adjusted R Square	Sum of Squares SS	df	Mean of Square MS	Change Statistics			F	p
					SS	df	MS		
0.267	0.253	59.022	7	8.43	161.748	362	0.447	18.871	0.000

When analyzing individual DL elements, it should be noted that not all predictors within the model have a positive dependency with PP. The application of all predictors in one model revealed that DL2 is the only one that has a negative dependency with the dependent variable PP.

5. Discussion and Conclusion

Since people who have greater DL have stronger technical, managerial, social and entrepreneurial skills, it can be assumed that digital skills are desirable and should be developed already at the education stage (Ip, 2024), which currently applies to Gen Z generation and younger generations. Digital technology has the potential to boost corporate entrepreneurship as well, as evidenced by signs of self-renewal, organizational innovation, responsiveness, and new business development (Sariwulan et al, 2020). Proactivity is one of the characteristics of entrepreneurial orientation, however, PP does not have to be an innate feature but can be shaped and intensified within the educational system.

Currently, research has confirmed with statistical significance the positive impact of DL on PP of generation Z in Poland. DL was analyzed in seven areas, which also positively correlated with PP. Further research is required to clearly confirm the causal relationship between DL and PP.

The research has certain limitations, which constitute a starting point for determining directions for future research. Firstly, the research conducted online did not allow us to determine whether it was fully representative, and therefore the results of these studies cannot be generalized and constitute guidelines for more advanced research. Second, the research made certain assumptions that would require confirmation in future research. The main goal is to diagnose whether there is a cause-and-effect relationship between variables, which would provide an impetus for creating managerial tools to intensify the desired attitudes and skills, but also to direct educational activities towards managerial fields. Since this has not been clearly diagnosed, it seems that this is a research gap for the future. Another limitation is the fact that the research was conducted on of Gen Z individuals, i.e. on the group with relatively high DL, which we confirmed in the research itself. However, it seems advisable to conduct analogous research on a less digitally advanced group to assess the impact of DL on PP.

The practical implications of the study include the fact that managers who wish to enhance employee PP should consider digital tools in this process due to their interconnectedness.

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Challenging the Status Quo: Headhunters and Gender Bias in Executive Recruitment: "Women have been at a Disadvantage, and it is long Overdue to Correct that"

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Abstract: This paper investigates the exclusion of women from the recruitment process for top management positions, focusing on the role of headhunters in Iceland—a country ranked first in the World Economic Forum's Global Gender Gap Report for 15 consecutive years. Despite Iceland's reputation as a leader in gender equality, women remain significantly underrepresented in executive roles. This study addresses this paradox by exploring how headhunters' recruitment practices both perpetuate and challenge gender bias. Through semi-structured interviews with 44 board members (22 men, 22 women) and eight headhunters, this study uncovers structural and behavioral biases limiting women's opportunities in executive roles Headhunters often rely on established networks and emphasize CEO experience, which favors male candidates. However, the study also highlights the potential of headhunters to act as change agents by expanding candidate pools and rethinking traditional hiring criteria. The theoretical contribution of this research lies in its exploration of how headhunters, positioned as both gatekeepers and agents of change, can influence gender diversity in leadership. This study also uses agency theory to explain the dynamic between headhunters and boards, examining how their conflicting goals shape executive recruitment outcomes.

Keywords: Gender Bias; Executive Recruitment; Headhunters; top Executive; Women in Leadership; Gender Diversity; CEO Selection; Structural Barriers in Leadership; Agency Theory in Recruitment.

1. Introduction

The recruitment of top executives is a critical process often delegated to headhunters, external experts who specialize in identifying and securing candidates for high-level positions (Bonet et al., 2013). Unlike traditional recruitment methods, headhunting relies heavily on subjective assessments, personal networks, and informal recommendations (Coverdill & Finlay, 2017). Headhunters, functioning as consultants, offer professional advice to decision-makers, shaping the hiring landscape in significant ways (Tienari, 2013). Their influence is particularly evident in the executive labor market, where they control access to elite networks and play a decisive role in determining who qualifies for senior roles (Faulconbridge et al., 2009).

Research has shown that headhunters are not neutral actors; they actively shape the labor market and, in doing so, can either hinder or promote gender diversity (Doldor et al., 2016; Peltokorpi, 2023). Their reliance on established networks and personal chemistry between client and candidate often reinforces existing biases, particularly gender-related ones (Yan et al., 2023). Studies have highlighted that headhunters tend to reproduce the status quo, especially when it comes to elite executive positions traditionally dominated by men (Fernandez-Mateo & Fernandez, 2016; Tienari et al., 2013). As gatekeepers, they influence who gets considered for top positions and, by extension, who is excluded (Hovden et al., 2011).

Furthermore research on the experiences of women on corporate boards in Iceland indicates that headhunters' networks are male-dominated, resulting in recruitment practices that are exclusionary for women (Christiansen & Óladóttir, 2022).

Despite progress in gender equality, women remain significantly underrepresented in top leadership roles, even in countries like Iceland, which is often seen as a leader in gender parity (Óladóttir et al., 2024; WEF 2024). This paradox raises important questions about the role headhunters play in either perpetuating or dismantling gendered hiring practices. This study investigates how gender bias manifests in Iceland's executive recruitment through headhunting practices, identifying structural and subjective factors contributing to women's exclusion from top management roles.

This paper focuses on one central question: What role do headhunters play in the underrepresentation of women in executive roles in Iceland? To answer this, we analyze the recruitment practices of headhunters and their interactions with corporate boards, examining how their methods, biases, and networks shape outcomes

in the hiring process. In doing so, we aim to uncover both the barriers to and opportunities for improving gender diversity in executive leadership.

2. Literature Review

2.1 The Agency and Role of Headhunters

Headhunters, functioning on either a retainer or contingency basis, play a pivotal role in executive recruitment, particularly in top-level positions (Finlay & Coverdill, 2000). They shape the labor market by determining which candidates make it to long lists, shortlists, and final interviews, often through subjective processes (Peltokorpi, 2022; Tienari, 2013). Studies reveal that their reliance on networks and personal judgments can limit women's access to senior positions (Dreher et al., 2011; Tienari et al., 2013; Fernandez-Mateo & Fernandez, 2016). Gender biases arise throughout the stages of recruitment, with many consultants tending to favor male candidates due to ingrained expectations of competence and leadership (Coverdill & Finlay, 1998).

Agency theory, introduced by Jensen and Meckling (1976), provides a useful lens to examine the dynamics between headhunters and boards. As agents, headhunters must balance their objectives—often prioritizing efficiency and risk mitigation—against those of the boards (principals), which may emphasize CEO experience over diversity (Doldor et al., 2016; Hamori, 2010). This tension can perpetuate gender imbalances, as boards frequently prefer candidates with established CEO experience, which skews toward men (Peltokorpi, 2023).

2.2 Gendered Recruitment Practices

The gendered nature of executive recruitment presents a significant obstacle for women seeking leadership roles (Ely et al., 2011). Studies suggest that male competencies are often overestimated, while female abilities are undervalued (van den Brink et al., 2016). Headhunters, primarily male themselves, contribute to this bias by drawing on "new boys' networks," limiting access for women and minorities (Faulconbridge, 2009). Moreover, women are perceived as less confident and assertive, further disadvantaging them in competitive selection processes (Siegel et al., 2020).

Some headhunters recognize these issues and work to mitigate bias by broadening the candidate pool and considering non-traditional qualifications. They can pressure and support their clients to improve gender balance, but at the same time, they face the pressure to be responsive to their clients' often exclusionary preferences (Doldor et al., 2016). Thus, biases remain, particularly when clients express a preference for candidates who fit traditional male-dominated profiles (Tienari et al., 2013). Agency theory further explains this dynamic: headhunters may feel compelled to align with their clients' conservative preferences rather than push for diversity, even when acknowledging the benefits of a more inclusive approach (Yan et al., 2023).

2.3 The Emphasis on CEO Experience

One of the most prominent biases in executive recruitment is the overemphasis on CEO experience, which often excludes women. Boards frequently prioritize candidates with extensive leadership backgrounds, perceiving them as a safer choice, despite evidence suggesting no correlation between CEO experience and superior performance (Hamori & Koyuncu, 2014). This preference reflects the risk-averse nature of many boards and their reliance on headhunters to minimize hiring risks by selecting candidates from familiar, male-dominated networks (Steur et al., 2015).

This conservatism is problematic for advancing gender diversity. Headhunters, by focusing on established credentials, reinforce the dominance of men in executive roles (Bidwell et al., 2023). Studies suggest that candidates without prior CEO experience can be equally effective, and expanding the pool to include women from diverse backgrounds could lead to more innovative leadership (Hamori, 2010).

3. Methods

Data collection was conducted through semi-structured interviews between March and May 2024. This qualitative approach allows flexibility for both the researcher and participants, enabling in-depth exploration (Kallio et al., 2016). Interviews were conducted either in person or via Teams, addressing gender equality and the executive recruitment process. Topics covered decision-making, roles and responsibilities, CEO competencies, advertising practices, and gender-related behaviors. Interview durations ranged from 27 minutes to 1 hour and 44 minutes.

Eight headhunters of both genders participated, with all interviews recorded and transcribed verbatim. Supplementary notes were taken during the sessions. Data analysis followed a grounded theory approach, employing open and axial coding (Strauss & Corbin, 1990; Vollstedt & Rezat, 2019). NVivo 14 software was used for coding and analysis to identify patterns and relationships within the data. Initial open coding yielded 506 codes, which were categorized into five main themes and fourteen subthemes. For this paper, analysis centers on the theme of "Gender differences and lack of women in the recruitment process," focusing on three subthemes: Lack of women, Role and responsibility of headhunters, and Gender bias in the hiring process.

4. Findings

This section explores the perspectives of headhunters on the gender biases and barriers women face in executive recruitment, focusing on key themes such as the lack of women in leadership positions, the role and responsibilities of headhunters, and gender disparity in the hiring process. These findings are discussed considering agency theory, which frames headhunters as both gatekeepers and agents of change.

4.1 Lack of Women

The headhunters explained the basis of gender disparity through the boards' reliance on criteria like prior CEO experience and through women's reluctance to promote themselves or accept invitations to interview for CEO positions.

4.1.1 The Importance of Prior CEO Experience

One of the most critical barriers identified by headhunters was the emphasis placed on prior CEO experience when recruiting for top management roles. Headhunters noted that boards often favor candidates who have previously held CEO positions, viewing them as "safe" choices. One headhunter explained, *"When boards come together and are hiring a CEO, there is an inherent belief that someone who has done this before is more qualified than someone doing it for the first time. You end up with more men than women ... it's just about safety."*

This reliance on prior experience disproportionately affects women, who are less likely to have held CEO positions. Headhunters acknowledged that while this criterion is intended to reduce risk, it reinforces existing gender imbalances. Another headhunter added, *"The safest bet in the end was often to hire a man... It was just statistics, comparing this pool of candidates A versus B."* This reflects the conservative nature of the selection process, where boards prefer to minimize hiring risks by selecting candidates with proven records, which tends to favor men.

However, some headhunters emphasized the need to challenge this traditional thinking. *"You don't need to have all this experience to be the most qualified one,"* said one headhunter, pointing to the need for more innovative approaches to recruitment that consider a candidate's potential, rather than just their past titles. Another headhunter explained, *"It's about opening the minds of boards to see beyond just the number of years in the job."* This sentiment suggests that there is room for headhunters to influence the process by broadening the criteria for what constitutes a qualified candidate.

4.1.2 Fewer Women Apply

Another key theme that emerged was the reluctance of women to apply for executive positions. Several headhunters noted women's hesitation to pursue CEO roles unless they fully meet the qualifications. One remarked, *"Women are less likely to seek CEO positions... In some cases, we've had as few as two or three women apply for big jobs."* This cautious approach contrasts with men, who are more likely to apply for positions even if they do not fully meet the criteria.

One headhunter explained, *"It seems women are more likely to think it over and apply only when they're really sure they want the job, while men apply more often and to more positions."* This pattern has important implications for gender diversity in leadership, as it means that fewer women are being considered for top positions simply because they are not putting themselves forward.

Efforts to reach out to women and encourage them to apply for roles have been met with varying success. One headhunter noted, *"Sometimes we have to really pursue women, calling them multiple times to get them to consider a role. It can take weeks just to get them to the table."* This highlights the need for headhunters to take a more proactive approach in identifying and engaging female candidates.

4.1.3 Reluctance Toward New Opportunities

The interviews also revealed that women are often more reluctant than men to engage in discussions about new job opportunities. One headhunter explained, *"Men are much more willing to have the conversation, while women need more encouragement."* Another added, *"Women often take longer to say yes, and when they do, it's because they genuinely believe they can do the job."*

This hesitation may be linked to factors such as loyalty to their current employer, conscientiousness, or a perceived lack of readiness. As one headhunter put it, *"Women are more likely to be loyal to their current job and say it's not the right time for a change."* This reluctance can make it more challenging for headhunters to present a diverse range of candidates to boards.

4.2 Role and Responsibility of Headhunters

The headhunters viewed their roles both as proactive and reactive. Some of them felt that their responsibility was to coach women and help them overcome the barriers, as well as change the minds of board members. Others focused more on always maintaining gender balance in their candidate lists.

4.2.1 Supporting Women and Offering New Perspectives

Headhunters saw their role as critical in shaping the gender balance in executive recruitment. Many emphasized the importance of offering new perspectives and supporting women throughout the recruitment process. One headhunter explained, *"It's our responsibility to look outside the box, not just move people from one company to another. There's so much talent out there that isn't being tapped."*

Several headhunters also discussed the importance of actively encouraging and coaching women to put themselves forward for leadership roles. One remarked, *"We need to help women sell themselves better, and that means being more present, coaching them, and encouraging them to showcase their strengths."* This proactive approach can help counteract the self-doubt and hesitation that some women experience when considering executive positions.

Headhunters also noted that their influence extends beyond the recruitment process itself. One headhunter said, *"It's about changing mindsets. We can help boards see that a lack of experience doesn't mean a lack of potential."* This sentiment underscores the dual role of headhunters as both gatekeepers and advocates for change.

4.2.2 Gender Ratios and Balanced Recruitment

Several headhunters discussed the importance of maintaining a balanced gender ratio in the recruitment process. One explained, *"We've started tracking the gender balance at every stage of the process. Our aim is to have a 30/70 ratio at a minimum."* This data-driven approach helps to ensure that both men and women are being considered fairly throughout the selection process.

Others emphasized that gender balance is not just a matter of numbers but also a strategic decision. One headhunter remarked, *"If you have two equally qualified candidates, one male and one female, and there's a gender imbalance, the decision to hire a woman is not complicated. It's simply a decision."* This perspective aligns with agency theory, which highlights the role of headhunters as intermediaries who can influence recruitment outcomes by aligning their practices with broader diversity goals.

4.3 Gender Bias in the Hiring Process

The gender disparity in the hiring process has roots both in the differences in behavior between men and women, and in how the boards evaluate men and women differently.

4.3.1 Gendered Behaviors in the Recruitment Process

The headhunters observed notable differences in how men and women behave throughout the recruitment process. One headhunter shared, *"Men often come across with much more confidence, even if they're not fully qualified, while women tend to undersell themselves."* This disparity in self-presentation can affect how candidates are perceived and evaluated by boards.

One headhunter recounted instances where male candidates, despite lacking qualifications, were insistent on securing interviews, while women hesitated to accept their invitations to interview. *"I sometimes get emails from men who really want the job, and they have no qualifications for it,"* one headhunter noted. In contrast, women were more likely to express doubts about their abilities or qualifications, even when they were more than capable.

4.3.2 Differences in Evaluation

The headhunters also discussed how gender influences the evaluation of candidates. One headhunter explained the existence of a double standard, *"The same level of confidence in a man is seen as driven and impressive, but in a woman, it's often viewed as off-putting."* This bias can lead to women being evaluated more harshly for exhibiting the same traits that are celebrated in men.

Another headhunter observed, *"Women sometimes don't get to be fully themselves in these roles—they're expected to behave like men in order to succeed."* This reflects the broader structural barriers that women face in executive recruitment, where gendered expectations continue to shape both behavior and evaluation in ways that disadvantage women.

5. Discussion and Conclusion

This study delves into the complex role headhunters play in perpetuating or challenging gender disparities in the executive recruitment process in Iceland. Through the lens of agency theory, the findings reveal that headhunters often align with the conservative expectations of boards, reinforcing structural biases and prioritizing candidates with prior CEO experience, as previously discussed in the literature (Hamori & Koyuncu, 2014; Steur et al., 2015). The preference for established male candidates reflects the ingrained patterns identified by Tienari et al. (2013), where clients tend to choose the safer, more familiar option. This reliance on familiar networks, as noted by Faulconbridge et al. (2009), limits diversity and systematically excludes women from top executive roles.

However, as some headhunters revealed during the interviews, they also act as agents of change who challenge these biases by advocating for more inclusive hiring criteria. This aligns with Yan et al. (2023), who suggest that headhunters, when aware of gender biases, can push for transparency and broader candidate pools. This potential for headhunters to shift their roles from gatekeepers to advocates for diversity adds a significant dimension to the understanding of their influence in executive recruitment.

The headhunters' role in perpetuating gender biases by favoring candidates with CEO experience, as evidenced in this study, mirrors the findings from previous research, such as the work of Hamori and Koyuncu (2014), which highlights how past CEO experience is often misinterpreted as a predictor of future success. This reliance on prior experience, coupled with the hesitancy to consider female candidates who lack this experience, aligns with the "new boys' network" concept described by Faulconbridge et al. (2009), which further limits women's access to leadership roles.

Yet, the findings also suggest that when headhunters actively seek to support and mentor female candidates, they can challenge these long-standing patterns. As identified in the interviews, headhunters can broaden the pool of candidates by identifying talent beyond traditional CEO roles and emphasizing potential rather than experience. This reflects the recommendations of Ely et al. (2011), who argue that organizations should value diverse capabilities over fitting candidates into a pre-existing mold of leadership.

The theoretical contribution of this research lies in its extension of agency theory to the recruitment process, offering a dual perspective of headhunters as both enforcers of gender norms and potential advocates for change. By positioning headhunters as key agents who influence recruitment outcomes based on their alignment with either board expectations or broader diversity goals, this study provides a nuanced understanding of how the recruitment process can be both a barrier and an opportunity for promoting gender diversity in leadership.

Future research should explore further how headhunters can balance these dual roles, ensuring that their contribution to executive recruitment actively promotes gender equality rather than perpetuating existing disparities. Understanding the mechanisms by which headhunters can challenge the status quo and advocate for diverse leadership will be crucial for advancing gender equity in executive roles.

Building on these theoretical insights, it is essential to consider the practical implications of the findings for key stakeholders, including headhunters, corporate boards, and policymakers, as they play a crucial role in shaping more equitable recruitment practices.

5.1 Practical Implications

Headhunters must take an active role in diversifying candidate pools, prioritizing skills and potential over traditional metrics like CEO experience. By broadening their networks and considering non-traditional candidates, headhunters can significantly reduce gender bias in executive recruitment.

Boards should reassess the criteria for executive positions, moving beyond traditional CEO experience and seeking leaders with diverse skill sets. Implementing clear guidelines that prioritize gender diversity in shortlists can further enhance equitable recruitment practices.

Finally, policymakers can promote diversity by introducing regulatory frameworks encouraging transparency in executive recruitment. Gender quotas and reporting obligations can serve as important tools to accelerate gender equity at the highest organizational levels.

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Coming of age: The Evolution of Corporate Governance Laws in Greece

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Abstract: This research examines the evolution of corporate governance laws in Greece from Law 3016/2002 through to the latest Law 4706/2020, as well as the related Decision No. 1/891/30.09.2020 by the Capital Market Commission. It focuses on a detailed review of existing literature to understand the administrative and fiscal impacts of these changes on companies listed on the Athens Stock Exchange. The study highlights a significant shift from the earlier "soft law" approach, which suffered from weak monitoring and enforcement, resulting in a gap between the legislative goals and actual results. Law 4706/2020 introduces a stricter regulatory framework with numerous requirements designed to improve corporate governance structures. Key features of this reform include the creation of new committees overseeing remuneration and compliance, stringent board member qualifications, and a stronger focus on gender diversity and stakeholder engagement. These developments aim to enhance accountability, transparency, and efficiency, essential for effective governance. The research compares old and new legislative frameworks to demonstrate the progress made in aligning Greek corporate governance with international standards. It argues that Law 4706/2020 is a significant advancement in corporate governance, potentially serving as a model for other regions. However, the detailed and strict compliance requirements introduced may challenge implementation and effectiveness. The paper suggests that these legislative changes mark a new chapter in corporate governance that requires diligent, forward-looking, and adaptable management from companies. It also stresses that achieving full compliance with the new regulations requires ongoing commitment to improvement and readiness to handle the complexities of this new regulatory environment.

Keywords: Law 3016/2002, Law 4706/2020, Corporate Governance Reforms, Narrative Literature Review, Regulatory Compliance, Remuneration Committee, Nomination Committee

1. Introduction

The present study explains and compares the significant overhaul of corporate governance legislation in Greece, transitioning from Law 3016/2002 to Law 4706/2020, and its implications for companies listed on the Athens Stock Exchange. This new legislation introduces mandatory provisions that significantly raise compliance requirements, contrasting sharply with the earlier "soft law" approach that allowed discretionary adherence with minimal oversight. The introduction of strict regulations through Law 3016/2002 represented a departure from this lax approach, aiming to instill a culture of rigorous corporate governance. But faced challenges in practical implementation. The new Law 4706/2020 seeks to address these issues, by establishing clear, enforceable rules designed to enhance accountability, transparency, and stakeholder engagement in corporate governance practices.

The paper examines the differences between the old and new corporate governance laws and assess their administrative and financial consequences for Greek listed companies. As mentioned, using a narrative literature review methodology, as outlined by Pautasso (2019), the study analyzes existing scholarly articles, legal documents, and empirical studies related to corporate governance legislation in Greece. This comprehensive approach highlights the evolution of these laws, identifying key advancements and challenges, as emphasized by Mertzanis (2011) and Constantatos (2018), who note the limited research in this area. The research questions focus on the main differences between the old and new corporate governance laws, addressing the specific administrative and financial impacts resulting from the implementation of the new law. By analyzing these aspects, the study aims to provide valuable insights for policymakers, corporate leaders, and scholars interested in the dynamics of corporate governance reform in Greece.

The paper's contribution is significant, as it not only traces the legislative evolution of corporate governance in the country but also critically assesses the impact of these changes, offering a comprehensive perspective on the administrative and financial implications of the new regulations.

2. Overview of Legislation and Institutional Initiatives

Law 3016/2002 often known as the "Corporate Governance Law", was introduced in 2002. The recommendations provided by a standing committee of the Ministries of Economy and Development in 2000 and the Capital Market Committee in 1999 were not taken into consideration in the resulting statute (Antoniadis et al., 2019). A measure of the desultoriness of Greek parliamentarians is the size of the law (Table I). The legislation is just five pages lengthy, with only eleven articles. The size comparison, despite its superficiality, demonstrates the amount of effort that has gone into characterizing and governing the corporate world. While countries with developed capital markets have created comprehensive policies and legislation, Greece's statute 3016/2002 is disjointed and ill-suited to the needs and organizational structures of Greek companies.

Table 1: Comparative Analysis of Corporate Governance Regulations

Document Title	Year of Publication	Origin Country	Nature (Law/Code)	Page Count
Corporate Governance Principles in Greece	2002	Greece	Law	5
Greek Law 3016 on Corporate Governance	1999	Greece	Law	17
German Corporate Governance Code	2002	Germany	Voluntary Code	-
Loi PACTE (Action Plan for Business Growth and Transformation)	2019	France	Law	-
Canadian Multilateral Instrument 58-101	2005	Canada	Law	-
Companies Act 2006	2006	UK	Law	-

Source: Authors' own contribution

It seems that while countries with developed capital markets have created comprehensive policies and legislation, Greece's statute 3016/2002 is disjointed and ill-suited to the needs and organizational structures of Greek companies. The shocks in domestic and external demand brought about by a series of restrictive measures, an increase in economic uncertainty, and an 8.2% recession hit the Greek economy harder than other EU nations because it is primarily a service economy with a significant contribution from the tourism and retail sectors (Report of the Governor of Greece for 2020; Kontogeorga et al., 2022).

According to Dasmanoglou and Kounadis (2021), the new framework imposes commitments on a number of issues, such as: a) strengthening the effectiveness and adequacy of the corporate governance systems; b) creating new supervisory committees for the purpose of redesigning the corporate governance model; and c) the redesign of the corporate governance framework, through the updating of existing but and the development of new operating regulations, policies and procedures. The new legislation brings about a number of reforms in a number of areas, which are examined in the sections that follow.

3. Changes in Corporate Governance Legislation

Law 4706/2020 has significantly shifted the landscape of corporate governance in Greek companies, emphasizing the establishment of an openly available suitability policy for board members to balance capabilities and enhance board diversity, as encouraged by Business Roundtable (2016). It introduces a "Corporate Governance System" (Article 2) integrating internal controls and risk management to uphold operational and ethical standards, assigning governance responsibilities to the Board of Directors. This adherence to a one-tier oversight model is backed by Jungmann (2006), reinforcing a structure familiar in Greek corporate settings. The legislation mandates the formation of Independent Committees for Remuneration and Nominations, to improve governance transparency and establish key procedures. Furthermore, Law 4706/2020 innovates by requiring a Corporate Governance Code, aimed at increasing investor confidence and the capital market's integrity. Enhanced by the Capital Market Commission's Decision No. 1A/890/18-09-2020, the law introduces a nuanced penalty scheme to prioritize compliance and market integrity, signifying a commitment to governance norms. Dritsas (2020) notes this reform as a deliberate step towards more accountable, transparent, and effective corporate governance, integrating sustainable development and redefining executive

responsibilities. This comprehensive approach underlines the law's pivotal role in aligning Greek corporate practices with global standards for governance. Table 2 presents a summary based on the key aspects and references provided from the literature review regarding the Changes in Corporate Governance Legislation that the new Law introduced.

Table 2: Changes in Corporate Governance Legislation discussed in literature

Aspect	Description	References
Implementation Focus	Improvement of corporate governance structures in Greek companies.	Law 4706/2020
Suitability Policy	Creation of an openly available policy for board member suitability, promoting diversity and balance.	Business Roundtable (2016), Capital Market Commission's Circular No. 60/2020
Corporate Governance System	Integration of internal controls and risk management to uphold operational excellence and ethical standards.	Article 2 of Law 4706/2020
Board of Directors' Role	Allocation of governance to the Board, maintaining the one-tier oversight model.	Jungmann (2006)
Independent Committees	Establishment of Remuneration and Nominations committees to enhance transparency and define protocols.	Law 4706/2020
Corporate Governance Code	Requirement for a governing body to create a code under the 'Comply or Explain' principle, codifying best practices.	Capital Market Commission's Decision No. 2/905/03.03.2021
Disclosure Procedures	Expediting disclosure related to board member elections and corporate announcements for investor confidence.	Law 4706/2020
Penalty Scheme	Introduction of a nuanced sanctioning structure prioritizing compliance and market integrity.	Capital Market Commission's Decision No. 1A/890/18-09-2020
Legislative Purpose	Redefining executive and non-executive responsibilities, incorporating sustainable development for accountable governance.	Dritsas (2020)

Source: Authors' own contribution

3.1 Mandating Diversity and Suitability in Board Composition

Another significance of Law 4706/2020 lies in the fact that it requires companies to establish a suitability policy for their board of directors, focusing on gender diversity and aligning with global standards for diverse board compositions as supported by the Business Roundtable (2016). This approach aims to enhance board effectiveness by incorporating a wide range of backgrounds, experiences, and viewpoints. The Capital Market Commission's Circular No. 60/2020 further specifies the necessity for individual and collective board member appropriateness, promoting an inclusive and equitable board environment that transcends gender to include diversity in age, ethnicity, and professional backgrounds.

Research (Table 3) underscores the positive effects of diversity on firm efficiency, governance, and market understanding, highlighting studies by Ali et al. (2021) and Gul et al. (2011), which find that gender diversity on boards improves governance and decision-making quality. Despite some conflicting evidence regarding the direct impact of gender diversity on firm performance, the consensus supports the benefits of a diverse board in fostering a more dynamic and innovative board culture. Theories of resource dependency suggest that a diverse board broadens a company's knowledge base and social connections, enhancing external interactions. However, challenges remain in fully leveraging diversity, pointing to a complex relationship between diversity and corporate governance effectiveness across different market contexts. Table 3 presents a summary based on the key aspects and references provided from the literature review.

Table 3: Corporate Governance Heterogeneity: Legal Basis, Benefits, and Integration discussed in literature

Aspect	Description	References
Law Requirement	Creation of a suitability policy for board directors as per Law 4706/2020.	Law 4706/2020
Diversity Focus	Emphasis on gender diversity and a wide range of backgrounds to improve board effectiveness.	Business Roundtable (2016)
Regulatory Reference	Clarification by the Capital Market Commission in Circular No. 60/2020 on individual and group appropriateness.	Capital Market Commission's Circular No. 60/2020
Impact of Diversity	Positive impact on firm efficiency and governance through diversity.	Ali et al. (2021), Gul et al. (2011)
Research Findings	Consensus on diversity fostering a dynamic board culture despite potential for conflict.	Andreoni & Vesterlund (2001), Hambrick et al. (1996)
Theoretical Support	Resource dependency theory suggests diverse boards enhance business connections with the external environment.	Theories of resource dependency
Challenges	Challenges in fully integrating diversity, highlighting the complex relationship between diversity and governance effectiveness.	General research observations

Source: Authors' own contribution

As it can be observed, Table 3 outlines the importance of diversity in corporate governance, the regulatory framework supporting it, the positive impacts identified by research, theoretical underpinnings, and the ongoing challenges in achieving effective diversity integration.

3.2 Remuneration and Nomination Committee

Other critical elements of the new Law refer to the quality of leadership, the processes, and the roles of various committees. Key aspects identified in the literature include the significance of selecting qualified board directors, the pivotal role of nomination and remuneration committees, and the importance of diversity in management talents for good governance. Table 4 provides a summary of these aspects along with their descriptions and references.

Table 4: Leadership, Committee Roles, and Talent Heterogeneity in Corporate Governance discussed in literature

Aspect	Description	References
Leadership and Processes	The effectiveness of corporate governance depends on leadership quality and board director selection.	Vafeas, 1999
Nomination Committees	Nomination committees are crucial for appointing qualified board members, enhancing corporate performance.	Borlea et al., 2017; Makhlouf et al., 2014
Committee Independence	The independence and expertise of nomination and compensation committees are vital for avoiding adverse effects on firm performance.	Lam & Lee, 2008; Shivdasani & Yermack, 1999
Management Talent Diversity	Diverse management talents are essential for addressing communication within the board and good governance.	Adams, 2018
Remuneration Committee Role	The remuneration committee aligns shareholder and management interests through transparent compensation practices.	Jensen & Meckling, 1976; Neu et al., 1998; Main & Johnston, 1993
Committee Vigilance	Independence and vigilance of the compensation committee are crucial for transparency and governance standards.	Kanapathippillai et al., 2016

Source: Authors' own contribution

The above table 4 highlights the intricate dynamics between committee roles, leadership quality, and the necessity for diverse management talents in fostering effective corporate governance, aligning interests between shareholders and management, and ensuring corporate performance and transparency.

3.3 Communication between Board of Directors and Shareholders

According to a 2014 PWC research, there is a move towards more open information distribution, with directors being expected to communicate with shareholders on governance problems more frequently. This part of

governance, which is critical for the recall and election procedures involving Board members, requires corporations to give shareholders thorough and accurate information since doing so is essential to the efficient performance of their governance responsibilities. Increased shareholder participation in strategic decision-making is indicative of excellent corporate governance, highlighting the necessity for the Board of Directors to promote an ongoing and positive communication with shareholders, especially those who hold significant and long-term interests (PWC, 2014).

Simplifying this communication requires utilizing contemporary technology, with a focus on keeping an extensive and up-to-date website to facilitate effective communication between the business and its investors. To encourage open and efficient stakeholder communication, the CEO, CFO, and other executives must take the initiative to participate in investor meetings and roadshows. In order to improve governance transparency and shareholder relations, Law 4706/2020 mandates the creation of a specialized unit for shareholder communication. This unit will communicate information about company actions and shareholder rights in a straightforward, equitable, and accurate manner. Building long-lasting, trusting relationships between the Board and shareholders through strategic communication initiatives might possibly reduce disputes and improve resource management and decision-making that is in line with shareholder interests. This strategy emphasizes the dedication to maintaining high standards of governance and openness. It is further supported by Law 4706/2020, which mandates the creation of specialist units for handling shareholder communications and corporate announcements (Tsene, 2017).

4. Systems of Corporate Governance and Regulatory Compliance

Before Law 4706/2020, organizations increasingly established Regulatory Compliance Units to address external challenges such as conflicts of interest and technological risks.. These units ensure transparent and ethical transactions, focusing on legal adherence and proactive risk management, distinct from traditional legal services (Tsekrekos, 2020). Unlike risk management, which broadly assesses hazards, compliance units specialize in legal and ethical guidance. Internal Audit complements these efforts by evaluating the effectiveness of compliance and risk management, enhancing operational integrity. This integrated approach enhances governance, trust, and competitiveness, making firms more transparent, and competitive globally (Tsekrekos, 2020; Nerantzidis & Filos, 2014).

Building on the foundational roles of internal regulatory frameworks and compliance units, profit and non-profit organizations alike, further cement the principles of corporate governance by advocating for and developing codes of conduct that cater to the specific needs of diverse market participants. This approach revitalizes the option for companies to select a governance code that aligns with their specific needs, offering flexibility to accommodate diverse corporate structures and shareholder compositions. This method acknowledges the inadequacy of a universal solution in meeting the intricate needs of today's business landscape, allowing companies to customize the governance code to their requirements (Taxheaven, 2020; Ministry of Finance, 2020; Papadimitriou, 2021). The Corporate Governance Code comprises voluntary standards exceeding statutory obligations, granting companies flexibility. However, smaller entities might face challenges in implementing the "Special Practices" of the Code. In instances of non-compliance, firms are expected to provide detailed explanations for deviations, including alternative measures to mitigate governance risks, allowing stakeholders to evaluate governance adherence and understand its role in boosting corporate integrity and accountability (Papadimitriou, 2021).

The severity of a corporate governance breach is evaluated based on its impact on the firm, the extent and type of governance requirements violated, and potential damage to minority owners and investors. Factors such as the duration of the breach, recurrence likelihood, and harm potential are vital in determining the breach's seriousness. Penalties are assigned considering the violation's severity, market impact, investor harm, culpability, corrective measures, and cooperation with the Capital Market Commission (Law Alert, 2020; Topalidis, 2020; Law 4706/2022). Law 4706/2020 updates but doesn't negate provisions from Law 4449/2017 on Audit Committees, extending the Capital Market Commission's supervisory powers. Violations can lead to fines for firms, board members, and Audit Committee members, with penalties including warnings and fines up to three million euros or five percent of annual revenue. The extent of the infringement, market impact, shareholder risk, violator fault, corrective actions, and cooperation level during investigations influence the fines (Dritsas, 2020; Topalidis, 2020). This highlights the evolution and emphasis on investor protection, accountability, and transparency in Greece's corporate governance framework.

It is understood that Greek corporate governance underwent a dramatic change with the transition from Law N.3016/2002 to Law 4706/2020, which established a more comprehensive and stricter structure for the board of directors as outlined in Articles 3–9. In this edition, the Suitability Policy is mandated, diversity is clarified, and board member functions are made explicit. Additionally, Articles 10–12 mandate the Audit, Remuneration, and Nomination Committees, while Article 13 adjusts governance to the size and complexity of each organization, and Articles 15–16 reinforce internal controls. The implementation of a business Governance Code with a 'comply or explain' approach is also necessary in order to align Greek business practices with international norms, which is intended to improve stakeholder confidence, accountability, and transparency.

Overall, and by taking the information provided in literature review, Table 5 below presents a comparison between Law 3016/2002 and Law 4706/2020.

Table 5: Comparison between Law 3016/2002 and Law 4706/2020

Aspect	Law 3016/2022	Law 4706/2020
Scope	Anticipated	Expanded
Board of Directors' Provisions	Detailed in Articles 2-4	Enhanced and detailed in Articles 3-9
Board Member Eligibility	Not mentioned	Specified in Article 3
Diversity Requirements	Absent	Introduced in Article 4, Paragraph 1
Board Member Classification	Mentioned	Detailed with refined criteria
Audit Committee	Absent	Established in Article 10
Remuneration Committee	Unspecified; remuneration details in Article 3, Paragraph 2, are under the Board's purview	Established in Article 11
Nomination Committee	Absent	Introduced in Article 12
Corporate Governance Framework	Not mentioned	Customized to company's size and complexity in Article 13
Regulations	Mentioned	Expanded and reinforced in Article 14
Internal Control Mechanisms	Outlined in Articles 7-8	Detailed with stringent criteria in Articles 15-16
Corporate Governance Code Implementation	Not required	Mandated adherence and "comply or explain" principle emphasized

Source: Authors' own contribution

5. Conclusions and Suggestions for Future Research

Drawing from the literature analysis presented, it is evident that the recent legislative reform aims to significantly bolster Corporate Governance standards by introducing and enforcing regulations that explicitly address critical aspects of organizational governance. These include a suitability policy for Board members, which emphasizes gender diversity, rigorous internal controls, independent committees focused on remuneration and nominations and a Corporate Governance Code by a recognized authority. The reform also revises the penalty system, mandates transparent information for investors and improves communication between shareholders and the Board of Directors, underlining the holistic approach to elevate the governance landscape for corporations.

The new law aims to improve corporate governance for listed firms and companies in the process of listing. It aims to enhance values and procedures, protect legal rights, and increase growth and competitiveness by implementing best practices in corporate governance. Nevertheless, there have been shortcomings in the way the required corporations have implemented corporate governance issues, even with prior efforts. Corporate governance issues in publicly traded firms have been hindered by narrow share allocation and family business connections, leading to unsuitable board appointments. It should be mentioned that there is no efficient control system in place. Future research should thus concentrate on analyzing the new laws using the perspectives of both directors and shareholders, examine their impact on operations, and identify success factors.

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Power and Status Inconsistency and Conflict in Teams

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Abstract: Power and status, two forms of social hierarchy, are fundamental feature of social relations, and they have two functions that are especially important for teams that lack formal hierarchy: 1) to establish order and coordination, and 2) to motivate employees to strive for promotion. Hierarchy provides clear social governance in groups by allowing leaders to assign tasks or allocate resources, and it provides incentives for individuals to climb the organizational ladder to obtain greater compensation and comfort. Individuals with high power and/or high status are more likely to perform leadership behaviors in teams. However, they may also cause conflict by activating threat and distrust when other team members perceive that aspirants' leadership behaviors are misaligned with their power and/or status. This misalignment can be complex because social hierarchy has multiple forms such as status and power and multiple levels such as team and organizational levels. The current study investigates (1) how the inconsistency between power and status of a team member affect conflict with other team members and (2) how team member's needs for power and needs for status moderate the power-status inconsistency and conflict relationship. Data was collected from a sample of MBA student teams at a large mid-western university in the United States. In the results the study found no evidence of the power-status inconsistency and conflict relationship, yet found the moderating effect of needs for power on that relationship.

Keywords: Power, Status, Leadership, Conflict, Teams

1. Introduction

Social hierarchy, the implicit or explicit rank order of individuals with respect to a valued social dimension, is a fundamental feature of social relations (Magee & Galinsky, 2008). Social hierarchy has two functions in organizations: 1) to establish order and coordination, and 2) to motivate employees to strive for promotion (Magee & Galinsky, 2008). Hierarchy provides clear social governance in groups by allowing leaders to assign tasks or allocate resources (Durkheim, 1997; Magee & Galinsky, 2008), and it provides incentives for individuals to climb the organizational ladder to obtain greater compensation and comfort (Magee & Galinsky, 2008; Tannenbaum, Kavcic, Rosner, Vianello, & Wieser, 1974).

The focus of the current study is status and power - the two most important bases of informal social hierarchy (Magee & Galinsky, 2008). Social status is defined as the extent to which an individual is respected or admired by others (Magee & Galinsky, 2008). People tend to gather information about a target individual's ability and expertise from direct interactions or interpersonal observations, and they tend to respect and admire those perceived to be highly competent (Ridgeway, Boyle, Kuipers, & Robinson, 1998). Social power is defined as control over valued resources in social relations (Magee & Galinsky, 2008). Individuals depend on more powerful individuals to obtain resources. Power and status are related but distinct constructs (Magee & Galinsky, 2008). Both social power and social status significantly affect employee behaviors, but empirical evidence has indicated that status and power levels have unique qualities and effects on employee behaviors (e.g., Blader & Chen, 2012; Hays & Bendersky, 2015). For example, high status individuals may show more helping and cooperative behaviors (Cheng, Tracy, Henrich, 2010; Willer, 2009) and willingness to take the perspective of others (Blader & Chen, 2012). In contrast, holders of power tend to act according to their own goals and interests (Hirsh, Galinski, & Zhong, 2011).

The two functions of social hierarchy, coordination and motivation, are especially important in groups where roles or formal positions are ambiguous, where group tasks are confusing, or where work is poorly coordinated (Greer & Caruso, 2007). Teams that lack formal hierarchy provide an especially interesting context for studying status and power. Contemporary organizations are increasingly adopting self-managing teams as working units (Gerard, 1995). Consequently, status and power may be critical in coordinating tasks and motivating team members. Successful teams have clear hierarchical roles, while those lacking structure perform more poorly (Hackman, 1987). Well-designed team structure has a positive influence on a team's engagement in learning and continuous improvement (Bunderson & Boumgarden, 2010). Yet, self-managing teams often have limited formal hierarchical differentiation, formal order, or imposed coordination, so that status and power may critically affect how team members interact and manage tasks.

However, the function of social hierarchy - motivating individuals - may also cause conflict among team members in self-managing teams because social hierarchies are critical sources of perceived inequalities and conflicts (Muller, 1985). People in an organization have come to an agreement about each other's ranks in status

hierarchies and in power hierarchies (Anderson, Srivastava, Beer, Spataro, & Chatman, 2006; Magee & Galinksy, 2008). As a result of this consensus, individuals in an organization get a sense of who is high in status or power in social relations. Lower ranking individuals are generally motivated to gain greater material and psychological rewards by achieving higher status and power (Magee & Galinsky, 2008; Tannenbaum, Kavcic, Rosner, Vianello, & Wieser, 1974), but efforts to achieve status and power potentially create conflict among competing team members. Conflicts regarding tasks, relationships, processes, and status are common and costly in teams, and negatively affect trust, cohesion, job satisfaction, commitment, and team performance (De Drue & Weingart 2003; de Wit, Greer, & Jehn, 2012). Recently, structural, role-based conflict studies show that hierarchical positions can generate conflict among team members (e.g., Anicich, Fast, Halevy, & Galinsky, 2015).

The structural approach goes beyond investigating within-team processes to explore how social interactions outside teams affect within-team conflict. A structural approach broadens our understandings of the emergence of team conflict because the approach is based on social interactions among team and other organizational members, according to organizational roles. Conflict between team members may emerge when one member tries to assume leadership, but other members do not comply. The current study examines social hierarchy as it impacts conflict in self-managing teams. Previous studies have focused on individual characteristics related to team conflict, but the person-based approach limits investigation into effects of social interactions outside teams. Going beyond an individual perspective and taking a structural perspective, I explore important and yet unanswered questions: How do status-power inconsistency affect process and relationship conflict between team members? I argue that individual structural positions in various social networks are the basis of the social hierarchy, status and power, and these two forms of social hierarchy determine whether conflict will rise in self-managing teams.

2. Hierarchy Inconsistency and Conflict between Team Members

Recall that individuals try to achieve higher levels of status and power to gain the material and psychological rewards enjoyed by those who occupy higher social ranks (Tannenbaum, Kavcic, Rosner, Vianello, & Wieser, 1974). Competing motivations to achieve status and power may create conflict among team members as they go through claiming and granting processes (DeRue & Ashford, 2010). This leadership emergence process can cause conflict in teams. Typically, not all leadership claims can be granted by others, and denying or not granting can be a source of conflict in teams. Status and power both have positive functions of motivating individuals, but social hierarchies can be critical sources of perceived inequalities and conflicts, and thus conflict may arise in self-managing teams (Muller, 1985). A typology study of three types of diversity indicated that status and power are associated with group competition (Harrison & Klein, 2007). Ultimately, team members may refuse to grant leadership and conflict may arise.

I argue that members might refuse to grant leadership because they perceive that aspirants act in ways that are inappropriate and unaligned with expectations regarding their power or status. If team members perceive that an aspirant's claim is legitimate and well-aligned with the expected behaviors according to the aspirant's power/status rank, they will grant the leadership claim. In contrast, if members perceive that the claim is illegitimate and unaligned with expectations based on the aspirant's power/status rank, team members will refuse the claim. Instead, they will feel conflict as they perceive that the aspirant's claim threatens their own desires to achieve higher power/status. Therefore, in an answer to calls for more studies of conflict from a structural perspective (e.g., Mannix & Sauer, 2006), I will examine how perceptions of hierarchical inconsistency cause team conflict.

The predominant approaches to studying status and power involve investigating their effects separately or treating them as a single variable (Bunderson & Reagans, 2011). The possibility that status and power are two distinct variables acting separately or even interacting to shape social interactions has not been widely considered (Blader & Chen, 2012). However, people can be valued according to multiple dimensions (Magee & Galinsky, 2008), and hierarchical ranks across the dimensions may be inconsistent in organizations. To explain the impact of misfits among hierarchies, we must consider possible "status inconsistency"; that is, individuals often have high social hierarchical ranking on one valued dimension but low social hierarchical ranking on another dimension (Stryker & Macke, 1978; Weber, 1946).

Status inconsistency theory (Weber, 1946) predicts that people who have inconsistent multiple forms/levels of social hierarchy will be frustrated and dissatisfied because their higher rank is salient to themselves but not to others (Lenski, 1954). Cognitive dissonance theory (Festinger, 1957) explains that individuals tend to seek consistency among their cognitions (i.e., beliefs, opinions) and try to eliminate the dissonance caused by

inconsistencies. Therefore, they try to balance multiple social hierarchies by increasing the lower form(s) of hierarchy to be equal to the higher form(s) (Segal & Knoke, 1968). For example, one study showed that job applicants chose to join local low-status firms where they expected to more easily obtain promotions (Phillips, 2001). That is, they could rise in the hierarchy by choosing opportunities in a lower-ranked area. An executive who has high power in controlling budgetary resources but low status in being disrespected by subordinates might try to assuage the dissatisfaction caused by hierarchical inconsistency by trying to increase status, such as by spending more time with subordinates. Similarly, a research fellow who has high status in being respected by colleagues but low power in being unable to set project budgets will be frustrated with the inconsistency and will try to increase power by submitting research fund proposals.

Hierarchy inconsistency may cause interpersonal conflict in self-managing teams where, in the absence of formal leaders, members tend to compete for informal leadership (DeRue & Ashford, 2010), motivated by their desires to acquire the rewards accorded to leaders (Day et al., 2009). Recall that leadership positions bring instrumental rewards such as promotions, interpersonal rewards such as recognition or admiration, or image-based rewards such as positive reputations (DeRue & Ashford, 2010). Those who have had high status and power in previous positions are motivated to maintain their status and power in new situations (Magee & Galinsky, 2008) because the positions become a part of the holder's identity (DeRue & Ashford, 2010), and are essential for maintaining a positive self-image (Greer, 2014). Team members in competitive environments feel threats to their social positions when other members challenge their identity or roles (Greer, 2014) by acting in ways that might bring power and status in team activities (De Cremer & van Dijk, 2005). In other words, inconsistent status and power social hierarchies—when the aspirant's status and power are misaligned with members' perceptions of the aspirant's status and power—can cause team members to hold conflicting expectations about behaviors (Bacharach, Bamberger, & Mundell, 1993; Magee & Galinsky, 2008) and activate feelings of threat and distrust (Greer, 2014). For example, team members will reject the behaviors of lower ranked members who try to act in ways expected for higher ranked individuals (Anderson et al., 2008; Rudman, 1998). Members will then try to rectify the inconsistency by competing for positions. Conflict arises as one member tries to occupy the space of another. Eventually, members experience conflict with the aspirant who is acting inconsistently with expectations based on power and status rankings (Magee & Galinsky, 2008).

To achieve a more consistent instrumental versus expressive discussion (e.g., task- and relations-focused leadership behaviors), I focus on process and relationship conflicts, as proposed by Jehn and Mannix (2001). Team relationship conflict occurs when team members have interpersonal differences or personality clashes resulting in dislike, annoyance, frustration, and irritation among members (Jehn, 1995; Jehn & Mannix, 2001) and causing tension, friction (Amason, 1996; Pinkley, 1990), interpersonal animosity, and annoyance (Jehn, 1995, 1997). Process conflict occurs when team members disagree about how tasks should proceed (Jehn & Bendersky, 2003) and how to most effectively organize and utilize group resources to accomplish tasks (Behfar et al., 2010). Thus, process conflict is likely when teams lack clear action plans for goals, resource allocations, or timelines for task completion.

Although process conflict is theoretically distinct from task or relationship conflict, the two types of conflict have not been empirically differentiated (Mannix, Griffith, & Neale, 2002) although both have been highly correlated with relationship conflict (Behfar, Mannix, Peterson, & Trochim, 2010). Thus, I examine process conflict more closely to determine how it relates to task and relationship conflict. Behfar et al. (2010) showed that process conflict includes both logistical and contribution aspects. They generated seven clusters of conflict types and matched four clusters with task, relationship, and process typology from Jehn et al. (2008). However, they encountered difficulty in the remaining three clusters in trying to distinguish process conflict from task or relationship conflict. Specifically, the cluster of "different approach in methodology and solving issues" and the cluster of "difference of ideas and difference in opinions" (Behfar et al., 2010, pp.11, 12) are in the grey areas between process and task conflict. Regarding distinction between process conflict and relationship conflict, the cluster of "quality of workload distribution/equality of effort" and the cluster of "lack of communication in a respectful or effective manner" (pp. 10, 11) do not show meaningful differences.

Both process and relationship conflict are problematic. Both are negatively related to team outcomes (e.g., performance, satisfaction, trust, cohesion, commitment, identification, innovation, potency, and organizational citizenship behavior) and individual outcomes (e.g., performance and interpersonal trust) (e.g. de Wit, Greer, & Jehn, 2012; O'Neill, Allen & Hastings, 2013; Shah, Park, & Jones, working paper). In the short run, relationship conflict should be more problematic because it is associated with ego-threatening behaviors. In the long term, all conflict types can damage individuals and teams because conflict escalates if it is inadequately managed. In fact, any type of conflict triggers other types of conflict (e.g., Simons & Peterson, 2000).

One form of hierarchy inconsistency that may cause conflict is mismatch between status and power dimensions of social hierarchy. Power begets status and status generates power, but the process takes time (Magee & Galinsky, 2008). Thus, sometimes individuals have a great deal of status (power) but little power (status), which leads to an inconsistency of power and status ranking. For example, a senior manager might have high power through control over financial resources but low status because of a lack interpersonal skills and respect.

Self-managing teams need order and coordination. Thus, team members are likely to vie for leadership, power, and status roles. While members are motivated to put effort and commitment into raising their power and status, they are also motivated to evaluate other team members' power and status. If they observe that team members are acting inconsistently with their status or power, doubt may arise (Greer, 2014). A key factor for evaluating a fellow member becomes the perceived legitimacy or the degree to which power and status seem to be fair and justified. Legitimacy facilitates cooperation, stabilizes the power structure, and decreases conflict and friction between team members (Halevy et al., 2011). However, each team member may have different standards for evaluating the legitimacy of social positions, which can then lead to inconsistencies regarding the granting of legitimacy.

3. High Power–low Status Inconsistency and Relationship Conflict

I argue that individuals who have high power but low status will provoke more relationship conflict with team members than will individuals who have any other combinations of status and power (high status–high power, low status–low power, or low status–high power). Power liberates its holders to pursue their own goals and interests (Galinsky et al. 2003), to express their true feelings and attitudes (Anderson & Berdahl, 2002; Magee & Galinsky, 2008), and to deal with others authentically (Kifer et al., 2013; Kraus et al., 2011). Powerful people tend to be action-oriented, especially when actions are goal-directed (Galinsky et al., 2003).

In contrast, low status individuals are less likely to be helpful and cooperative or to give advice (Cheng et al., 2010; Willer, 2009). Their focus is generally not on relationships or others' needs (Blader et al., 2013; Galinsky et al., 2006). Instead, high power–low status team members may facilitate actions, indicating high power, but fail to showing caring, indicating low status. If they then try to assume leadership, team members are unlikely to provide support (Anicich et al., 2015). Thus, the low status–high power combination is most likely to cause interpersonal relationship conflict including animosity, tension, or annoyance.

High power–low status individuals who focus on task-focused behaviors will be acting in alignment with their power. Despite the low status inconsistency, the high power is a salient, clearly observable quality persuading team members to evaluate leadership according to whether task-focused behaviors align with power rankings. If they do, team members would grant the claims to leadership, feel no need to compete, and be unlikely to have process conflict:

> *H1. High power–low status individuals have more relationship conflict with team members than individuals who have any other combination of status and power (high status–high power, low status–low power, or low status–high power).*

4. High Status – low Power Inconsistency in Process Conflict

I also argue that high status–low power individuals will instigate more process conflict than will individuals with any other combination of status and power. Being more attentive to others' views and perspectives (Blader & Chen, 2012), high status individuals are better able to encourage participation in team discussions, which may become overly lively as members freely voice their ideas and opinions. High power individuals are usually best able to clearly set agendas, norms for discussion, rules for behavior, and standards for thought and opinion (Magee & Galinsky, 2008). Unfortunately, unregulated team discussions without discussion agendas or norms may lead to meaningless arguments that inhibit team progress. Without the leadership often ascribed to power, teams will lack an authority to monitor work progress and quality or evaluate performance. Therefore, the high status–low power individual may be unable to regulate team discussions or arguments. Ideas and opinions are likely to float around discussions, and clear action plans are unlikely to surface. In sum, high status and low power interact to produce disagreements about assignments of duties and resources. Therefore, high status–low power individuals will instigate process conflict.

Although high status–low power individuals have inconsistent power and status, their relations-focused behaviors are clearly aligned with their status. When team members evaluate relations-focused behaviors, they consider whether they align with the status hierarchy. If so, the behaviors are perceived to be appropriate and

members will willingly grant the claims to relation-related leadership, without competition. Therefore, the high status individual will experience no power–status inconsistency relationship conflict with team members. Therefore, I hypothesize:

> *H2. High status–low power individuals have more process conflict with team members than individuals with any other combination of status and power (high status–high power, low status–low power, or low status–high power).*

5. Needs for Power (Status) as Moderating Inconsistency–Conflict Relationships

My model assumes that team members compete for informal team leadership. Basically, in self-managing teams lacking formal leaders, members tend to compete for informal leadership (DeRue & Ashford, 2010). In competitive environments, team members are aware of the identity or role threats posed other team members (Greer, 2014; Tetlock, 2002). Members may feel threats to their social positions of power and status when they observe that aspirants are trying to lead team activities (De Cremer & van Dijk, 2005; Greer, 2014). Eventually, members and aspirants experience conflict if the behaviors are inconsistent with expectations based on power and status rankings (Magee & Galinsky, 2008).

Individuals who have high needs for power and status are especially driven to become informal leaders and will be most critical when evaluating the power and status of fellow aspirants in relation to leadership behaviors. Therefore, team members who have high needs for power are more likely to be sensitive in evaluating other team members' behaviors, and will thus instigate more conflict if behaviors are misaligned. In contrast, if members have low needs for power or status, they will not see others as competitors in the social hierarchy and will be more generous in evaluating others' power and status, even if they try to lead in ways that are inconsistent with the social hierarchy. Thus, conflict is unlikely for individuals who have low need for power or status. Therefore, I predict that needs for power and status play a moderating role:

> *H3: Team member's needs for status strengthen the relationship between (a) aspirants' power–status inconsistency and relationship conflict.*
>
> *H4: Team member's needs for power strengthen the relationship between aspirants' status–power inconsistency and process conflict.*

6. Methods

I collected data from a sample of 104 first-year, fulltime, residential MBA students enrolled in a leadership course at a large mid-western U.S. university. Students were assigned to five-person self-managing teams to work together on case exercise projects, constituting 40% of their course grade. They completed cases as a group during each class and summarized their findings in a brief professional report format to present to the instructor. Team members met weekly in and outside the classroom to discuss their work.

Data was collected at three time points. At Time 1, before the spring semester A-term began, I used an online survey to measure personality traits, leadership style, needs for power and status, GMAT score, communication and respect networks, and perceptions of team members' power and status. At Time 2, the midpoint of the A-term course, I sent students a second email survey including items about self-confidence, leadership behaviors, and conflict with team members during team activities. At Time 3, after the final exam and before they received grades for the team project, I conducted the third online data collection including items about leadership emergence, and conflict with team members during team activities. The final sample included 104 (Time 1 response rate = 98%; Time 2 = 89%; Time 3 = 88%).

7. Measures

Informal social power. Informal social power was measured with betweenness centrality using a social network questionnaire. I provided an alphabetized list of all students' names in the cohort, with the instructions: "Please check the names of your classmates in the MBA program with whom you communicate for class-, school-, or job search information."

Informal social status. I measured informal social status according to in-degree centrality in the respect network. I asked respondents to identify their respect relationships. Again, I provided an alphabetized list of all the classmates and requested: "Please check the names of your classmates in this MBA program whom you *respect*, *admire*, or *look up to*."

Needs for status/power. I used three items modified from the SPF-IL Scale (Nieboer, Lindenberg, Boomsma, & Van Bruggen, 2005), to measure needs for status: "(1) I want people to look up to me; (2) I want to have good reputation with people; and (3) I want people to regard me as an important person." For needs for power "(1) I want to control resources or other people; (2) I want people to think I am influential; and (3) I want to take a high position in a group or organization" following Stahl, Grigsby, and Gulati (1985).

Relationship and process conflict. I measured relationship conflict and process conflict at the dyadic level using a single-item measure. For relationship conflict, I used an item developed by Shah, Park, and Jones (working paper): "At times [team member A] and I have difficulty getting along (i.e., our personalities clash or our interactions result in friction or emotional conflict)." For process conflict, the item was: "At times [team member A] and I disagree about how to assign duties and resources (i.e., how much time to spend on teamwork and in meetings, and who should do what)."

Control variables. age, gender, race, general mental ability (e.g., GMAT score), big 5 personality traits, gender homophily, race homophily, and age difference between the dyad.

8. Analytic Strategy

To calculate betweenness and in-degree centralities as measures of informal power and status, I used the social network software ORA-LITE (Carley, Pfeffer, Reminga, Storrick, & Columbus, 2012). To gather data about team-level informal power and status, I calculated the betweenness and in-degree centralities within the team network.

I applied a multilevel mixed-effects linear regression to analyze the data. The data structure is nested (e.g., individuals are nested in dyads, dyads are nested in teams) and crossed (e.g., one team member interacts with four team members). The multilevel mixed-effects linear regression can account for the sources of non-independence. I included random coefficients for actor, observer, and team. These random coefficients were used to estimate the covariance across observations of the same actor and observer in the dyad as well as in the same team. To avoid reverse causality, I used the independent variables (power and status) from Time 1 data collection, and dependent variables (conflict) from Time 2 and Time 3 data collection. I assumed missing at random (MAR) and used full-information maximum likelihood estimator (FIML) in the analysis. All model estimations were conducted with "mixed" command in the software STATA 13 (StataCorp, 2013).

9. Results

Table 1 shows the results of regression analysis for the effects of status–power inconsistency on relationship conflict. Table 2 shows the results of regression analysis for the effects of status–power inconsistency on process conflict. I found nonsignificant results for the effect of status–power inconsistency on relationship conflict (β = -49.81, p > .05 in Model 6 of the Table 1) or on process conflict (β = 61.44, p > .05 in Model 6 of the Table 2). Therefore, Hypotheses 1 and 2 were not supported.

Table 3 shows the results of regression analysis for the moderation effects of needs for power on status–power inconsistency and process conflict. I found a significant result for the moderation effect of needs for power on the relationship between aspirants' power- status inconsistency and relationship conflict (β = 180.94, p < .01 in Model 6 of the Table 3). But I found nonsignificant results for the other moderation effects, needs for status. Therefore, only Hypotheses 4 was supported.

10. Discussion and Conclusions

The current study shows that aspirants' needs for power may be associated with team members' expectations about aspirants' leadership role. Team members' high needs for power may exacerbate process conflict. This imply that individuals in teams and organizations are advised to know one's own power and status and to behave accordingly, and moreover, to try to adjust one's own power and status matched to each other. Theoretically, this study contributes to the leadership, conflict, social hierarchy literature by taking structural perspective and broadening the scope of team and organization as well as exploring the more mechanism of conflict in teams. Further studies are required to overcome the limitation of this study, lack of dynamics – changes of power and status over time, and its interactions with other possible causes of team conflict.

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Table 1

Results of Regression Analysis for the Effects of Status-Power inconsistency on Relationship conflict

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Power	6.49	6.67	13.49	12.44	2.29	1.00
Status	0.33	0.48	0.17	0.21	0.13	0.12
Power X Status	-45.16	-49.70	-43.14	-36.72	-38.13	-49.81
Age		0.01	0.01	0.02	0.02	0.01
Gender		0.27*	0.32**	0.29*	0.18	0.11
Ethnicity		-0.32*	-0.33**	-0.33**	-0.20*	-0.13
General mental ability		0.00	0.00	0.00	0.00	0.00
Extraversion			-0.03	-0.04	0.06	0.04
Agreeableness			-0.11	-0.12	-0.05	-0.02
Conscientiousness			-0.11	-0.10	-0.01	0.00
Neuroticism			-0.07	-0.06	-0.06	-0.02
Openness to experience			-0.15	-0.16	-0.13*	(0.07)
Gender homophily				-0.06	-0.06	-0.07
Race homophily				0.02	0.06	0.06
Age difference				-0.01	0.00	0.00
Process conflict					0.06*	0.06*
Task conflict					0.13**	0.12**
Status conflict					0.47**	0.42**
Constant	1.12**	0.49	2.65*	2.33	0.62	-0.02
Observations	365	298	298	287	287	287
Log likelihood	-191.47	-147.47	-143.88	-128.01	-79.93	-74.29
Note. * p<0.05, ** p<0.01						

Table 2

Results of Regression Analysis for the Effects of Status-Power inconsistency on Process conflict						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Power	1.87	9.11	24.66	not converged	6.916	2.28
Status	-0.26	-0.25	0.70		(0.04)	0.04
Power X Status	14.16	11.75	0.78		(24.39)	61.44
Age		0.00	-0.01		-0.02	-0.03
Gender		0.15	0.30		0.08	0.18
Ethnicity		-0.55	-0.39		0.01	0.02
General mental ability		0.00	0.00		0.00	0.00
Extraversion			-0.55**		-0.40*	-0.27
Agreeableness			-0.21		-0.15	-0.11
Conscientiousness			-0.07		0.03	-0.06
Neuroticism			0.00		0.08	-0.09
Openness to experience			-0.05		0.06	-0.05
Gender homophily					-0.03	-0.03
Race homophily					0.00	0.01
Age difference					-0.01	-0.01
relationship conflict					0.40**	0.40**
Task conflict					0.21**	0.21**
Status conflict					0.24	0.40**
Constant	2.28**	1.59	4.20		2.47	3.45
Observations	365	298	298		287	287
Log likelihood	-437.12	-351.68	-345.11		-317.27	-310.03
Note. * p<0.05, ** p<0.01						

Table 3

Results of Regression Analysis for the Moderation Effects of Needs for power on the Relationship between Status-Power inconsistency and Process conflict						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Power	3.10	7.80	23.69	23.43	10.21	5.15
Status	-0.18	-0.07	0.99	1.05	0.22	0.20
Needs for power	0.03	0.00	0.00	0.02	0.01	0.01
Power X Status	52.23	70.35	50.97	46.69	27.24	104.22
Power X Needs for power	-4.34	-7.69	-8.86	-9.71	-8.64	-9.52
Status X Needs for power	1.70**	1.77**	1.81**	1.92**	1.57**	1.54**
Power X Status X Needs for power	165.43**	217.73**	219.04**	221.80**	189.92**	180.94**
Age		0.00	-0.01	0.01	-0.02	-0.02
Gender		0.14	0.29	0.29	0.09	0.20
Ethnicity		-0.56	-0.40	-0.40	-0.04	-0.04
General mental ability		0.00	0.00	0.00	0.00	0.00
Extraversion			-0.57**	-0.57**	-0.45**	-0.32*
Agreeableness			-0.21	-0.25	-0.18	-0.15
Conscientiousness			-0.12	-0.13	-0.04	-0.11
Neuroticism			0.00	-0.01	0.08	-0.08
Openness to experience			0.01	0.03	0.11	-0.02
Gender homophily				-0.07	-0.06	-0.06
Race homophily				-0.04	-0.01	-0.01
Age difference				-0.02	-0.01	-0.01
Relationship conflict					0.37**	0.38**
Task conflict					0.18*	0.19*
Status conflict					0.16	0.32*
Constant	2.17**	1.89	4.70	4.11	2.99	3.86
Observations	353	289	289	278	278	278
Log likelihood	-415.79	-334.92	-327.7	-315.38	-303.07	-296.62
Note. * p<0.05, ** p<0.01						

What Does Employee Silence Mean? The Role of Organizational Climate and Burnout

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Abstract: The avoidance of employees to express and share their ideas and opinions about organizational issues leads to the multidimensional concept of employee silence. From an organizational perspective, it is necessary to take in consideration that individuals tend to remain silent about situations that are less positive in the organization. But silence is not just the absence of voice or communication. Silence prevents individuals from carrying out their work in the most appropriate way, can act as a barrier to organizational change and can influence the employee well-being. Acquiescent silence is the retention of information considered relevant, based on resignation and submission (passive retention) and quiescent silence comes from fear of the negative consequences from sharing information, being used as a form of self-protection. Prosocial silence is related to altruistic motives and opportunistic silence is used to obtain personal advantages. It becomes relevant to determine the factors associated with this silence and what are the implications of employee silence on employee well-being. Thus, the objectives of this study are i) to study the of employee silence motives, ii) to understand whether two of the dimensions of the authentizotic organizational climate (leader´s trust and credibility and opportunities for learning and personal development) are antecedents of employee silence and iii) to study the consequences of employee silence motives on burnout. A quantitative study is conducted, using a questionnaire survey applied to a sample of 222 individuals, working in different portuguese organizations. The confirmatory factor analysis identifies four employee silence motives. The regression analyses highlighted that authentizotic psychological climate dimensions, namely learning and personal development opportunities, were predictors of the three dimensions of employee silence: quiescent silence, aquiescent silence and opportunistic silence. Regarding the impact of employees' silence on burnout, aquiescent silence stood out as the main predictor of different burnout dimensions: emotional exhaustion, personal accomplishment and depersonalization. Finally, it can be concluded that acquiescent silence seems to stand out as the silence variable most explained by authentizotic organizational climate and the one that most explains the appearance of burnout. The findings can be used by human resources managers.

Keywords: Authentizotic Psychological Climates, Burnout, Employee Silence

1. Introduction

In workplaces, effective communication is often seen as central for organizational success. However, employee silence, an often-overlooked concept, can challenge this premise. Suggestions, opinions, ideas and concerns are part of the daily lives of individuals within organizations. Sharing different points of view is likely to bring improvements and to contribute to the team and the organization efficacy (Knoll, Hall and Weigelt, 2019).

Silence prevents individuals from carrying out their work in the most appropriate way (Knoll and Van Dick, 2013) and can act as a barrier to organizational change which, consequently, compromises organizational development (Morrison and Milliken, 2000).

The lack of recognition of the multidimensionality of silence construct occurs because, often, silence is seen simply as an absence of voice and the causes for its appearance become difficult to determine (Van Dyne, Ang and Botero, 2003). It is correct to say that silence is an "extreme manifestation" of indirect expression, that is, nothing is said, but this silence can have a lot of meaning (Tannen, 1985). Silence can be considered a form of employee response, in this case passive, in the face of less pleasant situations that occur in the organization (Pinder and Harlos, 2001).

It is important that an assessment is carried out, not only of the surrounding environment, to identify flaws in the conditions that facilitate the sharing of information, but also to identify existing problems in the organization that give rise to silence (Morrison and Milliken, 2000).

The retention of information by employees, that is, the adoption of silence, is not just an absence of voice (Pinder and Harlos, 2001; Milliken, Morrison, and Hewlin, 2003; Van Dyne, Ang and Botero, 2003). Therefore, voice and silence must be analyzed separately as individual and multidimensional concepts (Knoll et al, 2016). In short, the main distinguishing characteristic between silence and voice is the employee's willingness to retain or expose information and suggestions for organizational improvement (Van Dyne, Ang and Botero, 2003).

The main objective of this study is to investigate the concept of empoyees' silence, understand its multidimensionality and explore the motivations that lead individuals to adopt it. It aims to study the relationship between silence and two of the dimensions of the authentizotic psychological climate (leader´s trust and credibility and opportunities for learning and personal development), presented as antecedents of employee' silence, and to examine the relationship between employee silence and burnout, with the latter as a consequent variable.

2. Background

2.1 Employee Silence and its Underlying Motives

Different motives lead to different forms of silence (Pinder and Harlos, 2001; Hao et al, 2022; Milliken, Morrison, and Hewlin, 2003; Van Dyne, Ang and Botero, 2003). There are four motives for silence based on studies carried out by Pinder and Harlos (2001); Van Dyne, Ang and Botero, (2003) and Knoll and Van Dick (2013).

Pinder and Harlos (2001) distinguish two motives of silence, acquiescent, which involves the retention of information considered relevant, based on resignation and submission (passive retention). It can be said that employees lose hope for improvement and are not focused or committed to sharing ideas and information. Quiescent silence comes from the fear of negative consequences that may arise from sharing information, being adopted as a form of self-protection (Morrison and Milliken, 2000; Pinder and Harlos, 2001).

Van Dyne, Ang and Botero (2003) state that the three motives that lead employees to adopt silence are behaviors of disinterest based on resignation, behaviors of self-protection based on fear and behaviors of concern for others based on altruism. The latter, prosocial silence, is therefore more oriented towards concern for others, based on feelings of generosity, the objective is not to harm anyone. Knoll and Van Dick (2013) introduce a fourth motive of silence, opportunistic silence, which is characterized as a practice of silence that involves a strategy to obtain personal advantages, regardless the damage caused to others and to the organization. As such, it was hypothesized:

Hypothesis 1: Employee silence has four dimensions: quiescent silence, acquiescent silence, prosocial silence and opportunistic silence.

2.2 Psychological Organizational Climate as an Antecedent of Employee Silence

To establish authentizotic work environments, supporting employee well-being, it is essential that feelings of purpose, determination, impact, competence, belonging, pleasure and satisfaction and meaning are provided (Kets de Vries, 2001). The creation of the neologism authentizotic is based on two words of Greek origin: authenteekos and zoteekos and translates into a reliable and vital organization for life. The first reflects the authenticity of the organization, its ability to convey trust and quality. In an authentizotic company, leadership has the ability to convey not only the how, but also the why, reflecting the impact of each individual on the organization's development, making them feel motivated and active. Zoteekos means "vital for life" and is associated with the need for individuals to explore and expand knowledge (Kets de Vries, 2001, p.110).

Rego (2004) and Rego and Souto (2004) extracted a set of six climates based on employees' perspectives on workplace conditions. The focus is on the psychological climate rather than the organizational climate, that is, the behaviors adopted by individuals in response to the organizational conditions that surround them (Rego and Cunha, 2008).

One of the psychological climates is the trust and credibility of the leader. A leader who promotes trust and credibilility provides a safer environment, in which workers feel able to express themselves (Bharanitharan et al, 2019). It promotes authentizotic relationships, contributing to feelings of impact and happiness (Rego and Cunha, 2008). However, what is expected from a relationship in which there is no trust that the employee hides their real feelings and expose emotions that are different from the true ones (emotional dissonance), which leads to a lower psychological well-being (Rego and Cunha, 2008).

Opportunities for learning and personal development provides individuals with a feeling of personal fulfillment and competence. It is important that employees feel that they have all the working conditions so that they feel motivated to expand their knowledge and objectives (Kets de Vries, 2001). In addition to monetary compensation or career advancement opportunities, individuals are able to feel motivated at work through personal fulfillment when they experience positive emotions. This type of emotions allows to a behaviors of resilience, competence and greater willingness to strengthen social relationships. Employees are willing to overcome certain adverse work conditions and to feel less stress (Rego and Cunha, 2008). As such, it is hypothesized:

Hypothesis 2: Employee silence is influenced by authentizotic organizational climate.

Hypothesis 2.1: Employee silence is negatively influencied by leader's trust and credibility.

Hypothesis 2.2: Employee silence is negatively influencied by learning and personal development opportunities.

2.3 Burnout as a Consequence of Employee Silence

According to Maslach and Jackson (1981), burnout can be defined as the response to a set of stress factors associated with work. It can manifest itself through exhaustion, depersonalization and low levels of personal accomplishment. An essential condition of burnout is a growing sense of emotional exhaustion. Employees do not feel able to make further psychological efforts because their resources are depleted (Maslach and Jackson, 1981). This dimension of burnout portrays the basic dimension of stress and is related to feelings of overload and scarcity of emotional and physical resources. Exhaustion promotes behaviors in individuals that make it possible to distance themselves emotionally and cognitively from their work in order to overcome their overload (Maslach, Schaufeli and Leiter, 2001). The second dimension of burnout concerns depersonalization and is associated with characteristics of disinterest and insensitivity that begin to develop in the employee, which lead them to distance themselves from what they are committed to at work, whether in carrying out the tasks or in relationships with colleagues or supervisors (Cropanzano, Rupp and Byrne, 2003; Halbesleben and Buckley, 2004). The third dimension of burnout is reduced personal accomplishment, which occurs when the employee stops believing in their work and their good performance. It is related to issues of trust and self-efficacy in the organizational context (Knoll, Hall and Weigelt, 2019). The concepts mentioned regarding self-regulation, control of behaviors and emotions, and feelings of exhaustion and tiredness, consume employee resources that could be applied and used in their work. This situation causes employees to feel that they are not capable of carrying out their tasks, leading to a reduction in feelings related to personal accomplisment (Knoll, Hall and Weigelt, 2019).

Hobfoll's theory of conservation of resources (1998) states that if employees experience feelings of exhaustion they tend to reduce investment in new resources for sharing information. Exhaustion prevents employees from having their voice in situations where it is necessary, making any change within the organization impossible (Knoll, Hall and Weigelt, 2019). An employee's connection with their work is high when they realize that they are valued as an individual and that their ideas, opinions or suggestions make a difference within the organization. When they feel that they are not valued, they lose the ability to express their thoughts, leading to psychological withdrawal, that is, they work in a state of depersonalization (Knoll, Hall and Weigelt, 2019). As such, it is hypothesized:

Hypothesis 3: Employee silence influence burnout.

Hypothesis 3.1: Quiescent silence and acquiescent silence influence burnout associated with emotional exhaustion.

Hypothesis 3.2: The four motives of employee silence do not influence burnout associated with reduced personal accomplishment.

Hypothesis 3.3: Prosocial silence and opportunistic silence do not influence burnout.

3. Methodology

3.1 Sample

The convenience sample is composed by 222 individuals (n=222). Respondents are portuguese employees over the age of eighteen, who have at least one professional experience and a hierarchical superior and no specific organization or industry was targeted. Regarding gender, 68,9% are female, 30,6% are male and ,05% are other. Regarding age, 46,4% are between 20 and 29 years old, 21,6% are between 30 and 39 years old and 18% are between 40 and 49 years old. In relation to academic qualifications, 40,5% have a bachelor's degree and 23,9% a master's degree.

3.2 Measures

In this study is used questionnaire surveys. To measure employee silence, Knoll and Van Dick (2013) scale is used: 3 items for quiescent silence, 3 items for acquiescent silence, 3 items for opportunistic silence and 3 items for prosocial silence. To assess the authentizotic climate, Rego's scale (2004) is used: 3 items for leader's trust and credibility and 4 items items for learning opportunities and personal development. To measure burnout, the Maslach and Jackson (1986) scale is used: 9 items for emotional exhaustion, 6 items for personal accomplishment and 4 items for depersonalization.
After data collection, IBM SPSS Statistics were used to examine the data.

4. Results

4.1 Confirmatory Factor Analysis

A Confirmatory Factor Analysis, extraction method Principal Component Analysis, with varimax rotation was carried out for all the meaures.

Using the principal components method with varimax rotation and applying a fixed number of factors equal to 4, according to the study by Knoll and Van Dick (2013), the four silence motives were extracted. All coefficients lower than ,5 were removed. In relation to the employee silence scale, the KMO value presented a value of 8,46, which represents a very good adequacy of the sample. The Cronbach's alpha was ,887.

Regarding the authentizotic organizational climate scale, the KMO value was ,9, which indicates good internal consistency and excellent sample adequacy. The internal consistency value of the total scale (α = ,923) represents an excellent measure of item reliability. The Cronbach's alpha was ,923.

Regarding burnout, after extracting the factors, items with loadings lower than ,5 were removed. The KMO value presented a value of ,880, which indicates good internal consistency and sample adequacy. The Cronbach's alpha was ,798.

4.2 Correlations and Regression Analysis

4.2.1 Correlations and Regression Analysis Between Employee Silence and Organizational Authentizotic Climate

As a first step, zero-order (Pearson) correlations were calculated to examine the bivariate associations amongst the variables. The results are shown on table 1.

Table 1: Pearson Correlations among dimensions of authentizotic organizational climate and employee silence motives

	Prosocial Silence	Quiescent Silence	Aquiescent Silence	Oportunistic Silence
Learning and personal development opportunities	-,119	-,226**	-,470**	-,177**
Leader´s trust and credibility	-,073	-,178**	-,366**	-,053

*** p < ,01*

A regression analysis (method stepwise) of autentizotic climate and prosocial silence was carried out. No statistically significant values were detected in the model; authentizotic climate dimensions are not predictors of the prosocial silence motive.

Regarding the regression analysis of the authentizotic climate and quiescent silence, the independent variable was excluded: leader´s trust and credibility presented significance values higher than recommended and, therefore, was not considered for the construction of the model. Learning and personal development opportunities (table 2) have a negative and statistically significant impact on quiescent silence (*B*= - ,226)

Table 2: Regression Analysis between autenthizotic organizational climate and quiescent silence

	Non Padronized Coefficients		**Padronized Coefficients**	*t*	*p*
Model	B	standard error	Beta		
Quiescent silence	4,587	,329		13,931	,000
Learning and personal development opportunities	-,243	,070	**-,226**	-3,449	,001

Dependent variable: quiescent silence

Regarding the regression analysis of the autentizotic climate and opportunistic silence, the independent variable was also excluded: leader´s trust and credibility because it presented significance values higher than recommended. Learning and personal development opportunities (table 3) have a negative and statistically significant impact on opportunistic silence (*B* =-,177).

Table 3: Regression Analysis between autenthizotic organizational climate and opportunistic silence

	Non Padronized Coefficients		**Padronized Coefficients**	*t*	*p*
Model	B	Standard error	Beta		
Opportunistic silence	3,358	,269		12,487	,000
Learning and personal development opportunities	-,154	,058	**-,177**	-2,673	,008

Dependent variable: opportunistic silence

Finally, in the regression analysis of the authentizotic climate and acquiescent silence, the exclusion of the independent variable: leader´s trust and credibility was once again verified, as it presented significance values higher than recommended. Learning and personal development opportunities (table 4) have a negative and statistically significant impact on acquiescent silence (*B* =-,470).

Table 4: Regression Analysis between autenthizotic organizational climate and aquiescent silence

	Non Padronized Coefficients		**Padronized Coefficients**	*t*	*p*
Model	B	Erro padrão	Beta		
Aquiescent silence	6,237	,341		18,315	,000
Learning and personal development opportunities	-,575	,073	**-,470**	-7,896	,000

Dependent variable: aquiescent silence

4.2.2 Correlations and Regression Analysis Between Employee Silence and Burnout

As a first step, zero-order (Pearson) correlations were calculated to examine the bivariate associations amongst the variables. The results are shown on table 5.

Table 5: Pearson Correlations between employee silence motives and *burnout*

	Emotional Exhaustion	Depersonalization	Personal Accomplishment
Prosocial silence	,227**	,086	,026
Quiescent silence	,437**	,263**	-,178**
Aquiescent silence	,587**	,433**	-,261**
Opportunistic silence	,218**	,211**	-,161*

*** p < ,01*

** p < ,05*

In the regression analysis of employee silence and emotional exhaustion, prosocial silence and opportunistic silence (independent variables) were excluded. These variables had significance values higher than recommended and, therefore, were not considered for the construction of the model.

Acquiescent and quiescent silences have a positive and statistically significant impact on emotional exhaustion (respectively *B* = ,506 and *B* = ,137) (table 6).

Table 6: Regression Analysis between employee silence motives and emotional exhaustion

	Non Padronized Coefficients		Padronized Coefficients	*t*	*p*
Model	B	Standard error	Beta		
Emotional exhaustion	1,482	,225		6,596	,000
Aquiescent silence	,439	,058	**,506**	7,506	,000
Quiescent silence	,136	,067	**,137**	2,032	,043

Dependent variable: emotional exhaustion

Regarding the regression analysis of employee silence and personal accomplishment, prosocial silence, quiescent silence and opportunistic silence (independent variables) were excluded. These variables had significance values higher than recommended and, therefore, were not considered for the construction of the model. Acquiescent silence has a negative and statistically significant impact on personal accomplishment (*B* = -,261) (table 7).

Table 7: Regression Analysis between employee silence motives and personal accomplishment

	Non Padronized Coefficients		Padronized Coefficients	*t*	*p*
Model	B	Standard error	Beta		
Personal accomplishment	5,687	,166		34,271	,000
Aquiescent silence	-,158	,039	**-,261**	-4,006	,000

Dependent Variable: Personal accomplishment

With regard to the regression analysis of employee silence and depersonalization, prosocial silence, quiescent silence and opportunistic silence (independent variables) were excluded. Acquiescent silence has a positive and statistically significant impact on depersonalization (B = ,433) (table 8).

Table 8: Regression Analysis between employee silence motives and depersonalization

	Non Padronized Coefficients		Padronized Coefficients	*t*	*p*
Model	B	Standard error	Beta		
Depersonalization	1,320	,161		8,223	,000
Aquiescent silence	0,272	,038	**,433**	7,129	,000

Dependent variable: Depersonalization

5. Discussion and Conclusions

The confirmatory factor analysis identifies four motives on employee silence. The reason why individuals retain opinions is variable, hence the importance of studying employee silence motives (Pinder and Harlos, 2001; Milliken, Morrison, and Hewlin, 2003; Van Dyne, Ang and Botero, 2003), namely quiescent silence, acquiescent silence, opportunistic silence and prosocial silence Hypothesis 1 is confirmed.

The regression analyses highlighted that authentizotic psychological climate dimensions, namely learning and personal development opportunities, were predictors of the three dimensions of employee silence: quiescent silence, aquiescent silence and opportunistic silence. Hyphotesis 2 is confirmed.

It was found that the dimension of leader´s trust and credibility did not present adequate significance values for the construction of the models. Therefore, it can be said that this dimension of the autentizotic climate, in particular, does not explain the adoption of silence by employees in this study. The research focused exclusively on the leader´s ability to transmit trust and credibility to individuals. However, trust and credibility can be influenced by the presence of other dimensions. Limiting the analysis to this dimension may not have captured the complexity of the superior's trust and credibility climate.

Learning and personal development opportunities are crucial for individuals to feel motivated and capable of developing their skills at work. The lack of opportunities can mean a series of situations such as the lack of career progression, which give rise to feelings of lack of support and motivation in the individual (Rego and Cunha, 2008). Without access to these resources, individuals may not have the necessary response capacity to the demands of work (Rego and Cunha, 2008). Without the presence of a leader who promotes a safe environment, which motivates continuous learning, there is no place for communication (Edmondson, 2003). It is probable that individuals will not express their opinions and ideas if the work environment does not provide conditions for continuous development (Knoll et al, 2016). Thus, opportunities not only provide sensations associated with continuous development, but also avoid the presence of silence. Hypothesis 2.1 is refuted.

Regarding the impact of employees' silence on burnout, aquiescent silence stood out as the main predictor of different burnout dimensions: emotional exhaustion, personal accomplishment and depersonalization. Finally, it can be concluded that acquiescent silence seems to stand out as the silence variable most explained by authentizotic climates and the one that most explains the appearance of burnout.

According to Aboramadan et al (2020), the adoption of silence by employees tends to lead to a drain on individuals' resources, which, consequently, causes stress. The relationship between silence and burnout is clear in the literature, showing a positive association between employee silence and burnout (Hao et al, 2022). This study corroborates this conclusion (hypothesis 3).

It was found that quiescent and acquiescent silences are predictors of emotional exhaustion, as stated by Knoll, Hall and Weigelt (2019), in line with what was described in hypothesis 3.1. Depersonalization presented only acquiescent silence as a predictor, and quiescent silence was not found to be a predictor of this dimension of burnout. Thus, hypothesis 3.1 is partially confirmed, since all aspects included in it are verified with the exception of quiescent silence, which did not explain the presence of depersonalization.

Depersonalization is related to traits of apathy that are manifested in the employee's behavior. Employee is no longer committed to work, prevents carrying out tasks or the interactions with colleagues and superiors (Cropanzano, Rupp and Byrne, 2003; Halbesleben and Buckley, 2004) and ignore their own qualities that distinguish them from the colleagues. (Maslach, Schaufeli and Leiter, 2001). The involvement in work interactions decreases, giving way to disinterest, a reduction in the quality of relationships, reinforcing depersonalization (Knoll, Hall and Weigelt, 2019). However, when the employee realizes that their work is valued and that their contributions have a significant impact, the connection with the organization is higher (Knoll, Hall and Weigelt, 2019). Thus, an environment favorable to the expression of opinions encourages employees to identify with the company, promoting greater sharing of ideas (Kassing, 2000).

It can be considered that quiescent silence did not explain the presence of feelings of depersonalization, since, as it is a self-protection strategy, quiescent silence may not completely include apathy and disinterest associated with depersonalization. This silence is associated with the retention of information as a form of self-protection. In other words, employees believe that sharing their opinion can be risky and choose to remain silent for fear of the repercussions that sharing may cause. Employees are fully aware that they are retaining information because they are protecting themselves from threats (Pinder and Harlos, 2001; Van Dyne, Ang and Botero, 2003). Thus, as depersonalization is described as being linked to the perception that sharing information is not valued by

superiors, it goes far beyond the fear of repercussions of speech, being related to scepticism in sharing information.

In the case of acquiescence, employees lose hope that sharing information will lead to improvements, since their opinions are not valued by superiors, promoting disinterest (Pinder and Harlos, 2001).

The analyzes carried out showed acquiescent silence as a predictor of reduced personal fulfillment, contrary to what was described in hypothesis 3.2. However, the remaining dimensions of silence do not prove to be predictors of this dimension of burnout. Hypothesis 3.2 is only partially confirmed.

Regarding prosocial silence and opportunistic silence, it was effectively confirmed that they do not explain the presence of any of the dimensions of burnout, therefore validating hypothesis 3.3. Both prosocial silence and opportunistic silence are adopted by individuals because they are beneficial to themselves or their relationships (Knoll and Van Dick, 2013). Opportunistic silence is characterized by withholding information for one's own benefit, that is, the employee has the advantage that only him knows the information. This silence is, therefore, adopted in a strategic way, harming both co-workers and the organization (Knoll and Van Dick, 2013).

It can be concluded that acquiescent silence seems to stand out as the silence variable most explained by autentizotic climates and the one that most explains the appearance of feelings of burnout. Based on the study by Pinder and Harlos (2001), it appears that individuals who feel more quiescent seem to be more aware of the circumstances in which they find themselves and are therefore more capable of finding alternatives to their situation. In acquiescent silence, the employee remains silent almost without noticing, with less awareness of the circumstances, showing a greater tendency to remain silent. The fact that acquiescent silence is associated with a tendency to adopt silence for a longer period may explain the reason why it has a greater influence on the dimensions of burnout.

Given the fact that leader´s trust and credibility has shown an association with the employee silence, but did not explain the adoption of employee silence, it is advisable to include others dimensions of authentizotic psychological climates in future studies.

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Goal Setting and the Emergence of the Safety-Efficiency Trade-off in Organizations

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Abstract: This article aims to shed light on the trade-off between safety and efficiency that arises in organizations when management sets overly demanding efficiency goals. To explore the dynamics and relationships between management's goal setting and the safety-efficiency trade-off, we have chosen to analyze the extreme and illustrative case of the Herald of Free Enterprise disaster – a ferry that sank on March 6, 1987, resulting in the deaths of 193 passengers and crew members. The case shows how the management's imposition of very tight schedules for embarkation and disembarkation operations at the port of Zeebrugge promoted the emergence of risky practices, namely the regular violation of procedures by the crew. We argue that these violations, aimed at increasing the speed of operations to meet the time goals, were a central factor, though not the only one, in the etiology of the accident. The case provides evidence that when management sets overly strict performance goals, it directs employees' attention and efforts toward efficiency at the expense of safety. As a result, safety is compromised, leading to an increased risk of incidents, which can harm employees' health and cause economic and legal damage to the organization.

Keywords: Goal Setting; Risk; Safety; Organizational Deviance; Organizational Incident; Organizational Practices.

1. Introduction

Goal setting, encompassing both the characteristics of the goals and the process of defining them, is widely regarded as an effective managerial tool for enhancing organizational performance (Locke and Latham, 1990; 2002). Goals typically boost individual employees' commitment, performance, and satisfaction while directing their efforts toward the tasks management considers most important. However, goal setting can also encourage behaviors that might be detrimental to the organization in the long term (e.g., Ordóñez et al., 2009; Larrick et al., 2009).

The aim of this article is twofold. First, through the analysis of an illuminating case study, it aims to theorize the role of goal setting in the emergence of the efficiency vs. safety trade-off in organizations and in organizational incidents. We chose the case study research design because it allows for an in-depth analysis of processes and has been effectively used to develop testable hypotheses (Eisenhardt and Graebner, 2007). Following the example of well-regarded scholars such as Weick (1993), who studied the Mann Gulch disaster; Galunic and Eisenhardt (2001), who examined high-performing companies; and Allison and Zelikow (1999), who investigated the Cuban missile crisis, we selected an extreme case rather than a representative one because extreme cases are "particularly suitable for illuminating and extending relationships and logic among constructs" (Eisenhardt and Graebner, 2007, p. 27).

The case in question is the disaster of the ferry Herald of Free Enterprise on March 6, 1987. The ferry sank only four minutes after leaving the port of Zeebrugge (Belgium), leading to the death of 193 passengers and crew members. Access to the investigation documents following the disaster provided us with detailed reconstructions of the facts and dynamics of the night of the disaster. The case shows how management's imposition of very tight schedules for embarkation and disembarkation operations at the port of Zeebrugge promoted the emergence of risky practices, namely the regular violation of procedures by the crew. We argue that these violations, aimed at increasing the speed of operations to meet the time goals, were a central factor, though not the only one, in the etiology of the incident.

Second, the article aims to stimulate an extensive debate on the role of leadership in reconciling safety culture and business objectives. Specifically, the article aims to discuss the practical implications of this case, particularly the role of organizational leadership in counteracting the development of entrenched dysfunctional and harmful practices. These practices might be more efficient in the short term but risk damaging the safety culture by increasing the acceptance of risks (Rasmussen and Svedung, 2000; Catino, 2023). Additionally, they may produce adverse effects in the medium and long term, such as increased costs, decreased organizational well-being, and a corporate reputation crisis, which can irreparably undermine the stability and sustainability of a business.

2. The Harmful Consequences of Goal Setting

Employees' behavior is largely guided by goal setting. This influence is not only unconscious but also conscious, as employees strategically decide the direction, effort, and persistence of their actions based on goals (Locke et al., 1981). Numerous studies conducted in both simulated and real-world settings across various tasks and countries consistently found that goals improve performance (Locke and Latham, 2002) and that challenging and specific goals tend to enhance employees' performance more than vague directives like "do your best" (Locke and Latham, 1990). In their review of 35 years of research on goal setting theory, Locke and Latham (2002) identify four mechanisms through which goals influence performance. First, goals focus attention on goal-relevant activities at the expense of those that are not. Second, challenging goals increase effort. Third, goals lead to more sustained efforts. Fourth, goals promote goal-oriented strategic behavior, involving the use of the most appropriate available knowledge and strategies or the development of new ones.

Nevertheless, some authors have pointed out that steering employees' behavior through goal setting can be trickier for managers and organizational leaders than expected. Kerr (1975) highlights that defining specific, challenging, quantitative goals may not always yield the expected results in terms of performance improvement. The reason is that the selection of indicators to measure performance is a subjective process that may overlook aspects important but that are difficult to observe and measure, while including irrelevant ones.

Another difficulty in predicting the effects of goals arises from the fact that employees, especially when tasks are complex, often have to cope with multiple goals simultaneously, forcing them to prioritize one goal over the other (Gilliland and Landis, 1992). Moreover, the existence of interdependencies among goals increases the risk of maintaining the status quo because it is challenging to establish a course of action that improves performance across various interdependent tasks (Ethiraj and Levinthal, 2009). Therefore, while goal setting has proven to be a valuable managerial tool for improving performance and directing actions and efforts, it also has side effects that managers may be unaware of and which can harm the organization (Ordóñez et al., 2009). Specifically, we will discuss how goal setting may hinder overall organizational performance, promote unethical behavior, and encourage excessive risk-taking.

While goal setting can improve performance on specific tasks or aspects of a task, it may be detrimental to the overall productivity of the organization (Ordóñez et al., 2009). Challenging goals may promote harder and longer efforts, but in the long run they can also lead to employees' dissatisfaction with their own achievements. Dissatisfaction in turn can reduce employees' perception of self-efficacy, commitment and effort. Goal setting can damage performance also by favoring the overlook of those aspects crucial to performance that are not explicitly defined within the goal setting framework (Staw and Boettger, 1990; Tenbrunsel et al., 2000). For example, the engineering and development teams working on the Pinto car model were given extremely tight deadlines by management, forcing them to accelerate the usual process at the expense of quality. As explained by Gioia (1992, p. 380) "Under normal conditions design, styling, product planning, engineering, etc., were completed prior to production tooling. Because of the foreshortened time frame, however, some of these usually sequential processes were executed in parallel". As a result, the car was produced in 25 months, compared to the industry average of 43 months but the problem with the fuel tank was not detected in time because "tooling was already well under way (thus "freezing" the basic design) when routine crash testing revealed that the Pinto's fuel tank often ruptured when struck from the rear at a relatively low speed".

Goal setting can also harm the organization by promoting unethical behaviors, defined as actions that are either illegal or morally unacceptable (Jones, 1991, p. 367). According to Barsky (2008), goal setting fosters unethical behavior through two key psychological mechanisms. The first is ethical recognition, which involves recognizing the ethical dimensions of issues and actions. Challenging and narrowly defined goals, by focusing employees' attention on goals-related aspects, tend to hinder acknowledgement of the ethical dimension of goals or to favor neglect of ethical issues that are not linked to goals. The second mechanism is moral disengagement, which consists in justifying unethical behavior. Goal setting underpins moral disengagement by providing a moral justification for unethical actions taken in pursuit of goals. Because goals are set by the organization, employees can displace responsibility for their own unethical behaviors by claiming that they were merely following orders and had no other viable options. Failure in ethical recognition and moral disengagement are further reinforced by two characteristics of the goal setting process. First, the lack of employees' involvement in choosing and defining goals prevents them from considering ethical aspects and shifts responsibility away from themselves. Second, rewards dependent on goal achievement reinforce moral disengagement by emphasizing the importance of the goal to the organization. This emphasis makes goal attainment even more crucial for employees, further narrowing their focus and increasing their efforts toward the goal. For example, in the early

1990s, the management of Sears and Roebuck and Company, a major American department store chain, reduced the hourly wages of its mechanics and service advisers, introduced a commission system and set extremely strict sales quotas for its automotive repair personnel. An employee reported that he was given a goal of 147 Dollars of sales in parts and services per hour, along with specific sales quotas for front-end alignments, shocks, and brakes. To reach the targets, employees systematically performed unnecessary repairs (Gellene, 1992). Lastly, goal setting may encourage unethical behavior when employees do not achieve their goals. In an experiment involving 154 undergraduate students, Schweitzer et al. (2004) found that individuals are incentivized to misreport results by exaggerating their own performance to avoid the psychological costs associated with admitting failure, such as negative self-evaluation and dissatisfaction.

Finally, goal setting tends to promote risk-taking behaviors. According to Larrick et al. (2009), goal setting alters risk preferences by establishing goals as the new reference points (Heath, Larrick and Wu, 1999) against which employees evaluate the type of situation they are in. In other words, employees decide if they are acting in a "gain" or "loss" scenario by comparing outcomes to their goal. Therefore, when outcomes represent an improvement over the initial situation but fall short of goals they are interpreted as losses rather than gains. This shift in interpretation is crucial because, according to Prospect Theory (Kahneman and Tversky, 1979; Tversky and Kahneman, 1992), individuals tend to be risk-averse in situations of gain and more willing to take risks in situations perceived as losses. In other words, faced with a choice between suffering a certain loss and a "risky" loss, people typically prefer the risky option because it offers a chance to avoid the loss.

A second way in which goals can favor risky behaviors is by narrowing employees' focus. As discussed earlier, goals enhance performance by directing employees' efforts toward specific aspects or tasks. However, this narrowed focus may lead to neglect of issues that, while not directly related to performance, are nonetheless important (Tenbrunsel et al., 2000). One of those potentially neglected aspects is safety. To meet the productivity goals set by management, workers may adopt practices and strategies that enhance efficiency, even if these practices compromise safety. As a result, the likelihood of individual incidents and organizational disasters may increase. In his classic study of a gypsum plant and its mine, Gouldner (1954) observes that the persistence of risky behaviors is a deliberate decision by the workers, and it is not due to their recklessness or lack of awareness about safety issues. For instance, mill workers resisted the introduction of "bag rests" that would have allowed them to lift a filled bag of plaster without bending over. The introduction of bag rests was meant to enhance their safety because approaching the sack closely was indeed dangerous: a rupture and the consequential powder spillage could damage eyesight. However, since workers assessed that bag rests would "cut productivity by fifty per cent", the old, albeit riskier practice was not abandoned (Gouldner, 1954, p. 203).

Ordóñez (2009) suggests that goal setting may underpin also organizational disasters. The remaining part of this article will delve deeper into this possibility by analyzing the role played by goals in the disaster of the Herald of Free Enterprise.

3. The Disaster of the Herald of Free Enterprise

The ferry Herald of Free Enterprise, owned by the English company Townsend Car Ferries Limited and directed to Dover (England), sank on March 6, 1987, at 18:28, just 4 minutes after leaving the port of Zeebrugge (Belgium). At the time of the sinking, Captain David Lewry was in command and onboard there were 80 crew members, 459 passengers, 81 cars, and 50 vehicles, including 47 trucks. The sinking occurred because water entered through the bow door (the access to Deck G, the main garage), which had not been closed after completion of loading operations. Despite favorable navigation conditions, just a few minutes after the departure a significant amount of water had already entered the main garage. The reason is a combination of the squat effect, that trimmed down the bow, and an increase of wave height. Both factors were exacerbated by the acceleration from 14 to 18 knots ordered by the captain upon leaving the port of Zeebrugge. Indeed, experiments conducted during the subsequent investigation with the sister ship, Pride of Free Enterprise, showed that at a speed of 18 knots, wave heights reach 2 meters above the top of the rudder blade (Department of Transport, 1987, p. 7).

Because of the water taken on from the bow door, the ferry listed and then capsized 90 degrees to the port side (left). Fortunately, the Herald grounded less than a kilometer from the Belgian coast on a shallow seabed, allowing the starboard side (right) to remain above the water's surface. Despite this condition facilitated rescue efforts, 193 passengers and crew members lost their lives in the disaster, many succumbing to hypothermia due to the freezing waters.

3.1 The Role of Goal Setting in the Disaster of the Herald of Free Enterprise

The inquiry commission identified three crew members closely involved with the failure of closing the bow door: Mark Stanley, the assistant boatswain who did not closed the bow door because he had fallen asleep in his cabin during the break (he woke up when the ferry capsized); first officer Leslie Sabel, who left the loading deck before Stanley's arrival, without making sure that the doors were closed; and captain David Lewry, who ordered the departure from the port without verifying the state of the doors. Since closing the doors is crucial for navigation safety, it seems paradoxical that neither the first officer nor the captain ensured that the doors were closed before departing. The article contends that, besides personal responsibilities, a key contributing factor to the incident of the Heral were two risky practices and that those practices had developed in response to a particularly challenging and specific goal set by the company managers. Those practices are not the sole contributing factors to the incident; however, for the purposes of this article, we will focus on their role.

Townsend Car Ferries Limited's ferries serving the Zeebrugge – Dover – Calais route used to accumulate delays due to insufficient time allocated for loading and unloading operations at the Dover port. In an internal memorandum dated August 13, 1986, the Commander of the Free Enterprise VIII remarked: “Finally, one of the reasons for such late arrivals is due to late departures from Dover the cause of which is rarely due to any inefficiency on the port of Dover staff - just lack of time available to handle both discharge and loading together with storing (often only 30-40 minutes). This situation can often be assisted by an early sailing from Zeebrugge the previous voyage: Zeebrugge staff MUST be made aware of such necessity immediately upon arrival” (Department of Transport, 1987, p. 11). To mitigate delays, the company defined a very specific and challenging goal, namely leaving Zeebrugge in advance on the time schedule, and emphasized its utmost importance. In an internal memorandum dated August 18, 1986 (less than a year before the disaster), the operation manager at Zeebrugge wrote: "There seems to be a general tendency of satisfaction if the ship has sailed two or three minutes early. Where a full load is present, then every effort has to be made to sail the ship 15 minutes earlier…I expect to read from now onwards, especially where FE8 is concerned, that the ship left 15 minutes early…. put pressure on the first officer if you don’t think he is moving fast enough. Let’s put the record straight, sailing late out of Zeebrugge isn’t on. It’s 15 minutes early for us" (Department of Transport, 1987, p. 11). It seems plausible that the two risky practices (discussed below) aimed to speed up embarking and disembarking operations were developed by the crew in response to strong pressure exerted by the company on officers to depart from the Zeebrugge port as quickly as possible and ideally 15 minutes ahead of the official timetable.

Practice 1. The general directives and instructions governing the embarking and disembarking operations of the Herald stipulated that it is the responsibility of the " The officer loading the main vehicle deck, G Deck, to ensure that the watertight and bow/stern doors are secured when leaving port" (Department of Transport, 1987, p. 14). However, if the first officer were to remain on Deck G until the doors were closed as required by the directive, the captain would have been compelled to wait until the doors were closed before ordering the crew to take their positions for departure. The obvious reason for the delay is that the first officer needs time to reach his position on the bridge. To speed up operations, the officer in charge of embarking used to communicate the bridge to issue the order as soon as he estimated that the time for completing the operation was equal to the time needed by the crew to reach their positions (Department of Transport, 1987, p. 10). According to this practice, the day of the disaster the officer in charge, Leslie Sabel, went to the bridge right after the embarking was completed, without waiting for the arrival of the assistant boatswain Stanley, responsible for closing the doors.

Practice 2. According to order no. 01.09 "Ready for the Sea" of Townsend Car Ferries Limited, "Heads of Departments are to report to the Master immediately they are aware of any deficiency which is likely to cause their departments to be unready for sea in any respect at the due sailing time. In the absence of any such report the Master will assume, at the due sailing time, that the vessel is ready for sea in all respects" (Department of Transport, 1987, p. 12). All commanders of the Herald, including Lewry, considered the absence of critical reports at the time of departure as an indication that everything aboard the ship was ready. Consistent with this practice, on the day of the disaster, the commander did not ask the first officer arriving from Deck G confirmation of the closure of the doors. According to the inquiry commission, this was a risky practice because "Captain Lewry was entitled to assume that the assistant bosun and the Chief Officer were qualified to perform their respective duties, but he should not have assumed that they had done so. He should have insisted upon receiving a report to that effect" (Department of Transport, 1987, p. 12). Nevertheless, we can assume that on the day of the disaster the pressure to speed up operations was particularly high because the Herald was late and indeed departed five minutes late from Zeebrugge.

4. Discussion

Goal setting is generally considered an effective managerial tool to improve performance by focusing employees' attention on specific aspects (Locke and Latham, 2002). However, Ordóñez et al. (2009) highlight that goal setting also entails potentially significant negative effects. If not carefully formulated, "The very presence of goals may lead employees to focus myopically on short-term gains and lose sight of the potential devastating long-term effects on the organization" (2009, p. 8). Among the undesired and harmful effects is the promotion of riskier behaviors (Larrick et al., 2009). The case of the Herald of Free Enterprise illustrates how goal setting can facilitate the adoption of risky practices that lead to organizational incidents and disasters. Specifically, it seems plausible to hypothesize that the adoption of risky practices for embarking/disembarking operations was the crew's strategic response to the goal setting by the company.

We argue that the goal of departing from Zeebrugge 15 minutes in advance on the schedule created a trade-off between efficiency and safety goals that was resolved by prioritizing efficiency over safety considerations. The mechanisms of influence over employees' behavior are those already highlighted by the literature. On one hand, the case appears to confirm that, once set, goals become the new point of reference and increase the individual risk preferences by broadening the number of situations categorized as "loss". The Zeebrugge manager reveals this mechanism when he stresses that sailing two or three minutes early should not be a cause for satisfaction because the goal is to depart 15 minutes early. In other words, the manager categorizes departures less than 15 minutes early as a "loss" situation.

It is also plausible that the extremely challenging and specific nature of the goal (early departure by 15 minutes) further enhanced the propensity for risk, thus confirming that goals can focus employees' attention and effort on the goal-related activities. In this case, the focus on "early departure" comes at the expense of safety considerations, resulting in the development of strategies aimed at speeding up loading and unloading operations that made the system (the ferry) more vulnerable to errors and to incidents.

5. Conclusion

The article analyzed the role of strict efficiency goals in the disaster of the Herald of Free Enterprise. The case sheds light on the role of the management of organizations in creating trade-offs between safety and efficiency and in encouraging the emergence and persistence of risky behaviors. Through goal setting they communicate to organizational members which behaviors are positively valued by management (Staw and Boettger, 1990) but "When managers set targets for specific dimensions of a problem, they often fail to anticipate the broader results of their directives" (Ordóñez et al., 2009, p. 8). The case of Herald highlights the need for management to adopt a reflective and context-aware approach in goal setting. Overlooking the possible side effects of goal setting such as the development of risky or unethical practices, can be harmful to the organization in the medium to long term because organizational incidents are possibly associated with severe economic, legal, reputational, and human life costs.

The article bears both theoretical and practical implications. Theoretically, it contributes to the literature on goal setting by highlighting an organizational aspect that remains relatively underexplored despite its theoretical relevance and practical significance: the interconnections between different goals. Given these interconnections, the introduction and definition of new goals must take existing ones into account to avoid inconsistencies. An inconsistent goal system forces operators to manage trade-offs among goals, requiring them to prioritize some while disregarding others. Additionally, the article contributes to the literature on organizational wrongdoing by identifying trade-offs between conflicting goals – namely, efficiency-related targets and safety-related goals—as potential factors underlying organizational misconduct. The article relies on a single case study, which, through in-depth analysis, aims to illuminate new aspects of goal setting and pave the way for future research. To generalize the findings, further studies are necessary, comparing different types of organizations operating in various sectors, with outcomes less extreme than a disaster.

For practitioners, the case of Herald corroborates Ordóñez et al.'s (2009) call for caution in goal setting. Managers must be aware of the potential negative effects inherent in goal setting, and these negative effects must be duly considered when selecting and defining goals. These reflections outline a new possible agenda for education and intervention, which could call into question all those dangerous practices, often taken for granted, that represent a latent risk, both for operators and for all individuals who, in various capacities, interact with organizations. Goal setting requires awareness of managers of the complexity of organizations and a thorough understanding of the organizational context and interactions among different organizational components and

processes. This becomes particularly problematic when, as in the case of the gypsum factory (Gouldner, 1954) and the Herald, a contradiction between efficiency and safety goals arises. In such cases risks can build up in the organization in the unawareness of leadership. For all these reasons it is crucial that organizational leadership is aware of the negative effects of goal setting and, in particular, the need to continuously monitor the systemic coherence of goals, which accumulate over time, often in a poorly coordinated and unconscious manner.

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Sustained Growth and Competitiveness of SME´s Within the Context of Intellectual Property

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Abstract: Due to the exponential pace of technological innovation, intellectual property is an important support for SMEs in innovation, growth and competitiveness of work. Licensing and cooperation open ways for SMEs to access complementary resources, expand their market reach, and accelerate product development. Our research consists of an analysis of 43 Slovak companies in the field of intellectual property, its licensing and the impact of IP partnerships on competitiveness and business growth. The aim was to point out the possible causes of low cooperation of companies in the field of intellectual property. The survey results provide information on opportunities to enter new markets using partnerships. These partnerships can mean a competitive advantage for SMEs, which can be achieved mainly by reducing the barriers that SMEs face when engaging in licensing agreements and cooperation in the field of intellectual property. The results lead to recommendations for successfully finding and maintaining partnerships.

Keywords: Intellectual Property, SME, Collaboration, Competitiveness, Growth, Challenges

1. Introduction

In an era defined by rapid technological advancements and knowledge-driven economies, intellectual property stands as a linchpin in fostering innovation, economic growth, and competitiveness. A study conducted in 2021 by the European Union Intellectual Property Office (EUIPO) (2019), alongside European Patent Office (EPO) has estimated that firms that own IPRs have a 68% higher revenue per employee than those without. Alongside a contribution of 57% of EU's GDP, firms SMEs that have filed at least one IP right are 21% more likely to experience a growth period afterwards and are 10% more likely to become an HGF than firms without IP rights applications. SMEs that file for IP rights at European level have an even greater likelihood (17%) of becoming a high-growth firms (HGFs). The research also reveals that the chances of an SME becoming an HGF increase by 33% if they use "bundles" of trademarks, patents, and designs instead of one single IP right category (Wajsman et al., 2022).

Embracing Intellectual Property Rights significantly boosts SMEs' growth prospects. Statistics reveal that SMEs utilizing IPRs are 23% more likely to achieve growth in the following three years. Moreover, their chances of evolving into high-growth firms increase by 10% (Masucci, 2021).

It is also argued in "Against Intellectual Monopoly" by Michele Boldrin and David K. Levine (2008) that the current intellectual property system stifles innovation, limits creativity, and hampers economic growth. The case is made by Arora et al. (2001), Jell, Henkel and Hoisl (2013), Bessen and Hunt (2007), Qian and Scherer (2007) have had a different sentiment based on research that it has shown the opposing perspective.

This article aims to explore the relationship between sustained growth and competitiveness, of small firms aiming towards high growth, in the context of intellectual property. In an increasingly dynamic global economy, where innovation is the currency of progress, understanding the nuances of intellectual property is not just advisable; it is indispensable for those aiming to thrive.

2. Theoretical Framework

2.1 IPRs and Innovation

"IP systems aim to strike a balance, simultaneously providing incentives for innovation and ensuring that the fruits of innovation are widely available. But achieving this balance is tricky" (Jaffe & Lerner, 2013). The paradox of patents as a form of IPRs, where they serve as both catalysts and barriers to innovation, proves challenging. The challenges faced by small inventors and the strategic use of IPRs by large corporations are particularly addressed - according to Thiel and Peters (2012), these inventors may benefit from support mechanisms and simplified IP protection processes to ensure their innovations are adequately preserved and can sustain growth.

As emphasized by Porter's Five Forces framework (1989), assessing a firm's growth and competitiveness requires a comprehensive evaluation of both internal and external factors. Internally, the firm must measure sustained growth through key performance indicators (KPIs) such as revenue growth, profit margin, and market share (Schilling, 2020). These metrics reflect the firm's ability to expand its market presence, optimize profitability, and outperform rivals. Efficient cash flow management, as noted by Segarra-Blasco (2009), underpins the firm's capacity to fund growth initiatives.

Competitiveness, on the other hand, hinges on both internal and external dimensions. Internally, a firm's market position, customer satisfaction, and quality metrics play pivotal roles (Porter, 1996). Achieving a competitive edge requires constant innovation and adaptation, reflected in innovation metrics and time-to-market (Farida & Setiawan, 2022). Cost efficiency is essential for competitiveness, along with robust supplier and partner relationships (Dyer et al., 2001). Expanding globally, as suggested by Rugman & Verbeke (2004), and establishing a strong digital presence further enhance a firm's competitive stance. Regulatory compliance and environmental and social responsibility, as outlined by Zeng et al. (2020), are increasingly vital in today's business landscape. Finally, a satisfied and talented workforce, as per Cascio and Boudreau (2016), contributes significantly to a firm's overall competitiveness. By meticulously monitoring these variables and metrics, firms can make data-driven decisions to foster growth and bolster competitiveness.

A firm's ability to leverage intellectual property rights is a central component of its competitive strategy. IPRs, including patents, trademarks, and copyrights, not only safeguard a firm's innovative ideas and products but also contribute significantly to its competitiveness (WIPO, 2009). When measuring sustained growth, revenue growth, profit margins, and market share are pivotal indicators as per Neely (2002). For firms with a robust IPR portfolio, these metrics can be positively influenced. Through patent protection, firms can secure exclusive rights to their innovations, allowing them to charge premium prices, thus potentially boosting profit margins (Cockburn & Wagner, 2007). Patents also act as formidable barriers to entry for competitors, strengthening a firm's market share position (Cohen et al., 2000).

Moreover, IPRs foster innovation, a cornerstone of sustained growth as per Tidd and Bessant (2020). Firms with IP protection are more incentivized to invest in research and development (Hall & Ziedonis, 2001). This increased R&D expenditure can result in a higher rate of new product introductions, which is crucial for remaining competitive (Grant, 2022).

In terms of competitiveness, IPRs play a pivotal role in securing a market position (Porter, 1996). Strong trademark protection ensures brand recognition and distinguishes a firm's products or services from those of competitors (Kotler et al., 2019). Additionally, a robust IP portfolio can facilitate global expansion, as firms can protect their innovations in multiple markets. In today's digital age, having intellectual property rights also extends to online visibility and digital presence, which impact competitiveness (Chaffey, 2006).

Ultimately, intellectual property rights are not only tools for safeguarding innovation but also instruments for enhancing a firm's competitiveness and driving sustained growth.

2.2 Growth and Competitiveness

As emphasized by the Resource-Based View (RBV) of the firm (Barney, 1991), sustained growth and competitiveness are influenced by a combination of firm-specific resources and capabilities. While IPRs can indeed play a vital role, they may not be the sole determinant. The RBV suggests that firms with diverse resources, including human capital, physical assets, and unique processes, can achieve sustained growth (Wernerfelt, 1984). Intellectual property is just one component of a broader resource portfolio. Several other aspects include:

- Market Demand: A firm's ability to identify and address changing market demand is crucial for growth (Day, 1994).
- Operational Efficiency: Operational excellence, as highlighted by the Operational Capability View (Ahmed et al., 2014), can drive competitiveness.
- Innovation Ecosystem: Collaborative innovation networks and partnerships (Powell et al., 1996) can enhance competitiveness.
- Regulatory Compliance: Strict adherence to industry regulations and standards is vital for competitiveness (Hitt et al., 2009).
- Global Strategy: Competing in global markets often requires internationalization strategies (Rugman & Verbeke, 1988).

In assessing the impact of intellectual property rights on sustained growth and competitiveness for firms, it's crucial to recognize that while IPRs play a significant role, they are not the sole determinants. According to the Resource-Based View (RBV) of the firm sustained growth relies on a diverse resource portfolio encompassing human capital, physical assets, and unique processes (Salazar & Armando, 2017), where IPRs represent just one component. Moreover, a firm's ability to adapt to evolving market demand, engage in operational excellence, foster innovation through networks, ensure regulatory compliance, and execute effective global strategies all contribute to competitiveness. Hence, a holistic approach is called for.

2.3 Collaboration of IP

SMEs that recognize the value of IP can leverage it to establish mutually beneficial collaborations with larger firms, thereby gaining access to resources, expertise, and distribution channels that may otherwise be beyond their reach (Laursen & Salter, 2006). Through licensing or selling their intellectual property, SMEs can effectively enter into partnerships with industry giants, allowing them to scale their operations and compete more effectively in the marketplace (Chesbrough et al., 2006).

Collaboration of IP can be transformative for SMEs striving to achieve sustained growth and remain competitive (Breschi & Malerba, 2005). Through licensing agreements for instance, SMEs strategically share their intellectual property with larger corporations or complementary partners, enabling them to tap into new revenue streams while expanding their market reach (Damanpour & Gopalakrishnan, 2001). This collaborative approach yields financial benefits and also allows SMEs to access valuable resources, including technological expertise and distribution networks, which are instrumental in outpacing competitors and sustaining long-term growth. The RBV concept, which primarily emphasizes internal resources, might not fully appreciate the power of these dynamic collaborations, which serve as a critical driver of sustained growth and competitiveness (Costello, 2019).

Licensing of IP stands as a strategic approach that can significantly impact the competitiveness of SMEs (Shapiro, 2000). Through collaboration agreements, SMEs grant permission for the use, distribution, or sale of their innovations, often in exchange for royalties or fees. This approach can enhance competitiveness in several ways:

- First, collaboration agreements allow SMEs to expand their reach and market presence rapidly. By partnering with larger companies or those with established distribution networks, SMEs can leverage the partner's resources to tap into new customer segments and geographic markets that might have been challenging to access independently (Denicolo & Alberto Franzoni, 2004).
- Second, collaboration agreements can lead to specialization and the division of labor. SMEs might focus on their core competencies, such as innovation and product development, while licensing their IP to partners who excel in manufacturing or distribution (Shapiro, 2000).
- Third, collaboration agreements can facilitate risk-sharing (Fama & Jensen, 2021). SMEs often face resource constraints and the inherent risks associated with bringing new products or technologies to market. Licensing IP to partners can help spread the financial and operational risks, allowing SMEs to pursue growth opportunities without shouldering the entire burden.

2.4 Leveraging IP for High-Growth Transition

IPRs serve as a dynamic pathway for small and medium-sized enterprises to transition into high-growth firms by strategically combining various forms of collaboration (Mazzoleni, 2006). In this strategic approach, SMEs embrace a dual strategy that empowers them to leverage their IP for sustainable growth.

Through collaborative efforts, SMEs pool their resources, share expertise, and co-innovate with partners (Fernald et al., 2014). This collaborative approach drives the development of new and innovative products or services. These innovations, protected by IP rights, not only create unique market offerings but also position SMEs favorably for sustainable growth.

Simultaneously, agreements open doors to broader market access and specialization (Bessen & Meurer, 2009). By licensing their IP, SMEs can rapidly expand their presence in new territories and sectors, capitalizing on the established distribution networks and expertise of their licensing partners. The generated revenue and efficiency gains from specialization can bolster competitiveness and provide financial resources for further investments in innovation (Davis et al., 2023).

Together, these strategies empower SMEs to leverage their intellectual property, fostering innovation, expanding market reach, and enhancing competitiveness. This approach, with collaboration driving innovation and licensing promoting market expansion, propels SMEs along the journey to becoming high-growth firms. Numerous successful cases across diverse industries exemplify the effectiveness of this combined approach in facilitating SMEs' transition into high-growth entities.

3. Methodological Approach

The research was focused on analyzing intellectual property in Small and Medium-sized Enterprises (SMEs). The goal was not to find out the current state of SMEs in Slovakia in relation to IP, but to point out the possible causes of low cooperation of companies in this area. The collection of qualitative data was achieved through a survey administered to a selected sample of SMEs in different sectors and different geographical locations. The sampling technique employed in this research is purposive sampling, whereby SMEs are purposefully selected based on specific criteria. The sample consisted of 43 Slovak SMEs, and the study was conducted in January to April 2023 through an electronic questionnaire. Respondents expressed their views on IP ownership, IP licensing, and the impact of IP partnerships on competitiveness and business growth. Respondents had the opportunity to provide recommendations and comments on barriers to IP collaboration. The research specifically targeted SMEs in Slovakia that exhibit a lower level of cooperation in the fields of innovation and IP protection, as indicated by the European Innovation Scoreboard in 2022.

In data analysis, we used correlation analysis with a significance level of $p = 0.01$. We followed Rimarčík's (2007) approach to the evaluation of qualitative data, where a correlation of 0.1–0.3 was determined as low, from 0.3–0.5 as moderate, and from 0.5 or higher as high.

The research results not only shed light on the current state of the surveyed SMEs but also highlight differences in the behavior of micro, small, and medium-sized companies. The correlation analysis revealed the significance of the relationship between IP licensing and its effects on the competitiveness and growth of SMEs.

4. Results of the Research

Out of the total sample of surveyed companies, 60.5% own intellectual property (IP) rights. Among these, the surveyed SMEs most commonly possess trademarks and patents. Companies most frequently license IP with the primary objectives of cost reduction and accessing new markets. Interestingly, revenue generation was the primary motivation for collaboration in only 27% of SMEs in our sample. Similarly, in the context of IP creation through collaboration, the ability to share resources and expertise and gain access to new markets had a significantly more substantial impact. Accessing new markets and revenue generation were significantly more common reasons for collaboration in micro and small businesses compared to medium-sized enterprises.

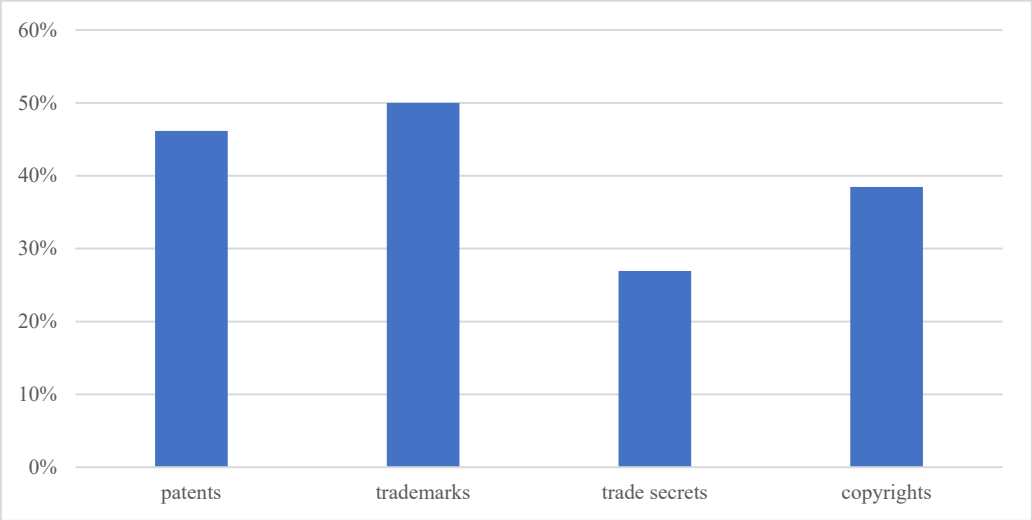

Figure 1: Type of IP owned by SMEs.

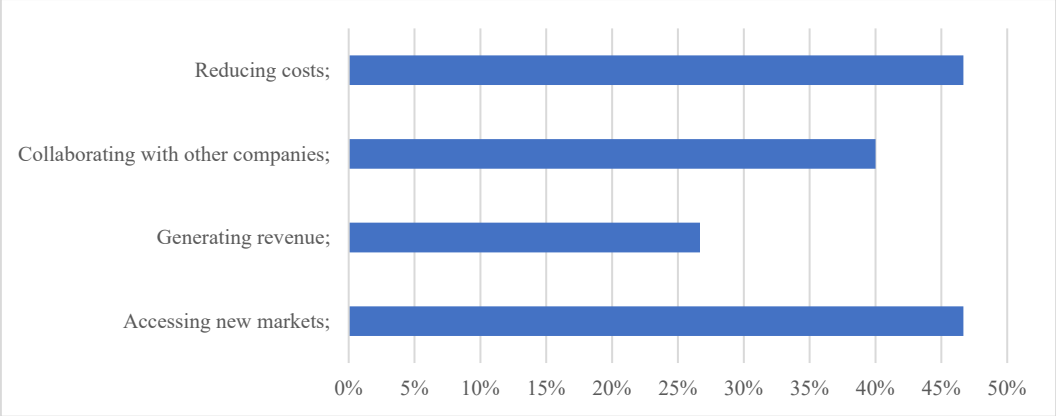

Figure 2: Reasons for licencing IP among SMEs.

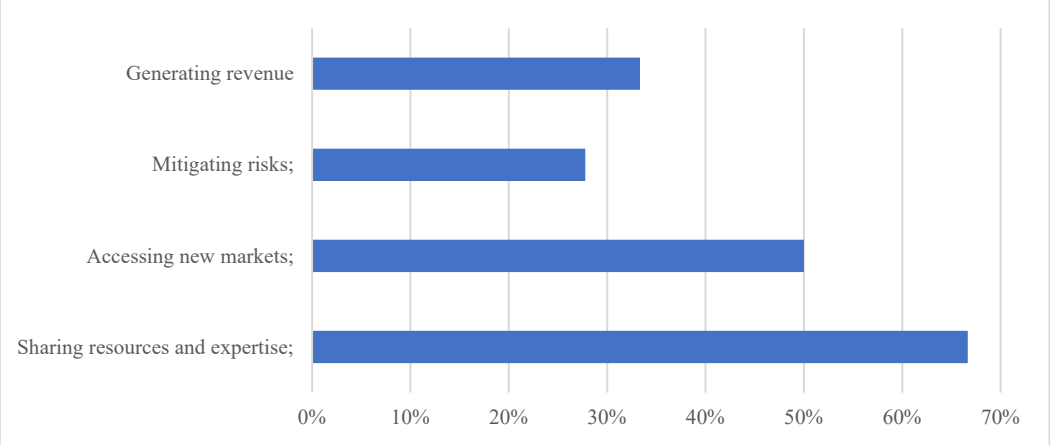

Figure 3: Resons for collaborating on IP among SMEs.

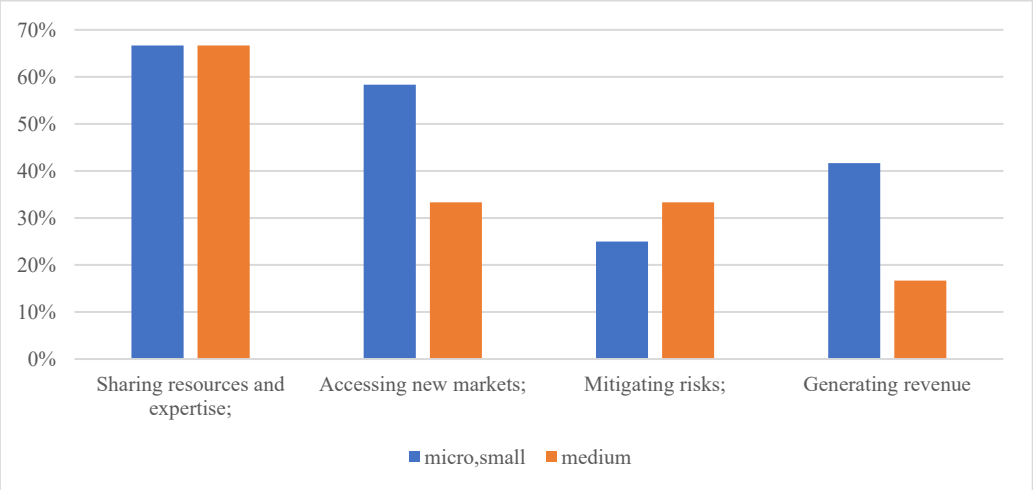

Figure 4: Comparison of reasons for collaborating on IP based on company size.

To facilitate collaboration among micro and small businesses, it is important within the research to analyze the challenges associated with collaboration. More than 50% of SMEs in our sample consider finding suitable collaborators to be a challenging aspect. Additionally, 44% identified protecting and sharing intellectual property (IP) as an issue, followed by 33% facing challenges in aligning business goals and objectives. The results indicate that terms and conditions or disputes themselves are not significant issues.

When comparing companies in the micro and small categories to medium-sized ones, notable differences are observed. For micro and small businesses, finding partners for collaboration is a more significant challenge

(67% compared to 33%). Conversely, aligning business goals is a more prominent issue for medium-sized companies (50% compared to 25%).

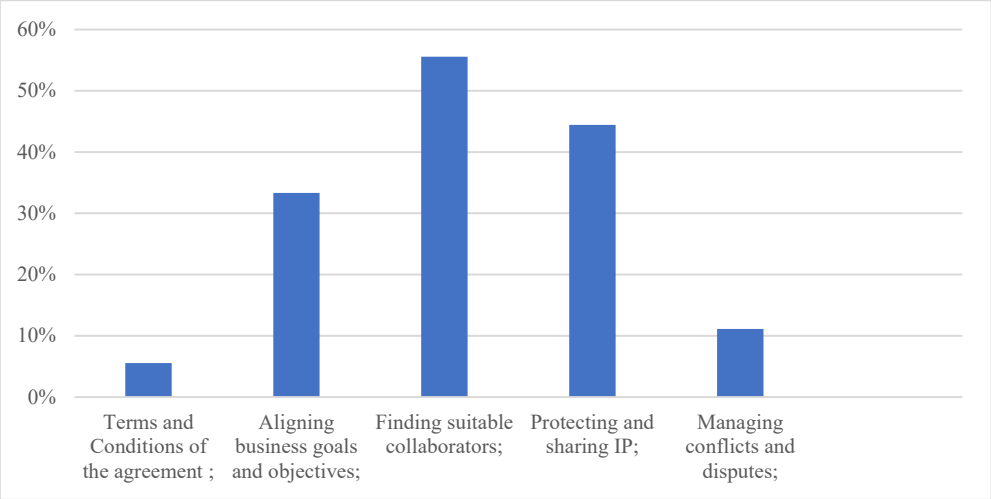

Figure 5: Main challenges faced in negotiating and executing IP collaboration agreement.

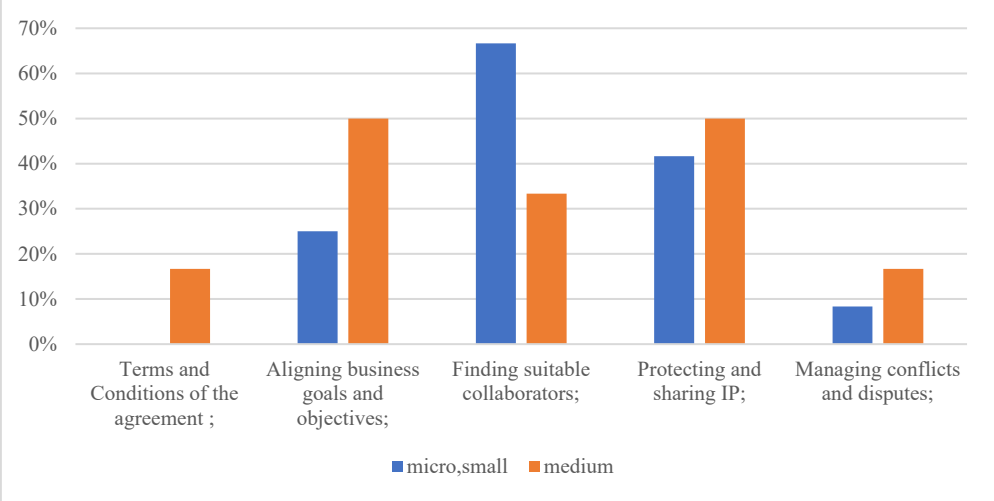

Figure 6: Comparison of perceived challenges based on company size.

The results reveal interesting disparities in the motivations and challenges of businesses within the SME category, depending on their size. Subsequently, we conducted a correlation analysis to examine the relationship between IP ownership, its licensing, and collaboration in the IP domain with the perception of business satisfaction and positioning. The results indicate a significant positive relationship between IP ownership among SMEs and the assessment of competitive advantage compared to the industry (correlation coefficient of 0.47; we consider this a strong relationship within the qualitative data). Likewise, a positive relationship is observed regarding IP licensing and the perception of a competitive advantage (0.43). Respondents highlight a positive experience with IP collaboration, where we also see a positive relationship with a correlation coefficient of 0.31.

Table 1: Correlation analysis

	Does your SME own any intellectual property (IP) rights?	Has your SME ever licensed any of its IP to another party?	Has your SME ever collaborated with a0ther company to jointly develop or exploit IP?
Overall, how satisfied was your SME with the outcomes and benefits of the IP licensing and collaboration agreement?	0,10	0,08	0,31

	Does your SME own any intellectual property (IP) rights?	Has your SME ever licensed any of its IP to another party?	Has your SME ever collaborated with a0ther company to jointly develop or exploit IP?
How would you rate the level of sustained growth your SME has experienced over the last year?	0,11	0,13	0,20
How would you rate the competitive advantage your SME holds compared to its industry competitors?	0,47	0,43	0,22

These results were further subjected to regression analysis, revealing a statistically significant positive correlation between IP licensing and competitive advantage in SMEs ($\beta = 2.32$, $p < 0.01$). This implies that SMEs engaging in IP licensing activities are more likely to have a stronger competitive advantage compared to their industry peers. The coefficient of 2.32 suggests a robust positive effect, indicating that an increase in IP licensing is associated with a corresponding increase in the assessment of competitive advantage. This finding suggests that SMEs can benefit from strategically leveraging their intellectual property assets through licensing agreements to drive long-term growth through competitive advantage.

The analysis also identified a statistically significant positive correlation between IP ownership and competitive advantage in SMEs ($\beta = 2.75$, $p < 0.01$). This indicates that SMEs that own IP are more likely to gain a competitive advantage in their respective markets.

Within the recommendations obtained from respondents, three key factors were identified:

- IP expert: To enhance collaboration, it is recommended to have an in-house IP expert, someone experienced in IP collaboration, development, and exploitation, or to utilize an IP consultant.
- Right partner: Clear goals and objectives are crucial for successful collaboration, and it is recommended to create a memorandum of understanding between partners.
- Innovative approach: To benefit from IP development and collaboration, a company should have an innovative mindset or an innovative team that allows room for experimentation.

In the context of the question, "What were the main challenges your SME faced in negotiating and executing the IP licensing agreement?" within the surveyed SMEs, we observe that up to 67% of companies perceived negotiating fair terms and compensation as a significant challenge.

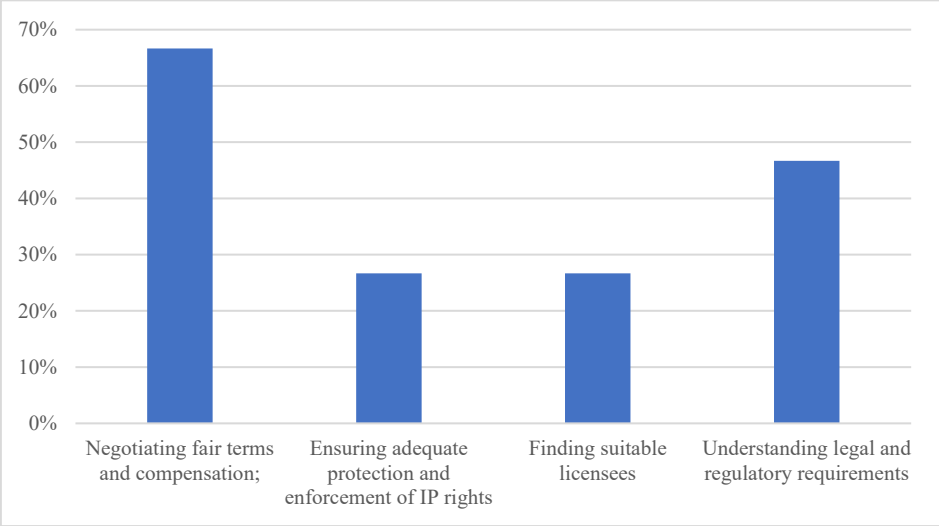

Figure 7: Main challenges in negotiating and executing IP licensing agreement.

5. Conclusions and Discussion

Our research underscores the growing recognition among SMEs regarding the importance of leveraging their IP assets to drive growth, innovation, and competitive advantage. IP licensing and collaborations present viable pathways for SMEs to access complementary resources, expand their market reach, and accelerate product development. Strategically utilizing their IP assets allows SMEs to capitalize on opportunities for growth and market expansion. The strategic utilization of intellectual property rights can be a pivotal enabler

for SMEs looking to expand their presence (Tietze et al., 2017). They offer SMEs the means to establish a firm footing in international markets, safeguarding their interests as they embark on the journey of international growth (Moschini, 2010). These IP protections not only provide a shield against potential infringements but also instill a sense of security, ensuring that a firm's innovations and brand identity remain protected (Teece, 2018). The results of the statistical analyses in our research have highlighted the significance of the opportunity for expansion into new markets, which serves as a motivator for micro and small businesses. For these smaller enterprises, achieving rapid expansion is challenging without partnerships. However, the research has confirmed that micro and small businesses face notably greater difficulty in finding suitable partners. In contrast, medium-sized companies see challenges in aligning their strategic goals and objectives with their partners.

Overall, the results directly underscore the substantial impact of IP and IP licensing on the competitive advantage of SMEs, emphasizing the need to reduce barriers and overcome challenges that hinder Slovak businesses in managing and acquiring IP.

When addressing the issue of SME IP management, it's essential to emphasize the significant challenges arising from resource limitations that affect SMEs' involvement in IP licensing and collaboration agreements. To be specific, financial constraints (Osano & Languitone, 2016), hinder their ability to invest in comprehensive IP protection measures, seek legal expertise, and conduct thorough market research. Furthermore, limited human resources constrain their capacity for evaluating and negotiating potential partnerships. These challenges align with prior research on resource constraints faced by SMEs, particularly in developing countries (Bris & Cabolis 2018).

Small and medium-sized businesses often lack access to business events, trade associations, and industry networks, limiting their ability to build relationships and seize collaboration opportunities. This networking gap results in missed connections and fewer partnership options. To enhance collaboration, SMEs should focus on open membership clusters rather than restricted networks and ensure cultural and organizational compatibility alongside technological alignment (OECD, 2004). Improving partner selection can be achieved through innovative strategies such as using networking platforms, innovation clusters and hubs (De Propris & Driffield, 2019), collaborative research initiatives (Wessner, 2020), industry associations, and government initiatives, which help broaden the pool of potential collaborators and foster cross-sector creativity (Lee & Park, 2021).

When engaging in IP licensing and collaborations, SMEs must also consider legal support. According to our research, SMEs often lack in-house legal expertise, necessitating external legal assistance. To protect SMEs' interests and negotiate fair and equitable terms, it is crucial to establish strong relationships with knowledgeable patent attorneys and other legal professionals who understand the intricacies of IP licensing agreements. Furthermore, SMEs can directly utilize legal and IP training through initiatives like the European Union Intellectual Property Office (EUIPO).

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Quiet Quitting: A Millennial Perspective on Workplace Dissatisfaction and Retention Challenges

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Abstract: Quiet quitting is a phenomenon where employees disengage from their work and intentionally underperform as a way of expressing their dissatisfaction with their job or employer. In Malaysia, around 46% of millennial employees are considering quitting their jobs quietly, which can have a significant impact on both the individual and the organisation, especially if key performers or those with critical knowledge and skills depart. However, little is known about the underlying psychological and organisational factors that contribute to this behaviour. Thus, the purpose of this study is to look at the causes, effects, and preventative measures of quiet quitting among Malaysian workers as well as potential solutions for this tendency. To get a better understanding of the psychological and organizational reasons leading to such phenomenon among Malaysian employees, an integrated study of self-determination theory and organisational support theory is proposed. Methods for collecting qualitative data were used in this study. Data was gathered by means of employee interviews. Convenience sampling was used to choose the respondents since participants were chosen based on their availability and desire to participate. The results demonstrate the significant role that psychological (e.g., job dissatisfaction, lack of opportunities for career development) and organizational (e.g., lack of communication, work-life balance, positive culture, lack of leadership) factors play towards quiet quitting among employees. In theory, this research provides a more thorough comprehension of the topic under investigation by putting out a more resilient and all-encompassing structure. This discovery has the potential to boost organizational performance and productivity by fostering more encouraging and fulfilling work conditions for workers.

Keywords: Psychological Factors; Organisational Factors; Personality; Motivation; Resilience

1. Introduction

According to Aziz et al. (2018), quiet quitting is leaving a job without giving your employer official notice. Such a strategy may be chosen by certain employees who would rather resign from their position without providing a reason (Formicaa, 2022; Minkus, 2022). Quiet quitting, sometimes referred to as quiet resignation, is the practice of workers leaving their present position and beginning a job search without telling their employer or coworkers (Azizan & Bakar, 2021). In recent times, businesses in Malaysia have grown more concerned about quiet quitting. According to a research by Cheng (2022), "quiet quitting" is a frequent occurrence among Malaysian workers. Intentionally underperforming and silently disengaging from work as a means of expressing unhappiness with one's job or employer is what this refers to. According to JobStreet (2021), 46% of Malaysian workers are thinking of secretly leaving their jobs. This indicates that many employees are likely engaging in quiet quitting. This can have a significant impact on businesses, especially if the departing employees are key performers or possess critical knowledge and skills. Depending on the role the employee played within the organisation, their departure could mean the loss of valuable knowledge and expertise. This could affect the organisation's ability to carry out its mission, deliver products or services, or perform at the same level it did before the employee left. Overall, the impact of quiet quitting will depend on the specific circumstances surrounding the employee's departure and the culture of the organisation they are leaving.

According to the Yun-Han (2022) research, most of the Malaysian millennial employees' experience stress. Due to the intensity and pressure of their task, sixty-five percent of people report feeling burned out. Malaysia runs a heightened risk of losing talent owing to a falling ringgit versus the US dollar as global prospects become more alluring. Also, people's priorities have changed because of the epidemic, ongoing unhappiness, and growing mistrust of business, which has led to the quiet quitting. Even while greater pay, a better work-life balance, and more chances for learning and growth are at the top of the list, fulfilling them needs more than a checklist.

However, this phenomenon has received limited attention in research literature, yet it can have significant implications for both employees and employers. Additionally, not much is understood about the organizational and psychological basis that support quiet quitting. In order to better understand this phenomenon and its effects on both employees and employers, this study will look at the causes and effects of quiet quitting among employees.

We integrated two theories namely the self-determination theory [SDT] (Deci & Ryan, 2008) and the organizational support theory [OST] (Eisenberger et al., 1986) as the foundation for this study. This intregation may provide ba better understanding of the issuse under investigation. This also bridges the current theoretical gaps that exists and thus creates a more thorough theoretical base.

The findings from this study can help to understand the factors leading to quiet quitting, and therefore, can help organizations develop new policies and approaches to stop such behavior. This will further help to create new trainings and policies to for retaining the valuable employees and help them in dealing with stress, burnout, and job discontent. This will ultimately boost organizational performance and employee productivity.

2. Literature Reviews

In today's fast-paced, competitive workplace, organisations are becoming increasingly concerned about employee retention (Hom & Griffeth, 2020). Despite the fact that most organisations focus on identifying and treating the causes that lead to overt leaving, quiet quitting is growing more common (Formicaa, 2022). Quiet resignation refers to the act of an employee leaving their job without causing any noise (Aziz et al., 2018; Constantz, 2022). This behaviour may cause employee morale to drop, attrition to increase, and productivity to decrease.

In today's workplace, quiet quitting is becoming more common. As such, it is critical for organizations to recognize and address the organizational and psychological aspects that lead to this phenomenon (Lee, Park & Shin, 2023). To keep top talent and a motivated and productive staff, organizations must take the initiative to solve these issues. Additionally, companies may address these problems by putting in place procedures and policies that place a high value on the growth, well-being, and recognition of their workforce (Ayachit & Chitta, 2022).

Quiet Quitting among Employees and its impact in Malaysia

Quitting quietly may have a big effect on businesses. First, disgruntled workers could not be putting in their best effort at work, which could result in a loss of production. Second, it may lead to a loss of expertise and knowledge as important players may depart without passing on their abilities to others. Thirdly, it could lead to a negative work environment as the remaining employees get discouraged and doubtful about the company's future. According to Azizan and Bakar(2021) , there is inadequate amount of recognition for their work, very limited opportunities for professional advancement, and a lack of poor conviction in management. Employees need to address this phenomenon with supreme concern and at the same time this issue needs to take utmost interest in order to prevent employee disengagement and turnover. To address and resolve this burning problem, businesses in Malaysia should concentrate on enhancing employee engagement and retention. This might implicate emerging opportunities for professional development, providing competitive compensation and benefits, and fostering an optimistic workplace environment to achieve maximum profits for organization.

2.1 Psychological Factors

One of the extreme psychological variables that drives quite quitting is job discontent (Shoss,2017). If employees think that they are getting ignored, underappreciated, or unsupported in their personal workplace then they become more inclined to disengage and eventually make themselves engage to quit the job silently. Research illustrates that job dissatisfaction is a main reason as a contributor to voluntary employee turnover, adversely causing job satisfaction, absenteeism, and efficiency with productivity among staff members (Hom & Griffeth, 2020). There’s also a concern of the psychological factor of missing opportunities for career advancement. Employees who are majorly concerned and feel that there is no such space for advancement in their present position are more likely to get embittered and explore alternative options. Employees who are involved in quiet quitting frequently work for organizations that lack distinct career trajectories or employee improvement programs.

2.2 Organisational Factors

The organizational factors that majorly play a vital character for quite quitting is a lack of communication and feedback within the company (Dhingra et al, 2021). Employees, especially those who don't get continuous feedback or communication from the higher authority like manager or fellow staff members are more disposed to become disengaged and eventually the consequence is quitting their jobs without any pre-warning. This serious communication gap can drive employees to feel completely isolated and detached from the organization, which, over time, may scale down their motivation and morale confidence. Another key challenge confronting organizations is a lack of work life balance (Schein, 2010). Employees who are majorly engaged with overworked, stressed out, or burned out are more prone to disengage and silently quit their jobs. Organizations that consequently overlook work life balance get the potential threat of increased absenteeism, decreased efficiency , and declined employee satisfaction .

2.3 Underpinning Theory

In order to get more conscious knowledge of psychological and organizational factors that contribute to employees quitting quietly, a combination of two important theories were integrated are such; the self – determination theory (Deci $Ryan, 2008) and the organizational support theory (Elsenberger et al, 1986). SDT has been majorly occupied to explore a series of aspects of workplace behaviors, such as; employee motivation and engagement. As an example, Dhingra et al. 's2021 study identifies a relationship between increased employee motivation and engagement and the satisfaction of the key psychological requirements for appositeness, competence and autonomy. To get the highest amount of utilization, this theory can examine how the ability of workers to discreetly leave their jobs to affect the fulfilment of psychological need and demand.

And , commitment and turnover are two of the most discussed components in organisational research including OST. According to Formicaa (2022), in any organization, employee commitment and perceived organisational support are highly associated. Hence, this concept can be the used for determining employee commitment to the organization and their likelihood to quietly quitting

So, by approaching these concepts from a border perspective, this study significantly contributes to our better understanding of organizational and psychological factors that take a major initiative for quiet or silent resignations among employees and take crucial initiative to monitor the progress of interventions and preventative measures in on time.

3. Methodology

The important Techniques for collecting qualitative data were applied in this study. The qualitative information was gathered through semi-structured interviews with employees who had discreetly quit. A wide range of resources, such as social media, email lists from previous employment, and personal networks, were used to locate and choose the participants. After the participants were identified, semi-structured interviews were conducted with the respondents.For the interview, a total of 10 millennial employees were selected using a purposeful sampling method. This is because, this method allowed the researchers to focus on individuals who can provide rich and diverse insights into the research question (in this case the millennial employees who has involved in quiet quitting). The network of the industrial collaborator of this research were utilised in identifying the participants. The data analysis involved thematic analysis of the qualitative data to identify patterns, themes, and commonalities in the data to gain insights into the research questions.

4. Discussion

The demographic profile shows that majority of the respondents were male. In terms of working experiences, majority of the respondents have 1-5 years of experiences. For the duration in the current job, eight out of the ten respondents have less than five years. Table 1 below shows the demographic profile of the respondents.

Table 1: Demographic Profile

Gender	Male	Female	
	7	3	
Years of Experience	1 - 5 Years	6 - 10 Years	
	6	4	
Duration at Current Job	1 - 3 Years	4 - 8 Years	8 Years +
	8	1	1

Source: Developed in this study

During the interview, we asked the respondents on the signs of quiet quitting. The first question was, "*from your personal experience, can you describe some signs of quiet quitting?*" Some of the responses are given below.

"*One clear sign of quietly quitting that I've noticed is when an employee starts showing up late or missing deadlines consistently. It's like they're no longer invested in maintaining their previous standards*".

"*I've observed that employees who are quietly quitting often stop participating in meetings or discussions. They may become noticeably disengaged and less willing to contribute ideas or feedback*".

"*I've seen that employees who are quietly quitting often start exhibiting a negative attitude or complaining frequently. This dissatisfaction is usually coupled with a decreased level of effort in their work*".

"*One sign I've noticed is a lack of participation in team-building activities or social events. Employees who are quietly quitting often avoid these events, which can lead to a sense of isolation*".

Based on the responses, we identified some of the negative signs that leads to quiet quitting. Majority of the responses highlighted the signs of disengagement form current role and how these lead to their reduced commitment. This further confirms that companies should understand the reasons behind quiet quitting and thus requires better management strategies to mitigate this behaviour. Employers should ensure an open communication environment, providing works those are meaningful, timely recognition and rewarding who deserves, and ensure that employees feel valued and supported. For any organisations, it is very important mitigate the root causes of disengagement and rebuild a more engaged and motivated workforce.

Further we asked the respondents on their job dissatisfactions, "*What factors contribute most to your job dissatisfaction?*" Some responses are highlighted below.

"*My dissatisfaction with my employment is mostly due to the absence of a well-defined career path. It seems like there isn't much room for growth or a true future here in the absence of obvious prospects for progress*".

"*One of the main problems, in my opinion, is that my work is not given enough credit or attention. It demotivates me and makes me wonder if my efforts are appreciated when my contributions are ignored*".

"*Growth plan, upskill, Balanced working environment, better remuneration mostly factors here*".

"*Work-life balance, good salary, cooperative team, and the opportunity to work alongside great leaders*".

"*Bad boss, salary, bored with the job description, no definite career path*".

Moreover, the reasons behind employees' job dissatisfaction were investigated into. A poor work environment, unclear communication, a lack of opportunities for professional growth, and a lack of recognition are the main causes of the problems listed. Employee job dissatisfaction is a major concern for organisations and is frequently the result of several significant factors. One of the primary findings is that there are limited opportunities for career advancement, which greatly adds to employee demotivation because they believe there is no clear path forward. In addition, their morale may suffer and they may feel that their contributions are not respected. Two major reasons of communication problems that result in misconceptions and a disconnected attitude are a lack of feedback and unclear expectations. An unfavourable work environment characterized by high levels of stress, poor management practices, or an inhospitable culture can also worsen job satisfaction. Together, these components create a difficult workplace that diminishes engagement and decreases commitment.

Further we asked, "*How does quiet quitting affect an employee's performance and productivity?*" Some responses are highlighted below.

"*Quitting quietly has a detrimental effect on output as psychologically disengaged workers are less inclined to share ideas or work well with others, which causes team growth to stagnate*".

"*Quitting discreetly typically results in lower-quality work being produced by the employee. Because of their disengagement, they aren't making the required efforts or paying enough attention to detail, which reduces the efficacy of their product*".

"*Because quiet quitting leaves gaps in workflow, it reduces productivity. Disengaged workers may abandon projects incomplete or neglect to convey crucial information, which results in delays and inefficiencies*".

"Employees in the mood of *quiet quitting does only what is necessary. This can lead to a drop in performance, that eventually affects the team's overall productivity and success*".

"*It decreases motivation and negatively impacts job performance. They are less likely to do extra jobs and thus impact the productivity levels*".

These shows how quiet quitting can impact individual as well as team's job output and performance. There are often noticeable declines in individual and team performance because of silent resignation. Disengaged workers typically put in less effort than is required, which reduces the amount and quality of the output. This reduced output, when dispersed over a team, can compromise individual efficacy and impact the group's overall performance. If the people concerned do nothing, it could further disrupt workflow and efficiency by impeding creative thinking, problem-solving, and collaborative efforts. Because of this, the effectiveness of each individual member as well as the collective impact of quiet quitting affect the team's cohesion and overall performance.

"How does quiet quitting affect team dynamics and overall morale in your workplace?" was another question we posed. Below are some noteworthy replies.

"*When people leave quietly, it create a huge negative impact on everything. Most importantly, it creates confusion and mistrust among team members. It impacts to productivity and build lack of confidence*".

"*Team will not get motivate on there own role and performance will be degraded*".

"*If the number is high, it could decrease team morale*".

"*Definitely it affect team bonding and team KPI*".

"*Increased workload, decreased collaboration, lowered morale, reduced quality & innovation, erosion of trust, and leadership challenges*".

These answers shed insight on the ways in which quiet resignation can negatively impact team relationships and morale, highlighting problems with equity, cooperation, and general team spirit. Silent resignation undermines fairness, cooperation, and team spirit, all of which have a detrimental impact on the dynamics and morale of the business. Resentment and a sense of unfairness can arise when team members leave without communicating their displeasure, causing an imbalance where the surviving members must pick up the slack. Employees that quietly leave their jobs may cease participating in group projects and communications, which can impede their efforts. This disengagement can also negatively impact teamwork. Furthermore, when some team members are obviously less devoted, the group's cohesion and excitement diminish, which has a detrimental effect on morale and productivity. Furthermore, trust and friendship are compromised.

Lastly, we posed the question, "What do you think organizations can do to prevent employees from quietly quitting?" Below are some noteworthy replies.

"*Better salary and work life balance*".

"*More one to one conversation, talk with empathy, and mentoring*".

"*Organizations can prevent quiet quitting by fostering a supportive work culture that prioritizes employee recognition, engagement, and work-life balance*".

"*Look for the signs, listen to employees, and provide a clear path to career growth. Managers need to understand the career aspirations of their supervisees and set a path that fulfils such goals*".

"*Show the value of their responsibility, recognize their contribution, career plan/progression, etc*".

These comments indicate scepticism on the various strategies that organisations may use to stop silent resignations, stressing that these strategies may not be effective if underlying problems with meaningful

involvement, management, and culture are not addressed. Organisational efforts to end silent resignations are usually met with resistance because they fail to address the underlying issues that lead to issues with meaningful involvement, management, and culture. If fundamental structural concerns are not addressed, a cosmetic technique such as introducing extra perks or policies may prove ineffective. The efforts seem to be insufficient, if the communication and leadership don't significantly improve. Furthermore, Band-Aid fixes that ignore the fundamental reasons of discontented workers may result if opportunities for actual engagement are not given and if employees' contributions are not honestly acknowledged with priorities. Therefore, until these primary problems are committed, efforts to fight silent leaving may be unsuccessful.

5. Conclusion

In conclusion, the crucial aspect of silent resignation implies several challenges to better understanding and addressing workplace dissatisfaction, especially in the eyes of millennials. Millennial have few unique characteristics like pretending they value meaningful work and are very good at communication so they get disillusioned when their requirements are not accepted. Their narrative majorly highlights the significance of addressing the original causes of job dissatisfaction. It is very much important that if superficial solutions- say for example benefits or symbolic gestures don't identify the actual issues such as poor management, limited career growth, and an intimidating work atmosphere, they will repeatedly fall short.

Therefore, It is important for any organization to implement andmaintain policies such as; flexible work arrangement, regular base feedbackand racemization programs, scope and opportunities for professional developmentand encouraging a positive workplace culture can significantly increaseemployee engagement and retention. By proactively identifying all theseconcerns, employers can offer an excellent working environment with a more engaged, effective and loyal workforce and at the same time they areable to mitigate the effects of silent resignation within the organization. Andeventually by addressing and understanding the subtleties of quittingfrom a millennial perspective can heighten retention tactics and become morefoster contented in the workplace.

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Leadership in the post-COVID-19 work Environment: A Qualitative Study of Servant Leadership in an ICT Company

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Abstract: This study aimed to enhance understanding of servant leadership and its relevance given the worldwide turbulence that resulted from the COVID-19 pandemic. Employees experienced uncertainties and complexities during and post the pandemic and the study investigated whether servant leadership is capable of delivering a leadership approach that can meet the challenges of the modern workplace. Servant leaders are those who place the needs of their subordinates before their own. The research examined the participants' conceptualisations of servant leadership by, firstly, exposing them to background information on this form of leadership, secondly soliciting managers' perspectives on servant leadership and, thirdly, investigating ways in which its principles and values can be applied in an ICT company. A qualitative research design was employed, with in-depth interviews conducted with 18 purposively selected managers. The data were analysed using Braun and Clarke's (2006) thematic analysis approach. The study found that the majority of participants embraced servant leadership principles and were motivated by serving employees' interests. An important finding was the relevance of explaining the concept of servant leadership prior to the interviews, which enabled participants who had no exposure to this concept to understand it. Servant leadership, which values collaboration and shared foresight while accepting accountability and challenging goals to maintain high work standards, was unanimously deemed a viable form of leadership that would benefit an organization if successfully implemented. The benefits identified by participants included employees feel valued and trusted, which motivates them to provide clients with quality service.

Keywords: Servant Leadership, Trust, Values, Motivation, Training, Post-COVID Leadership

1. Introduction

The COVID-19 pandemic which emerged at the beginning of 2020 affected all aspects of everyday life and caused worldwide turbulence. As asserted by Dirani et al. (2020:380), "The challenge is that our worldviews of the order of things, what we thought we knew about the order of systems, is falling apart." Apart from being a global health concern, the virus altered the ways in which business was conducted and the daily lifestyles of individuals worldwide. Furthermore, it continues to challenge well-established, entrenched leadership models (Nicola et al. 2020). Kok and Van den Heuvel (2019:61) observe that, "The greatest danger in times of turbulence is not the turbulence. It is to act with yesterday's logic". In most organizations where 'remote working' – "work done outside of the four walls of the office" (Wyld 2022) is new for management, this shift has resulted in a different dynamic. While many employees find working remotely more productive than working in an office (Birkinshaw, Cohen, and Stach 2020), Wyld (2022) points out that no precedent or managerial guidebook existed to suddenly adopt new and effective management styles in the aftermath of COVID-19.

Leadership that serves others, invests in people's development, and fulfils a shared vision is desperately needed (Page and Wong 2000). Servant leaders are "those who place the needs of their subordinates before their own needs" (Liden, Wayne et al. 2008:163). Based on a systematic review of 39 empirical studies, Parris and Peachey concluded that "servant leadership is a viable leadership theory that helps organizations and improves the well-being of followers" (2013:377).

This study focussed on the Integrated Servant Leadership model developed by Gold and Walker (2020). The model comprises the three dimensions that are found in most academic literature on servant leadership, namely:

- Servant leadership orientation,
- Emotional intelligence, and
- Leadership competence.

The new world of remote work requires leaders who can connect, engage and trust their employees to work independently, despite not seeing them regularly. The question is whether servant leadership can resolve this challenge.

Most studies suggest that the information technology (IT) sector has secured an important position in the 21st century and expanded its market share in the global economy (Fismer 2005). The crisis engendered by the COVID-19 pandemic is likely to accelerate some workforce trends already underway, such as the adoption of automation and digitization as millions of employees were sent home with laptops and other digital technologies to work remotely (Lund, Cheng et al. 2020).

The study explored whether IT leaders' perspectives, practices, and values align with servant leadership, and determined the enabling factors and challenges they confront on a daily basis that hinder the application of this leadership style**.**

The researcher answered the research question by conducting semi-structured interviews with nominated line managers. Each participant was interviewed once, for 30 minutes to an hour. The semi-structured interview guide approved by the supervisor included the following questions:

- What are the participants' conceptualisations of servant leadership?
- What are the managers' perceptions of the implementation of the principles, practices and values of servant leadership?
- How can the principles and values of servant leadership be applied in the IT company?
- What are the enabling factors and challenges to the implementation of the principles of servant leadership?

While servant leadership has been extensively researched on other continents, very little is known about IT servant leadership in Africa, especially South Africa. The research thus contributes new knowledge to the study of servant leadership in the IT sector and its applicability in the modern era.

2. Literature Review

Research shows that several world-class organizations like Southwest Airlines, Vanguard Investment Group, Hobby Lobby, ID Industries, Starbucks, Steak-n-Shake, Synovus and Chick-Fil-A have embraced servant leadership principles and attribute their success to its principles, beliefs, and practices (Selladurai 2014; Parris and Peachey 2013; Harwardt 2020). Most studies point to a strong connection between servant leadership and effectiveness, productivity, morale, reduced employee turnover and trust (Anderson 2009; Babakus et al. 2011; Barbuto and Wheeler 2006).

A servant-leader can be defined as "a leader whose primary purpose for leading is to serve others by investing in their development and well-being for the benefit of accomplishing tasks and goals for the common good" (Wong, Davey et al. 2007; Wong, Hairon et al. 2019). Servant leadership has been widely discussed and researched and has gained much attention and momentum since Greenleaf introduced it in the 1970s.

In the past four decades, the concept of servant leadership has gained increased acceptance in the leadership and organizational literature, and has evolved as a leadership construct (e.g., Collins 2001; Covey 1994; Farling, Stone, and Winston 1999; Heifetz 1994; Senge 1997; Spears 1994; Wheatley 1994; Spears 1995; Lab 1999; Russel and Stone 2002; Patterson 2003; Ehrhart 2004; Barbuto and Wheeler 2006; Liden, Wayne, Zhao and Henderson 2008; Van Dierendonck and Nuijten 2011; Gold and Walker 2020).

According to Wong, Davey et al. (2007), servant leadership has the following characteristics:

- Leadership is characterized by humility and selflessness.
- Employee retention and development are top priorities for leaders.
- Servant leaders create a safe and positive workplace to foster innovation and enhance intrinsic motivation.
- Leadership of this type respects and treats subordinates with dignity, thus humanizing the workplace.
- By placing the legitimate needs of their followers ahead of self-interest, leaders earn their followers' trust.
- This leadership is based on putting the needs of workers and society before profit margins.
- Listening openly to one's employees is an important part of this type of leadership.
- By empathizing, being kind, healing, and possessing emotional intelligence, leaders can develop and maintain good relationships.
- These leaders value teamwork and involve others in decision-making so as to gain their support and cooperation.

- Human resource development and unleashing are key strategies to achieve organizational goals.

The benefits of servant leadership cited by different authors include:

- The focus on relationships positively impacts both employee satisfaction and output while creating an environment where employees are supported and participation is encouraged (Thompson 2002).
- The servant leader's ability to create a sense of accountability among his/her followers often leads to followers going above and beyond the call of duty (Selladurai 2014).
- Servant leaders promote high levels of job satisfaction, team effectiveness, and fulfilment of corporate goals and objectives in for-profit, highly demanding organizations (Selladurai 2014).
- Servant leadership helps educational leaders provide support and assistance to students, teachers, and their families by listening, trusting, empathizing, healing, and developing relationships (Spears 2004).
- Serving others through servant leadership is the best fit to establish trust and fulfil organizational participants' needs (Page and Wong 2000).
- Servant leaders improve performance in their organizations by engaging employees, building communities at work, and helping employees to find meaning so that they will be intrinsically motivated and perform at high levels. Servant leaders ensure their work environment encourages people to be more helpful and creative (Keith 2021).
- In a servant leadership structure, not only are associates' voices heard, but their ideas are communicated, disseminated, and implemented more easily to those in positions of leadership (Rank and Contreras 2021)
- Servant leaders engage with members of their teams on an on-going basis to ensure they are working in positions that are the best possible fit for their overall strengths and weaknesses (Savel and Munro 2017).

3. Research Methodology

An interpretivist philosophy underpinned the qualitative research method employed for this study. Adhabi and Anozie (2017) argue that a qualitative approach is best suited to understand the rich and varied aspects inherent to leadership. The purposeful sample consisted of 18 managers employed by an international ICT company based in Cape Town. In-depth interviews and documentation were employed to gather data due to their combined capability to obtain "a rich set of data" (Saunders, Lewis and Thornhill 2009:215) on the participants' conceptualisation of servant leadership. The interviews were designed to gain an understanding of the managers' perceptions of the implementation of the principles, practices and values of servant leadership as well as their reasons for adopting this form of leadership.

4. Data Analysis

Braun and Clarke's (2006) thematic analysis approach was employed to codify the verbatim transcribed data based on an observation grid to identify units of meaning. The subsequent interpretation of the results "created meaning in the discourse" and highlighted the inferences (Silverman, 2014). The University of KwaZulu-Natal's College of Humanities Ethical Committee granted ethical approval for the research.

The participants were required to complete an online Google questionnaire prior to the interviews to assess their behaviours and actions with regard to servant leadership. The questionnaire was based on the Integrated Servant Leadership Model designed by Gold et al (2020) illustrated below.

Table 1: Gold et al (2020) questionnaire based on the Integrated Servant Leadership Model

Servant Leadership Scale					
Please read each statement carefully. Circle the number that represents your usual behavior for that statement. When you have responded to each behavior, total your score. The interpretation is provided.					
Behavior	Never	Rarely	Sometimes	Often	Always
1. I chose to serve through leadership.	1	2	3	4	5
2. Concern for others motivates me.	1	2	3	4	5
3. I prefer to serve anonymously, unrecognized.	1	2	3	4	5
4. My leadership behavior is moral.	1	2	3	4	5
5. A leader, I embrace truth, & acceptfeedback.	1	2	3	4	5
6. I have faith or philosophy which guides me.	1	2	3	4	5
7. I respect diverse people & culture.	1	2	3	4	5
8. I am aware of my emotions.	1	2	3	4	5
9. I competently manage my emotions.	1	2	3	4	5
10. I am aware and respect the emotions of others.	1	2	3	4	5
11. I constructively manage my relationships.	1	2	3	4	5
12. I am effectively work within and with different cultures.	1	2	3	4	5
13. I empower peers and others around me.	1	2	3	4	5
14. I take reasonable risks to serve others	1	2	3	4	5
15. I am a responsible steward of that entrusted to me.	1	2	3	4	5
16. I competently meet my professional responsibilities	1	2	3	4	5
17. I build effective communities & teams to serve others.	1	2	3	4	5
Total Score					
Excellent Servant Leader: 77-85 Proficient Servant Leader: 68-76		Competent Servant Leader 60-67 Aspiring Servant Leader: < 59			

Source: Gold et al (2020:7)

5. Research Findings

5.1 Managers' Perceptions of Servant Leadership

The following figure depicts the results from the online questionnaire completed by participants. They show that the majority of participants (eight) were excellent servant leaders, seven were proficient servant leaders, two were competent servant leaders, and only one was an aspiring servant leader. Most surpassed the 60 point score in the servant leadership model, indicating that they embrace the dimensions described in the model.

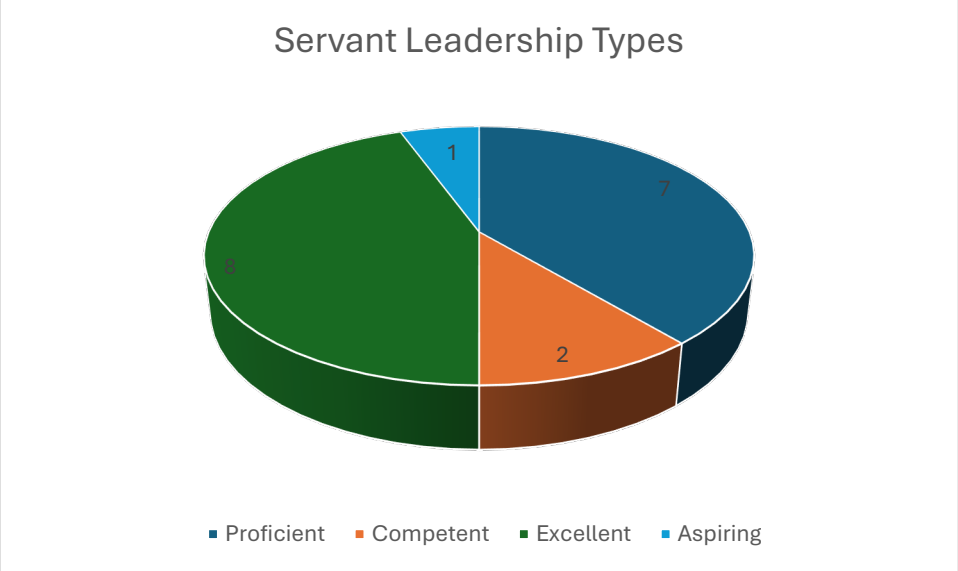

Figure 1

Source: Own Construction

Detailed analysis:

5.1.1 Males vs Females

More than 60% of the participants are male, which reflects the ratio of male to female line managers within the organization. Although some researchers attribute servant leadership to women who generally embrace human dimensions of thinking, the study suggests that men can integrate positive feminine behaviours without violating their gender roles.

5.1.2 Race

Is servant leadership colour blind? The vast majority of participants are white line managers. Nonetheless, the views on servant leadership cut across racial boundaries.

5.1.3 Reporting Lines

The participants ranged from managers with one employee reporting to them, to others with more than 100. However, they shared the same values and principles when it came to their perceptions of servant leadership.

5.1.4 Roles

The results revealed that, while there are a variety of roles within the organization, all of the participants share the same servant leadership practices, with the exception of one who did not initially comprehend the concept but was open to it once it was explained.

Themes that emerged from the data

Theme 1: Perceptions of what servant leadership is:

- The participants believed that this type of leadership replaces transactional behaviour with relational follower-serving behaviour that fosters trust, humility, growth, and accountability.
- Team members are empowered to express their opinions, and the leader engages with them in a collaborative manner.
- Servant leadership creates an enabling environment where workers are empowered, motivated and allowed to grow. This helps them to perform their roles more effectively. Leaders should encourage team members to make decisions that will positively affect their performance.
- A servant leader is one whose behaviour exemplifies ethical standards.
- For some individuals, servant leadership characteristics are a natural tendency and, like other natural tendencies, they can be honed and developed through learning and practicing to maximize their advantages (Spears 2010).

Theme 2: Motivating factor in your current role: Is it the people or getting a promotion?

According to Laub, leaders face two choices. “Do I lead to serve my own interests first? Or do I lead to serve the needs of those led before my own self-interest?” (2004:7).

The findings revealed that most participants are excellent servant leaders, motivated by serving the interests of people. The organization encourages its leaders to hold one-on-one conversations with their team members where they can voice their concerns in a safe environment. Although this practice is not measured, most participants agreed that these sessions develop a good relationship between leaders and employees, and they aim to hold them at least once a month.

Theme 3: Team collaboration versus individual winning, communication with team members and getting their buy-in

Research shows that servant leadership creates an environment that enables and promotes collaboration within a team (Garber et al. 2009; Irving and Longbotham 2007). A servant leader builds high-performing teams by understanding the strength and benefits of competent, engaged, and capable team members (Russell 2019).

The participants agreed that in order to be effective at work, they must work together, which means helping one another achieve both individual and organizational goals. As with all teams, however, there are always super performers who go above and beyond the call of duty. Celebrating these individuals can improve employee satisfaction, as it makes them feel appreciated.

Theme 4: Trusting workers’ accountability versus managers exercising authority

From the participants' feedback, it appears that managers and supervisors seek to persuade employees rather than coerce them into adopting organizational goals and objectives. There was unanimous agreement that explaining some decisions and achieving their acceptance is the best way to gain consensus.
The concept of accountability aligns with Gunnarsdóttir's (2014) finding that the employees of a servant leadership organization are held accountable for their work and performance. Sousa and Van Dierendonck (2015) observed that accountability is a "lead" element of servant leadership (Ragnarsson, Kristjánsdóttir et al. 2018). An environment in which team members openly discuss expectations and even own up to their mistakes and failures will eliminate the need for leaders to exercise authority. The majority of the participants indicated that they typically rely on trust and employees' skills to accomplish team objectives and rarely impose their authority.

Theme 5: Mentoring and coaching team members with ease

Yukl notes that, "mentoring is a relationship in which a more experienced leader helps a less experienced protégé" (2010:388). The participants were of the view that mentoring and coaching can improve individual and overall employee performance and increase team engagement, especially in the technology sector where employees are always required to update their skills. The majority cited mentoring as a way to build and facilitate team members' growth and learning. When a leader coaches or mentors his/her subordinates, a foundation of trust is essential (Du Plessis and Nel 2015).

6. Discussion

Servant leaders are distinguished from other leaders by the values, principles, and practices they employ on a daily basis. The participants encouraged teamwork and collaboration and motivated team members to achieve goals and objectives. In the interviews, it was evident that these leaders aimed to get their followers to psychologically 'buy into' decisions. In addition, they stated that as leaders, they are always open to discussion when team members are not sure about what decisions to make or where they need guidance, in as much as they may not have the answers to all their questions.

Their responses suggest that the participants trusted their employees' opinions on critical issues. Good maintains that "nothing builds trust faster than a servant attitude" (2013:2); even when confronted by problems, people know their leader genuinely cares about them and has their best interests at heart. Almost all the participants felt that the organization emphasizes and supports good behaviour, and they rarely have to use authority to accomplish tasks since most people are responsible for their actions.

Regarding communication, the participants concurred that taking the time to communicate with team members in the form of team meetings and one-on-one conversations is very important. In addition to communication and collaboration, solociting the views of other team members and learning from them were also regarded as imperative.

According to the feedback provided, mentorship relationships exist within the organization, and there is an emphasis on helping people grow professionally. This environment promotes learning within the organization. The participants shared Stanley and Clinton's (1992) perspective that leaders are responsible for empowering their followers and helping them reach their full potential. Moreover, Van Dierendonck (2011) asserts that empowerment gives followers a sense of self-confidence in discharging their duties.

The responses suggest that there are always opportunities for team members to think outside the box, to create and obtain knowledge collectively, and to reflect on new knowledge and insights. A learning organization is one that continually grows its capacity to achieve the results it desires, where new and expansive patterns of thinking are cultivated, collective aspiration is unleashed, and people are continually learning how to learn together (Vat 2003). Senge (1990) popularized the notion of a learning organization in his seminal work, *The Fifth Discipline: The Art and Practice of the Learning Organization*. He proposed that "dynamic learning organizations are built and maintained by servant leaders who lead because they choose to serve" (1997:17). Senge stressed the importance of team learning as a foundation for organizational success. According to him, "if teams learn, they become a microcosm for learning throughout the organization" (1990:236). One way to implement this model is to hire leaders and organizational members who possess servant leadership qualities and to develop training programs to further develop these traits.

The following challenges were identified that could hinder servant leadership:

- Managers not embracing change brought about by servant leadership. Some managers continue to hold onto the perception that leadership is authority.
- Individuals who are required to work outside of their comfort zone or are thrown off their regular routine may not react well to such demands. Line managers indicated that, until 2020, there was no 'remote work' and when the COVID-19 pandemic began and the number of cases grew exponentially, some line managers remained convinced that they needed to see their staff members physically in the offices to believe that they were working. Their mindsets were forced to change to accept the 'new normal'.
- Managers' experience of staff members/workers not embracing change brought about by servant leadership. Given that individuals have different personalities, not everyone will appreciate a servant leader. It is possible for some to take advantage of the servant leader and become lax in their responsibilities. Others who perceive the leader as caring deeply about their needs may be tempted to put in less effort.
- Management of diversity based on age, race, culture, and gender. According to Irving (2010), the predominant culture plays a significant role in filtering acceptable behaviour, as well as determining what is unacceptable. Statistics South Africa (2018) reports that the labour market in South Africa remains dominated by historically privileged groups, and this has been a challenge for the organization. Indeed, 30 years after the establishment of democracy, racial and social discrimination remains prevalent in the South African work environment (McCallaghan, Jackson et al. 2020; Talbot and Durrheim 2012; Jaga et al. 2018).

7. Limitations

Given the COVID-19 protocols and restrictions in place when the research was conducted, the data were colected via video interviews. Other limitations included:

- The sample size of 18 participants is sufficient for a qualitative study. However, only the IT sector was included; thus, the results cannot be generalized to other sectors.
- Due to the lack of consideration of participants' work experience, the research may have captured a limited range of responses.

8. Conclusion

The study's findings suggest that organizations can benefit from servant leadership. However, in order to maximize its benefits, diversity in terms of race, culture, gender, and age needs to be addressed. This is a sensitive but crucial issue. Pekerti and Sendjaya (2010) note that perceptions of what constitutes a leader are different across cultures because most people of a given culture hold similar beliefs about the attributes of a typical leader and are exposed to similar organizational policies and practices. Irving (2010) and Bhawuk and Brislin (1992) are of the view that, as a way of respecting other cultures, people need to be interested in them, notice differences, and change their behaviour. According to Bhawuk and Brislin (1992), a variety of leadership styles or philosophies can be employed to cultivate cultural awareness and sensitivity, but servant leadership provides a platform to take into account followers' unique cultural perspectives. Nart, Yaprak et al.'s (2018) research showed that servant leadership has a strong effect on employees' perceptions of diversity. Managers can take advantage of servant leadership competencies for effective diversity management and to advance towards organizational goals. 'Post-COVID' is projected to be a time when remote work becomes the new normal. Today's technology can be used to effectively communicate and collaborate; as a result, leaders will need to manage intelligently to adapt to the new environment. An 'open ear policy' is urgently needed, as is empathizing with others and understanding their viewpoints as some employees will be fully remote.

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Adaptive Digital Leadership Approaches for Self-engagement to Overcome Digital Transformation Gaps

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Abstract: Digital transformation, forced by a rapidly changing environment and the increasing speed of technological advancements, enables various valuable opportunities in the business context, like increased efficiency, lower costs, and thus enhanced competitiveness, and manifold, complex challenges, like fast-changing customer expectations, increasing job demands, new value creation structures, and disruptive competition from outside the traditional industry boundaries. This often leads to business process reengineering and urges the strategic realignment of management and leadership styles based on competitive positions and corporate goals. In digital transformation, value impedance defines resistances encountered when integrating new digital technologies and processes into existing systems and workflows. Similarly, digital transformation gaps such as the business model gap are discrepancies preventing organizations from fully exploiting benefits and overcoming the challenges of digital transformation. The connection of digital transformation gaps and value impedance is recommended to avoid conflicts when facing digital transformation. However, as many organizations face difficulties with that alignment, this paper introduces the topic of digital transformation gaps, specifically the business model gap, and discusses its bridging with digital leadership aspects regarding self-engagement. Self-engagement enhances employee motivation, innovative work behaviors, performance, and a positive attitude toward change. This research thus answers the following research question: "*what digital leadership factors contribute to the development of self-engagement of employees in organizations to bridge the business model gap in digital transformation?"* This qualitative research is based on the Design Science Research method and elaborates four matrices with four strategic options each to enhance the self-engagement of employees, based on validated questionnaire items from the existing literature, and iteratively evaluated and further developed through semi-structured interviews with domain experts. Consequently, these four matrices build the basis for bridges to overcome the business model gap in digital transformation. Further research is suggested, on the one hand, to validate the proposed strategic options quantitatively and, on the other hand, to extend the approach with more strategic options also for other focus areas.

Keywords: Digital Leadership, Digital Strategy, Digital Transformation Gaps, Business Model Gap, Self-engagement

1. Introduction

According to Stana et al. (2018), leadership in the business context can be categorized into two main categories. On the one hand, employee leadership focuses on enhancing connections between superiors and subordinates and is concerned with individual employee monitoring, evaluation, adaptation, intervention, collaboration, training, communication, integration, and empowerment. On the other hand, the organization's leadership concentrates on the general business goals and corporate culture. Digital transformation impacts both categories and poses challenging new opportunities and risks. Petry (2018) explains that challenges in leadership are caused by changes in the VUCA environment, which stands for volatility, uncertainty, complexity, and ambiguity, and denotes a digital economy in which planning is complicated yet essential for successful competition. Kane et al. (2019) find that a symbiotic mix of traditional and digital leadership principles would best suit organizations to face these challenges. Yet, Khaw et al. (2022) revealed that a common problem for many organizations is effectively integrating digital leadership approaches into their existing leadership and aligning them with individual employee needs and corporate strategy. Hence, transformation gaps would evolve due to insufficient leadership structures, leading to inappropriately addressing these issues (Pundziene et al. 2022). Also, Imhof and Gatziu Grivas (2022) discussed the necessity of a holistic approach to digital leadership, taking place on several organizational levels, such as the individual (self-)level, employee level, organizational level, and strategic level, thus also recognizing the importance of adequate digital leadership on the individual level, as a basis for the other levels. Thus, self-leadership can be considered an essential concept for digital leadership (Wagner, 2018). Building on this discussion, this article focuses on the self-leadership aspect of self-engagement since self-engagement is a prerequisite for constant learning, initiating and driving change and innovation, and being a role model for others (Hasenbein, 2020). Individual self-engagement in digital leadership is thus critical for the success of digital transformation, as it is essential for adaptation, innovation, growth, and competitiveness. By aiming to answer the research question, "*what digital leadership factors contribute to the*

development of self-engagement of employees in organizations to bridge the business model gap in digital transformation?" we recognize in this article specific leadership behaviors and strategies needed to navigate digital transformation challenges, thus providing a roadmap for organizational leaders to follow in their digital initiatives. The remainder of this article is structured as follows: Section 2 reviews the current state of the literature. Section 3 presents the methods used to conduct this research. Section 4 discusses the proposed framework for aligning transformation gaps and bridges. Section 5 concludes this article and sheds light on avenues for future research.

2. Literature Review

The literature review starts by discussing digital transformation's relevance and challenges before turning to strategies for digital transformation and the relevant aspects of digital leadership.

2.1 Challenges of Digital Transformation and the Need of Digital Transformation Strategies

According to Gatziu Grivas and Graf (2020), the relevancy of digital transformation is justified by the organizational need to adapt to shifting consumer preferences and technological advancements, which also entails altering business strategies. Consequently, a well-managed digital transformation streamlines processes, boosts productivity, and improves customer experience. This so-called digital upscaling of operations enhances an organization's competitiveness in the digital age, resulting in sustainable growth. Vural and Koyuncu (2021) elaborate that every transformation poses challenges, starting in the early stages with inadequate management mentality or when internal opposition impedes development due to a lack of dynamism, aversion to change, and poor communication. Another significant hurdle, according to Teichert (2019), is the so-called resource scarcity. Small and medium-sized organizations (SMEs) often face budget constraints, so-called monetary scarcity, that impede their capacity to obtain essential digital tools. Such restrictions often lead to insufficient IT infrastructure investments, competitive disadvantages, and security issues. In this context, Mijwil (2023) declared that many SMEs lack the resources and skills to appropriately safeguard their digital assets and customer data. Finally, as inter-organizational collaboration is a prerequisite for effective digital transformation, Camarinha-Matos et al. (2019) recommend forming strategic alliances with technology suppliers, industry groups, and other relevant stakeholders as sharing information, pooling resources, and collaboratively solving shared difficulties minimize these challenges.

Vial (2019) elaborates that disruptions threaten organizations that cannot transform their strategies fast enough to remain competitive besides the game-changing opportunities coming from digital technologies. Consequently, there is a need for a strategic response to such digital disruptions. As this response can happen by adopting different strategies, it is essential to align the respective strategies (Henderson and Venkatraman, 1993). For example, while the digital business strategy focuses more on using technology to improve operations and revenue creation, the digital transformation strategies comprise more complex and extensive organizational shifts that entail integrating digital technology to create fundamental changes in corporate culture and procedures (Matt et al. 2015). Digital business strategies and digital transformation strategies are distinct and have differing scopes and objectives. Digital business strategy primarily targets operational enhancements and revenue generation, while digital transformation strategies encompass broader organizational changes involving cultural shifts and procedural overhauls. The development and execution of digital transformation strategies require adopting adequate leadership capabilities and processes.

2.2 Digital Leadership and the Focus on Self-engagement

According to Stana et al. (2018), when adapting organizational leadership to digital transformation concepts, the primary objective would be to find new methods and innovative solutions to make the leadership processes more capable and efficient. In this regard, the literature discusses digital leadership as a capability for successful digital transformation (e.g., El Sawy et al. 2016; Brunner et al. 2023; Fitzgerald et al. 2014). According to El Sawy et al. (2016), digital leadership is defined as "doing the right things for the strategic success of digitalization for the enterprise and its business ecosystem." In this context, Bolte et al. (2018) distinguished between two main groups for digital leadership. First, so-called employee leadership fosters an atmosphere where people at all organizational levels are empowered to take the initiative, offer ideas, and work together productively to cultivate a collaborative culture of shared responsibility, motivation, and engagement. Second, the so-called

organization leadership concentrates on a broader area, including aligning leadership styles with the overall corporate goals and culture to gain strategic advantages and promote competitiveness. Imhof and Gatziu Grivas (2022) similarly delineate digital leadership but obtain a more holistic view by adding a third and a fourth dimension, conceptualizing digital leadership with the four dimensions of organizational, employee, self, and strategic leadership. The self-leadership aspects of self-engagement are considered focal topics in this paper as they are crucial for employees' commitment to the digital strategy and for aligning leadership practices with today's organizational requirements.

Generally, self-engagement can be described as an individual's energy and commitment when taking on a new challenge and the ability to inspire and engage others (Hasenbein, 2020). Transferred to the context of digital leadership, this means the active and continuous development and improvement of an individual's digital leadership skills and competencies. On the one hand, for an individual employee level, a well-known example is an employee's engagement in self-directed learning or attendance in training programs. On the other hand, Wenger and Snyder (2000) explained that in an organizational business context, the Community of Practice (COP) is gaining importance in the digital business world to improve knowledge management and maintain competitiveness. The most influential two are the so-called helping communities, which aim to solve daily work problems quickly, and the so-called best practice communities, which focus on sharing and debating good practices to convert them into best practices. Consequently, even if there is resistance to change and the need for comprehensive education and sensitization, the digital leadership factor of self-engagement is a prerequisite for a healthy digital business culture and a successful digital transformation, thus the above-stated research question.

2.3 Digital Transformation Gaps and Bridges

El-Telbany et al. (2020) explain that digital transformation gaps are discrepancies preventing organizations from fully exploiting benefits, jeopardizing a successful digital transformation. Our work, inspired by Pundziene et al. (2022), elaborates on how the previously explained digital leadership aspects can be matched to a digital transformation gap to build bridges to overcome these challenges. To elucidate the construction of possible bridges to overcome digital transformation gaps, one must initially comprehend the intricacies of these gaps themselves. Accordingly, this section summarizes the gaps and then transfers to the bridges. According to Stana et al. (2018), effective organizational digital transformation necessitates managing digital transformation gaps. Derived from the declaration of importance from Li et al. (2016) that a successful alignment between business strategy and digital technology fosters longevity and growth, the business model gap describes the inadequate alignment of core strategies with digital advancements. Additionally, Prebanić and Vukomanović (2021) also include the topic of insufficient stakeholder involvement in the business model gap due to a lack of understanding of the diverse business and digital needs and perspectives of key stakeholders, leading to a misalignment between business strategies, stakeholder expectations, and digital advancements. Consequently, as promoting self-engagement fosters a deeper understanding of the various organizational and stakeholder needs, it facilitates adapting corporate strategies to digital progress and developing innovative, valuable business models. Therefore, it underscores self-engagement's importance in minimizing, preventing, and bridging the business model gap during the digital transformation.

2.4 Research Gap and Contribution of the Paper

The dynamic area of digital transformation includes various benefits but also presents organizations with critical challenges like cultural resistance or data security concerns. The literature review discusses self-engagement and aligns it with the business model gap in digital transformation and respective adaptive bridges. These bridges should enable organizations to quickly adapt to a changing environment and effectively address digital transformation issues. The literature review did not offer concrete recommendations for actions, measures, or capabilities to achieve bridging outcomes. This observation is in line with Khaw et al. (2022), who elaborated that a significant research gap exists concerning the concrete digital leadership elements and capabilities required in the digital age, even though digital leadership has been recognized as a relevant capability for organizational performance and competitiveness for digital transformation (Brunner et al. 2023; Fitzgerald et al. 2014). De Araujo et al. (2021) conclude that such gaps in the literature and the knowledge of organizational decision-makers lead to difficulties in adapting their current leadership approaches to the fast-changing digital transformation. Consequently, this paper aims to contribute to the body of knowledge by elaborating concrete recommendations for actions for digital leadership capabilities in self-engagement by answering the above research question.

3. Research Method

The authors followed the Design Science Research (DSR) method (Hevner et al. 2004). DSR is a suitable method for the iterative development of an artifact, such as a model or framework. It emphasizes the integration of the relevant environment and knowledge to ensure relevance and rigor (Hevner et al. 2004). The authors first reviewed the literature to derive gaps and bridges for digital transformation in connection with the digital leadership factor of self-engagement. Second, a measurement catalog has been developed based on existing literature for dealing with gaps and bridges. Third, the measurement catalog has been transformed into four matrices with four strategic options each. Fourth, the results have been evaluated by three domain experts. The following sections describe the methods in more detail.

3.1 Collection and Analysis of the Literature

To structure the literature review and to ensure reliability, verifiability, and reproducibility (Booth et al., 2012), the authors followed the suggestions by Webster and Watson (2002) and created a literature concept matrix. In the literature concept matrix, concepts of interest derived from the research question are matched with relevant literature obtained from academic databases, such as Scopus focusing on the keywords “self?engagement”, “employee*”, “business model”, “organi?ation*” and “digital transformation”. To ensure the quality of the sources, the authors focused on peer-reviewed academic journals and conferences and sections only from highly cited textbooks. To analyze the identified literature sources, the authors followed Wu and Yuan (2023) and highlighted text passages with colored codes for relevant topics and sub-topics during reading. Guided by Trochim and De Vaus’ (2001) 5 C framework (cite, compare, contrast, critique, and connect), the authors summarized and organized the results as gaps and bridges for digital transformation as discussed in Section 2.

3.2 Creation and Evaluation of the Tool

To handle the identified gaps and bridges, a catalog consisting of Likert scale questions has been developed based on existing and validated measurements or scales from the literature. The measurement catalog was then transformed into four matrices with four strategic options each, leading to 16 strategic actions. Section 4 provides a more detailed overview of the measurement catalog, matrices, and strategic actions.

Three semi-structured expert interviews were conducted to evaluate the results. The expert group consisted of a managing partner of a medium-sized German leadership and management consulting company, a managing partner of a small-sized Swiss digital transformation consultancy, and a seasoned expert in human resources management. Semi-structured expert interviews are an appropriate method in qualitative research inquiries for obtaining viewpoints and opinions from professionals (Gill et al. 2018) by leaving them enough space to express themselves (Dick 2000) and to ask follow-up questions if needed (Steger 2003). For the interview preparation, conduct, and analysis, the authors followed Döring et al. (2016). The interviews were held via MS Teams and automatically transcribed by MS Teams with the interviewees’ consent. The interviews were then analyzed and coded using MAXQDA software (MAXQDA 2023). Section 5 discusses the results of the expert interviews.

3.3 From Theory to Practice: A Tool for Assessing and Enhancing Self-Engagement

The findings from the literature review and the theoretical concepts developed during this work were finally transformed into practical products that can be used during a consulting process to measure digital leadership within organizations and to improve it tailored to the organization’s internal and industry needs. More precisely, the result includes a measurement catalog to determine an organization’s maturity level regarding self-engagement and matrices that provide four strategic options based on the measurement results.

3.4 Overview of the Self-engagement Construct

The 16 strategic options presented in this chapter serve as a visual representation facilitating an understanding of relationships and dependencies, especially among the measurement catalog and the matrices. Moreover, they serve as a keyword list for future digital transformation and leadership research. The digital leadership factor of self-engagement was examined and matched with the business model gap in digital transformation. Four clusters were formed, resulting in four categories reused in the measurement catalog with Likert scale questions from the literature, as visualized in Figure 2 below. Moreover, these clusters are also used for the matrices, containing 16 strategic actions to improve self-engagement within organizations.

Figure 1 below shows the four clusters, whereby the cluster names were later used as titles for the strategic options matrices.

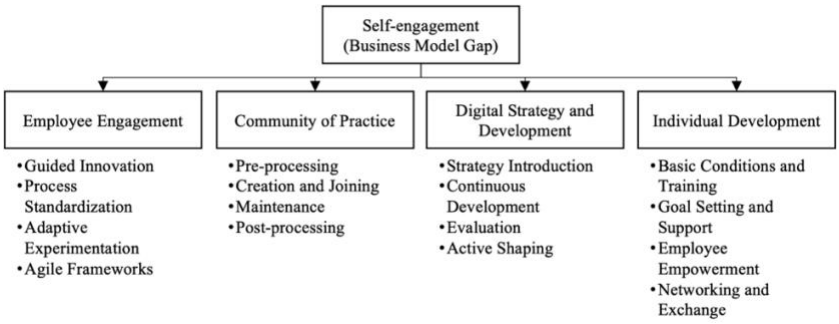

Figure 1: Overview of the factor self-engagement, the four clusters with strategic options

3.5 Discussion of the Strategic Options Matrices

The following section presents the four matrices with four strategic options each. As the maturity level of self-engagement cannot be determined using a single KPI (Key Performance Indicator), Likert scale items from extant literature were used, which means a series of statements or questions designed to measure respondents' attitudes or opinions by asking them to indicate their level of agreement or disagreement on a scale. More concretely, four clusters were built to measure the maturity level. Then, five to eight Likert scale questions were formulated for all four clusters to measure satisfaction. Finally, the strategic options provided on the matrices can be selected to suit the corresponding maturity level. The answer options to the Likert scale questions were later divided into two answer areas of importance and effectiveness. Examples of the questions from the literature are "How satisfied are you with the time provided to you during your daily work to learn new activities and tools to enhance your digital knowledge and skills?" or "How satisfied are you with the number of goals that you can self-impose?"

3.6 Strategic Options Matrices for Self-engagement

Figure 2 shows the matrix for the strategic options for enhancing employee engagement.

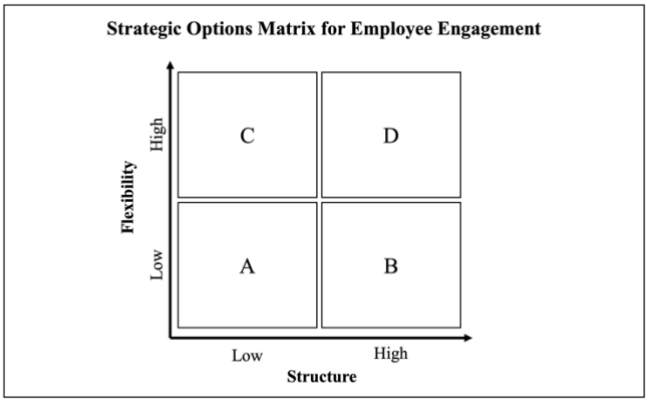

Figure 2: Four strategic options for employee engagement

The strategic options in Figure 2 allow organizations to explore different combinations of flexibility and structure, enabling them to align their strategies with their desired levels of adaptability and organizational structure. In more detail, the matrix depicts low or high flexibility and low or high structure. The single options are as follows: *A-Guided innovation:* Define structured processes and workflows to ensure consistency and effectiveness while offering training and development programs to support flexibility and innovation in a self-engaged way. *B-Process standardization:* Define clear guidelines, best practices, workflows, and templates, and monitor compliance with established procedures to maintain high structure and ensure consistency, efficiency, and scalability. *C-Adaptive experimentation:* Encourage individuals to explore innovative approaches and support their experimentation with new ideas by fostering a culture that values learning from failures, creativity, and adaptability. *D-Agile frameworks:* Implement agile methodologies and frameworks (e.g., Scrum, Kanban) to

enhance flexibility while maintaining structure and defining clear roles and responsibilities to support decision-making.

Figure 3 shows the matrix for the strategic options for the community of practice (CoP).

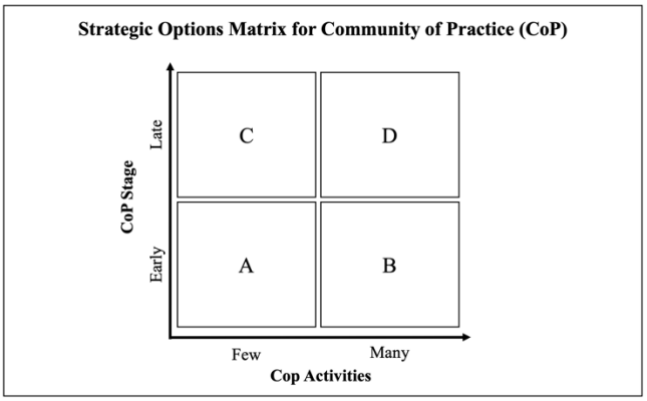

Figure 3: Four strategic options for community of practice

The strategic options in Figure 3 focus on the differentiation concerning the community of practice maturity level and the corresponding need for actions, giving companies an indication of where and what actions are needed to strengthen self-engagement in the community of practice. In more detail, the matrix depicts an early or late community of practice stage and whether basic or advanced community of practice activities occur. The single options are as follows: *A-Pre-processing:* Denotes the preliminary stage of development and introduction of the concept of community of practice. It involves creating awareness and understanding of the community of practice advantages within the organization from the top down and providing infrastructure, financial resources, and digital tools as fundamental enablers. *B-Creation and Joining:* It is still in the early stages, but employees actively participate in advanced activities in communities of practice. Support the community of practice creation process by encouraging employees to create and join based on their skills and interests. Enable cross-departmental, cross-functional, and location-independent interaction. *C-Maintenance:* Maintenance is needed at the late COP stage, but the activities are still fundamental. Encouragement of self-reflection and discussion of improvement potentials regarding the community of practice and maintaining the needed infrastructure and tools to ensure high quality. *D-Post-processing:* Collecting and disseminating COP knowledge is ongoing but usually starts late and uses advanced COP activities. They facilitate the storage and dissemination of community of practice insights (e.g., best practices) within the organization by introducing a knowledge management strategy and providing the necessary tools.

Figure 4 shows the matrix for the strategic options for digital strategy and development.

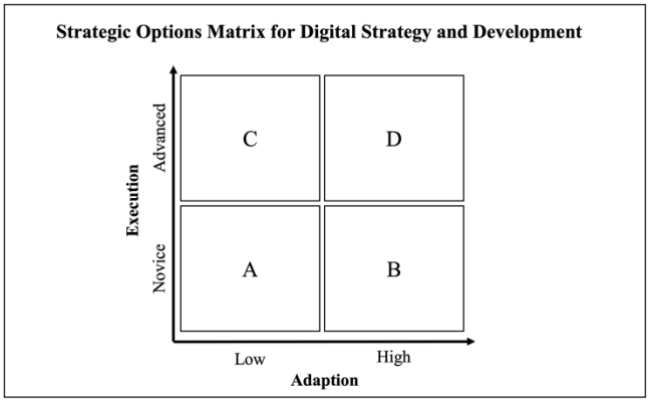

Figure 4: Four strategic options for digital strategy and development

The strategic options in Figure 4 can be seen as an iteration, and depending on how far an organization is in the digital strategy development process, different strategic options are recommended to drive sustainable digital transformation. In more detail, the matrix depicts a novice or advanced execution stage and low or high adaption. The single options are as follows: *A-Strategy introduction:* To lay the foundation, develop a digital strategy that aligns with the overall corporate strategy and leverages digital technologies to achieve corporate

goals, involving a digital vision and mission. *B-Continuous development:* Continuously develop the digital strategy and adapt it to the changed business environment and needs as a proactive approach to ensure its relevance and effectiveness over time. *C-Evaluation:* Evaluate the effectiveness and impact of the digital strategy (e.g., by collecting stakeholder feedback) to make necessary adjustments to ensure a dynamic and responsive strategy over time. *D-Active shaping:* Monitor industry trends and analyze potential benefits of emerging technologies to proactively shape and influence the digital strategy to ensure its alignment with evolving needs and goals.

Figure 5 shows the matrix for the strategic options for individual development.

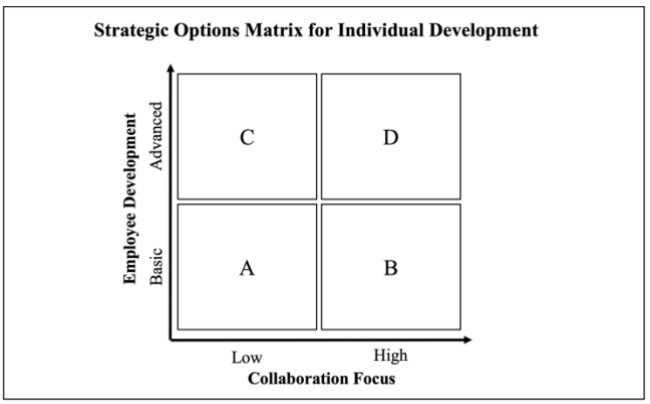

Figure 5: Four strategic options for individual development

According to the level of their digital leadership, these different strategic options in Figure 5 promote self-engagement and support digital leadership development to drive innovation and effectively navigate digital transformation. In more detail, the matrix depicts basic or advanced employee development and low or high collaboration focus. The single options are as follows: *A-Basic conditions and training:* Allocate time and provide training for continuous learning so that employees can develop and improve their digital knowledge, abilities, and leadership approaches in a self-engaged way. *B-Goal setting and support:* Allowing employees to set individual digital skill objectives and providing collaborative exchange and support to reach them is the first step of achieving cross-departmental and corporate goals. *C-Employee empowerment:* Create a work environment that encourages autonomy and empowers employees to take ownership of their digital journey, contributing to the overall digital transformation within organizations. *D-Networking and exchange:* By creating digital communities (e.g., CoP), employees can exchange ideas and innovative approaches in a self-engaged manner that fosters a digital and innovative culture.

3.7 Evaluation Through Expert Interviews

Three semi-structured interviews with domain experts were conducted to evaluate the results and gain valuable insights for future improvements or alternative methods. The interviews were conducted at different stages to enable an iterative development process. The first interview with a managing partner of a small-sized Swiss digital transformation consultancy focused on discussing the matrix arrangement of the strategic options. The interview analysis highlighted that the strategic options should enable an iterative approach and be stated in ascending order. This should support companies with relatively low maturity levels to orient and iterate towards higher maturity levels. The second interview with a human resources management expert aimed at a general assessment and focused on collecting relevant leadership and human resources information to improve the matrices with the provided strategic options. The discussion highlighted that even though digital leadership is becoming increasingly important for organizations, it should be combined with traditional leadership approaches, which remain relevant, to create a hybrid leadership approach. For self-engagement to be effective, developing a digital strategy and a digital culture is required which also motivates employees to work in the digital environment and enables them to better deal with challenges. The interview revealed that the strategic options are likely to support organizations in the digital transformation process upon more in-depth empirical validation and are rather suitable for small and medium-sized enterprises than for large enterprises. The third interview with a managing partner from a medium-sized German management and leadership consulting company focused on the interviewee's opinion as an experienced consultant regarding the usability and validity of the measurement catalog and the matrices. The interview analysis revealed support for self-engagement as a crucial aspect of effective digital leadership since a more self-engaged workforce inherits the potential for increased performance and, thus, for creating a competitive advantage for the firm. Also, the third interviewee

found the measurement catalog and the strategic options relevant for companies to help them determine their maturity level. Yet, the level of detail of the measurement catalog could increase to obtain more detailed answers and thus enable a more tailored maturity analysis. The interview led to valuable feedback for improving measurement methodologies and strategic presentation. Suggestions included refining Likert scale questions for clarity and organizing strategic options in ascending order for more straightforward navigation. Meanwhile, the narrative underscores the significance of digital leadership in modern economies, emphasizing the need for leaders to embrace new technologies and adapt swiftly. It also highlights the importance of a hybrid leadership approach, integrating traditional principles with digital strategies. Moreover, the interview excerpts stress essential skills for digital leaders, such as self-engagement and the ability to manage technological change effectively, particularly pertinent for small and medium-sized enterprises facing resource constraints and the pressure to compete with larger counterparts in the digital realm. In conclusion, the expert interviews provided valuable insights for the further improvement of the matrices. All experts agreed and emphasized how crucial digital leadership is to successfully manage the challenges of today's fast-changing business environment. Recognizing issues like change management and technical speed also highlights the variety of responsibilities expected of digital leaders and poses further research possibilities. The constructive criticism and improvement recommendations have further enriched the analysis by indicating scope adjustments for a broader range of organizational sizes. Moreover, all interview partners have called for practical validation to assess the product's practical application, which will be done in the next phase. Finally, all interview partners confirmed that the products are valid and usable for consulting.

4. Conclusion

In conclusion, based on the existing literature, this article discussed relevant digital leadership aspects, namely the self-leadership aspect of self-engagement, to overcome the business model gap in digital transformation. The article identified a lack of concrete measures and capabilities in the existing literature to achieve this goal. It thus contributes to calls from other authors (e.g., Khaw et al., 2022) who find that concrete and established digital leadership measures and capabilities required in the digital age are still subject to research. Based on existing and validated scales, a measures catalog has been compiled and transformed into four matrices for self-engagement to contribute to the body of knowledge. These newly developed matrices and strategic options offer a concrete approach beyond previous theoretical models and provide practical application examples. Three semi-structured interviews were conducted with two managing partners from two Germany- and Switzerland-based consulting firms and a human resources management expert to iteratively develop matrices with four strategic options, each evaluating the results and obtaining insights for future improvements. It can be concluded that organizations must focus on collaboration and communication tactics that successfully align employees with business goals, as this is critical to fostering a resilient and adaptable digital leadership approach in the evolving business landscape. Digital leadership and digital workflows combined with improved communication often relieve leaders from time-consuming, repetitive tasks, enabling them to focus more on complex, value-adding tasks. However, caution is advised against organizational myopia, where an excessive focus on technology may limit foresight, reducing awareness of potential impacts and opportunities. Striking a balance between technological advancement and holistic organizational understanding remains pivotal for effective and sustainable digital leadership.

4.1 Limitations and Future Research

The nature of this exploratory research poses some limitations regarding the generalizability of the results. Furthermore, other relevant literature sources might have been overlooked due to the literature search's applied quality and inclusion criteria. Further research should aim to refine and extend the current knowledge and literature to advance the academic discourse on digital leadership and digital transformation qualitatively and quantitatively assess the described relationships. It is worthwhile to expand on the theoretical concepts of the discussed results. Still, practical applicability validation is imperative and can be done by conducting case studies, surveys, or interviews in a corporate setting. To achieve comparable and meaningful results, such studies should include different industries and company sizes to identify as many further gaps in digital transformation as possible. The findings should be compared and matched with additional digital leadership aspects to build bridges that complement the one presented in this article. Another field of research that would complement the area of digital leadership would be the analysis of the integration of emerging technologies. This would involve analyzing the integration challenges and opportunities associated with new technologies such as artificial intelligence, blockchain, big data, and the Internet of Things. It should be validated in practice to

determine how organizations can adopt and adapt these technologies according to their core competencies to formulate challenges, benefits, and recommendations. Finally, these complementary insights could create a framework that facilitates digital leadership for organizational digital transformation.

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Navigating Dualities: A Literature Review of the Role of Organizational Learning in Fostering Ambidexterity

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Abstract: In the evolving landscape of organizational management, the simultaneous pursuit of exploitation and exploration has heightened interest in organizational ambidexterity. This literature review synthesizes key studies to explore the relationship between organizational learning and ambidexterity, focusing on how learning influences and integrates ambidextrous capabilities. The review examines the theoretical and practical importance of balancing these dual strategies, emphasizing their role in long-term success. To provide a structured analysis, the literature is organized into six key themes, offering a comprehensive view of how different aspects of learning contribute to ambidexterity. Methodologically, the review systematically analyzes peer-reviewed articles from the last two decades, offering insights into how learning processes enhance both explorative and exploitative activities. The findings underscore the value of embedding learning in cultural and structural dimensions to promote adaptability and innovation, providing significant implications for organizational leaders and scholars.

Keywords: Ambidexterity, Organizational Learning, Exploration, Exploitation, Innovation

1. Introduction

The growing interest in organizational ambidexterity (OA) is evidenced by the increasing number of academic publications and the recognition of OA as a critical factor for sustaining competitive advantage in dynamic business environments (O'Reilly and Tushman, 2013). The discourse on OA has become a cornerstone of organizational and management research (Raisch and Birkinshaw, 2008), with indications that the ability to balance exploitation and exploration activities may be essential for long-term corporate success (March, 1991). Recently, attention has intensified on how organizations can learn to support ambidexterity, integrating new knowledge while refining existing capabilities (Birkinshaw and Gibson, 2004). The key question in this context is how organizational learning processes can be designed to foster and sustain ambidexterity.

This growing interest necessitates a thorough evaluation of the approaches and concepts that underpin organizational learning in the context of ambidexterity. Consequently, significant scholarly effort has been directed towards identifying and developing frameworks, methodologies, and tools that facilitate the integration of learning and ambidextrous practices (e.g., (Andriopoulos and Lewis, 2009; Jasmand et al., 2012; Turner et al., 2013). These advancements underscore the importance of systematically reviewing and synthesizing the existing literature to understand the state of research and identify future directions. The objective of this paper is to provide a comprehensive overview of the current state of organizational learning in relation to ambidexterity, particularly focusing on practical implications for companies.

These are also relevant for the AmbiProd project, which focuses on the development of a software-based holistic production system (GPS) that embodies an ambidextrous approach. The project aims to create a production system that balances resource efficiency and adaptability throughout the value chain. Therefore, among other components a central focus is on the implementation of a *Learning Coaching Approach* that aim to promote organizational learning to foster and sustain ambidexterity. Identifying practical implications for companies can concretely support them in strengthening their ambidextrous capabilities. AmbiProd aims to ensure high stability in production while enabling a rapid response to global market turbulence.

Drawing on extensive literature from databases, this publication aims to provide a nuanced understanding of how organizations can harness these concepts to thrive during periods of change and disruption. By examining the concept of organizational learning in the context of ambidexterity and exploring the approaches and concepts that can be employed to foster ambidextrous capabilities, this paper addresses the following key question to elucidate the distinctive characteristics of ambidexterity and learning in organizations: *How does organisational learning influence and incorporate the development of ambidexterity in organizations?*

To answer this research question, the review is structured as follows: first, the methodology of this review is detailed. Subsequently, the literature on organizational learning and ambidexterity is then reviewed from multiple perspectives, and finally, the findings are summarized in the conclusion section.

2. Methodology

In this literature review, a multi-step methodology was employed to systematically examine relevant literature. Three databases—EBSCO, Scopus, and Springer—were queried using 14 search terms, including "organizational learning," "ambidexterity," and "knowledge management." Articles were selected based on their relevance to the research objectives and questions, with titles and abstracts screened for initial inclusion. Full-text reviews were conducted on articles that defined key terms, focused on specific research areas within the topic, or explored the relationship between organizational learning and ambidexterity. Only accessible texts directly addressing the research questions were included for detailed analysis.

A total of 1,325 potentially relevant texts were retrieved from EBSCO, Scopus, and Springer databases using 14 search terms. After removing duplicates and screening titles and abstracts, 287 articles remained relevant to the research objective. After reviewing accessibility and content, 58 texts were analyzed in detail, with 32 ultimately included in the paper. For the detailed thematic analysis of the selected texts, the research team conducted a systematic qualitative review. This method involves a structured approach to reviewing and synthesizing qualitative data focusing on identifying themes and patterns that address specific research questions. The process began with an initial comprehensive reading of each text, during which sections directly addressing the research questions were highlighted. This careful reading ensured that all relevant information was captured for further analysis.

After the highlighting process, the research team reviewed the highlighted sections of the relevant texts to identify common keywords related to organizational learning and ambidexterity. Keywords that shared similar patterns were grouped into potential themes. These themes were then reviewed and refined, and this process continued until no new themes emerged. During this process, we engaged in continual reflection and discussion until consensus was reached to ensure the themes represented the data.

To ensure the reliability of the thematic analysis, we conducted a process of validation. This involved cross-verification of themes and findings by a third researcher. Discrepancies were discussed and resolved to ensure the final themes represented the data. Each stage of the process was performed with transparency in an Excel file to ensure the validity and reliability of the findings. The data extraction and analysis process revealed six key topics in the literature which were central to research on organisational learning and ambidexterity and its impacts from a business perspective.

3. Results of the Literature Review: The Role of Organizational Learning in Fostering Ambidexterity

The increasing academic interest in organizational ambidexterity (OA) underscores its significance as a vital factor for sustaining competitive advantage in dynamic business environments (O'Reilly and Tushman, 2013). Central to achieving OA is the ability of organizations to effectively balance the exploration of new opportunities with the exploitation of existing capabilities (Birkinshaw and Gibson, 2004). The literature review results reveal six topics framing the research of organisational learning and ambidexterity from a management perspective. These topics are: 1) Individual Roles and Behaviours, 2) Learning Culture, 3) Leadership and Management Systems, 4) Technological and Infrastructural Learning Components, 5) Learning Processes and 6) Capability Development and Management.

3.1 Individual Roles and Behaviours

The research stream *individual learning behaviours* form the bedrock of organizational learning processes, playing a foundational role in the development of ambidexterity within organizations. Ambidexterity, the ability to balance exploration of new opportunities with the exploitation of existing capabilities, begins at the individual level. It is within the actions and decisions of individual employees that the dual processes of exploration and exploitation are first navigated, setting the stage for larger organizational outcomes.

Schnellbächer and Heidenreich (2020) provide insight into this dynamic by investigating the micro-foundations of individual ambidexterity and its influence on organizational performance, focusing on ambidextrous knowledge seeking and offering. Their empirical study, involving 415 employees, identifies these behaviours as

key mechanisms for enhancing departmental performance. Ambidextrous knowledge seeking (acquiring complementary and novel knowledge) improves processes and adapts to opportunities, while ambidextrous knowledge offering is effective in radical innovation environments. The study highlights the need to tailor ambidextrous knowledge behaviours to a department's innovation focus to optimize performance outcomes.

Expanding on the notion of individual learning behaviours, Nagayoshi and Nakamura (2020) investigate how organizational learning from failure can enhance ambidexterity, particularly balancing exploration and exploitation in a Japanese SME. Through quantitative analysis, they find that learning from failure significantly boosts exploitation more than exploration, but dynamic resource adjustment can positively impact both. The study underscores the strategic role of failure in driving innovation and sustaining competitive advantage. For SMEs, it highlights the importance of robust learning mechanisms to leverage past failures for future growth. This research offers practical insights into achieving ambidexterity through structured learning and dynamic resource management.

3.2 Learning Culture

The *learning culture* research stream examines the cultural dimensions within organizations that promote a learning environment supportive of ambidexterity. Organizational culture can generally be defined as a set of values, norms, standards and behavioural patterns that are commonly shared by the organization's members (Ouchi and Wilkins, 1985). This cultural framework is fostering ambidexterity because it creates an environment where exploration of new opportunities and the exploitation of existing capabilities can coexist and mutually reinforce each other.

Cegarra-Navarro et al. (2021) illustrate how a well-established learning culture enhances organizational performance within the banking sector. Their study, based on data from 215 employees across 142 branches, highlights how a learning culture supported by knowledge processes enables banks to balance exploration and exploitation, crucial for adapting to a dynamic environment. The authors find that a learning culture significantly influences employees' commitment to learning, which in turn enhances both explorative and exploitative knowledge processes. They show that employees' learning about potential new stakeholders and internal strategies, tools, and techniques directly correlates with improved bank performance. The study underscores the importance of an active pursuit of learning within the organization to adapt to rapid digitalization and changing customer needs.

Furthermore, Yang et al. (2015) emphasize the role of specific cultural attributes, such as collectivism, in amplifying the effects of a learning culture on ambidexterity. They investigate the interaction between collectivism, centralization, and ambidextrous innovation in high-tech firms in China. Their quantitative study, involving 102 firms, reveals that a collectivistic organizational culture promotes organizational citizenship behaviours (OCB) and reduces social loafing, thereby facilitating ambidextrous innovation. However, centralization weakens the positive effects of collectivism on ambidexterity. The study highlights the need for balancing discipline (conformity to organizational goals) and passion (innovation zeal) to achieve ambidexterity. Practitioners are advised to foster a collectivistic culture while minimizing centralization to enhance both explorative and exploitative innovation.

In addition to cultural attributes, HR practices can influence the institutionalisation of a learning culture that supports ambidexterity. Prieto and Pilar Pérez Santana (2012) examine the influence of high-involvement HR practices on ambidextrous learning and organizational performance in Spanish firms. The study integrates exploratory and exploitative learning with strategic HR management, emphasizing the creation of a social climate conducive to ambidexterity. High-involvement HR practices—categorized into ability-enhancing, motivation-enhancing, and opportunity-enhancing—are shown to foster a supportive social climate that balances innovation (exploration) and efficiency (exploitation). The findings highlight the critical role of HR in shaping a positive social climate, essential for achieving ambidextrous learning and enhancing firm performance. The study offers valuable insights for practitioners on leveraging HR practices to improve organizational outcomes.

3.3 Leadership and Management Systems

The *leadership and management systems* research stream examines how leadership roles and management practices within organizations promote organizational learning and ambidexterity. Research in this stream shows that rather than merely facilitating organizational learning, leaders act as architects, designing and cultivating learning environments that balance the competing demands of exploration and exploitation.

Da Souza and Takahashi (2019) illustrate this concept by providing a foundational understanding of how leadership influences the interplay between dynamic capabilities (DC), organizational learning (OL), and ambidexterity (OA) in a higher education institution in Brazil. Through a qualitative case study using interviews, documentary research, and observation, the study highlights how founders and managers shape DC activities, fostering a balance between exploration and exploitation. The research underscores the intertwined nature of DC, OL, and OA, emphasizing the role of sensemaking in these processes. Practical insights are offered for managing change and balancing innovation and efficiency in educational contexts.

In addition to leadership, specific management practices and systems influence the balance between exploration and exploitation. Avby (2022) examines how integrating improvement methods, specifically the plan-do-check-act (PDCA) cycle, with ambidextrous learning, can enhance innovation management. The study presents a framework that combines PDCA's structured process with the dynamic balance of exploration (new knowledge) and exploitation (existing knowledge) to overcome biases favouring exploitation. Avby emphasizes the role of strategic leadership in fostering an ambidextrous environment, where both explorative and exploitative phases are effectively managed. This approach, grounded in organizational learning, highlights the importance of leadership, culture, and collective learning in driving continuous innovation and improving organizational performance.

Moreover, Arantes and Lima Soares (2021) examine the interaction between organizational learning, ambidexterity, and management control systems (MCS) in Brazilian non-profit organizations (NPOs). Using survey data from 227 responses, their study reveals that while organizational learning fosters ambidexterity, MCS can inhibit this relationship by prioritizing short-term problem-solving over long-term innovation. The research highlights a tension between control and innovation, suggesting that poorly designed MCS can stifle the balance between exploration and exploitation. For practitioners, this study emphasizes the need to carefully design and implement management control systems that balance the need for control with the flexibility required for innovation, ensuring that such systems support rather than hinder the dual demands of exploration and exploitation essential for ambidexterity.

3.4 Technological and Infrastructural Learning Components

This stream investigates how advanced technologies and infrastructural elements support learning and facilitate ambidexterity. It delves into how technological infrastructure, such as Big Data Analytics and social technologies, can provide real-time insights, enhance decision-making processes, and create an environment conducive to both exploratory and exploitative learning.

Bøe-Lillegraven (2014) illustrates how Big Data Analytics facilitates adaptive learning, enabling organizations to continuously update their knowledge base and pivot between exploration of new opportunities and exploitation of existing capabilities. By providing real-time insights and feedback, BDA facilitates the dynamic balancing of exploration and exploitation. The study reviews empirical cases in the media industry, demonstrating how BDA supports adaptive decision-making and learning processes. This approach enables organizations to continuously update their knowledge base and adjust strategies accordingly, highlighting the critical role of technological infrastructure in supporting ambidextrous learning. The insights gained from BDA allow firms to identify trends and patterns that inform both innovative initiatives and efficiency improvements.

Similarly, Mardi et al. (2018) emphasize the role of social technologies in enhancing absorptive capacity, which is the organization’s ability to assimilate and apply new external knowledge. By enhancing both exploration and exploitation activities, social technology facilitates the dynamic balance necessary for ambidexterity. The study, conducted across various sectors in Indonesia, employs structural equation modeling (SEM) to analyze the data, revealing that social technology directly and indirectly (through rapid absorptive capacity) supports ambidexterity. This capacity enables organizations to swiftly assimilate and apply new external knowledge, fostering both innovation and efficiency. The research underscores the importance of strategically integrating social technology to support ambidextrous capabilities. However, the study finds that while social technology enhances collectivism-based collaboration, this does not directly lead to increased ambidexterity, suggesting the need for further exploration into mediating factors such as knowledge integration.

3.5 Learning Processes

This theme examines the processes through which organizations simultaneously support explorational and exploitational learning. The following research shows that organizations can design their learning processes to

ensure that they are conducive to both exploration—seeking out and experimenting with new knowledge—and exploitation—refining and utilizing existing knowledge.

Lee et al. (2013) offer a foundational perspective on the boundary conditions influencing ambidextrous learning processes in industrial firms across four countries. Their study identifies environmental dynamism and firm size as key factors moderating the impact of ambidextrous learning processes on performance. Through an analysis of 1740 firm-year observations, the authors demonstrate that ambidextrous learning significantly enhances firm performance, particularly in larger firms and dynamic environments. They argue that firms must balance exploratory and exploitative learning modes to maintain competitiveness. The study suggests that firms should tailor their learning strategies based on size and environmental dynamism to optimize performance outcomes.

Wei et al. (2014) further illustrate the importance of strategic flexibility in learning processes, particularly in the context of new product development (NPD). They differentiate between the "relative exploratory dimension" (balancing exploration and exploitation) and the "interactive dimension" (leveraging complementarities), showing that these dimensions distinctly impact NPD performance. The study highlights how dynamic resource management, particularly resource and coordination flexibility, enhances the effectiveness of ambidextrous learning processes. This research shifts the focus from static resource endowment to dynamic resource management, providing theoretical insights and practical implications for optimizing NPD outcomes in high-tech SMEs. They highlight the importance of both balancing and integrating exploratory and exploitative learning processes to achieve optimal NPD outcomes.

The concept of "dynamic learning processes" is central to this discussion, as it encapsulates the need for organizations to continuously adjust their learning approaches based on both external market conditions and internal capabilities. Tian et al. (2021) and Seidle (2019) provide insights into how organizations can adapt their learning processes dynamically. Tian et al. (2021) demonstrates that both exploitative and exploratory learning processes significantly enhance innovation, with ambidexterity yielding superior results. The research also highlights the amplifying role of openness, defined as a firm's engagement with external knowledge sources, in strengthening the positive effects of ambidexterity on innovation. The findings underscore the importance of balancing short-term efficiency with long-term adaptability and suggest that openness in the learning processes is crucial for maximizing innovation outcomes in SMEs.

Similarly, Seidle (2019) explores how distinct sequences of experiential and vicarious learning processes underpin exploratory and exploitative innovation in biopharmaceutical firms. Through 16 interviews, the study derives sequences emphasizing either experiential or vicarious learning, constructing a model that proposes structural differentiation and integration mechanisms to foster ambidexterity. The study identifies technological brokering as crucial for balancing exploration and exploitation, suggesting cross-industry brokerage for exploration and intra-industry brokerage for exploitation. The research provides insights into mobilizing internal and external knowledge to independently advance innovation projects, highlighting the importance of linking these efforts to achieve organizational ambidexterity.

Chen and Liu (2018) investigate how open innovation (OI) influences organizational ambidexterity, with a focus on the mediating role of organizational learning goal orientation (LGO). They argue that inbound OI (acquisition of external knowledge) and outbound OI (commercialization of internal knowledge) are critical to achieving ambidexterity, with LGO facilitating the integration of these knowledge processes. Their empirical analysis of 195 Chinese high-tech firms demonstrates that LGO mediates the positive impact of OI on ambidexterity, promoting continuous learning and adaptation. The study underscores the importance of fostering an open innovation culture and a learning-oriented environment to enhance ambidexterity and sustain competitive advantage.

Eriksson (2013) examines the challenges of balancing exploration and exploitation in project-based organizations (PBOs) within the construction industry. The study highlights that conventional structural and sequential separations of these activities at various organizational levels are insufficient, often leading to a focus on exploitation while neglecting exploration. Eriksson argues that the decentralized and project-focused nature of the construction industry limits effective knowledge transfer. To address this, the paper advocates for contextual ambidexterity, integrating exploration and exploitation through cooperative procurement procedures. This approach fosters both short-term efficiency and long-term innovation, enhancing project performance and innovation in PBOs.

Finally, Ceptureanu and Ceptureanu (2023) contribute by exploring the impact of learning ambidexterity on innovation within creative industries, emphasizing the mediating role of enabling formalisation. Analyzing data

from 379 Romanian firms, the study demonstrates that simultaneous engagement in exploratory and exploitative learning processes significantly enhances innovation. The authors argue that enabling formalisation, which provides structured yet flexible processes, facilitates the integration of new and existing knowledge, thereby fostering innovation. This research contributes to the ambidexterity literature by highlighting the complementary roles of exploratory and exploitative learning and underscores the importance of formalisation in supporting these processes to drive innovation.

3.6 Capability Development and Management

Capability Development and Management stream delves into how organizations develop and manage capabilities to sustain ambidexterity. Research in this stream shows that capability development and management are linked to organizational learning, as it is through continuous learning that organizations develop the dynamic capabilities necessary for ambidexterity.

Dhir and Dhir (2018) highlight that firms with strong learning capabilities are better equipped to leverage exploration for innovation while also optimizing exploitation for efficiency. Using a survey of managerial personnel, the study investigates how exploration and exploitation affect firm outcomes, with learning capability as a moderating factor. The findings reveal that both exploration and exploitation positively influence firm performance. However, the relationship between exploration and firm performance is not significantly moderated by learning capability. In contrast, learning capability significantly moderates the relationship between exploitation and firm performance, indicating that firms must effectively exploit opportunities using their learning capabilities to achieve better performance. For practitioners, the study suggests that managers should focus on developing both internal and external knowledge resources to enhance their firm's ambidexterity.

Cegarra-Navarro and Dewhurst (2007) provide further evidence of the centrality of learning to capability development by illustrating how ambidexterity in learning processes can directly enhance customer capital. Through a study of 269 Spanish SMEs in the optometry and telecommunications sectors, the authors employ structural equation modelling and present a conceptual framework that defines knowledge exploration as activities involving search, variation, risk-taking, experimentation, and innovation, while knowledge exploitation focuses on utilizing existing knowledge to improve processes and services. The framework illustrates how these dual processes, when balanced within an ambidexterity context, contribute to customer capital. Their findings highlight sector-specific impacts, with telecommunications firms exhibiting more advanced ambidexterity due to dynamic environments. This connection between learning and customer capital underscores the broader impact of learning on organizational success.

Sağlam and İyigün (2019) expand on this by exploring the mediating roles of intellectual capital and organizational ambidexterity in the relationship between learning organization approaches and entrepreneurial orientation across service and production sectors. Their study reveals that intellectual capital significantly mediates the impact of a learning organization on ambidexterity, with a stronger effect observed in the production sector. They introduce interactive ambidexterity (knowledge flow within organizations) and integrative ambidexterity (collaborative exploration across boundaries) as key concepts. Their findings highlight the necessity of integrative ambidexterity, where knowledge flows across organizational boundaries, facilitating collaborative exploration and exploitation.

4. Discussion

This literature review addresses the research question: *How does organizational learning influence and incorporate the development of ambidexterity in organizations?* Through the identification of six core themes—individual roles and behaviours, learning culture, leadership and management systems, technological infrastructure, learning processes, and capability development—it becomes clear that organizational learning is a foundational mechanism for fostering ambidexterity. These themes interact in complex ways to create a cohesive framework that enables organizations to balance exploration (innovation) and exploitation (efficiency), crucial for long-term success.

At the core of organizational ambidexterity lies individual learning behaviour, which forms the micro-foundation of larger organizational processes. The research by Schnellbächer and Heidenreich (2020) demonstrates that individual knowledge-seeking (exploration) and knowledge-sharing (exploitation) behaviours are critical to enhancing organizational performance. These behaviours lay the groundwork for organizational learning by

driving the dual processes of exploration and exploitation within departments and teams. However, the effectiveness of these individual actions is significantly influenced by the organizational context.

A strong learning culture amplifies the impact of individual learning behaviours on organizational ambidexterity. Cegarra-Navarro et al. (2021) emphasize that a learning-oriented culture not only enhances individual engagement in knowledge-seeking and sharing but also promotes a collective mindset that values both innovation and efficiency. In such environments, employees feel empowered to explore new opportunities without the fear of failure, knowing that the organizational culture supports learning from mistakes. This aligns with Nagayoshi and Nakamura's (2020) findings, which highlight how learning from failure boosts exploitative activities while still supporting exploratory efforts. The interaction between culture and individual behaviour is particularly important in fostering ambidextrous capabilities. Organizations with a collectivistic culture, as noted by Yang et al. (2015), foster behaviours that reduce social loafing and enhance organizational citizenship, which in turn drives ambidextrous innovation. Therefore, a learning culture serves as the connective tissue that binds individual behaviours to broader organizational outcomes, reinforcing the balance between exploration and exploitation.

Leadership and management systems also play a pivotal role in shaping the environments where ambidextrous learning can thrive. As Da Souza and Takahashi (2019) argue, leaders act as architects of learning environments, designing systems and processes that allow for both exploration and exploitation. Effective leadership is not just about facilitating learning but about actively cultivating the right balance of innovation and efficiency through strategic decisions that impact organizational culture, individual behaviours, and technological adoption. Leaders must navigate the inherent tension between exploration (which demands flexibility and risk-taking) and exploitation (which requires control and efficiency). This is where management systems become crucial. Avby (2022) highlights the importance of integrating structured management practices, like the Plan-Do-Check-Act (PDCA) cycle, to overcome biases that favour exploitation. Strategic leadership thus serves as a mediator, ensuring that the organization remains adaptable while maintaining operational stability. The effectiveness of leadership in fostering ambidexterity is also contingent on how well it interacts with other themes. Leadership is instrumental in shaping the culture described above, drives the adoption of technology, and defines the learning processes that support capability development.

Technological infrastructure, such as Big Data Analytics (BDA) and social technologies, acts as an enabler of ambidextrous learning by providing the tools that enhance both explorative and exploitative processes. Bøe-Lillegraven (2014) demonstrates how BDA allows organizations to make real-time, data-driven decisions that facilitate adaptive learning, enabling them to pivot between exploration and exploitation as market conditions change. Mardi et al. (2018) extend this understanding by showing that social technologies enhance absorptive capacity, which is critical for integrating external knowledge into organizational learning processes. These technologies support both exploratory and exploitative learning by enabling collaboration, knowledge sharing, and rapid assimilation of new insights. However, the effectiveness of these technologies is largely determined by the cultural and leadership structures in place. For instance, a strong learning culture encourages the use of such tools to foster innovation, while effective leadership ensures that technological adoption is aligned with strategic goals. Thus, technological infrastructure not only supports learning processes but also interacts with leadership and culture outlined before to reinforce the balance between exploration and exploitation.

Learning processes are the operational mechanisms through which organizations integrate exploration and exploitation. These processes, as illustrated by Lee et al. (2013), need to be flexible enough to adapt to environmental changes while structured enough to maintain efficiency. Organizations that strategically design their learning processes to accommodate both modes of learning are better equipped to maintain competitiveness in dynamic environments. Tian et al. (2021) highlight the importance of openness in learning processes—engagement with external knowledge sources strengthens the positive effects of ambidexterity on innovation. This underscores the importance of dynamic learning processes that continuously adjust based on market conditions and organizational needs. However, these processes do not operate in isolation. Leadership plays a crucial role in shaping these processes, while culture influences how they are perceived and executed at the individual level. Moreover, technological infrastructure enhances these processes by providing real-time insights that allow organizations to adjust their learning strategies dynamically. In this sense, learning processes act as a bridge, connecting leadership, culture, and technology to the organization’s capability development efforts.

Capability development, supported by continuous learning, is both an outcome of and a contributor to ambidexterity. As Dhir and Dhir (2018) note, organizations with strong learning capabilities are better positioned

to leverage both exploration for innovation and exploitation for operational efficiency. These capabilities are not static; they evolve as organizations learn and adapt to new challenges. Sağlam and İyigün (2019) emphasize the role of intellectual capital in sustaining ambidextrous capabilities, demonstrating that integrative ambidexterity—where knowledge flows across organizational boundaries—enhances both innovation and efficiency. This highlights the importance of capability development as a holistic process that incorporates individual learning behaviours, culture, leadership, technology, and learning processes. Ultimately, capability development serves as the integrative outcome of the interactions between the six themes. It reflects the organization's ability to continuously adapt and balance exploration and exploitation over time, ensuring sustained performance and long-term success.

5. Conclusion

In conclusion, organizational learning is fundamental to the development and sustainment of ambidexterity. By fostering appropriate behaviours, cultivating a supportive learning culture, leveraging effective leadership and management systems, and utilizing robust technological infrastructure, organizations can successfully balance exploration and exploitation.

To leverage organizational learning for developing ambidexterity, companies should consider the following practical implications:

1. Encourage individual employees to explore new ideas while utilizing existing skills.
2. Cultivate a learning culture that encourages sharing of knowledge and that promote teamwork to enhance innovation and efficiency. Foster a culture of learning from failures to enhance innovation and improve departmental performance.
3. Empower leaders to create learning environments that balance innovation and efficiency. Design management systems that support exploration while maintaining necessary controls, fostering adaptability and growth.
4. Invest in advanced technologies like Big Data Analytics and social tools to enhance real-time decision-making. Create an infrastructure that supports both innovation and efficiency for sustainable growth.
5. Design learning processes that balance exploration of new ideas with refinement of existing knowledge. Adapt strategies based on firm size and market dynamics to enhance innovation.
6. Prioritize capability development through continuous learning. Balance exploration of new ideas with effective use of existing knowledge to drive innovation and improve overall performance.

By adopting these strategies, companies can foster organizational learning as critical factor to ensure high stability in production while remaining agile in response to global market changes. It provides the necessary cognitive and behavioural foundations for balancing exploration and exploitation, while also moderating the effectiveness of ambidextrous strategies on organizational performance. The results of this paper are now being used in the AmbiProd project to develop and refine the *Learning Coaching Approach*. Part of this solution will be a collection of learning formats that reinforce aspects of the six key themes, allowing companies to filter and search for learning formats according to their specific needs.

Looking ahead, the relationship between organizational learning and ambidexterity will likely evolve as organizations face new challenges. The rise of remote and hybrid work models, for example, will reshape how knowledge is shared and how collaborative innovation occurs. These new forms of work may require organizations to rethink how they structure learning processes and foster a culture of exploration. Additionally, emerging technologies such as AI-driven decision-making will further blur the lines between exploration and exploitation, as organizations use real-time data to both innovate and optimize existing processes simultaneously.

While this review offers a comprehensive overview of the intersection between organizational learning and ambidexterity, it is not without limitations. The literature selection process, although systematic, may have inadvertently excluded relevant studies published outside the selected databases or in other languages. Additionally, the development of the key themes has been influenced by the subjective interpretation of the researchers, which may have shaped the categorization of the findings. Future research should investigate the role of organizational learning in diverse cultural contexts, explore the impact of emerging technologies, and conduct longitudinal studies to better understand the evolution of ambidexterity.

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The Dobrometr Application as a Tool for Quantifying the Economic Value of Volunteering

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Abstract: Individuals and companies alike make considerable efforts in various charitable activities such as volunteering. This sector is also supported to some extent by the state. Organised volunteering is costly and companies struggle with reporting its value. Nevertheless, reporting and quantifying volunteer activities can help organisations to differentiate. The most telling value in this context is the evaluation of the impact of volunteering, but this is usually very analytical, time-consuming and costly. Quantifying volunteering is made feasible by a concept known as the value of volunteering. It does not capture the benefits of volunteering, but quantifies one dimension of the overall value of volunteering, volunteering time. To quantify the economic value of volunteering, the Dobrometr application was developed in cooperation between the Hestia centre for volunteering and the College of Polytechnics Jihlava, Czech Republic. The aim of this paper is to present the application and explain its use in determining the economic value of volunteering through the proposed method, thus facilitating its calculation. From the given date, number of hours, and type of activity related to the category, the value of volunteering is calculated. The collected data on the value of volunteering is further used to support the management of individual volunteer organisations. Information and communication technologies are used in the implementation of the application, which includes both a web application and a mobile application. By describing some of the features of the application, the paper further discusses its deployment. The application was developed within the project "Czechia Counts on Volunteering" (a TA CR project). The creation of the application was supported by in-depth research of both theoretical sources and organisations working with volunteers across the society. The aim was to create not only the conditions for organisations in practice to calculate the value of volunteering, but also a solid framework for interpreting these results.

Keywords: Volunteering, the Value of Volunteering, Non-profit Sector, Mobile Application, Android

1. Introduction

The issue of quantifying the economic value of volunteering has been widely discussed. Dingle et al. (2001, p. 4) say that “the history of volunteering is written in invisible ink”, hoping that a tool for quantifying the economic value of volunteering can “be of considerable help in giving shape and form to the contributions that citizens make to their societies through voluntary action”.

Individuals and companies alike make considerable efforts in various charitable volunteering activities. This sector is also supported to some extent by the state, which is also related to an increasing need to report work hours in non-profit organisations. Organised volunteering is costly and companies struggle with reporting its value. Nevertheless, reporting and quantifying volunteer activities can help organisations to differentiate. The most telling value in this context is the evaluation of the impact of volunteering, but this is usually very analytical, time-consuming and costly. Quantifying volunteering is made feasible by a concept known as the value of volunteering. It does not capture the benefits of volunteering, but quantifies one dimension of the overall value of volunteering, volunteering time.

To quantify the economic value of volunteering and react to the actual needs of non-profit organisations, the Dobrometr application was developed in cooperation between the Hestia centre for volunteering and the College of Polytechnics Jihlava, Czech Republic. The goal of the application is to serve as a user-friendly tool supporting the development of volunteering. The Czech name of the application, Dobrometr, generally refers to measuring the amount of volunteering. The aim of this paper is to present the application and explain its use in determining the economic value of volunteering through the proposed method, thus facilitating its calculation.

2. Materials

The value of volunteering plays a key role in the reporting of volunteering. As early as 1975, Wollozin (1975) presented a research study in which he addresses the question of the economic role and value of volunteer work in the United States. The problem of quantifying the economic value of volunteering has been studied for many years. It has been summarized, among others, in Smrčka et al. (2022a). It is also presented in the final report of

the Czechia Counts on Volunteering TA CR project (Dostál et al., 2020). Several other studies have dealt with the topic of economic value of volunteering and its quantification, some of them being (Brown, 1999), (Bowman, 2009), (Dingle, 2001), (Dostál & Vyskočil, 2014), (Gallarza et al., 2013), (Sajardo, & Serra, 2010), and (Salamon et al., 2011). Mayer & Costa (2017) is another interesting study. In this study, the authors explore the full value of corporate volunteering.

Specific issues in the voluntary sector are then addressed in, for example, the studies by Černý (2015), Lusková, & Lusková (2012), Rybáček et al. (2017), and Waniak-Michalak (2016). Orlowski, & Wicker (2016) present a study named *The Monetary Value of Voluntary Coaching*. On the issue of quantifying the economic value of volunteering, Graeber (2001) explores this issue and presents his study called *The false coin of our own dreams, or the problem of the fetish* (2001). Quantifying the economic value of volunteering is a fundamental problem. Graeber (2001) comments on the meaning of the word economic value of volunteering. According to Greber, value in the economic sense represents the level at which things are desirable (Graeber, 2001) cited in (Smrčka et al., 2022a).

The presented papers confirm that the problem of quantifying the economic value of volunteering has been a debated topic for many years. In a collective of other authors, we presented a proposed methodology for calculating the economic value of volunteering (Smrčka et al., 2022a). In the presented methodology, volunteering activities are entered individually by individual volunteers or by groups, and are categorized into activity fields and then by activity type. The value of volunteering is quantified from the entered number of work hours, the field of volunteering and the price list for a given period and field. The study is the starting point of this paper, which presents the implemented applications (mobile and web).

Use of ICT and mobile applications: Over the past few years, mobile apps have become increasingly popular and hae gained more popularity. This is due to mobile platform features such as (real-time) monitoring or real-time notifications, e.g. the frequently used Firebase Cloud Messaging (Moroney, 2017). Mobile applications find practical and meaningful use in health care – e.g. for diabetes monitoring (Villarreal et al., 2009), heart rate and physical activity monitoring – or in weather forecast, education (Soewito et al., 2019), student's alert monitoring (Gore et al., 2017), (Heryandi, 2018), in transportation, various forms of navigations (Musil, & Novotný, 2015), astrophysical transient events (Zhao et al., 2014), webcast application (Jonathat et al., 2019) etc. Even simple applications find their use. To sum up, thanks to the internet connection (Wi-Fi) the mobile application allows access from anywhere a it is possible to work with a mobile application anytime and anywhere. We have already presented several papers dealing with the design and implementation of a mobile application, examples of which are a task administration system (Musil, & Smrčka, 2023) and a management system for integration of the disabled on the labour market (Smrčka et al., 2022b). In these works, we apply real-time notifications using Firebase Cloud Messaging.

3. Design of the Task Management System

The application was developed within the project "Czechia Counts on Volunteering" (a TA CR project). The methodology for calculating the economic value of volunteering is proposed by us in (Smrčka et al., 2022) and presented in the final report of the project (Dostál et al., 2020). The hourly rates used in the calculation are determined by the average values published annually by the Czech Statistical Office. The Czech Statistical Office surveys hours worked and these hours are valued at the median wage from the Average Earnings Information System (ISPV) (Average Earnings Information System (ISPV), 2019). A mobile and web application will be developed to record volunteering activities and calculate the economic value of volunteering according to the proposed methodology. The use case diagram and the data model of the proposed system are shown in figure 1 and figure 2.

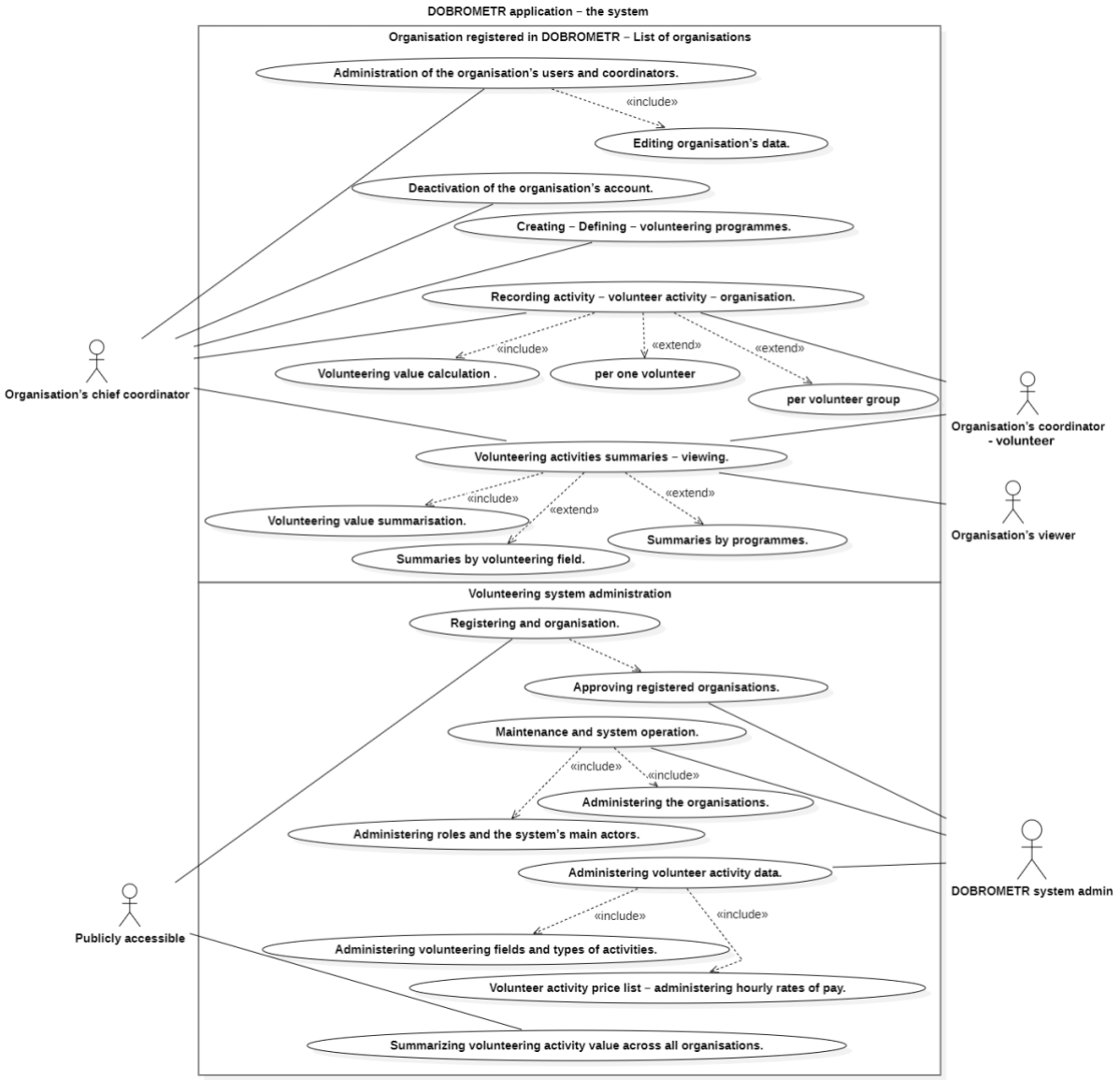

Figure 1: Use Case Diagram – shows the functions of implemented applications.

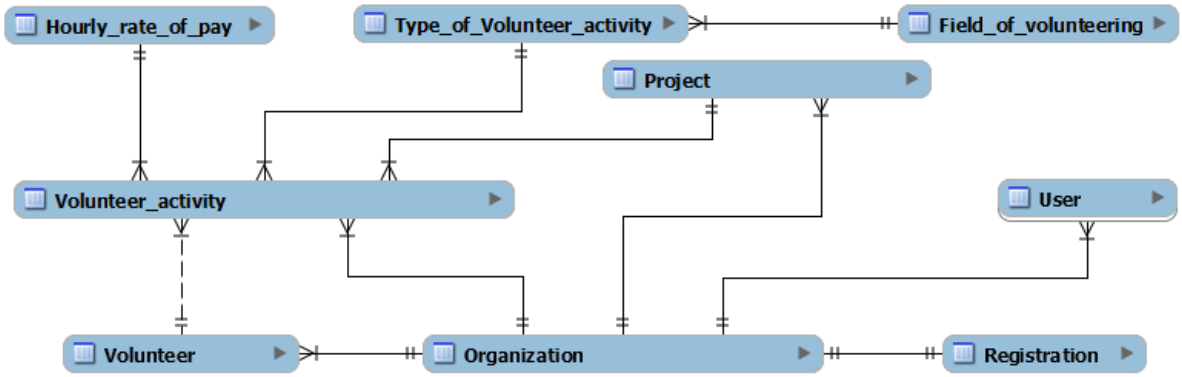

Figure 2: Data model

The Use Case Diagram shows the implemented system functions and the system actors (see Figure X). Multiple organisations can register in the volunteering system. The approval of the registration of the organization is done by the administrator (Admin role of the DOBROMETR system) on the basis of the completed registration data. The person who has registered the organisation becomes the organisation's chief coordinator (the role of the Organisation's Chief Coordinator). The Organisation's Chief Coordinator manages the volunteer staff

(Organization's Coordinator role) and defines the organization's volunteer programs. The Organisation's Chief Coordinator and the Organisation's Coordinator enter volunteering activities to the system. Volunteer activities are entered either for a specific volunteer or for a group of volunteers. The economic value of volunteering is calculated from the number of hours and type of volunteering. The summaries show a quantification of the economic value of volunteering.

3.1 Volunteering Fields and Types of Activities

Volunteering fields and types of activities are shown in figures 3 and 4. Volunteering fields and types of activities are visually illustrated by pictograms. The fields of volunteering are categorized into types of volunteering activities.

Figure 3: Volunteering fields

Figure 4: Types of activities

Application registration: the registration process prevents the inclusion of unwanted and fraudulent companies. It is performed manually based on the entered registration data. A company's registration data (ID number, type of company – legal/natural person) is then used to sum up the economic value of volunteering.

Mobile app login: see figure 5, the authentication process authenticates the user and allows access to the app by role (organisation's viewer, organisation's coordinator – volunteer, organisation's chief coordinator, system admin).

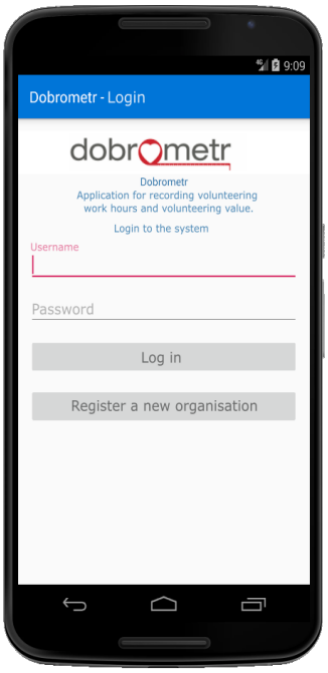

Figure 5: Mobile application login screen

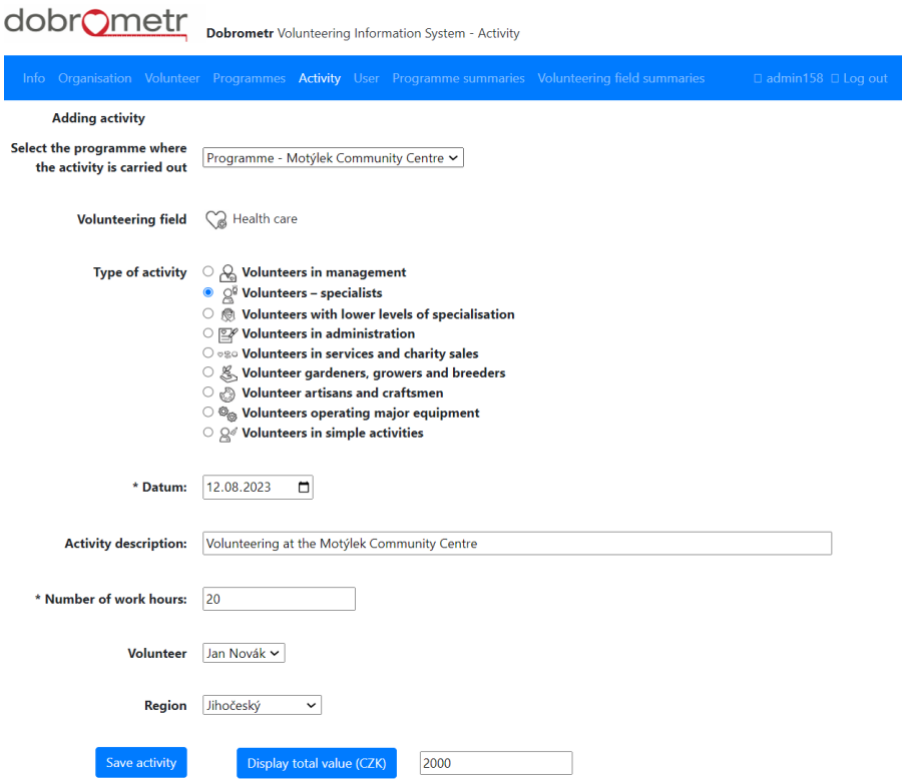

Figure 6: Entering an activity

Figure 6 shows the process of entering a volunteering activity. The field of volunteering and type of activity, the number of hours of volunteering and the volunteer who carried out the activity are selected.

4. Results and Discussion

A mobile app for recording volunteering activities has been created. The deployment of the application increases the efficiency of volunteering. The application is simple and has no special features. The advantage of the mobile application is the ability to enter data from anywhere and at any time. The use of pictograms helps understand the categories of volunteering fields and types of volunteering activities. Within an organisation, reports can be generated summarising volunteering activities and the economic value of volunteering. Volunteering data is stored in a central database, making it possible to assess the economic value of volunteering across the voluntary sector (e.g. the non-profit sector).

5. Conclusion

The application helps the volunteer organization determine the economic value of volunteering. The applications created are illustrative, easy to use and hardware friendly. Registering a company in the volunteering system is easy and the company does not need any database server. The data collected from volunteering can be used for global evaluation and provide interesting data. The system created is an asset in the field of volunteering.

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The Significance of Responsible Leadership for Innovative Work Behaviour: A Conceptual Framework

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Abstract: Responsible leadership is a key foundation in today's dynamic business world, where the call for ethical behaviour and innovation is louder than ever. Unlike traditional leadership paradigms, responsible leadership represents a multifaceted relationship and views leadership as a dynamic interplay between leaders and stakeholders, rather than a one-sided leader-follower dynamic. Based on this understanding, our study developed a conceptual framework for the relationship between accountable leadership and innovative work behaviors. It also identified mediating-moderating roles to better understand the linkages and gaps in the research. The conceptual framework was developed based on a literature search of 82 studies. The individual constructs of the model were analysed with the findings of other studies and the theoretical and practical contribution was identified through synthesis. In order to create a sustainable future, it is imperative that the pursuit of continuous innovation and the principles of responsible behaviour form the cornerstones of any society. Responsible leadership stimulates innovative work behaviour not only for the benefit of the organisation but also for the well-being of all stakeholders. This is essential to building the relationships and corporate culture that mediate this relationship. The moderator of this relationship is the moral intelligence of the responsible leader, which strengthens the relationship between responsible leadership and innovative work behaviour. The study contributes by providing a comprehensive review of the existing knowledge on responsible leadership and innovative work behavior. Furthermore, it enriches scholarly knowledge and offers practical insights into the characteristics desirable in CEOs to promote responsible and innovative business behavior.

Keywords: Responsible Leadership, Innovative Work Behaviour, Conceptual Framework, Moral Intelligence, Corporate Culture, Building Relationships, Mediation Role, Moderation Role

1. Introduction

Since the second half of the 20th century, approaches, organizations and methods have gradually emerged to highlight the undesirable development of business and the importance of responsible business (Tekin *et al*., 2015). Waldman (2011) highlights the definitional ambiguity and ideologically biased leadership research within the concept of responsible leadership. Responsible leadership should be better able to address the challenges of globalization than existing leadership concepts (Vögtlin *et al*., 2012). RL is closely related to IWB, as some researchers have pointed out (Javed et al., 2019; Leonard and Swap, 2005). Notably, Haque and Yamoah's (2021) findings highlight the key role of ethical leadership in strengthening IWB, suggesting a potential parallel with responsible leadership. As IWB becomes increasingly important in adapting to a dynamic business environment (Crossan and Apaydin, 2010), understanding it is essential to sustaining firm performance and effectively addressing emerging challenges (Al-Omari et al., 2019). Despite growing interest in responsible leadership and IWB, comprehensive analyses remain limited (Amankwaa et al., 2019). Existing studies largely focus on the micro and meso levels. We therefore pose the following research questions:

RQ1: What is the nature of the relationship of responsible leaderhsip and innovative work behaviour?

RQ2: What constructs create mediating-moderating relationships between responsible leadership and innovative work behaviour?

Although the need for accountable leaders is widely acknowledged (Cameron, 2011), this paper provides a new perspective and proposes a conceptual framework that illuminates the multifaceted relationship between RL and IWB. The study posits that two key mediators influence the relationship between RL and IWB: relationship cultivation and organizational culture. In addition, we identify a moderator, namely moral intelligence, as a significant factor influencing this relationship. Therefore, our research not only contributes to the scholarly understanding of RL and IWB, but also offers practical insights into the characteristics sought in CEOs for responsible and innovative business practices. The paper has been divided into the following sections: section 2 provides the theoretical background, section 3 presents the methodology, and section 4 shows our results, which are discussed with the results of other papers. The last section discusses conclusions and limitations.

2. Literature Background

2.1 Responsible Leadership

Changing societal values, stakeholder expectations, and the evolving business environment have created the need to implement accountability into business strategies, thereby preventing ethical damage to companies. The need for Responsible Leadership (RL) arose from a critique of existing leadership theories (Waldman and Galvin, 2008). Initially, social responsibility was conceptualized as philanthropy (Diermeir, 2022). Social responsibility was primarily internally focused, so ethical values and beliefs were reflected in the workplace (Brown and Mitchell, 2010). Change occurred when influential companies were damaged by scandals involving sweatshops, animal cruelty, and environmental pollution (Avery and Koen, 2018; Kam and Deichert, 2020). This led to the emergence of the well-known concept of CSR, to which companies gradually began to commit (Galbreath, 2006). Companies sought to correct their mistakes in this way. This approach led to the spread of awareness about ethical leadership in practice, which focuses on making decisions based on firm moral principles and values (Giessner et al., 2015). Ethical leaders prioritize honesty, integrity, and fairness in their actions and interactions (Treviño et al., 2000), which was necessary to repair the reputation of firms. Additionally, Hartog (2015) adds that an ethical leader should consider all stakeholders, thus directing social responsibility externally, which correlates with the essence of stakeholder theory (Freeman, 1984).

The foundations for current research on RL were laid by Maak and Pless (2006) in their publication on the RL model in the Journal of Business Ethics, where they view RL as a value-based relationship between leaders and stakeholders who are united by a shared purpose. The result is increased motivation, commitment to responsible change, and the achievement of sustainable values (Tastan and Davoudi, 2019). RL views leadership as a two-sided leader <-> stakeholder relationship, in contrast to other leadership styles that view leadership as a one-sided leader -> follower relationship (Rost, 1991; Yukl, 2006). RL balances the external pressures of conflicting stakeholder interests with the internal tensions of leaders who must lead based on integrity and unity (Maak and Pless, 2006). Studies conducted by Buysse, Verbeke (2003), and Voegtlin et al. (2012) found that organizations led by responsible leaders are more likely to achieve better results.

2.2 Innovative Work Behaviour

The foundations for nowadays IWB concept were laid by Kanter (1988) who outlined that the innovation process consists of a set of behaviours of individuals within an organisation. In the following years, several studies focusing on "individual innovation" processes have been conducted, highlighting the need for an active role of employees in the innovation process (Dorenbosch *et al.,* 2005; Scott and Bruce, 1994). The most cited IWB definition in previous research is that of Janssen (2000), who characterizes it as an intentional employee behaviour involving the generation of ideas, their promotion and implementation within a job role, group or organization aimed at improving performance. Other scholars (De Spiegelaere et al. 2012; Bos-Nehles *et al.,* 2017) basically build on this definition and specify that IWB comprises ideas regarding new processes, products, procedures, technologies, or work methods. In doing so, all the above authors have agreed that IWB is a three-stage process. Furthermore, AlEssa and Durugbo (2022) clarified that this three-stage process is carried out through “critical thinking, recognizing potential and existing problems, exploring opportunities and solutions, identifying performance gaps and seeking new methods and procedures with the purpose of improving organizational performance internally and externally for creating value, attaining competitive advantage and ensuring sustainability.” This comprehensive definition is most appropriate for the purpose and focus of our research study. More specifically, idea generation means creating useful new ways to improve existing processes and products or solve current problems (Muchiri *et al.,* 2020).

So far, research in the field has paid enormous attention to the different antecedents and factors that potentially promote IWB. Al-Omari *et al.* (2019) based on the reviewing previous literature identified that these factors are mainly related to leadership, organizational and individual factors. Akmal and Mehmood (2020) conclude that in the past most of the antecedents of IWB are investigated at the organizational level. For instance, the influence of organizational culture or climate (participatory, open, flexible and safe) and human resource management practices (rewards, remuneration, training and development, etc.) as promoting factors of IWB are very often mentioned (Carlucci *et al.* 2020; Afsar and Badir, 2017; De Spiegelaere *et al.,* 2014). In addition, Ataoğlu (2019) and Al-Omari *et al.* (2019) summarize that among the most frequently cited individual factors belongs attitudinal variables (work engagement, intrinsic interest), personality variables (proactivity, openness

to experience, determination to succeed, etc.), as well as the employee's competency (divergent thinking style, specific knowledge and skills, emotional intelligence).

3. Methodology

The methodological approach of this research article involves a literature review of 82 studies over the past 10 years using keyword searches such as "responsible leadership", "innovative work behavior", "corporate responsibility", and "innovative employees". The examination of key terms provided insights into various aspects of RL and IWB, serving as a basis for identifying gaps, patterns, and trends in the literature on RL, IWB, and their possible interrelationships. Proceeding from literature review to the development of a conceptual framework, the synthesis of theoretical concepts guides us toward a thorough and systematic examination of mediating and moderating relationships.

Maree (2012), Tracy (2013), Ravitch and Riggan (2017) consider the conceptual framework as a key element of a research project. A conceptual framework comprises conceptions, general knowledge, and logical thinking, providing the foundation for understanding potential relationships throughout the research process (Van der Waldt, 2020; Somekh and Lewin 2011). The term "conception" refers to a mental image or abstraction of a phenomenon, encapsulating an idea or observation about its characteristics (Saunders et al., 2015). Concepts vary in levels of abstraction, with highly abstract ones challenging to visualize and define, often referred to as "constructs". Prominent constructs include leadership, ethics, performance, and motivation (Silverman, 2005; Leggett, 2011). Miles and Huberman (1994), Jacard and Jacoby (2010), and Ravitch and Riggan (2017) perceive the conceptual framework as a visual representation of the key theoretical principles or concepts of a study. Typically presented as a graphical or schematic diagram, it illustrates key concepts and their interrelations. Such visual representation aids in understanding the relationships between concepts and constructs (Jarvis 1999; Tracy 2013), often referred to as concept maps by Maxwell (2005), which must be structured and coherent. Marshall and Rossman (2006) echo this view, likening the conceptual framework to a visual map. The visual clarity provided by the framework enables a clear understanding of the complex dynamics between RL and IWB and lays the foundation for future empirical research.

4. Results and Discussion

On the basis of existing literature, new relationships in the issue can be perceived. Building relationship and Corporate Culture are mediators in the relationship between RL and IWB. MI is the moderator in the relationship between RL and IWB. These relationships are entered into folowing Conceptual framework**.** At the same time, there is a two-way relationship between Rl and IWB.

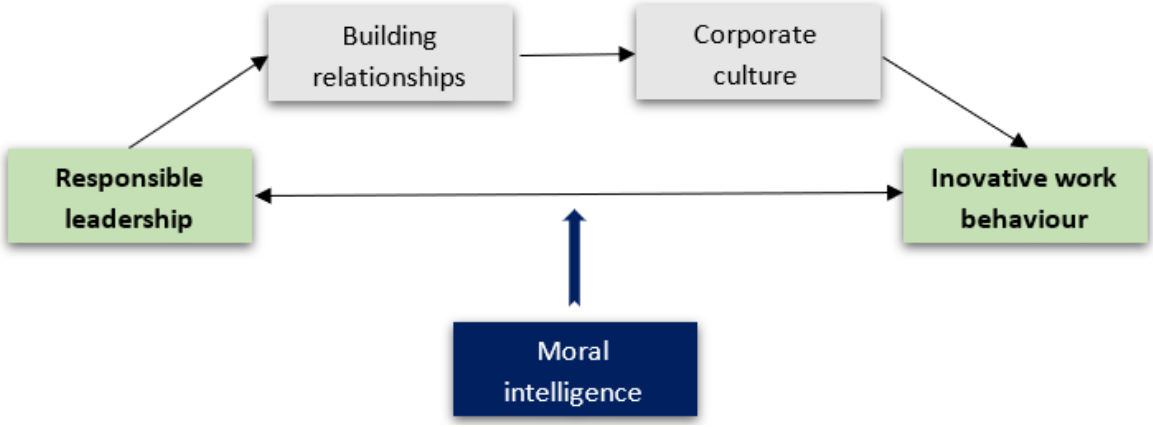

Figure 1: Conceptual framework of relationship between RL and IWB

4.1 Mediating Role

Recently, most scientific studies are devoted to effective leadership style as stimulating factor of IWB. Attention has already been given to a range of leadership styles, ethical (Muchiri *et al.,* 2023), reciprocal (Yindong and Xinxin, 2013), inclusive (Shakil *et al.,* 2021; Aslan, 2019; Javed *et al*., 2019) and authentic (Černe *et al.,* 2013) leadership, which are suitable for fostering creativity and innovation. However, transformational leadership dominates in IWB research studies (Afsar and Umrani, 2020; Amankwaa *et al*., 2019) with positive impact

through high psychological empowerment (Grošelj *et al.,* 2021). Amankwaa *et al.* (2019) empirically demonstrated that job autonomy and supportive management are the mediators of the relationship between transformational leadership and IWB. Furthermore, Choi *et al.* (2016) found that transformational leadership encourages employees intellectual thinking thereby helping them to think outside the box.

Building relationship (RL) aims to build and maintain ethical and social bonds between executives and stakeholders (Pless, 2007). Maak and Pless (2006) argue that leaders must balance external pressures from conflicting stakeholder interests with internal tensions when leading with responsibility. Therefore, it is necessary to build relationships with both internal and external stakeholders. RL seeks to find a balance between these interests and consider them when making decisions about innovative projects. Leaders support IWB through quality team relationships. In the context of building relationships with external stakeholders, the Leader-Member Exchange (LMX) approach can be mentioned. LMX is a dyadic relationship in which employees seek a relationship with their supervisor that expresses concern, care, support, loyalty, resources, and reliability for them and their work role (Kuvaas et al., 2012). In good relationships, they provide necessary resources, significantly supporting the development of IWB (De Jong and Den Hartog, 2008). Current research indicates a positive correlation between LMX and IWB (Li et al., 2021; Agarwal et al., 2012; Munoz-Doyague and Nieto, 2012). Social responsibility towards external stakeholders as well as towards internal stakeholders, along with participative leadership, are fundamental conditions for corporate success (Schönborn, 2010). Therefore, BR serves as a mediator in the relationship between RL and IWB. However, many scholars emphasize further investigation (Kim and Park, 2017; Schermuly et al., 2013; Stander and Rothmann, 2010).

***Corporate Culture* (CC)** can be consider as a mediator in the relationship between RL and IWB through shaping values, shared motivation and expectations. As organizations strive for sustainability, a strong corporate culture becomes a linchpin that not only shapes organizational identity, but also to achieve sustainability goals. A notable contribution comes from studies elucidating the instrumental role of CC in mitigating unethical behavior and curbing CEO turnover (Graham *et al.,* 2021; Fiordelisi and Ricci, 2014). Moreover, Giao (2019) contributes by emphasizing that CC serves as an encompassing force that actively supports innovation. This perspective broadens our understanding of CC beyond its conventional functions, positioning it as a dynamic catalyst for fostering innovative thinking and practices within an organization (Zemanova *et al.,* 2022). Numerous studies have highlighted the importance of a teamwork climate in IWB (Mathisen *et al*., 2006). Research by Pirola-Merle (2010) further clarifies the link between teamwork climate and innovation performance and suggests that a positive and collaborative team atmosphere facilitates innovative outcomes. Klaic *et al.* (2020) recommend that leaders actively foster team identity and cultivate team cohesion. By doing so, they not only foster an environment where innovative behaviour is encouraged, but also contribute to the foundations of organisational effectiveness. Theresia *et al.* (2018) and other scholars shed light on a crucial aspect the link between organizational culture and the sustainability goals pursued by RL. The failure of organizations to achieve sustainability goals is often attributed to a lack of corporate culture.

4.2 Moderating Role

Moral intelligence (MI) is the moderator of the relationship between RL and IWB. In today's interconnected world, leaders with enhanced moral intelligence play a key role in engaging with corporate culture, which is essential for thriving in the business sphere (Prasetiawan and Barida, 2018). Al-Adamat *et al.* (2020) emphasizes that MI is a skill that can be cultivated through practice. Diermeier (2022) argues that MI cultivates over time depending on: generation, global value, nationality and social networks. Generational influence is a valid detractor of MI because while the older generation was predominantly oriented towards materialistic values associated with stability and efficiency. The pressure of the younger generation has shifted the development of global values towards post-materialistic values such as self-expression, environmental care or tolerance. The rise of social activism in the form of pressure for environmental protection, private politics or civic equality (gender equality, LBQTQ) has also played a role (Diermeier, 2022). The influence of national differences is also significant, e.g. concern for social justice would be at the forefront in Northern Europe, but less important in India or China (Inglehart, 1997), which is related, for example, to conflicts of interest in the form of sweatshops. Last but not least, it is important to mention the rise of social networks, which also influence MI. Social networks have enabled the rapid sharing of information and opinions. Businesses now exist in a 'media environment', meaning that the wording, delivery of a message or even the personality of an executive can influence the views and perspectives of the entire public (Diermeier, 2022).

5. Conclusion

This study reviewed existing research on the relationship between RL and IWB in order to gain a comprehensive overview of the existing body of knowledge. Examining key concepts provided insight into various aspects and relationships of RL and IWB. Regarding first *RQ1* the study showed the ways in which RL contributes to IWB. To fulfill the second *RQ2*, the study identified the main mediators of this relationship and moreover revealed the mediating effect of MI. Therefore, this study is expected to be an important source of reference for researchers and practitioners. The study within the theoretical implications contributes by synthesizes fragmented knowledge from individual studies and creates a conceptual framework that provides a coherent understanding of the dynamics between RL and IWB. Furthermore, the study contributes by identifying managerial implications that can be a starting point for responsible leaders who have IWB efforts. Leaders must build good relationships with both internal and external stakeholders, invest effort in desirable CC that will support IWB and cultivate the skill of MI.

However, the results of this study may potentially be limited by the inclusion and exclusion criteria used, ie the words, databases and search fields selected. This limitation may mean that the study failed to comprehensively capture all relevant research on the topic, despite all precautions taken. The finfings of this study indicate a necessity for additional empirical investigations which confirms that the relationship within RL field is still at its development stage. Future research needs to focus how individual components of MI influence the relationship between RL and IWB and which other aspects of BR and CC contribute to IWB.

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Investigating the Influence of Gender Diversity and Management Practices on the Introduction of Innovation in CEE Countries

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Abstract: The role of management in any organizational context is to identify and exploit positive influences and opportunities that lead to the achievement of business objectives and competitive advantage. Those involved in effective management should be able to define the factors that have a decisive influence on the innovative activity of the enterprise. The identification of these influences is a key source of knowledge for defining or adjusting corporate strategies, resulting in long-term benefits and effective business development. As the market is constantly evolving, businesses must adapt to it. In recent years, researchers and experts have paid considerable attention to the study of gender issues in various areas of management. Much of the existing research has shown a positive correlation between gender diversity and innovation in developed countries. However, empirical studies in transition or developing countries remain limited. Therefore, we focus on Central and Eastern European countries. Based on regression analysis of data from the large-scale WBES survey, the aim of the study is to identify the relationships between gender structure of management, management practices and innovation. Unlike previous studies, this study uses a management practices index that combines data from eight indicators of management practices and assesses how well they are structured. This study thus enriches the ongoing research on the impact of gender and the structure of management practices on innovation in the EU member states of Central and Eastern Europe. The contribution of this study lies in the analysis of several different types of gender diversity and a composite index of managerial practices in relation to firms' innovation performance, and the specific context of the analysis in Central and Eastern Europe countries may provide new insights, as different factors affect innovation performance in these countries than in their Western counterparts. The results of this research provide a deeper understanding of the dynamics between gender diversity in management and innovation, which could provide a basis for the development of policies and corporate strategies to promote diversity and innovation in the business environment of Central and Eastern Europe countries.

Keywords: Gender, Gender Diversity, Management Practices Index, Innovation, CEE Countries

1. Introduction

The equal representation of men and women, often referred to as gender diversity, has been demonstrated to positively affect innovation in developed countries (Ritter-Hayashi et al., 2019). To date, a limited number of scientific studies conducted in transition economies have revealed comparable findings, yet this body of research remains relatively rare (Tonoyan and Boudreaux., 2023; Prokop et al., 2023). In addition, it is important to note that the scientific studies that have been conducted employ disparate methodologies, with some focusing on board gender diversity (Horbach and Jacob, 2018), others on owner gender diversity (Prokop et al., 2023), top management team diversity (Lee and Chung, 2022) or employees gender diversity (Østergaard et al., 2011). This difference in approach significantly complicates the comparability of the findings across studies. It is evident that further research is required in this field. Consequently, the present study will examine the hypotheses pertaining to the influence of gender diversity and management practices on the adoption of innovation in CEE countries.

In the context of gender diversity and innovation, Torchia et al. (2011) explored that female directors increase the level of organisational innovation through their involvement in strategic board tasks. An essential strategic task that facilitates innovation performance is the establishment of an appropriate structure of management practices (Kalay and Lynn, 2015). The results of Haneda and Ito's study (2018) show that the simultaneous implementation of more than one management practice is associated with a higher probability of new product innovation. In particular, personal assessment has a strong and positive relationship with innovation success. The general reason is obvious: if performance appraisal is not used as a tool for employee development, it can create fear and mistrust, lack of motivation and employee engagement (Dvorakova and Kotkova Striteska 2023).

Testing these findings using large sample survey datasets would be useful (Haneda and Ito, 2018). This study therefore examines the impact of gender diversity and management practices on innovation in Central and Eastern European countries (hereinafter CEE countries), using regression model analyses of data from a large-scale WBES survey. This study makes a contribution to existing knowledge by analysing a number of different types of gender diversity and a composite managerial practices index in relation to firms' innovation

performance. Furthermore, the particular context of conducting the analysis in CEE countries may yield new insights, as distinct drivers influence innovation performance in these countries in comparison to their Western counterparts (Kotkova Striteska et al., 2024; Myslivcova et al., 2023; Vesely and Vesely, 2018).

The subsequent sections are structured as follows: Section 2 presents the literature review and the hypotheses development, next part describes the methodology and data used, part 4 presents the results of our research, which are then discussed with the findings of relevant studies. The final section offers concludint remarks, including theoretical and practical implications, research limitations, and suggestions for future research.

2. Literature Review and Hypothesis Development

Innovation can be defined as the utilisation of novel knowledge, ideas, methodologies and competencies to develop distinctive capabilities that bolster an organisation's competitive advantage in the global marketplace. This process encompasses both technological and administrative dimensions (Andersson et al., 2008; Daft, 1978). Innovation is essential for the development of economic growth as it enhances firms' performance, competitive advantage and market share (Torchia et al., 2011). Investment in R&D plays a key role in the development of innovation (Rehman et al., 2020) as it promotes the discovery of new ideas, product development and process improvement. These innovations in turn attract further investment, create jobs and stimulate long-term economic growth (Bakari et al., 2023). To date, much research on firm-level innovation has focused on the relationship between innovation and performance, on different types of innovation and competitive advantage, or on the determinants of innovation and firm growth. (Latan et al., 2019; Wang & Wang, 2012; Arranz et al., 2019). Focusing on intangible resources, such as employee composition, is crucial for understanding innovation performance (Biscione et al., 2022). Gender diversity has been associated with higher innovation in developed countries (Østergaard et al., 2011; Díaz-García et al., 2013), but its impact in the CEE region remains understudied.

Gender diversity is considered as a key intangible resource in firms that encompasses differences in knowledge, experience and skills (Ali et al, 2011; Østergaard et al, 2011). Women bring different approaches to problem solving (Quintana-Garcia & Benavides-Velasco, 2008), have a better ability to reduce conflict in the workplace, are often better educated, and have higher work expectations than men (Nielsen & Huse, 2010; Eriksson-Zetterquist, 2007). Gender diversity strengthens external ties, team knowledge, and innovation performance, which enhances firm innovation performance (Diaz-García et al, 2013). The inclusion of women in work teams has been found to enhance the knowledge gap and innovation performance of the firm, particularly when coupled with male entrepreneurship (Dai et al., 2019).

The research conducted by Ritter-Hayashi et al. (2019) indicates that the presence of female managers in senior positions and the inclusion of women as owners of firms are both associated with an increase in the level of innovation activity within those firms. Nevertheless, the existing literature on the relationship between innovation and female top managers remains limited (Becic & Vojinic, 2018; Dezso & Ross, 2012). Some research findings indicate that firms where women occupy top management positions demonstrate a lower level of innovation activity (Becic & Vojinic, 2018). Conversely, other studies, such as that conducted by Dohse et al. (2019), indicate that women occupying ownership roles are more innovative than those in managerial roles. Top managers generally influence firms' innovativeness by creating an environment that fosters innovation, including trust, employee engagement and accountability (Ritter-Hayashi, 2019). Transformational leadership, often associated with women, promotes innovation (Zuraik and Kelly, 2018; Jung et al. 2003; Jung et al, 2008). Thus, women in leadership positions may have the potential to increase the level of innovation in firms (Eagly and Carli, 2003). However, research on gender influence on innovation remains scarce and often yields inconsistent results, highlighting the need for further research on this relationship, particularly in developing countries (Ruiz-Jiménez and Fuentes-Fuentes, 2016; Singhathep and Pholphirul, 2015). Based on these findings, we therefore put forward hypotheses:

H1a: Gender diversity in the ownership structure of a firm positively influences the firm's innovation activities.

H1b: Gender diversity in top management has a positive impact on the firm’s innovation activities.

H1c: Gender diversity among employees positively affect the firm’s innovation activities.

Following on from the area of gender diversity and its impact on innovation, it is also essential to consider the role of management practices in shaping a firm's innovation capabilities. Gender diversity is an important factor that can influence the structure of managerial practices and thus the ability of companies to innovate. Management practices include the methods, procedures and strategies that managers use to effectively manage

organizations to improve their productivity and performance (Bloom & Van Reenen, 2007). Management practices vary from country to country. Although the size and profitability of consulting industries often serve as an indicator of the importance of management practices, research has also shown a direct link between changes in management practices and the performance of medium and large firms (Bloom et al., 2013; Bruhn et al., 2018). In particular, management practices that are oriented towards quality management have a significant influence on the generation of new ideas and innovations (Kim, 2012). Higher levels of managerial education are positively correlated with effective management practices, indicating that skilled managers can design and implement more productive strategies (Bandiera et al., 2020; Queiro, 2022). The implementation of well-structured management practices, including the establishment of clear goals, structured communication, and adaptability, has been shown to enhance the innovation capacity of organisations. This is particularly advantageous for small and medium-sized enterprises (SMEs) in navigating market changes (Valero, 2021). Supportive human resource management practices, such as continuous learning and appropriate performance appraisals, also play an important role in enhancing an organization's ability to adopt innovation (Abrunhosa & Sá, 2008). Furthermore, enhancements in managerial techniques are constrained by a dearth of proficient managerial human capital and skilled labour (Homkes, 2011). To better measure how well-structured companies are implementing management practices that lead to higher performance, the Management Practices Index (MPI) is used. MPI involves long-term problem solving, setting production or service goals, and using motivational tools such as bonuses or promotions to reward good performance and punish poor performance (WBES). Based on these findings, we therefore put forward a second hypothesis:

H2: Management practices have a positive impact on firm's innovation activities.

Based on the results of the literature search on the impact of gender representation and managerial practices on the promotion of innovation in CEE EU countries and the formulated hypotheses, we present the conceptual model of our study (see Figure 1).

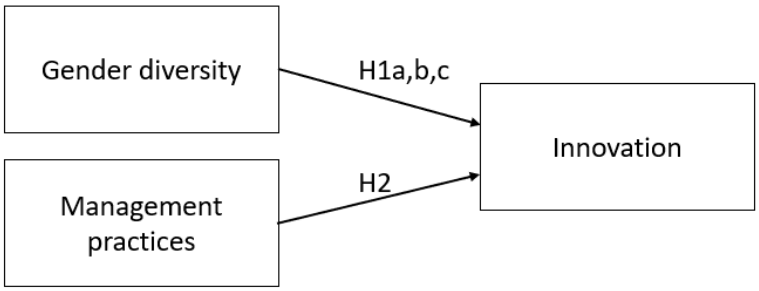

Figure 1: Conceptual model

3. Data and Methodology

This study uses data from the 2019 to 2023 World Bank Enterprise Survey (WBES), which provides cross-sectional data from a representative sample of 5 534 firms in the private manufacturing and services sectors. The survey covers a wide range of topics related to the business environment, including attitudes toward gender diversity and management practices. We chose to use the comprehensive Management Practices Index (MPI) to assess management practices. The MPI examines 8 key areas of business focus, including practice management, relationship management and business planning. It is calculated as follows:

$$mgmt1_i = \frac{\sum_{j=2}^{9} mgmtj_i}{8}$$

where $mgmtj_i$ = [0,100] is management practice j (2 through 9) by business i, averaged over all 8 components. Observations for which all 8 components are available are used. Due to this structure, mgmt1 varies between 0 and 100 (WBES). MPI scores help firms better understand their opportunities, identify gaps, and define next steps to address them. The research sample consists of 8 Central and Eastern European countries that are also members of the European Union. They are Bulgaria, Croatia, the Czech Republic, Hungary, Poland, Romania, Slovenia and Slovakia. These countries have a similar historical development and are commonly classified as emerging innovation systems (Stojcic, 2021), at the same time, are also members of the EU and therefore recognise similar policies, strategies and objectives.

To quantify the success of innovation as a dependent variable, INV was used to represent the proportion of firms that have introduced a new product or service in the last three years. The independent variables focus on two main constructs. The first construct is the representation of women in firm management (Conyon and He, 2017; Gharbi and Othmani, 2023) measured by the variables women participation in ownership (WPO), majority women ownership (MWO), woman top manager (WTM), proportion of permanent full-time workers that are women (PFW). These variables were chosen in order to analyze the gender diversity at different levels of management in the company, starting from ownership, through top managers to ordinary employees. The second construct is an assessment of management practices (Bloom et al., 2019) by composite management practices index (MPI), that combines information from eight management practices indicators. Finally, we supplement our model with a control variable closely related to innovation – spend on R&D in the last fiscal years (R&D) as stated by Rehman et al (2020). A more detailed overview of the variables, including their units and sources, is presented in the following table (see Table 1).

Table 1: Overview of Variables

Type	Variable	Description	Unit	Source
Dependent	INV	Firms that introduced a new product/service over last 3 years	%firms	WBES
Independent	WPO	Women participation in ownership	%firms	WBES
	MWO	Majority women ownership	%firms	WBES
	WTM	Woman top manager	%firms	WBES
	PFW	Proportion of permanent full-time workers that are women	%firms	WBES
	MPI	Management practices index	%firms	WBES
Control	R&D	Spend on R&D in the last fiscal years	%firms	WBES

This study uses a linear regression model to analyze the relationship between dependent (INV) and independent (WPO, MWO, WTM, PFW, MPI) variables. For a comprehensive overview of linear regression, refer to Montgomery et al. (2021). Through regression analysis, we can identify how individual factors affect the innovation performance of firms in each CEE country. The results allow us to assess the extent to which gender representation in the ownership structure, top management and among employees, together with the quality of managerial practices, contributes to innovation within the economies.

The coefficient of determination was also a critical component of our analysis, enabling us to evaluate the goodness of fit of our regression model to the observed data. A higher coefficient of determination signifies a superior fit of the linear regression model to the collected data. All calculation in this study were carried out with Gretl software.

4. Results and Discussion

Several interesting findings emerge from the results of our linear regression model (see Table 2). The validity of these findings is further enhanced by the coefficient of determination 0.997. the model explains 99.7% of the variability in the data, indicating high accuracy. The relevance of our analysis is further underlined by the 95% significance of our chosen control variable (R&D).

Table 2: Regression Analysis Results

Independent	Coeff. Estimate	Std. Error	*t*-value	*p*-value	Sign. Code
CONST	9,914	7,718	1,284	0,421	**
WPO	-0,089	0,084	-1,060	0,482	
MWO	-4,035	0,162	−24,95	0,026	**
WTM	4,379	0,230	19,01	0,034	**
PFW	0,123	0,158	0,779	0,579	

Independent	Coeff. Estimate	Std. Error	*t*-value	*p*-value	Sign. Code
MPI	1,049	0,089	-11,76	0,054	*
R&D	1,849	0,052	35,32	0,018	**
R-squared 0.997					

Signif. codes: '***' 0.001; '**' 0.01; '*' 0.05; '.' 0.1

According to regression model results, the WPO variable did not show a statistically significant effect on innovation. The variable MWO showed a negative effect on innovation at the 95% significance level, indicating that gender diversity among owners does not have a significant positive effect on innovation, thus **rejected H1a**. Our findings thus contradict the results of the study by Dohse et al. (2019) which shows that women in ownership positions are more innovative than women in managerial positions. Additionally, the results of our study are inconsistent with the findings of the authors Ritter-Hayashi et al. (2019), who demonstrated that the inclusion of women among business owners is associated with an increase in the level of innovation activity in these firms. This may be because while business owners have strategic control and long-term influence, their day-to-day interaction with operational processes, where innovation often occurs, may be limited. Unlike top managers with a direct influence on creating conditions that support innovation. In some regions, there may also be historical or social barriers and stereotypes that prevent women from fully participating in entrepreneurship or accessing the resources, funding, that are key to fostering innovation.

On the contrary, variable WTM indicates a positive and statistically significant relationship with innovation, **confirming H1b**. The results of the analysis are consistent with the findings of previous research (Eagly and Carli, 2003; Diaz-García et al. 2013). Women managers often bring different approaches to decision making and problem solving due to their diverse experiences and perspectives. Quintana-García and Benavides-Velasco (2008) emphasize that diversity of thought promotes creativity and innovation, which is important for the development of new products, services and processes. Thus, the presence of women in leadership roles allows firms to draw on a wider range of ideas and perspectives, leading to more innovative outputs. In addition, women have a better ability to manage teams, reduce conflicts and create a harmonious workplace environment, which is crucial for generating and implementing innovative ideas (Nielsen & Huse, 2010). On the other hand, the variable PFW was not statistically significant, indicating that the data **do not support H1c**. This result may be influenced by the fact that a woman, as a regular employee, has a more limited influence on strategic decisions and therefore cannot push for innovative plans, new ideas and approaches that promote innovative activities.

The MPI variable showed a positive effect on innovation at the 90% significance level. This suggests that better management practices can positively affect innovation, **confirming H2**. The results of our analysis are also consistent with the claim of Bloom et al. (2013), who emphasize that well-structured management practices can improve the performance of firms, including their innovation capacity. In addition, Kim (2012) points out that quality management, which is part of well-structured management practices, can directly influence innovation. These studies confirm our results and support the view that systematic improvement of management practices can significantly contribute to the innovative potential of organizations.

5. Conclusion

This study reveals how gender diversity in firms affects innovation in EU member countries in CEE. Our findings show that while gender diversity among owners (MWO) does not have a significant effect on innovation, gender diversity in top management (WTM) shows a positive association with innovative performance. Furthermore, well-structured management practices, as measured by the management practices index (MPI), were found to be associated with higher levels of innovation. This demonstrates the crucial importance of well-structured management practices in driving innovation, particularly with regard to gender diversity in leadership roles. Thus, the results highlight the importance of incorporating gender diversity into management strategies in order to enhance innovation potential in the CEE region.

The contribution of this research is that its results offer new insights into the impact of gender diversity and managerial practices and shed light on which factors should be taken into account when formulating strategies to enhance innovation in enterprises in EU member countries in Central and Eastern Europe. The results of this study have several applications for business owners, managers and policy makers in other transition countries. A useful tool could be the introduction of quotas for women in leadership positions and subsequent monitoring.

This could increase the representation of women in leadership positions. These quotas, set by companies or policies, could be applied in both the private and public sectors, with benefits to companies that promote this balance. Supporting the development of female talent through mentoring and training programmes or providing flexible working conditions that can facilitate women's participation in senior management while balancing work and personal commitments would be appropriate. Policy makers and business leaders in CEE countries could lead public campaigns and support the introduction of policies to promote diverse leadership teams and initiatives to increase gender balance in leadership. Consequently, mechanisms for monitoring and regularly evaluating gender diversity in companies should be put in place. From a theoretical perspective, the study contributes to existing knowledge by showing the differential impact of gender representation on innovation, particularly in transition economies. It also develops an understanding of the interaction between managerial practices and innovation and provides a basis for further research on these dynamics. By incorporating an index of managerial practices, the study offers a new perspective on examining the impact of managerial practices on innovation.

This study also has limitations that present opportunities for future research. First, our study is based on a sample of firms from selected Central and Eastern European countries that have a similar post-1990 historical development and are also EU members. A future study could be extended to include comparisons with other EU member states or non-post-communist countries. Secondly, it would be interesting to make a comparison of the countries in our research after 2025, as EU Member States have set themselves the target of achieving gender equality in companies by that year (Commission.europe.eu, 2020). Last but not least, it would be possible to add more input variables and use a different method of analysis in the future.

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Green Human Resource Management and Environmental Performance: A Bibliometric Study and Future Directions

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Abstract: The global need to solve escalating environmental challenges brings increased focus on organizations and their impact on environmental performance. The significance of green human resources management (GHRM) is increasingly recognized as aligning organizational objectives with environmental sustainability goals, fostering eco-friendly workplace practices and enhancing corporate social responsibility. GHRM and its contribution to environmental performance has received growing attention from scholars, however, a need to systematically review and synthesize the literature in this area remains. This research offers a comprehensive overview of green human resources management and environmental performance literature highlighting the major themes in the current developments along with the new trends and patterns for future research observed in this field. For conducting a systematic literature review and bibliometric analysis, a total of 227 documents were extracted from the Scopus database. Following the PRISMA 2020 Protocol, 144 published articles from 2014 to 2024 were included for final analysis. Performance analysis and science mapping (citation, co-citation, bibliographical coupling, and keyword co-occurrence analysis) were performed to examine how knowledge has been constructed, disseminated, and shaped over time. VOSviewer software was used to systematically investigate, map, and visualize the bibliometric results as the main trends. The study reveals the current status in GHRM and performance management publications and citations, identifying key contributors such as influential countries, journals, and authors and outlines keywords, and thematic areas. Lastly, this study identifies research gaps and emerging trends such as green transformational leadership, green innovation, green behaviour, environmental values, green intellectual capital, environmental economics in GHRM, offering valuable insights for scholars and practitioners seeking to advance understanding and implementation of green HR practices.

Keywords: Green Human Resources Management; Environmental Performance; Systematic Literature Review; Bibliometric Analysis; Science Mapping

1. Introduction

The escalating global environmental challenges have increased the focus on organizations and their impact on environmental performance. With increasing societal pressures for organizations to adopt environmental responsibility and manage their environmental footprint, coupled with the need to remain competitive (Tang et al., 2018), there is a growing interest to integrate environmental sustainability into organizational and human resource management (Jabbour and de Sousa Jabbour, 2016; Deshwal, 2015).

Green human resources management (GHRM) is emerging as a strategic function within organizations, contributing to the successful design and implementation of environmental management practices (Jabbour and de Sousa Jabbour, 2016). GHRM plays a crucial role in achieving enhanced environmental performance (Ramasamy, 2017; Ansari et al., 2021; Marrucci et al., 2023). GHRM enables organisations to attract, select, recruit environmentally conscious employees, train and develop employees' environmental knowledge and competencies, change environmentally unfriendly behaviours, implement environmental performance in the organisation and reward employees for it (Deshwal, 2015; Jabbour and de Sousa Jabbour, 2016). By fostering greater efficiency, reducing costs, and promoting sustainable operations, GHRM enables organizations to operate in an environmentally friendly manner (Hosain et al., 2016).

GHRM and its contribution to environmental performance has received growing attention from scholars. However, there remains a need for a systematic review and synthesis of the literature in this field. This research provides a comprehensive overview of the GHRM and environmental performance literature, highlighting major themes, current developments, and new trends and patterns for future research.

The study aims to examine how knowledge in GHRM and environmental performance has been disseminated, and shaped over time, and to make recommendations for future research.

The following **research questions** were addresed:

RQ 1: What are the current status and trends of publications and citations in the GHRM and environmental performance literature?
RQ 2: Which countries, journals and authors have contributed the most to the GHRM environmental

performance literature?
RQ 3: What are the most frequently used keywords and thematic areas in the literature?
RQ4: What are emerging trends and research gaps that will shape the future GHRM and environmental performance research?

2. Theoretical Background

Environmental performance refers to an organization's initiatives aimed at meeting and exceeding societal expectations for conserving the natural environment (Chan et al., 2012). This involves managing processes, products, and resources to meet environmental requirements while minimizing the ecological impact (Dubey and Gupta, 2018). Organizations are adopting a variety of sustainability initiatives to gain a competitive advantage (Yang and Yang, 2020), increase productivity (Dangelico and Pujari, 2010), and attract talent (Yusliza et al, 2017). Environmental performance encompasses the development of eco-friendly products, green process and product innovation, and the integration of ecological sustainability into business operations and product development (Oliva et al., 2019).

Studies on green human resource management and environmental performance utilize various theoretical frameworks, with the most common being the Ability–Motivation–Opportunity (AMO) theory, the Resource-Based View (RBV), the Theory of Planned Behaviour (TPB), and the Natural Resource-Based View (NRBV). In the context of GHRM, the RBV emphasizes the strategic role of human resources by developing green competencies and capabilities among employees that are valuable, rare, and non-substitutable. By leveraging unique green human resources, organizations can create a competitive advantage and achieve superior environmental performance (Yusliza et al., 2017; Singh et al., 2020; Rehman et al., 2023). The NRBV extends this perspective by emphasizing the strategic importance of natural resources and environmental capabilities. This involves developing and managing human resources in ways that enable the organization to reduce its ecological footprint and enhance its environmental performance, such as through green training, eco-friendly policies, and environmental programs (Graham et al., 2023; Cahyadi et al., 2022; Yang et al., 2023). The AMO theory explains how to enhance employees' abilities through training and development, motivate them with incentives and rewards, and provide opportunities for involvement and participation in green practices and environmental performance (Hooi et al., 2022; Akhtar et al., 2022; Aggarwal & Agarwala, 2023). Meanwhile, the TPB helps understand and predict employees' green behaviors by examining their attitudes, subjective norms, and perceived behavioral control. GHRM practices can shape positive attitudes towards sustainability, create a supportive social environment, and enhance employees' confidence in their ability to perform green tasks (Sawang et al., 2014; Yuriev et al., 2020; Patwary et al., 2023).

The role of human resource management is crucial in pursuing green initiatives and achieving environmental performance objectives. Green human resource management supports an organization's sustainability strategy by adapting HRM strategies and practices to achieve financial, social, and environmental objectives, thereby creating long-term positive impacts both internally and externally while mitigating unintended side effects and negative feedbacks (Renwick et al., 2013; Wikhamn, 2019).

Arulrajah and Opatha (2016) define GHRM as encompassing all activities related to designing, implementing, and managing systems aimed at "greening" employees. This transformation in employees' attitudes and behaviors is crucial for achieving the organization’s environmental goals, contributing to environmental sustainability, and creating benefits for individuals, society, the natural environment, and businesses (Opatha, 2013; Arulrajah et al., 2015). Kim et al. (2019) similarly emphasize the role of top managers in communicating the organization’s environmental policy and plan, training and empowering employees to engage in environmental activities, and providing specific rewards for their efforts.

To improve environmental performance, organizations are implementing a range of GHRM practices. These practices include programs, processes, and methods aimed at reducing negative environmental impacts or increasing positive ones (Arulrajah et al., 2015). Various classifications of green HR practices exist in academic literature. Many authors agree on the importance of employee recruitment, performance-based appraisal systems, training programs to raise environmental awareness, labor relations regulation, and reward systems to foster environmental innovation (Mandip, 2012; Renwick et al., 2013; Deshwal, 2015; Hosain et al., 2016). Additional practices identified include human resource planning (Mandip, 2012; Deshwal, 2015), online recruitment and application (Hosain et al., 2016), the selection process, orientation of new employees (Hosain et al., 2016; Deshwal, 2015), human resource administration, talent management, career planning (Deshwal, 2015), green employee discipline, health and safety, and leadership management (Hosain et al., 2016), green

organizational culture management (Ramasamy, 2017), and exit management (Mandip, 2012; Renwick et al., 2013).

3. Methodology

To answer the research questions, bibliometric research methods are used. These methods utilize quantitative techniques to map the structure and evolution of scientific fields and disciplines and offer a systematic, transparent, and reproducible review process without subjective bias (Zupic and Cater, 2015; Donthu *et al,* 2021).

While various databases contain scientific research, the Scopus database was chosen for this review due to its more comprehensive set of author and institution metrics compared to the Web of Science (Singh et al, 2021; Leder et al, 2023). Furthermore, Scopus is widely used for conducting bibliometric analysis in the field of management (Zupic and Cater, 2015; Donthu et al, 2021).

The records for this study's results were obtained in April 2024. To ensure comprehensive coverage of all publications related to GHRM and performance management, several search procedures were employed following the PRISMA 2020 Protocol.

The initial research sample was acquired using the following search query within the Scopus database (see Figure 1):

TITLE-ABS-KEY TITLE-ABS-KEY ("green human resource management" OR "GHRM" OR "green HRM" OR "Green Human Resource* Management" OR "Green HRM" OR "Green HR management" OR "green human resource" OR "green hr" OR "green human resource practices" OR "GHRMP" OR "green HR practices" OR "green HRM practices" OR "green human resource* management practice*" OR "Environmental human resource management" AND "environmental* performance*")

Figure 1: Search query

The initial search identified 227 documents from 2012 to 2024 (identification stage). The search was then refined to include only articles written in English, resulting in 205 articles from 2014 to 2024 (screening stage).

In the next step, titles, abstracts, and keywords of all 205 publications were thoroughly examined to ensure relevance to GHRM and performance management (eligibility stage). After removing irrelevant papers, less relevant studies, and duplicates, a final collection of 144 articles from 2014 to 2024 was obtained. Figure 2 graphically summarizes the research process.

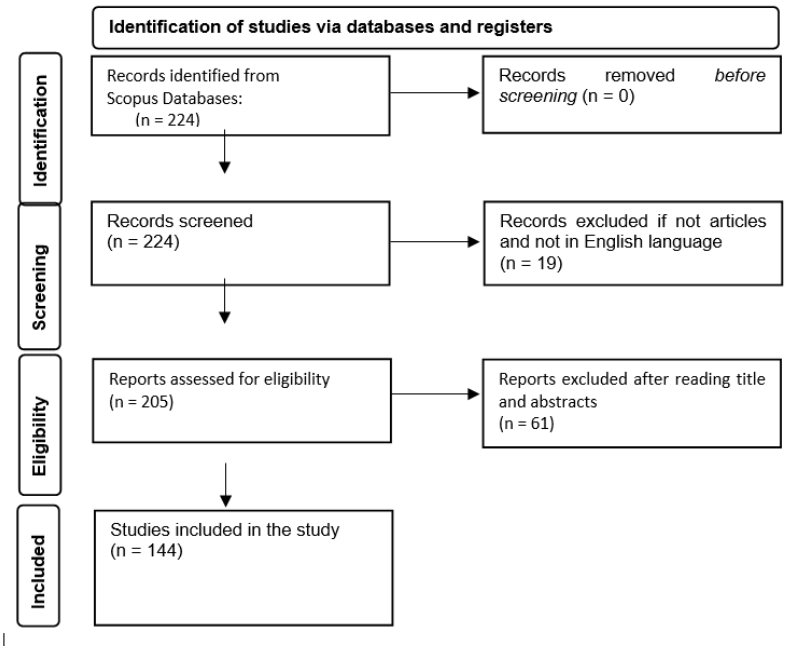

Figure 2: Research process workflow

The final step before data analysis involved cleaning and standardizing the keywords, ensuring that terms referring to the same topic were homogenized.

VOSviewer software was utilized for data analysis and visualization. Performance analysis and science mapping, including citation, co-citation, bibliographic coupling, and keyword co-occurrence analysis, were conducted (Van Eck and Waltman, 2010).

4. Results

4.1 Descriptive Bibliometric Analysis

The analysis revealed a significant increase in the number of publications in the field of GHRM and performance management. There is a slow increase between 2014 and 2019 (from 1 to 5 publications per year), but from 2020 onwards, the number of publications has risen sharply, with the highest number of publications in 2023 (49 published articles). The citation trend also illustrates the increasing popularity of the topic over a decade. Starting with 541 citations in 2014, the numbers saw a significant rise, particularly peaking at 2114 in 2020 and 1352 in 2021. It is observed that while the number of articles has been increasing, the number of citations has not kept pace in recent years. This discrepancy can be attributed to the citation time lag, as newly published articles often require time to be read and cited by other researchers.

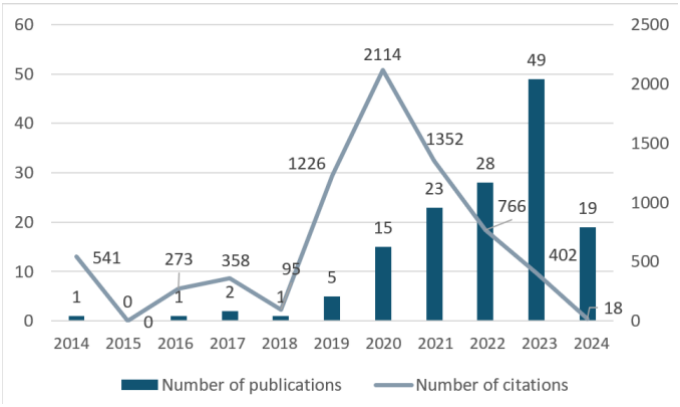

Figure 3: Publications and citations

The 144 articles in the final sample were published in 84 different scientific journals and eleven of them published at least three studies in the field of GHRM and performance management. *Sustainability (Switzerland)* (11 articles), *Journal of Cleaner Production* (9 articles), *Environmental Science And Pollution Research* (6 articles), are among the top three journals that have published the maximum number of articles.

In addition, the most cited article with 846 citations, Singh *et al,* (2020) is published in *Technological Forecasting and Social Change*, the second most cited article with 548 citations, Kim *et al,* (2019), is published in International Journal of Hospitality Management. *The overview of the six most active journals is stated in Table 1.*

Table 1: Most active journals

Journal	Publications	Citations
Sustainability (Switzerland)	11	264
Journal Of Cleaner Production	9	1188
Environmental Science And Pollution Research	6	147
Benchmarking	5	165
International Journal Of Hospitality Management	5	917
International Journal Of Manpower	5	273

Researchers from 46 countries are investigating the field of GHRM and performance management. The highest contributions come from 7 countries, each with more than 10 publications. The top five most productive countries are all from Asia: Pakistan (49 publications), China (34 publications), Malaysia (30 publications), Saudi

Arabia (14 publications), and India (12 publications). Following these are the Australia (11) and France (11) (figure 4).

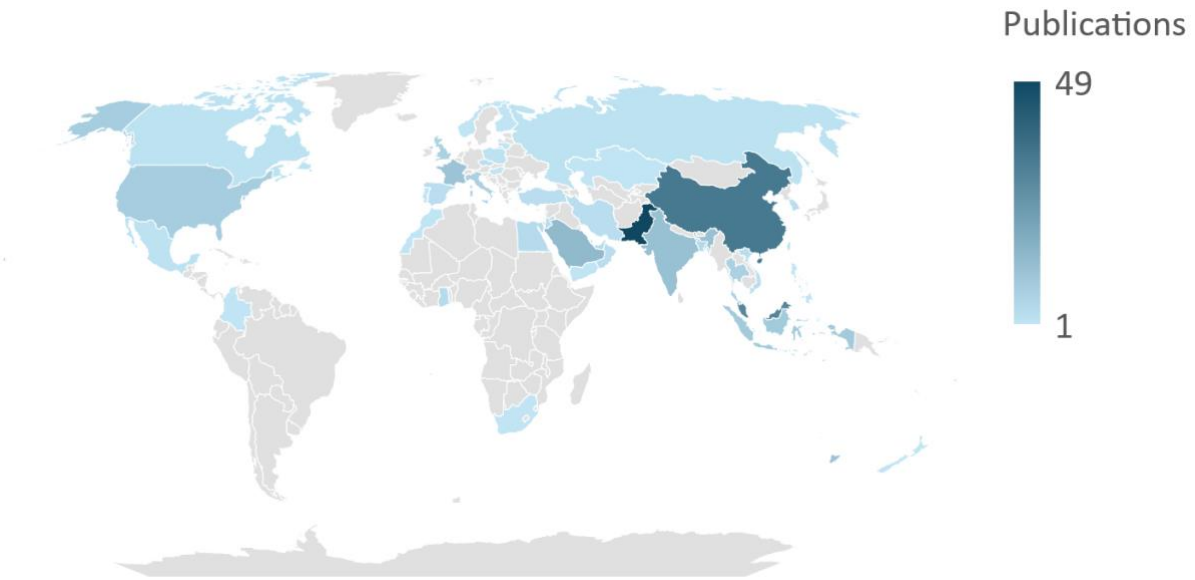

Figure 4: Authors' country of provenance

An analysis at the author level was performed, revealing that 229 out of 457 authors met the threshold after keeping the criteria as the minimum number of documents per author (n = 1) and number of citations per author (n = 10). Authors who have made major contributions to GHRM and environmental performance research: Q. A. Nisar (7 articles, 253 cit.), Ramayah (5 articles, 452 cit.), P. Paillé (3 articles, 634 cit.). TOP 7 most active and most cited researchers are shown in the Table 2.

Table 2: Most active and cited researchers

Author	Articles	Citations	H-index
Nisar, Qasim Ali	7	253	27
Ramayah, Thurasamy	5	452	119
Paillé, Pascal	3	634	42
Channa, Nisar Ahmed	3	288	12
Yusliza, Mohd Yusoff	3	275	40
Raza, Syed Ali	3	207	60
Haider, Shahbaz	3	178	7

4.1.1 Bibliometric Analysis

During the keyword co-occurrence network analysis, a minimum threshold of 4 occurrences per keyword was set. This analysis resulted in a network of 64 keywords that met the criteria. The most frequently occurring keywords were: environmental performance (114), green human resource management (96), green human resource management practices (29), human resource management (28), human resource (27), environmental management (22), green innovation (21), manufacturing sector (18), resource management (18), sustainability (15), corporate social responsibility (14), Pakistan (14), pro-environmental behavior (14), sustainable development (14), training (13), resource allocation (12), green supply chain management (11) (figure 5).

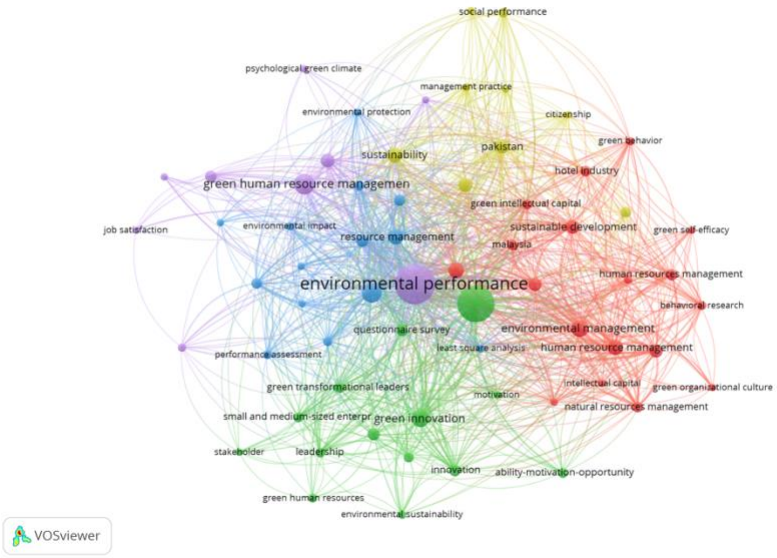

Figure 5: Keyword co-occurrence network analysis

Incorporating temporal analysis, the results revealed that the most recent research focuses on green transformational leadership, green behaviour, green innovation, environmental values, pro-environmental behaviour, green intellectual capital, environmental economics (figure 6).

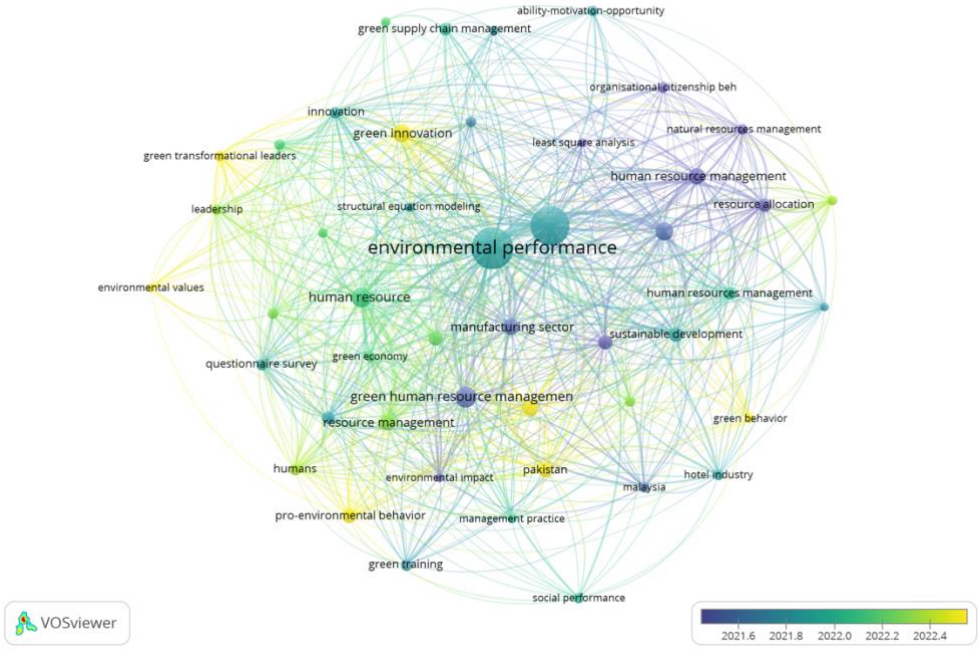

Figure 6: Keyword co-occurrence network with temporal analysis

As a result of the analysis, a 5-cluster structure of field research is determined in the figure 5 andthe table 3:

The first (red) cluster investigates the role of employee behavior in achieving environmental sustainability. By fostering a green organizational culture and enhancing green intellectual capital, organizations can create a supportive environment for green behavior (Nisar et al, 2021; Haldorai et al, 2022; Mahmood and Nasir, 2023; Sarwar and Mustafa, 2023; Yong et al, 2023). Key strategies include focusing on comprehensive training programs and boosting employees' green self-efficacy, which contribute to a proactive approach to environmental management (Ali et al, 2023; Muhammad and Nisar, 2023; Nisar et al, 2024).

The second (green) cluster explores the relationship between green human resource management (GHRM) and green innovation (Rehman et al,2021; Ullah et al, 2023), emphasizing the role of green transformational leadership (Singh et al, 2020; Awan et al, 2023) and stakeholder engagement in advancing green supply chain management and driving environmental sustainability within organizations (Acquah, 2020; Saeed et al, 2022).

The third (blue) cluster focuses on the link between human resources management and the green economy, emphasizing how HRM practices can contribute to environmental sustainability and economic growth (Paillé et al, 2020; Al Doghan et al, 2022). Through effective performance assessment and environmental protection strategies, organizations can enhance their green performance and contribute to sustainable development (Martins et al, 2021; Mansoor et al, 2022)

The fourth (yellow) cluster examines the synergy between organizational citizenship behavior and corporate social responsibility. By encouraging employees to engage in behaviors that benefit both the organization and society, companies can enhance their economic, social, and sustainable performance (Gaafar et al, 2021; Memon et al, 2022; Japir Bataineh et al, 2023).

The fifth (purple) cluster explores the impact of green human resources management practices, such as green recruitment and training, on environmental performance. By fostering a supportive psychological climate (Li et al, 2023) and implementing various GHRM practices, organizations can enhance environmental knowledge (Aftab and Veneziani, 2024; Rehan et al, 2024), encourage pro-environmental behavior, and boost job satisfaction among employees who share green values (Shafaei et al, 2020; Al-Sabi et al, 2024).

Table 3: Thematic clusters

Cluster	Title of Cluster	Main Keywords
Red Cluster	Environmental Management and Green Behavior	Environmental management, green behaviour, green self-efficacy, green intellectual capital, training, behavioral research, green organizational culture
Green Cluster	Green Human Resources Management and Green Innovation	Green human resource management, green innovation, green supply chain management, green transformational leadership, stakeholder, environmental sustainability, leadership, small and medium enterprises
Blue Cluster	Human Resources Management and Green Economy	Human resource management, green economy, environmental economics, environmental impact, environmental protection, green performance, performance assessment
Yellow Cluster	Organizational Citizenship Behavior and Corporate Social Responsibility	Corporate social responsibility, organizational citizenship behavior, economic performance, social performance, sustainable performance
Purple Cluster	Green Human Resources Management Practices and Environmental Performance	Green human resources management practices, environmental knowledge, environmental performance, environmental values, green recruitment, green training, job satisfaction, pro-environmental behavior, psychological green climate

5. Conclusions

This study of existing green human resource management and environmental performance literature revealed growing interest in the field over the past decade. The number of publications and citations has increased sharply, particularly since 2020, indicating a rising recognition of GHRM's importance in academia.

Sustainability (Switzerland), Journal of Cleaner Production, and *Environmental Science And Pollution Research* have emerged as leading journals for publishing GHRM and environmental performance studies.

5.1 Theoretical Implications and Future Research

Contributions from all continents highlight the global interest of the topic. However, research is predominantly concentrated in Asian countries like Pakistan, China, and Malaysia. This geographic imbalance and uneven representation highlight the need for more studies across other regions. Moreover, the food, hospitality, and manufacturing sectors currently dominate studies on green human resources and environmental performance. It is recommended that future research includes a broader range of sectors to extend the impact of green human resources to other industries.

Keyword co-occurrence and network analysis revealed five research clusters: green human resource management and pro-environmental behavior; environmental management and organizational sustainability; research directions and practices; green transformational leadership and green innovation; organisational citizenship behaviour and green economy. Keyword co-occurrence network with temporal analysis identified emerging research trends such as green transformational leadership, green innovation, green behaviour, environmental values, pro-environmental behaviour, green intellectual capital, environmental economics suggesting new directions for GHRM research (Rehan et al, 2024; Nisar et al, 2024, Al-Sabi et al, 2024). Scholars should investigate these areas further to understand their links to GHRM and environmental performance.

5.2 Research Limitations and Directions for Future Research

While the study provides valuable insights into green human resource management and environmental performance, several limitations must be acknowledged. Firstly, the study data was sourced from the Scopus database. Despite its extensive and recognized coverage, it may omit some important journals and publications, so future research should include other databases such as Web of Science, Google Scholar, or Dimensions. Secondly, the analysis was restricted to articles published in English, potentially excluding significant research published in other languages or in other types of documents. Lastly, although the study identified major clusters and research themes, it may not delve deeply into specific subfields within GHRM and environmental performance that are less frequently studied but equally important.

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The Perceived Impact of Leadership Practices of Academic Leaders on Student Success in a Higher Education Institution in South Africa

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Abstract: The research reported on in this paper was motivated by the need to investigate student complaints in the higher education sector in South Africa regarding the poor quality of teaching and learning which has resulted in low student success rates in many institutions in the country. To mitigate poor student success rates, higher educational institutions in South Africa need to consider implementing effective leadership practices of academic leaders to support students in their academic journey. This study identified how academic leaders leadership practices are perceived by students in a higher education institution in South Africa, and to identify which leadership practices are more impactful in supporting student success. According to Hoadley, Christie and Ward (2009) and Hallinger (2011), leadership practices are indeed aligned to academic performance. Grajfoner (2024) suggests that effective academic leadership is a key contributor to attaining academic excellence. However, Bryman (2007: 14) asserts that "one of the key problems in Higher Education is that not enough is known about exactly what makes an effective leader and what, in turn, may make them ineffective". The theoretical framework upon which the study is based was developed by Mukan, Hawryluk and Stolyarchuk (2015: 42), who suggest that "leadership is a derivative quality of people collaborating, co-operating and supporting each other. It is characterized by openness and is a dynamic, inclusive, collegial process that occurs in a particular context". In this research, a quantitative study was conducted using a purposeful sample selected from the target population of students at a higher education institution in South Africa. The final sample included 78 undergraduate students from the selected institution. The analysis undertaken in the study revealed that perceived leadership practices of academic leaders do have an impact on student success and that student success is not based on any one element of leadership practice alone; instead there are various perceived dimensions of leadership practices that play a role in promoting student performance. The findings of the study highlighted three key leadership practices that impact on student success, namely engagement, support and communication.

Keywords: Leadership, Academic Leaders Leadership Practices, Student Success, Teaching and Learning

1. Introduction

According to scholars such as Maddock and Maroun (2021) and Awung, *et al* (2024), there are numerous challenges faced in the provision of successful support for students in higher education in South Africa. Tewari and Ilesanmi (2020) pose the question as to what the weak link may be in ensuring student success for South African tertiary students. The literature, relating to the effective leadership practices to support students in their academic journey according to Bush (2008), Leithwood and Louis (2011) and Leane (2020) is inconclusive. There is a great deal of ambiguity regarding which particular leadership practices of academic leaders are most likely to improve instruction and student achievement. In the studies conducted by Ruben, DeLisi and Gigliotti (2023) and Tewari and Ilesanmi (2020) it was found that high achieving academic institutions can attribute a part of their success to the high expectations of academic performance that are articulated to both lecturers and students by their academic leaders. Balkrishen and Mestry (2016: 46) affirm that "there is a tangible link between the leadership role of the academic leader and student achievement. Replicating the leadership roles of academic leaders of high performing higher educational institutions has the potential to impact on improving student achievement". Lumby (2012), however, highlighted the fact that research on effective leadership in higher education is not as abundant as that on school leadership. She suggested that "school effectiveness literature has reached a point where it is able to claim an assessment of the percentage of variance in student outcomes related to the principal's leadership and to the concerted leadership of all those contributing to leadership. Research on leadership in higher education has no such equivalent body of work" (Lumby, 2012: 9). This study addressed the abovementioned gaps in the existing literature by identifying how leadership practices are perceived by students in a higher education institution in South Africa and what measures could be taken to improve leadership practices of academic leaders at the institution to promote student success.

2. Literature Review

"Higher education institutions are complex and continuously-evolving organizations that require effective leaders who understand and embrace the preferences of their followers," (Mews, 2019: 63). The perceived responsibility of leadership is to provide students with the necessary resources and continuous academic

support to ensure that they are on track to success. According to Wyatt (2019) stress that there is a strong correlation between academic leaders leadership and student academic success. The institution's academic leaders are responsible for guaranteeing the quality of teaching and learning within an institution, and have a significant responsibility to the overall academic performance and outcomes for students and (Grajfoner 2024). The measures that may be implemented are largely dependent on the motivations of the institution's leadership. Thus, effective leadership must be considered to be of paramount importance to guarantee successful academic success within an institution.

Kawar (2012) further states that the key to successful leadership is through the implementation of best leadership practices, as applicable to the particular institution. McGill (2013) argues that leadership practices are activities and approaches leaders will take in order to steadily help their team better understand themselves and attain growth. Kerns, (2016) proposes that leadership practices are implicit and explicit actions and behaviours which those in position of academic authority exhibit while focusing on students towards achieving their academic expectations. Andy-Wali and Wali (2018) go onto suggest that the literature is not clear on the exact nature of the leadership practices that impact on student success in higher education. Therefore, further studies that investigate these specific practices, such as the current study, are necessary to clarify which leadership practices would have the greatest impact on promoting student success in higher education institutions.

The theoretical framework underpinning this study was based on a framework developed by Mukan, *et al* (2015), who contend that leadership is a derivative quality of people collaborating, co-operating and supporting each other. It is characterized by openness and is a dynamic, inclusive, collegial process that occurs in a particular context. In higher education research, student success cannot be attributed to any one element of leadership practice but must be conceptualised as being influenced by various dimensions. Bryman (2007: 14) argues that "one of the key problems in higher education is that not enough is known about exactly what makes an effective leader and what, in turn, may make them ineffective". Mukan, *et al* (2015) suggest that the fundamental leadership practices can been summarised into three simpler themes:

- the practice of collaboration and engagement;
- the practice of support;
- the practice of openness.

2.1 The Practice of Collaboration and Engagement

A study by Andy-wali and Wali (2018) on leadership practices and their impact on student experiences in a higher education institution in the United Kingdom identified four key themes that have a positive impact on student academic excellence, namely: (1) lecturer accessibility; (2) academic versatility; (3) teaching and learning quality; and (4) supportive academic leadership. The accessibility and supportive of academic leaders' practices had a positive impact on students' ability to achieve higher grades in their studies. The study also highlighted the positive impact on student participation and motivation through ongoing feedback and engagement between students and lecturers both in and out of the lecture room. "This implies that when academic leadership activities are supportive, students get positively involved in academic activities, which leads to positive academic performance", (Andy-Wali and Wali, 2018: 45). In a study by Kawar (2012), it was evident that the practices of motivating, collaborating, supporting and stimulating people have a positive effect on performance. This is important in educational institutions as student academic excellence depends highly on the motivations of the academic leaders (Grajfoner 2024).

2.2 The Practice of Support

In a study by Moodley and Singh (2015), it became evident that a key reason for poor academic performance in the first year of higher educational studies was poor academic counselling and support offered in higher education institutions. In Moodley and Singh's (2015) research, it was found that students felt lecturers were unapproachable and not willing to assist them to unpack challenging academic content. Furthermore, students felt that they were not guided through assessments sufficiently and therefore did not know what was expected of them when answering assessment questions. Bitzer (2011) advises that successful academic and social incorporation of students in higher education remains important with regard to study commitment, study success and averting early student withdrawal. Academics leaders need therefore, need to oversee first year students with this integration and adaptation into a higher educational environment.

Robinson, Lloyd and Rowe (2008: 664), in advocating for the notion of academic support, suggest that "leadership also includes creating an orderly and supportive environment for both students and staff that makes it possible for important academic and social goals to be achieved". Furthermore, in the study by Moodley and Singh (2015), students felt that they were not given adequate customer service and academic leader support when issues arose and felt that this lack of support had impacted their academic performance negatively. Wyatt (2019: 3) maintains that "leadership's level of customer service and support to students from academic leaders sets the tone for other faculties and staff that inevitably trickles down to student success".

2.3 The Practice of Openness and Communication

Communication in any organization is fundamental to enhancing leadership effectiveness which, in turn, assists in achieving desired organizational results (Kerns, 2016). Kerns (2016) further emphasizes the importance of academic leaders ensuring that they are competent in interpersonal influence skills, as this assists leaders in motivating people and providing them with direction to achieve the institutional goals. "Communication is a fundamental practice area within the interpersonal influence domain that can contribute to effective leadership" (Kerns, 2016: 11). Conrad and Newberry (2011, cited in Kerns 2016: 12) concluded that "communication is connected to all organizational activities and business leaders and teachers/trainers concur on how important it is to organizational effectiveness". In a study conducted by Spendlove (2007) on effective leadership competencies in higher education, amongst other competencies, the attributes of openness and honesty were highlighted as most important. This attribute of openness was supported in the findings of the study undertaken by Andy-Wali and Wali (2018) where the researchers identified four themes summarising student experiences with regards to lecturers and academic leaders leadership practices. One of the themes that emerged in their study was to do with participants' experiences in terms of lecturers' openness and accessibility towards their academic pursuit. Andy-Wali and Wali (2018) found that this practice positively influenced students' sense of academic commitment, which ultimately contributed to their academic success.

Considering the literature reviewed above and the findings of previous studies, there is a need to investigate in more depth what specific and effective leadership practices can be implemented in higher education institutions in South Africa to support students in their academic journey.

3. Research Methodology

A positivist philosophy underpinned the quantitative research method employed in this study, the aim of which was to measure student perceptions of the impact of key leadership practices of academic leaders in a higher education institution in South Africa (Creswell and Creswell 2018). The positivist approach was of value as it afforded the researcher the opportunity to make a quantitative connection between student perceptions of the impact of academic leaders leadership practices on student success. The University of KwaZulu-Natal's (UKZN) code of ethics for conducting research was used by the researcher to compile an application for ethical approval before commencement of data collection. The data collection instrument used in this study was a questionnaire which was designed and distributed, to a sample of 78 undergraduate student participants, in a higher education institution. The discussion of the findings aims to highlight the perceptions, from the sample group around the relationship between key leadership practices and student success. A purposeful sampling approach was implemented and all data analysis was carried out using the Statistical Package for the Social Sciences (SPSS) (Creswell and Creswell 2018).

4. Data Analysis

The data from completed survey questionnaires was coded and captured in SPSS and used for descriptive and inferential analysis. The tests used in the analysis were:

- A repeated measures ANOVA test;
- Descriptive statistics including means and standard deviations, tables and graphs;
- One sample t-test, which tests for significant agreement or disagreement to the Likert scale items;
- Cronbach's alpha, which tests for reliability of scales.

A one-sample t-test was applied to test whether the average agreement score is significantly different from a central score of 3.5 (halfway between 1 and 6 which is the Likert score range). If the score is significantly different and above the mean score (>3.5), it is interpreted as "significant agreement", if the score was significantly different and below the mean score (<3.5), it is interpreted as "significant disagreement". (Creswell and Creswell

2018).

5. Results and Findings

The student responses from the questionnaire on student success in relation to the academic leaders on leadership practices are illustrated in Table 1.1 below.

Table 1: A consolidated summary of results from the student questionnaire on academic leaders impact on student success

Question	Student success will improve if the academic leaders…	Results as Frequency (%)						n	Mean (SD)	t	df	p-value
		Strongly disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree					
1	Is easily accessible and available to listen and advise students who have concerns or questions regarding their higher education experience.	0	0	1 (1.3)	5 (6.4)	38 (48.7)	34 (43.6)	78	5.35 (.661)	24.663	77	**<.0005**
2	Is known to the student body by name.	1 (1.3)	2 (2.6)	3 (3.8)	17 (21.8)	29 (37.2)	26 (33.3)	78	4.91 (1.071)	11.626	77	**<.0005**
3	Provides support programmes specifically for first generation students.	0	1 (1.3)	1 (1.3)	17 (21.8)	26 (33.3)	32 (41.0)	77	5.13 (.894)	16.003	76	**<.0005**
4	Provides adequate suitable residential accommodation for “out-of-town” students.	2 (2.6)	11 (14.1)	7 (9.0)	19 (24.4)	13 (16.7)	25 (32.1)	77	4.36 (1.504)	5.040	76	**<.0005**
5	Ensures that there is adequate transport between campus and student residences.	4 (5.1)	6 (7.7)	7 (9.0)	21 (26.9)	20 (25.6)	18 (23.1)	76	4.33 (1.418)	5.097	75	**<.0005**
6	Regularly sits in on lectures to observe instruction.	1 (1.3)	3 (3.8)	5 (6.4)	19 (24.4)	26 (33.3)	23 (29.5)	77	4.75 (1.149)	9.572	76	**<.0005**
7	Regularly meets with students to discuss progress and get class feedback.	1 (1.3)	1 (1.3)	5 (6.4)	14 (17.9)	22 (28.2)	35 (44.9)	78	5.05 (1.104)	12.413	77	**<.0005**
8	Offers facilities that will give support and guidance to students who need it.	0	0	12 (15.4)	0	24 (30.8)	42 (53.8)	78	5.38 (.743)	22.414	77	**<.0005**
9	Communicate	0	1	2 (2.6)	14	22	38	77	5.22 (.927)	16.297	76	**<.0005**

Question	Student success will improve if the academic leaders…	Results as Frequency (%)						n	Mean (SD)	t	df	p-value
		Strongly disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree					
	s clearly about what the minimum passing requirements are for each module.		(1.3)		(17.9)	(28.2)	(48.7)					
10	Communicates clearly about what support programmes are available to students on campus.	0	1 (1.3)	2 (2.6)	3 (3.8)	35 (44.9)	37 (47.4)	78	5.35 (.787)	20.726	77	**<.0005**
11	Provides psychological support for students who are feeling discouraged.	0	3 (3.8)	1 (1.3)	7 (9.0)	30 (38.5)	37 (47.4)	78	5.24 (.956)	16.108	77	**<.0005**
12	Communicates clearly the expectation of self-directed learning.	0	1 (1.3)	0	14 (17.9)	30 (38.5)	33 (42.3)	78	5.21 (.827)	18.200	77	**<.0005**
13	Provides a platform for students to give feedback on their learning experience.	0	0	2 (2.6)	18 (23.1)	29 (37.2)	29 (37.2)	78	5.09 (.840)	16.708	77	**<.0005**
14	Communicates clearly to the students the individual roles and responsibilities of the management team.	0	2 (2.6)	5 (6.4)	12 (15.4)	32 (42.0)	27 (34.6)	78	4.99 (1.000)	13.136	77	**<.0005**
15	Provides learning skills and time management skills to learners to help them to navigate the workload in higher education.	0	0	1 (2.6)	9 (11.5)	28 (35.9)	39 (50.0)	77	5.36 (.742)	22.046	76	**<.0005**

(Source: Compiled from analysis of data collected in the study)

From the analysis results in Table 1.1 it is evident that there is significant agreement for all the statements. The mean scores ranged from 5.38 to 4.33. The item perceived to have the biggest effect on student success, with a mean score of 5.38, is the offer of facilities and resources that will provide support and guidance to those students who may require it. This was followed by the provision of learning and time management skills with a mean score of 5.36. Next in importance to improve student success, with a mean score of 5.35, is the accessibility and availability of leadership to advise students, as well as the communication of available support programmes. The two questions which are perceived as being of 'lowest importance' regarding the effect they have on student success, with mean scores of 4.36 and 4.33 respectively, were the provision of adequate and suitable residential accommodation to students and having transport arranged between the higher education institution and the student residences.

The 15 items included in the questionnaire were grouped into three basic themes – communication, engagement and support. Items that fall under each theme were combined into a single composite measure by finding the average of the agreement scores across the items. These single measures were tested for reliability using Cronbach's alpha. A value for alpha that exceeds .7 indicates a reliable single measure. The results pertaining to the composition and reliability of these constructs are summarized in Table 1.2 below.

Table 2: The themes/leadership practices identified as important to student success in a higher education institution.

Theme	Items Included in Each Theme	Cronbach's Alpha - Reliability
Engagement	1… Is easily accessible and available to listen and advise students who have concerns or questions regarding their higher education experience.	.681
	2… Is known to the student body by name.	
	6… Regularly sits in on lectures to observe instruction.	
	7… Regularly meets with students to discuss progress and get class feedback.	
Support	3… Provides support programmes specifically for first generation students.	.767
	4… Provides adequate suitable residential accommodation for 'out-of-town' students	
	5… Ensures there is adequate transport between campus and residence	
	8… Offers facilities that will give support and guidance to students who need it.	
	9… Provides psychological support for students who are feeling discouraged.	
	11… Provides learning skills and time management skills to learners to help them to navigate the workload in higher education.	
	15… Communicates clearly about what support programmes are available to students on campus.	
Communication		.795
	10… Communicates clearly about what the minimum passing requirements are for each module.	
	12… Communicates clearly the expectation of self-directed learning.	
	13… Provides a platform for students to give feedback on their learning experience.	
	14… Communicates clearly to the students the individual roles and responsibilities of the academic leaders	

(Source: Compiled from analysis of data collected in the study)

The questionnaire included items relevant to best practice in leadership, with specific focus on measuring the importance of engagement, support and communication from the academic leaders.

The above findings support the researcher's anticipated outcomes of the research process which, based on the review of relevant literature, was designed to evaluate whether academic leaders leadership practices were perceived as impactful on student success, from a student's perspective:

- The value of the support offered by the academic leaders to the student body;
- The importance of the accessibility of availability to and overall engagement of the academic leaders with students;
- The communication by academic leaders with students regarding issues that concern them.

The overall feedback from the student sample demonstrates that they agree that these academic leadership practices do have a positive impact on student success.

6. Discussion

As a result of grouping the different statements into themes/practices that evolved from the analysis in each of the questionnaires, three key leadership practices emerged namely engagement, support and communication. By applying different tests, it became apparent that these leadership practices were perceived, by the students,

as being impactful on student success. These findings from the current study confirm what was established in an earlier study by Wyatt (2019) where it was found that support from academic leaders does impact student success. Wyatt (2019: 3) noted that "leadership's level of customer service and support to students sets the tone for other faculties and staff that inevitably trickles down to student success". The results of this study also confirm the findings from research undertaken by Kawar (2012) in which it was observed that key practices to attain student success include: effective communication; support and development; engagement; and motivation of people.

A study by Shertzer and Schuh (2004) also uncovered similar findings to those generated in the analysis of the data collected in this study, that is, that communication was very important for student success. The overall feedback from students included in this study that was undertaken at a higher education institution in South Africa is that the three key practices, engagement, support and communication, if implemented correctly by academic leaders, would certainly have a positive impact on student success. A recommendation to support the relationship between academic leaders and student success would be for academic leaders have regular engagement with students by developing clear communication channels which encouraged student feedback on the learning experience. This would enable academic leaders to intervene to ensure strategies were implemented to promote student throughput rates and academic excellence.

7. Conclusion

The purpose of this study was to explore the perceived impact of leadership practices of academic leaders on student success at a higher education institution in South Africa. The research aimed to investigate the perceptions of students at the higher education institution with regards to their understanding of the impact that leadership practices of academic leaders have on student success. The quantitative analysis undertaken on the data obtained from the questionnaire administered to students in the study showed that the students were in strong agreement that the three themes that were identified during analysis, namely engagement, support and communication, which were practices which contribute positively to student success. To mitigate low student success rates academic leaders, need to engage and communicate directly with students and provide personal support in terms of mental support, skills development, facilities and resources to support learning. In particular support for first year students who may demonstrate a lack of confidence, a lack of interest in leadership, a self-perceived deficiency in leadership qualities, and encourage opportunities to lead with the university community.

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CEOs' Perceptions of Loneliness in the Workplace: An Exploratory Study

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Abstract: Loneliness among CEOs is a topic that draws the attention of leadership experts, as it was suggested that it's a less explored topic in leadership studies (Wright et al., 2023). The popular phrase "it's lonely at the top" suggests that top managers frequently experience loneliness in their roles. Not having someone close to confide in is a challenge for many leaders at work (George, 2015). CEO loneliness can have negative effects both individually (e.g., health, well-being and stress) and organizationally (e.g., commitment, employee perceptions of the CEO and turnover) (Wright et al., 2023; Chen et al., 2021). The aim of this study was therefore to explore how CEOs perceived and experienced workplace loneliness; more specifically, we sought to identify what types of loneliness they encounter most often, what situations may trigger workplace loneliness, and how CEOs cope with loneliness in the workplace, in Norwegian organizational settings. Based on empirical results from 14 in-depth qualitative interviews with CEOs of small and medium-sized companies, it appeared they had experienced state loneliness at work and that none of them had reported trait loneliness. State loneliness often arose in situations such as confidentiality cases, decision-making processes and change management processes. Due to the nature of the CEO role, our participants stated that they often accepted the loneliness in the workplace as part of their role, which might suggest a potential coping strategy that they utilize. Other coping strategies that were found include disconnection techniques and the use of their support networks. Addressing this topic adds value to empirical research on leadership by raising awareness of the challenges of loneliness that business leaders in positions of power, specifically CEOs in a Norwegian cultural context, face in the workplace when performing their duties. It provides insight into the types of loneliness experienced, the situations that can trigger CEO loneliness, and how loneliness in the workplace can be addressed and mitigated.

Keywords: Loneliness in the Workplace; CEOs; State Loneliness; Coping Strategies; Exploratory Study.

1. Introduction

Traditionally, CEOs occupy the highest rank in the organizational chart, holding responsibilities, and facing complex challenges, constraints, and demands that can often go unnoticed (Porter and Nohria, 2018). A specific challenge is the lack of confidants, which potentially can engender loneliness, the concept this paper focuses on (George, 2015). Loneliness, often seen as a sign of weakness, is rarely acknowledged by leaders, presumably due to the associated stigma (Wright et al., 2023).

In 2012, a study showed that 50% of the participating CEOs had experienced workplace loneliness in their position. Among these, 61% said they believed it hindered their performance in their role (Saporito, 2012), suggesting that loneliness is an issue that needs to be addressed, both for companies wanting to retain their CEOs and for the CEOs themselves. More recently, in the first quarter of 2024, CEO turnover in the United States increased by 48% compared to 2023, and many leaders felt that the job was not worth the stress, pressure and loneliness it entails (Mohamed, 2024).

In a recent critical review of research conducted to date on executive loneliness, Lam, Giessner, Shemla and Werner (2024) identified 71 empirical studies and 5 conceptual articles dealing with executive loneliness in organizations. Surprisingly, of the empirical studies identified, only five focused exclusively on CEOs. The paucity of qualitative empirical studies focusing primarily on CEOs prompted the exploration of this theme in relation to the CEO population, with the aim of extending existing empirical findings with new observations and conclusions drawn from a Norwegian context.

Loneliness can affect CEOs, employees, organizations, and organizational outcomes. For example, it was suggested that loneliness can cause health problems (e.g. poor sleep, heart disease, weakened immunity) and can increase the risk of depression and anxiety (Wright et al., 2023). In the workplace, lonely CEOs may become emotionally detached and less committed, which can also negatively impact employee turnover and their perceptions of leader effectiveness (Chen et al., 2021; Gabriel et al., 2021).

The aim of this article is therefore to explore CEOs' loneliness at work by examining their individual experiences, identifying situational triggers, and understanding the coping strategies for this emotional state that are mobilized by this group.

Through a literature review and primary empirical data from CEOs of small and medium-sized companies in Norway, this study provides insight into the unique experience of loneliness at CEO level, adding value to existing empirical research on CEO loneliness and contributing with new perspectives from a non-Anglo-Saxon cultural and organizational context. It responds to calls for empirical research on CEO loneliness, aimed at shedding light on this understudied area within the discipline of management. By exploring specific work situations that trigger loneliness, and suggesting coping mechanisms, this work attempts to mitigate the negative effects of loneliness among CEOs, and in this way complements the existing literature with new findings on this population.

2. Literature Review

2.1 CEO Loneliness in the Workplace

Although most existing studies on executive loneliness have focused on leaders in general, rather than CEOs in particular (see Lam et al., 2024, pp. 5-13), for the purpose of this study, the terms "CEO" and "leader" were interchangeably used.

2.1.1 Conceptualization of Leader Loneliness

Despite the multitude of definitions of loneliness, there is no general consensus on a universal conceptualization (Lam et al., 2024). Indeed, the concept is complex, subjective in nature and depends on the context. One possible definition of leader loneliness refers to *"*an unpleasant feeling of perceiving disconnectedness due to a discrepancy between desired and achieved work relationships that are appraised as important in the leadership process*"* (Lam et al., 2024, p. 4). As this study aimed to explore the subjective experience of loneliness among CEOs, our findings will also contribute empirically to the conceptual development of executive loneliness from a Norwegian perspective, leading to a better understanding of this phenomenon, while considering the aforementioned definition.

2.1.2 Forms of Loneliness and Factors Related to Leader Loneliness

Loneliness can be categorized into "trait" loneliness, which is linked to personality traits and lasts over time (chronic), and "state" loneliness, which is temporary and situational in its nature (Silard & Wright, 2020; Zhang et al., 2021). A recent review has identified several factors associated with leader loneliness at work: individual-level, relational, work and organizational, and contextual factors (Lam et al., 2024). Additional aspects to those included in the review by Lam et al. (2024) are presented below.

2.1.2.1 Individual-Level Factors

Leaders' personal characteristics and emotions play a significant role in their experience of loneliness. High emotional intelligence and confidence can mitigate feelings of loneliness, while low self-efficacy and poor emotional regulation can increase social isolation (Singh & Pathardikar, 2010; Wright, 2012; Zhang et al., 2019).

2.1.2.2 Relational Factors

The quality and authenticity of relationships within the workplace are crucial. Despite frequent social interactions, leaders may lack close and genuine connections with others (Gabriel et al., 2021; Silard & Wright, 2022), which can lead to feelings of loneliness (Zumaeta, 2019). The concept of emotional contagion, where emotions are transferred between individuals, further complicates these relationships, as leaders may feel the need to regulate their emotions and actions, which can feel inauthentic (Côté, 2005; Kaufmann & Kaufmann, 2015; Ong, 2022).

2.1.2.3 Work and Organizational Factors

Leaders face high levels of responsibility, visibility, and job demands, which can lead to stress or role conflicts between personal identity and role requirements (Raaheim, 2019; Zumaeta, 2019). The need to maintain a professional demeanor and manage confidentiality can result in a perceived social distance (Collinson, 2005;

Zumaeta, 2019), which, while sometimes beneficial for decision-making, can contribute to loneliness (Magee & Smith, 2013).

2.1.2.4 Contextual Factors

Environmental factors such as organizational culture and the external social environment also impact leader loneliness. Social support within the organization is often lacking, with leaders hesitant to seek help for fear of appearing incompetent (Zumaeta, 2019). Additionally, the broader societal context and expectations of leadership roles influence how loneliness is experienced and managed (Waytz et al., 2015).

2.2 Strategies for Coping with Loneliness

Several strategies for dealing with loneliness have been suggested by previous researchers. One of them includes disconnecting from work outside office hours and prioritizing the time to avoid constant work-related thoughts (Zumaeta, 2019). Moreover, maintaining a healthy lifestyle (e.g. proper eating, sleeping, exercise, and overall physical and mental health) can help alleviate loneliness and provides emotional relief. Fulfilment from leading and helping others can mitigate feelings of loneliness.

Support networks can help leaders cope effectively with loneliness (Zumaeta, 2019). Leadership roles often hinder the formation of friendships and emotional connections within organizations (Wright, 2012), especially for CEOs who lack peers at their level (Rokach, 2014). Despite spending significant time with employees (Gabriel et al., 2021), leaders often find workplace relationships unfulfilling (Bandiera et al., 2020) and experience non-reciprocal support dynamics, which can heighten loneliness (Rokach, 2014).

Internally, CEOs may find support from their board and their top management team. The chairman of board (COB) can be especially important for the CEO by offering advice and acting as a confidant (Krause, 2017). Externally, CEOs may seek support from friends, former colleagues, consultants, mentors, or peers in similar positions (Rokach, 2014; Zumaeta, 2019). External help like mentoring and executive coaching are effective in providing feedback, discussing challenges, and reducing feelings of isolation for top leaders (Wright, 2012). They can work as supervisors, which can contribute to better emotional health and reduced loneliness (Rokach, 2014).

3. Methodology

3.1 Participants and Procedure

This study has followed a qualitative design (Bell et al., 2022) to gain a deeper understanding of the phenomenon of leader loneliness. Primary data was collected to gain a first-hand perspective from the participants' views on leader loneliness.

The sample of participants included seven male and seven female CEOs from various regions of Norway. The subjects were selected by following a purposive sampling protocol (Saunders et al., 2019). The inclusion criteria for the study were: to hold a CEO position in a Norwegian small or medium-sized company and to have worked in this position for at least 12 months, regardless of the industry or age of the company to ensure greater diversity of perspectives and experiences.

3.2 In-depth Qualitative Interviews

A total of 14 in-depth interviews were conducted digitally, via Microsoft Teams, in Norwegian. Each interview lasted around an hour. The interview guide included questions about the CEO's role, organization's culture, emotions, interpersonal relationships, and loneliness. The interview guide was developed based on the literature review and adjusted following a pilot interview.

3.3 Thematic Analysis

Following the interviewing and transcription of the interviews, a thematic analysis (Braun and Clarke, 2006, 2021) was carried out as an analytical strategy. Given the qualitative design of this study, thematic analysis makes it possible to better understand participants' views and experiences of leader loneliness by generating themes, identifying patterns, and interpreting the meanings attributed to leader loneliness across the data set. We therefore followed the six-step guide recommended by Braun and Clarke, namely: familiarization with the data, generation of initial codes, search for common themes, examination of themes, definition and naming of

themes and production of a final report (Braun and Clarke, 2006, 2021). Given the exploratory nature of this study, thematic analysis was considered an appropriate and valid strategy (Bell et al., 2022). NVivo 14 Release 1.7.1. software was used for running the steps 2 to 5 of the thematic analysis process.

4. Results

This study aimed to identify what situations could potentially trigger loneliness among CEOs in the workplace, and what were the common strategies to cope with it. The main findings and discussion are split into two parts focusing on situations triggering workplace loneliness (Table 1) and the coping strategies (Table 2). In this section, a set of quotes from the interviews are listed to represent the main findings.

4.1 Situations

Table 1: Work-related Situations that May Trigger CEO Loneliness in the Workplace

Type of Situation	% of CEOs Who Mentioned It
Confidentiality cases	50
Decision making	100
Sensitive employee cases	71
Change management processes	64

The first situation that could trigger workplace loneliness according to seven out of fourteen participants were confidentiality cases. *"Suddenly, there's a situation where you have no one to share things with, right? You have no one to talk to because the situation doesn't allow you to share it with anyone else, you have to make the decision yourself, right?"*

The second situation, decision making, was mentioned by all fourteen participants. *"But in the end, it's you who has to make decisions like 'Yes, we'll do it this way and that...' Then you feel a bit of loneliness, I think."*

The third situation triggering workplace loneliness was sensitive employee cases. *“Yes, I think those [sensitive employee cases] are the worst because they are the hardest to involve others in, right? If other things are going poorly, we can discuss how to build further growth or those kinds of things, but specifically with sensitive employee cases, those kinds of things, changing leaders, then you kind of have to tread carefully.”*

The final situation mentioned was change processes*. «Like now with the merger that is happening, I feel like what is happening now is like a new dimension of loneliness. Because it’s such technical things that I don’t know anything about. I don’t have the detail knowledge about it now, and it’s so critical for our operation… So I feel like I am standing there all by myself.”*

4.2 Coping Strategies

Table 2: CEOs’ Strategies for Coping with Loneliness in the Workplace

Coping Strategy	% of CEOs Who Mentioned It
Having and using a trusted sparring partner	100
Mental and physical disconnection	43
Accepting loneliness as part of the role	71

The first coping strategy mentioned by all participants were utilizing sparring partners. *"So, it's a role where... I mean, the fact that you can't really discuss challenges with your employees and such, so if it weren't for (NAME), I don't think I would have stayed for so many years.”*

Disconnecting from work was a coping strategy mentioned by 6 out of 14 participants. *"If I bring my [hobby] out one evening or one night, just something like that, in God's free nature with no one else around, it's like my way of, shall we say, taking back [control]."*

The final coping strategy or premise of workplace loneliness is accepting the loneliness as a part of the role. *"I think it's just a part of it [the role]... if you're going to be a top leader, that's how it is. Then you just have to live with that premise [of loneliness]. That's how it is."*

5. Discussion and Analysis

When examining workplace loneliness among CEOs, it is important to emphasize the difference between *state* and *trait* loneliness, as these terms represent two types of loneliness; the former is temporary and linked to specific situations, while the latter is linked to personality traits and is chronic in its nature (Silard and Wright, 2020). Our findings indicate that all fourteen participants experienced state loneliness in their work and none experienced trait loneliness. Furthermore, the experience of state loneliness was similar despite the fact that the executives came from different companies and had varying years of experience as CEOs. The examples of situations triggering workplace loneliness and the reasons why it is so common in a CEO position were surprisingly similar.

According to Wright (2012), individual and environmental factors may contribute more to workplace loneliness than hierarchical position alone. In consequence, CEOs with high emotional intelligence and self-efficacy may be less exposed to loneliness, despite being in a hierarchical position without peers (Singh and Pathardikar, 2010; Wright, 2012). This observation justifies the need for future studies that should take a closer look at CEO personality traits and the role they play in loneliness at work, as some individual variables could mitigate the risk of loneliness linked to personality traits.

From a temporality perspective (state (situational experience) versus trait (chronic experience), as described in Lam et al., 2024), this study focused primarily on the state loneliness. In the following paragraph, the situations that can trigger CEO loneliness are discussed.

5.1 Situations that May Trigger CEO Loneliness

Through the interviews, there were certain situational triggers that increased the experience of state loneliness among the CEOs. These included confidentiality cases, complex decision making and change management processes.

Confidentiality cases often triggered feelings of state loneliness among the participants, where the possibility to discuss their issues became limited and the feeling of a separation between themselves and their employees increased (Ong, 2022; Zumaeta, 2019). For example, one of the participants shared how they often know information that will directly affect their employees. By withholding information and treading more carefully around their employees, their personal preferences on how to act didn't align with the expectations in their role, which could lead to a role conflict and a lack of feeling authentic (Raaheim, 2019). It could also lead to a feeling of a larger social distance between the CEO and their employees (Waytz et al., 2015).

Situations involving *decision making* can often make the CEO feel quite lonely, as he or she is the only person with a global view of the problem and has great responsibility for having the final say, managing role conflicts and dealing with employee resistance. In this study, although many CEOs consulted with their management team or board of directors, they ultimately bore responsibility for final decisions, which was experienced as a form of situational loneliness (Wright, 2012). Disagreement within the management team can further amplify this loneliness, reducing psychological safety and increasing the feeling of being all alone at the top (Frazier et al., 2017). One of the participants also expressed how making decisions against their personal values was one of the main reasons they experienced loneliness in their position. Both confidentiality and decision making can lead to intra-role conflict where loneliness arises from the lack of authenticity in their role (Côté, 2005; Ong, 2022).

Due to *sensitive employee cases* at higher levels of the organization, CEOs felt alone as the decisions to be made would directly affect someone they knew personally, and the requirements for confidentiality were high. Such a situation could be felt particularly lonely given the great responsibility linked to the future of their employees and the feeling of isolation when making the decision (Wright, 2012). A higher degree of social distance between the CEO and their employees could facilitate the decision-making process (Collinson, 2005). In our study, CEOs who reported closer relationships at work experienced more loneliness when faced with confidentiality constraints and when making decisions that were likely to negatively affect their employees, compared to CEOs who maintained strictly professional working relationships.

Another situation likely to increase the perception of loneliness among the CEOs in our study concerns *change management processes*, where some CEOs explained that it led them to doubt themselves in their role. Participants reported decreased self-efficacy and increased loneliness during such processes, where they began to question their own skills and felt a lack of trust and support from others. The reciprocal relationship between

loneliness and self-efficacy can generate a downward spiral, highlighting the need for proactive support in these situations (Zhang et al., 2019).

5.2 Coping with Workplace Loneliness

The discussion above elaborated on state loneliness as the primary form of loneliness experienced by our participants. In this section, we expand on coping strategies that CEOs can use to deal with state loneliness in their role. This is necessary, given that workplace loneliness can negatively affect both physical and mental health (Silard and Wright, 2020; Zhang et al., 2021). In our study, the CEOs mentioned the importance of having a reliable support network. This is consistent with other studies suggesting that using a support network is relevant both before and after situations including loneliness at work, and is essential for leaders (Zumaeta, 2019).

A *sparring partner* can support the CEO by offering them the opportunity to talk and by being there when the CEO needs someone to vent to. For instance, using a sparring partner can build confidence in decisions or provide suggestions for improvement, potentially increasing CEO self-efficacy (Zhang et al., 2019). In our study, the CEO's sparring partners included the deputy leader, other employees, board of directors, networks, external support, and spouse. A key sparring partner was also the chairperson of the board (COB), serving as a critical support resource to the CEO (Krause, 2017). Our participants felt less alone when they had a supportive COB with a listening ear, and emphasized the COB's understanding of the situation of the company. Thanks to a trusted sparring partner, the CEOs in our study were able to release their emotions and let off steam; this strategy helped them cope more effectively with loneliness at work.

In line with other empirical works (Zumaeta, 2019), our study identified *mental and physical disconnection* as another coping strategy that helped CEOs differentiate work from leisure and prioritize moments when they were not thinking about work. Our participants mentioned hobbies (working out, gardening, meditation), but also physical distancing activities like shopping in another part of the city to avoid meeting employees after work. The social distance resulting from such activities allowed the CEOs to disconnect from work pressures and enabled emotional detachment from employees (Collinson, 2005); furthermore, it allowed CEOs to maintain professional working relationships with their employees (Rokach, 2014). These observations may give rise to a paradox. On the one hand, CEOs indicated disconnection and social distance as a coping strategy for dealing with loneliness in their role. On the other hand, according to social psychology, humans are complex social beings who need to belong and integrate into social groups (Raaheim, 2019; Zumaeta, 2019). Our participants, however, did not explicitly express the need to belong. This suggests that the need to belong may not be as strong among leaders and executives (Waytz et al., 2015; Wright, 2012). Given the importance of context and the fact that state loneliness is linked to specific situations characteristic of their role, it is plausible to assume that, in order to cope effectively with loneliness, a CEO may wish to strike the right balance between disconnection and social distance, on the one hand, and the need to belong, to form and maintain social relationships, on the other.

Finally, *accepting loneliness as part of their role* is another coping strategy for CEOs. Given the nature of the role, and because they themselves accepted it voluntarily, several of our participants explained that a leader must accept a certain degree of loneliness in his or her role. Acceptance of loneliness is relevant to approach in terms of the coping strategies, emotions and well-being of leaders; one might ask whether either of the two coping strategies discussed here would be different if acceptance were not part of the CEOs' experience.

Feeling lonely can lead to negative emotions, which can influence work efforts and outcomes (Rokach, 2014; Silard & Wright, 2020). These negative emotions may harm the well-being of leaders, affecting their social and psychological functioning (Bachman et al., 2023). However, since CEOs in our study viewed loneliness at work as a part of their role and consciously accepted it, it can be argued that feelings of loneliness did not significantly affect their emotions and well-being. This observation deserves greater attention in the literature, as the negative effects of loneliness appear to be less severe among CEOs compared to other populations.

Regardless of the importance of the acceptance premise and its influences on the CEOs' coping strategies and experience, acceptance creates a need for emotional regulation. Emotional regulation is the effort to control one's emotions (Côté, 2005). Several participants explained that they were trying to be role models and lead by example, which suggests the notion of emotional contagion (Kaufmann and Kaufmann, 2015). To keep this contagion positive, our participants regulated their negative emotions. Reasons for regulating negative emotions included increasing work effort and creating a positive environment. The rationale for CEOs regulating their

emotions rather than preventing their own loneliness may be due to the acceptance of loneliness in the workplace as part of the CEO's role.

6. Conclusion

The aim of this study was to explore CEOs' perceptions of loneliness in the workplace. Our results indicate that CEOs often experienced state loneliness due to the unique demands of their role, leading to short-term feelings of isolation and a certain degree of disconnection. Key situations triggering CEO loneliness in the workplace include confidentiality cases, sensitive employee issues, decision-making and change management processes. These instances often lead to feelings of social distance, lack of authenticity, and reduced self-efficacy. By identifying these triggers, our study contributes to raising awareness and helping CEOs and their support networks to mitigate these feelings. To cope with loneliness, finding a way to disconnect from work or utilizing a support network could be helpful. In addition, it seems that CEOs have a tendency to accept that state loneliness is a natural part of their role. This acceptance may help to explain why the CEOs in our study only experienced state loneliness in their position, without letting it affect them much outside of work.

7. Limitations and Future Research

One of the limitations of this study is the small sample size, comprising just 14 CEOs of small and medium-sized Norwegian companies. This precludes generalizability to other similar contexts. Future research should focus on larger samples to examine possible convergences or differences with the results of this study.

Moreover, further efforts should extend the scope of executive loneliness research to larger organizations, to determine whether organizational size and sector play a role in how loneliness is perceived by CEOs.

Future research should also consider the influence of national culture on how loneliness is perceived and addressed in organizational settings. As most empirical studies have been carried out in Anglo-Saxon national contexts, this study has the merit of having contributed to empirical research in a Norwegian cultural context, thus broadening the cultural horizon of this field of research.

This study also challenges the notion that desired social relationships always reduce loneliness. Our results suggest that close relationships at work can sometimes increase CEO loneliness due to the need for confidentiality. This paradox and the influence of personality traits on loneliness may warrant further research.

Finally, more robust models for studying loneliness and its impact on people at work can help researchers and practitioners to develop targeted measures and policies for leadership practice in organizations (Lam et al., 2024).

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An Experience on Capitalism in Post Covid-19 Times: The Case of Vollepension Restaurants

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Abstract: In 2024 many questions are made about the future of the Capitalist system. Extreme views as total anarchy and total dirigisme exist. However, practical examples of ways of going beneath and over the traditional market system based in supply, demand, price and quantity are scarce. It is in this context that the Vollepension experience on restaurants management in Austria is amazingly relevant. In this restaurant and for a certain time, during the Summer of 2023, products had no price, because "someone already paid your lunch before". This way of acting is called “Pay-it-First” (PIF) and has been already analysed in the core of the “Gift Economy”. In order to study this mentioned case, first we performed a literature review on SCOPUS database about the “PIF concept”, then we used published data in the internet about Vollepension and direct contacts with the restaurant to describe the experience, finally we discussed the case in the context of the theory We concluded that PIF is a very significant alternative to traditional capitalism and it might drive societies to a new and innovative way of managing Capitalism. This paper has the limitation of being centred in a single organisation although we mention other cases in the literature review. Finally we believe that researchers in management should pay attention to this innovative initiative as in the 21st century societies are trying to find alternative ways of living and existence.

Keywords: Management, Capitalism, the Gift Economy, Vollepension Restaurants, Future.

1. Introduction

Basic economic theory (Frank, 2024) states that markets are made of two basic components – supply and demand. In an ideal world, demand will be made by consumers that will maximize their utility and by producers who will maximize their profit. Quite amazingly due to allocation of supply and rationalization of demand requirements, both consumers and producers will find a solution of compromise that will maximize the social welfare. Therefore in this situation, the “invisible hand” (Smith, 1776) of markets would provide the best societal results. More technically the “invisible hand” was also called “price system”.

This idea was first put forward by Adam Smiith (Smith, 1776), in times of Absolute regimes and before the French revolution and was at the time very revolutionary. Also, within this context, the presence of the State in the market and in the economy as a whole should be minimal – “laissez faire laissez passer et le monde va de lui meme” said by Gournay (Schelle, 1897) being the motto and the mantra of the “free market” economy practitioners and advocates.

With time, however many alternative and complementary analysis to the market were made. Most importantly, the “competitive” market structure that based “the invisible hand” was put into question. Meaning that if some participants have the possibility of influencing the price, they could get advantages and distort the market outcome; from here derives all the vast and important literature of imperfect competition with cases like imperfect competition, oligopoly, oligopsony, monopoly or monopsony (Frank, 2024). Also as important a very substantial body of work was made on how the State should intervene in the market in order to improve its results; starting with market failures and equity concerns (Stiglitz and Rosengard, 2015), the analysis was extended to economic policies (Baland, Bourguignon, Plateau & Verdier, 2020), to the type of public intervention (funding, provision, ruling, building private capacity, etc) (World Bank, 1992), the economics of social policies (Smith, Le Grand and Propper, 2008) and the implementation of welfare states (Esping-Andersen, 1990).

Quite strikingly and significantly however, all the above-mentioned examples rely on the idea that the price is fundamental for the operation. This means that (by a mechanism also called “rationalization of demand” the price a consumer pays relates to the utility derived from the good or service and that this price should be related to the income restriction or budget of the individual (Frank, 2024). Support of private consumption should happen in the case of positive externalities or public goods but even so the price should continue to be a variable of concern, even if hidden (Stiglitz and Rosengard, 2015). The price should also define the margin of profit obtained by a provider (by a mechanism called “allocation of supply”), being well known that prices should at least cover average prices, and if it does not happen the business might soon close (Frank, 2015); all the literature on public support to private companies (World Economic Forum, 2022) and even consumer research (Lamberton,

Rucker, & Spiller, 2023) may be linked to these two facts, because they deal with the "allocation" and the "allocation" mechanisms, respectively, and again price continues to be the main variable.

Everything changes in this setting if the price is put on zero. Economists agree that with the old adage that *"there is no free lunch"* (Keyes, 2006): somebody has to pay for what is provided, resources used are not for free - but the idea in the case, we analyse in this paper, and bold as it is, is the following – what if, in a shop, or business, the goods are not shown their own prices, and everyone pays what they want, because, in as in case of the Vollepension Restaurants "*your meal was already paid by somebody before you"* (Vollepension, 2023a).

This idea amounts to something like a "*quantum leap*" because it apparently goes against the market logic. In fact in a market, suppliers should define a price and consumers should define their level of consumption against that price. If the price was low consumption should be high and vice versa. The consumption would be defined by the fact that the marginal utility and opportunity cost for the consumer would be equal to the price. In this new model, providers trust, and it is really a matter of trust, that consumers will pay the good according to the marginal utility they derive from consuming and crucially that utility will cover the cost – in fact, it may happen, that a good which had a price of X, let's say 5 euros, is paid Y by the consumer Y being higher than X let's say 6 euros, because the consumer feels the good is worth 6 and not 5 euros. In this case, as Milton Friedman would say "everyone is happy" (Friedman & Friedman, 1980) because the supplier increases its profit, and the consumer pays what he thinks is due.

It is also almost intuitive that one would think that some people would want to benefit from the companies' generosity and take the good or service by almost free. This would be something like a perfect discrimination practice (Frank, 2024) from the point of view of the consumer and would look like very greedy. And indeed, for some people "*greed is good"* (Kates, 2021). The interesting thing however is that it may not be the case that everybody tens to discriminate. It is this situation of "non-greedy" actions that we will explore in this paper. Crucially we believe that this behaviour may be explained economically and may be the basis for a "new capitalism" in the 21st century and beyond.

In order to analyse this situation we decided to concentrate our work in Vollepension restaurants, a case we came across by chance while in holidays in August 2023 in Vienna (Vollepension, 2023a). Serindipity always plays a good part in interesting scientific projectsIn order to address the case of Vollepension this paper will be structured in the following sections: 2)Methods, 3)Concept, 4)Theories, 5)Case, 6)Discussion, 7)Conclusions.

In doing this research we hope to analyse if and how is that the Vollepension experience can be interesting for the management of organizations and for the future of capitalism in the scope of a very dynamic society as ours is in the current times.

2. Methods

In this paper first we perform a literature review on Gift Economy and particularly of the Pay.it-Forward phenomena from a business point of view and in the SCOPUS database, and present those data analysed in sections 3 Concept and 4 Theory. After that we present the Vollenpension case based on qualitative data and namely using information about the restaurant that is given in its website, our impressions while visiting and some email changes with the restaurants' owners and administration in the last weeks. These data are presented in section 5. The paper end with two sections in which first in section 6 Discussion, section 5 is compared with section 3 and 4, and section 7. Conclusion, in which the most important ideas are summarized and future research is envisaged.

3. Literature Review: Concept – The Gift Economy and the Pay-it-Forward Model

The main idea behind this experience is the "Gift Economy", which will be briefly described in section 3.1. Moreover, the Vollepension experience is about pricing (3.2), and in this context several options have been put forward, as the Pay-What-You-Want Day (PWYWD) and the Pay-It-Forward (PIF).

3.1 The Gift Economy

The Gift Economy is a system in which people give goods or services for free to others without expecting any reward or retribution (Cheal, 1988). The origins and roots of this practice have been studies by anthropologist (Godelier, 1999). It has been related to religion (Greaber, 2011), to merit (Bowie, 1998), to charity (Parry, 1986),

to mutual aid and anarchism (Dolgoff, 1974). More recently free shops have been tried (McMillian & Buhle (2003), and the question of free content become important in the 21st century society (Griesler, 2006).

3.2 Alternative Prices in the Gift Economy

The Vollepension experience was based on the notion of price. The seminal paper about the prices in the context of the Gift Economy is (Jung, Nelson, Gneezy, & Gneezy 2014). In that paper the authors compare to basic possibilities: the Pay-What-You-Want Day (PWYWD) and the Pay-It-Forward (PIF). In the first option. "*You can pay what you want for your admission. How much would you like to pay?"* ((Jung, Nelson, Gneezy, & Gneezy 2014, 416). In the second option, *"A visitor who came earlier paid for your admission. Since you are paid for, you now have a chance to pay forward the admission for another person who will come later today. How much would you like to pay forward for another person's admission?"* ((Jung, Nelson, Gneezy, & Gneezy 2014, 417)

Quite crucially in all the six situations in which the two methods were tested and compared empirically, the PIF received larger amounts of pay than the PWYW (Jung, Nelson, Gneezy, & Gneezy 2014, 418). At the end of the paper the authors successfully tested the idea in a pilot study at Karma Kitchen, that when people were reminded of giving rather than receiving a gift, they would pay forward a higher amount; Consistent with our prediction, groups of customers paid more when the card emphasized *giving* (*M* _ $20.42) than when it emphasized *receiving* (*M* _ $11.09), *F*(1, _ 4.77, *p* _ .035 (. (Jung, Nelson, Gneezy, & Gneezy 2014, 429).

4. Literature Review: Theories

4.1 Definition of Study Sample

In this section we explore the ideas behind the "PIF" model by exposing some ideas that have already been put forward in published documents in the SCOPUS database. The research was made in July 2024. Interestingly, when we used the keyword "PWYW" we found 101documents, and when we restricted the search for situations referring to price, the numbers drop to 35, of which 32 are about business. When we used the keyword "PIF" we found only 34 documents, of which 6 were about social sciences and 4 about business. By a question of time and space limitations we will only address and use "PIF" next.

4.2 Analysis of the Data

We therefore ended up with 9 papers; after reading them we selected 7. The main ideas that result from those papers are the following:

- A collectivistic orientation of personality is associated with higher propensities for PIF compared with an individualistic orientation; also for individuals with collectivistic orientations the effect of social distance on PIF behaviour is smaller than for those with individualistic orientations; the strength of reciprocity norms mediates the interacting effect (Ma, Velasco, Janakiraman, & Yang, Z. 2024)
- the idea of receiving a gift and being offered the opportunity to donate a gift to another person may be explained by "upstream reciprocity" and warm glow and also by mutual aid concerns (Byrne, Tan, Ho, Wang, & Tucker, 2024)
- PIF was differentiated from "direct reciprocity" in Yang, Janakiraman, Hossain, & Grisaffe, 2020);
- examining the big earthquake in Japan in 2011 (Atsumi, 2014) found that PIF may be generated in survivors and helps rebuilding; also related to the Japanese earthquake, voluntarism was explained by the dominant status model, by joy and the educational background; but and also crucially having been helped increased the chances of becoming a helper (Daimon & Atsumi 2017).
- Dumond, Glassner, Holmes, Bicks, Monagle, (2014) describe how PIF was used in public schools in Winchester (Massachusetts) in order to spread the use of 3D printers: *"Anyone who receives help from Winchester in building a 3D printer must agree to help two other school groups to build their own 3D printer, therefore fulfilling their role to 'pay it forward' to schools across the country* (Dumond, Glassner, Holmes, Bicks, Monagle, 2014). finally (Holmes, 2019) describes a personal "Pay-it-Forward" situation.

5. The Case

Vollenpension Restaurants is a social enterprise created in 2012 and first announced as a experience at the Vienna Design Week 2012 (Vollepension, 2022a); it celebrated its tenth anniversary in 2022 by several 10 days

campaigns, and mainly 10 days of colourful program from 16th to 25th September, during the Vienna Design Week. It is established in Vienna, Austria with two coffee houses, in the 1st (Johannesgasse 4A) and 4th (Schleifmühlgasse 16) districts after beginning at Mariahilferstraße 101, in Vienna's 6th district and using a website: https://www.vollpension.wien/ in German and English. Its founder was Moriz Piffl-Percevic, and iit works through a Vollpension Generation Community. Its aim was to create Austria's first intergenerational community and by that combating social poverty and loneliness (Vollepension, 2022a). In 10 years Vollepension shed light on poverty and isolation by having more than a billion of media contacts worldwide, more than a million guests, 10,000 cakes baked according to Grandma's recipe, 100,000 pieces of granny cake eaten (Vollepension, 2022a). Examples of those community are include "flea *market walk with 74-year-old fashion expert Mrs Monika, a "piano breakfast" in the Johannesgasse boarding house, or an intergenerational brunch at which Mrs Marianne, who at 78 is the longest-serving senior citizen in the boarding house, tells stories from her granny's sewing box*." (Vollepension, 2022a). Other notable activities include a baking school, a baking book, a Turbokitsch design collection, a book-to-go kiosk and a multifunctional studio, right where it all began (Vollepension, 2022a). Crucially, the Covid-19 pandemic increased the acuteness of financial and social poverty in old age: "*We also see major difficulties here in terms of policy and tax regulations for senior citizens, as the often low additional income is taxed at a relatively high rate.*" Julia Krenmayr, Managing Director of Vollpension (Vollepension, 2022a).

Innovations based on price started at the end of 2022 in order to tackle the growing inflation and its effect on costumers: the granny inflation flat rate" was time-based, therefore the full-board menu looked more like a parking meter than a menu; the guest payed for 30, 60, 90 or 120 minutes, all packages including unlimited coffee and organic house lemonade, according to Moriz Piffl-Percevic *"Two products where we can pass on the lower value of the goods to our guests in the form of a drinks flat rate. This is made possible by innovations such as a self-built upcycling dispensing system*" (Vollepension, 2022b). Also "*We have to say goodbye to the image of a guest who comes alone, occupies a table for four and reads the newspaper for hours", however "The full-board model provides planning security because it specifies a minimum turnover per guest and seat."* (Vollepension, 2022b).

But the big challenge took place in the Summer of 2023 when "a perpetual motion machine of goodness" was installed at the Vollpension in Johannesgasse in the 1st district on Saturday June 24th "based on the principle 'You've been invited, now you can invite the next ones'" (Vollepension, 2023 a). In the words of Vollenpension themselves*:"Imagine going to a coffee house where the menu has no prices, you are cooked for and warmly looked after. You then receive the bill and the amount is zero. A footnote tells you that your bill was paid by someone who was here before you and asks you to continue this cycle. This is the Gifting Forward model, (…) The idea behind the catering model, which is based on the principle of the 'gift economy', comes from Nipun Mehta, an Indian-American entrepreneur who, together with the founders of Vollpension launched the experience*" (Vollepension, 2023a).

Inspired by the idea of generosity "*creating deep relationships with other people and yourself*," (Nipun Mehta). " and "*making Vienna not only the most liveable city in the world, but also the most lovable.*" (Piffl-Percevic) the experiment aimed at searching for the right and most coherent pricing model (Julia Keymar) (Vollepension, 2023a).

Firstly, the experiment was defined as a test pilot, only due to last at least until the 9th July (Vollepension 2023a), but then was extended until the of July (Vollepension 2023b) and when the authors of this paper visited the restaurant on August 15th the experience was still in place – see the next photo.

Figure 1: Photo taken by the authors on location, August 15th 2023

By the middle of July "the emotional balance sheet was s paying off 100 per cent - the employees love it, as do the vast majority of guests" (Vollepension, 2023b). Crucially, financial balance sheet showed a minus of five to ten per cent; and namely; some guests are paid far more than usual; many paid about the same or slightly less than the price on the normal menu; very few paid nothing at all (Vollepension, 2023b). "*Overall, this resulted in a small loss compared to a comparable consumption with a regular menu, but the positive effect that the experiment has on people is far greater than our loss*" said Mr Piffl-Percevic (Vollepension, 2023b). And he stated "*We believe that both the emotional effect on guests and the economic success will stabilise in such a way that we can maintain the model in the long term and thus provide a positive impetus for a more lovable city.*" Vollepension, 2023b).

6. Discussion

The papers described in section 4 do not relate to price. Therefore they do not help us explaining the Vollenpension case. This is quite surprising but we believe the situation can be explained because in the literature PIF has been linked to altruism, volunteerism and charity and not with business.

However (Mills & Groening 2021) addressed unethical behaviour, like paying a very low amounts of money in a PWYW situation putting the Vollepension experience in its due context. The mentioned authors measured that in less acceptable situations, people with high guilty behave much differently (87%) from people with low guilty; but in socially acceptable situations that difference was smaller (18%). This idea may explain that some consumers paid very little, but others paid the current price and more – the root of the difference probably being the sense of guilty because consuming and not paying is socially unacceptable.

Ethics seems to be one of the major issues in relation with this experience. In fact ethics and social responsibility have to exist both ways, from the provider who must assure quality and from the consumer who should not cheat, and pay much less of its marginal utility.

The second major issue is marginalism: if people pay what they feel it is fair, and if quality of the product is good, the business may prosper.

The third issue is quality – if the good or service, in the case of Vollepension the meal, is of good quality, there is no reason the gift will not be high.

The fourth issue we will call social behaviour related to the market average - meaning that if the market is in good shape and if the prices in the concurrent providers should guarantee at least balanced accounts for the restaurant, the experience should not provide loss. Of course, if quality in Vollepension is higher than in the concurrent providers, the gift should be higher than the price those providers ask for.

7. Conclusion

All in all, all things considered, the Vollepension experience might be a pilot study for the economy of the 22nd century and beyond. An economy in which people will behave with ethic and social responsibility and in which consumers will have real power because will define the price they want to pay by any product, but in doing so will behave accordingly to marginalism and utility concerns knowing that cheating would first ruin the provider and then destroy the consumer well-being. With ethics quality will be the decisive factor. Crucially all these trends and ideas exist already in 2024 but are seen as "weird" and "outcast". We believe in one hundred years they will be prevalent.

We would like to make a larger study of PWYW and PIF, starting with the literature review we made reference to in section 4. That literature review could be the basis for a future empirical study.

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Enhancing Corporate Sustainability: ESG Reporting and Employee Competence Development

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Abstract: The increasing importance of ESG (Environmental, Social, and Governance) factors in corporate management has highlighted the need for specific employee competences. While previous studies have focused on external reporting, and the indication what elements should be reported (with no hints how to collect this information), this research shifts the focus to internal uses of ESG information, such as goal setting, performance evaluation, and management. The paper explores the key competences required by employees to successfully implement these internal processes. The authors present the research results on competences needed in individual enterprises (n=53) in Poland, in which ESG reporting is already required or will be required soon. By examining the competence sets necessary for navigating the complexities of ESG reporting, this study contributes to bridging the gap between theoretical knowledge and practical application in corporate sustainability endeavours. Through an investigation involving representatives from various sectors, including but not limited to, environmental advocacy, corporate governance, and social responsibility, this research identifies key competences relevant for ESG reporting and sustainability integration. By elucidating the intersection between employee competences and corporate sustainability objectives, this article offers valuable insights for organisational leaders, HR professionals, and policymakers aiming to foster a culture of sustainability within enterprises.

Keywords: Competence Profile, Sustainable Development, Employee Development, Employee Competences, ESG Integration, Corporate Sustainability

1. Introduction

The origins of ESG can be found in several key historical moments that influenced the development of the concept of sustainable development and responsible investment (Eccless *et al.,* 2020). The concept began to take shape in the 1960s and 1970s, when social and environmental movements began to gain traction (Wang *et al.*, 2023). Companies and investors started to pay attention to the ethical aspects of business and the impact it has on the environment and society (Armstrong, 2020).

The 1990s and early 2000s saw further development of the ESG concept. In 2004, Kofi Annan, then UN Secretary-General, launched the 'Who Cares Wins' project, which emphasised the importance of integrating ESG factors into financial analysis and investment decisions (Wang *et al.*, 2021). When in 2005, the UN Principles for Responsible Investment (PRI) initiative was established, ESG began to become increasingly important in the world of finance and business (Kotsantonis *et al.*, 2016; Van Duuren *et al.*, 2016). More and more companies and investors began to recognise that taking ESG factors into account not only helps manage risk, but also creates new business opportunities and can lead to better financial performance (Velte, 2017; Whelan *et al.*, 2021). As a result, ESG has become an integral part of management strategies and investment decisions around the world.

ESG reporting still faces a number of problems that hinder the full and effective implementation of the practice in companies around the world (Berg *et al.*, 2022). One of the main challenges is the lack of uniform standards and guidelines for ESG reporting (Stubbs & Rogers, 2013; Kula, 2024). Currently, there are many different frameworks and standards, such as GRI (Global Reporting Initiative), SASB (Sustainability Accounting Standards Board) or TCFD (Task Force on Climate-related Financial Disclosures), which leads to inconsistency and lack of comparability of reports between companies.

Another problem is the quality and reliability of the ESG data (Jonsdottir *et al.*, 2022; Demartini & Pagliei, 2023). Companies often find it difficult to collect and analyse relevant data due to a lack of consistent methodologies and measurement tools. As a result, ESG reports may contain incomplete or inaccurate information, which undermines their credibility (El-Hage, 2021). In addition, there is a risk of 'greenwashing,' that is, portraying a company's operations as more environmentally and socially responsible than they actually are, leading to stakeholder misinformation (Yu *et al.*, 2020; Baldi & Pandimiglio, 2022).

The reluctance of some companies to disclose negative aspects of their operations is also a problem. ESG reporting requires transparency and openness about a company's operations, which can reveal its weaknesses and problems, such as environmental pollution or improper practices toward employees (Chouaibi & Affes,

2021; Gerged *et al.*, 2023). Companies fear that such information could damage their reputation and bottom line, which discourages them from reporting fully and honestly.

However, according to experts, the above problems result largely from the level of knowledge and competences, as well as the attitude and resistance to change of the staff of enterprises reporting on sustainable development, which is a serious challenge in ESG reporting (Sierdovski *et al.*, 2022). Many companies, especially small and medium-sized enterprises, do not have the financial or human resources to effectively implement the required actions and policies and monitor ESG indicators (Permatasari & Gunawan, 2023). The lack of professionals with relevant knowledge and experience in the field of sustainable development in these enterprises further hinders the reporting process (Caldera *et al.,* 2019; Alayon *et al.,* 2022, Basit *et al*., 2024).

While there are many studies and articles in the literature on the subject of reporting on sustainable development outside the organisation (Milne *et al.,* 2009; Tregidga *et al.,* 2014), there has been no discussion of the comprehensive preparation of internal staff who will be responsible for such reporting, and therefore what activities and what employee competences employers should pay attention to in order to meet the current requirements of external reporting.

In connection with the identified challenges, the authors, together with practitioners involved in sustainability reporting in companies, have developed a competence profile that will indicate the path of development of staff responsible for ESG reporting in their enterprises so that the reports they prepare meet the detailed guidelines of the latest regulations established by the European Union. The competences were finally verified and accepted by the practitioners.

The methodology and analysis of the findings from competence profile are presented in the sections to follow.

2. Methodology

The development process followed a three-step methodology:

Step 1: Development of the draft competence profile document to be filled in by the research participants. The authors proposed a draft competence profile based on the analysis of formal documents on the ESG reporting obligation (documents elaborated by the European Commission) and with a view to incorporating the competences (including domain-specific) required at three levels of employees' familiarity with ESG reporting (i.e. basic, intermediate, and advanced). The prepared draft had the form of a matrix divided into the following parts: competence name, competence level, and psychophysical attitudes. In the 'competence name' part, the authors initially proposed a list of several competences that they identified based on the literature and grey literature review as necessary to possess in the ESG reporting case.

Step 2: Performance of focus group interviews. The interviewees (n=53) included the representatives of large enterprises, SMEs, public and *non-profit* organisations already and soon to be required to report ESG practices or interested in the topics of ESG. The focus group interviews took place in Poland in two cities – Warsaw and Radom between January and May 2024. The participants were practitioners – adult students of the post-graduate studies entitled *'Sustainable Development and ESG Economy: Innovative Business Models'* organised by the Institute of Environmental Protection – National Research Institute. The objective of the focus group interview was to identify the relevant competences employees engaged in ESG reporting should have.

- *Step 2.1*: Presentation of the competence profile draft developed in Step 1 to respondents along with an explanation of what a competence profile is. The definition adopted was that a competence profile is a 'key tool in effective human resources management, used to map, analyse, and develop employee competences; integral to the processes of recruitment, training, career development, and succession planning, as well as supporting talent management in the organisation' (Pocztowski *et al*., 2021).
- *Step 2.2*: Respondents were divided into 10 groups, which were provided with online drafts of the competence profile. In the groups, they listed the most important competences (based on their experience and knowledge on ESG reporting requirements) that employees involved in sustainability reporting must have, and described what an employee with a given competence can and/or know at a given level.
- *Step 2.3*: The authors conducted an initial selection of all 10 completed matrices to eliminate identical competence names, but their level descriptions were compiled for further analysis.
- *Step 2.4*: Respondents (each individually) analysed the resulting initial profile, and each competence and its levels were discussed in a general forum, after which the suggested modifications were introduced.

Step 3: Final selection of ESG reporting-specific competences. Respondents who are both practitioners and experts in the field of sustainability reporting defined 'key competencies' as those that are necessary to perform individual tasks at a high level, achieve the highest results, and work effectively. Then, they selected from the previously developed competencies those that they consider key and supplemented the psychophysical attitudes that an employee should have in individual competencies.

3. Competence Profile for ESG Reporting

3.1 Creation of the Competence Profile

As many companies will soon be under an obligation to report their ESG practices, appointing employees responsible for ESG reporting will be a must. This will require the knowledge of relevant competences such persons should have.

Therefore, the authors proposed a competence profile for ESG reporting. The development of the draft version of the profile was preceded by the initial discussion with target groups composed of post-graduate students representing different Polish companies who identified their needs in this area.

The authors proposed a competence profile containing: the description of the ESG reporting-specific competences; three levels of competence (basic, intermediate, and advanced); and the psychophysical attitudes related to each competence. The profile containing ESG reporting-specific competences is presented in Table 1.

Table 1: ESG reporting-specific competences.

Competence name	Competence levels			Psychophysical attitudes
	Basic	Intermediate	Advanced	
ESG reporting-specific competences				
ESG regulations and standards	– Basic knowledge of ESG regulations. – Searching for information on regulations.	– Application of ESG regulations in daily work. – Monitoring changes in regulations and standards.	– Implementation of new ESG regulations and standards in the organisation. – Advisory on compliance with ESG regulations.	– Meticulousness: to accurately follow regulations and standards. – Analyticity: to interpret and apply regulations. – Conscientiousness: to pay attention to compliance with regulations and standards.
Technologies	– Basic knowledge of ESG tools and systems. – Application of data collection tools.	– Application of advanced analytical tools. – Integration of various ESG data management systems.	– Development and implementation of advanced ESG management systems. – Optimisation of the use of technology in ESG processes.	– Technical proficiency: to use appropriate technologies. – Innovation: to introduce new technologies. – Analyticity: to analyse data using advanced tools.
Reporting tools	– Basic knowledge of ESG reporting tools. – Application of data entry tools.	– Application of advanced functions of reporting tools. – Creation of reports using specialised software.	– Management and integration of various ESG reporting tools. – Optimisation of reporting processes with technology tools.	– Technical proficiency: to use appropriate technologies. – Accuracy: to accurately input and analyse data. – Innovation: to introduce new technologies.
Legal rules	– Basic knowledge of company's CSR and ESG regulations.	– Interpretation and application of legislation in practice. – Keeping abreast of changes in regulations and adjusting the	– Comprehension of ESG-related legislation. – Creation and implementation of policies in compliance with regulations.	– Meticulousness: to pay attention to compliance with regulations and standards. – Conscientiousness: to interpret regulations accurately.

Competence name	Competence levels			Psychophysical attitudes
	Basic	Intermediate	Advanced	
ESG reporting-specific competences				
		organisation's activities.		– Responsibility: to be awareness of the legal consequences of the organisation's actions.
Green competences	– Basic knowledge of principles of sustainable development. – Identification of environmentally friendly practices.	– Implementation and monitoring of sustainable development activities. – Assessment of the environmental impact of the organisation's activities.	– Creation and implementation of sustainable development strategies. – Consultation on green practices and technologies.	– Environmental awareness: to understand the importance of protecting the environment. – Responsibility: to take pro-environmental measures. – Innovation: to search for new green solutions and technologies.
Sustainable finances	– Basic knowledge of principles of sustainable finance. – Identification of socially responsible investments.	– Evaluation and analysis of sustainable investments. – Creation of ESG-sensitive financial strategies.	– Management of a portfolio of sustainable investments. – Implementation of comprehensive ESG-compliant financial strategies.	– Analyticity: to analyse sustainable investments. – Meticulousness: to accurately process and interpret financial data. – Innovation: to explore new financial approaches and instruments.
Risk management	– Basic knowledge of types of ESG risks. – Identification of basic risks.	– Analysis and assessment of ESG risks. – Creation of risk management plans.	– Management of ESG risks. – Development of strategies to minimise ESG risks.	– Analyticity: to analyse risks accurately. – Meticulousness: to process and interpret risk data accurately. – Decisiveness: to make key decisions in the face of risk.
Supply chain management	– Basic principles of ESG supply chain management. – Identification of suppliers that meet ESG criteria.	– Monitoring and evaluation of suppliers for ESG compliance. – Implementation of sustainable supply chain management strategies.	– Management of complex ESG supply chains. – Creation of ESG-sensitive supply chain management policies and procedures.	– Analyticity: to analyse and evaluate suppliers. – Meticulousness: to monitor and assess ESG compliance accurately. – Decisiveness: to make key supply chain management decisions.
Data analysis	– Collection of basic ESG data. – Application of basic analytical tools.	– Processing and analysis of ESG data. – Interpretation of the results of the analysis.	– ESG data analysis. – Creation of comprehensive reports and presentations of results.	– Analyticity: to analyse data accurately. – Meticulous: to accurately process and interpret data. – Communication skills: to clearly present the results of analysis.

Source: Authors.

The research results showed that companies in Poland are very much interested in ESG reporting-specific competences. This topic is new in companies so the personnel does not really know what competences and knowledge the staff should possess in order to report ESG indicators correctly.

4. Findings From Competence Assessment

Based on the literature review, the authors proposed the ESG reporting-specific competences which might be useful in ESG reporting. The next phase was to organise focus group interviews in which the participants proposed the individual skills, knowledge, and psychophysical features for each competence. The proposed ESG reporting-specific competences were accepted by the participants. The next phase of the research was to decide the reasons why these ESG reporting-specific competences are needed in the ESG reporting process. The authors asked about the following aspects: regulatory compliance; reputation and brand value; market and competitive position; innovation and growth; social impact; internal reporting; and global trends.

Out of the 53 participants, who were engaged in the final development and assessment of the competence profile, 62% stated that these competences are important, among others, for reputation and brand value as the companies with employees that are characterised by high ESG competences build trust with stakeholders, including customers, employees, suppliers, and the community. 78% of them found that these competences can support innovation in sustainable products, services, and business models. 57% of the participants thought that the competences are important to guarantee the effectiveness of the company's ESG metrics and performance indicators in tracking and communicating progress. Finally, 71% of the participants said that the competences help in assessing the legal and regulatory requirements related to ESG in the jurisdictions where the organisation operates. This includes environmental regulations, labour laws, and corporate governance codes.

It must be highlighted that these competences can be distributed among several employees who are specialists in different areas. Surely, in small companies, due to the lack of funding, probably only one employee will be responsible for all (or almost all) areas of ESG reporting. In bigger enterprises the competences can be easily divided among several specialists.

During this phase, all respondents indicated the top three ESG reporting-specific competences in the proposed competence profile (Table 2).

Table 2: Relative frequency of times the competences are ranked in top 3.

Competences	Frequency (number of times)	Relative Frequency (%)
ESG regulations and standards	31	20
Technologies	15	9
Reporting tools	29	18
Legal rules	16	11
Green competences	8	5
Sustainable finances	11	7
Risk management	7	4
Supply chain management	23	14
Data analysis	19	12

Source: Authors.

The research shows that mastery of ESG regulations and standards (selected by 20% of the participants in top 3) is indispensable for modern businesses. It enhances risk management, attracts investment, ensures regulatory compliance, appeals to conscious consumers, attracts and retains talent, and drives innovation. These factors collectively support sustainable growth and long-term success in an increasingly complex and ethics-oriented global marketplace.

Reporting tools competence ranked second. Such tools facilitate the standardisation and consistency of data. ESG metrics can be complex and varied, covering diverse areas from carbon emissions and energy use to labour practices and governance structures. Tools enhance data accuracy and reliability. Manual data collection and reporting can be prone to errors, leading to inaccurate or misleading information. Automated reporting tools minimise human error by streamlining data collection processes, integrating various data sources, and applying consistent methodologies.

The supply chain represents a significant portion of a company's environmental and social footprint. Many ESG issues, such as carbon emissions, resource usage, labour practices, and human rights, are deeply embedded

within the supply chain. Companies need to report on the ESG impacts not just within their own operations but throughout their entire supply chain.

5. Conclusions

The ESG reporting-specific competence profile seems to be a practical tool for companies and other organisations that will be obligated to report these indicators. At this moment, there is no ESG competence profile in this area which might be used by HR specialists when selecting the personnel to be engaged in ESG reporting.

The presented ESG reporting-specific competence profile includes competences which can be supportive for the company in, among others:

- Risk management in social, environmental or economic areas of the company;
- Regulatory compliance, i.e.: adhering to ESG-related regulations and standards that helps companies avoid legal penalties, fines, and sanctions;
- Brand reputation, i.e.: a strong ESG profile can differentiate a company from its competitors and enhance its brand reputation, leading to increased customer loyalty and market share;
- Market position which means that strong ESG practices can provide a competitive edge in attracting and retaining customers, as well as top talent.

Employees with ESG reporting-specific competences significantly enhance a company's ability to manage risks, comply with regulations, and attract investors and talent. These competences ensure the company can proactively address environmental, social, and governance challenges, leading to improved operational efficiency and long-term sustainability. Moreover, robust ESG practices boost the company's reputation and brand value, fostering stronger stakeholder relationships and competitive advantage. Ultimately, this alignment with global sustainability trends supports strategic planning and resilience, contributing to overall value creation.

The competence profile developed in this study can be a strategic tool for all companies to support their development, talent management, and compliance with ESG requirements, which will contribute to the sustainable development of the organisation in the long term:

- to help HR professionals identify and hire candidates who have the necessary skills and knowledge to effectively manage and report ESG.
- to identify competence gaps among current employees, which in turn allow for the design of targeted training and development programmes to improve their skills.
- to provide a framework for assessing employee performance. It allows for the assessment of whether employees are effectively using their skills in the ESG area, which is crucial for the success of ESG reporting and management in the company.
- to plan career paths for employees, indicating what competencies they need to develop to advance to more responsible ESG-related positions. It is also useful in succession planning, i.e. preparing future ESG leaders.
- to better manage the risks related to ESG reporting by ensuring that employees have up-to-date knowledge and skills required to meet regulatory requirements.
- to strengthen competitiveness in the market, as companies with well-developed ESG competencies can build a stronger reputation, attract investors and customers who value sustainability, and increase their competitive advantage.
- to improve operational efficiency, as employees with clearly defined ESG competencies can better integrate these practices into the company's daily operations, leading to better risk management and increased operational efficiency.

Employees who possess the competences identified in the study will be better prepared to fulfil the ESG reporting obligation imposed by the European Union. Internal development of employees, investment in their training, and providing them with access to the resources required in the reports will significantly increase the efficiency and adequacy of the prepared reports on sustainable development, which will then be assessed by external bodies to examine their correctness and credibility and further publication. Therefore, properly conducted internal activities of companies, in which the profile developed by the authors is a useful tool, will allow to avoid sanctions related to failure to fulfil the reporting obligation, and will also help to achieve added values in the form of strengthening competitiveness, brand, position, or management and organisational culture.

The further research will be more concentrated on soft competences which are also indispensable and strongly mentioned by the respondents in the interviews.

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Leading Through Generations: Crafting Adaptive Leadership Styles for Modern Enterprises

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Abstract: This contribution examines the evolution of leadership styles over time. It explores the ways in which these styles have adapted to changing economic environments and generational shifts, also highlighting the intricate interplay between leadership and cultural nuances. The research applies a longitudinal lens to the development of leadership styles, focusing on their adaptability across the lifecycle stages of two universities in Austria and Ukraine. The findings stress the importance of leadership adaptability to organizational and generational changes and emphasize the influence of cultural factors on leadership styles. The investigation employs two case studies, enabling an exploration of the interplay between leadership, lifecycle, culture, and generational nuances. The findings reveal differences in leadership styles, underscoring the impact of cultural, lifecycle and generational factors on leadership genesis. The study concludes that leadership must be adaptive and evolve in tandem with the lifecycle stages of an organization. It also stresses generational differences in leadership and the crucial role of culture in shaping leadership styles. This contribution augments the discourse on leadership adaptability, offering insights for future research and practical implications for leadership and governance in varying cultural and generational settings.

Keywords: Leadership Styles, Transformational Leadership, Transactional Leadership, Generational Transition, Culture, Lifecycle Leadership.

1. Introduction and Theoretical Background

Leadership is widely recognized as a dynamic aspect of organizational management, continually evolving in response to shifting contexts, circumstances, and cultural influences (Northouse, 2019). Research has been conducted on the issues of leadership and the classification of leadership styles (Harrison, 2018). Factors such as generational shifts, cultural nuances, and organizational lifecycle transformations play critical roles in the understanding of leadership dynamics and effectiveness. Research has explored these elements individually.

1.1 Generational Shifts

Lyons et al. (2021) examine how generational shifts impact leadership preferences and effectiveness, contrasting Baby Boomers and Millennials. Their research identifies generational differences across several workplace factors related to leadership challenges, including personality traits, work values, attitudes, career expectations and experiences, teamwork dynamics. Zehetner et al. (2022) report about a cross-national study on Generation Z, exploring future employees' preferred leadership styles in a Western and an Eastern culture. They identify cultural differences but find generally high expectations and specific demands regarding the leadership competencies of future leaders. Twenge (2010) compares Gen X and Millennials and finds that younger generations prioritize work-life balance and extrinsic rewards more than older generations. They also tend to demonstrate lower organizational loyalty, which imposes challenges to their leaders.

1.2 Cultural Differences

Blyznyuk (2017) and Lepeyko and Blyznyuk (2016) discuss values and leadership characteristics of Eastern versus Western-influenced generations. Their research underscores the importance of understanding cultural nuances in leadership. House et al. (2004) identify key cultural dimensions that shape leadership expectations and effectiveness. The authors argue that effective leadership is culturally contingent, and traits and behaviors deemed successful in one culture may not be effective in another. Nwankwo et al. (2024) stress the importance of cultural dimensions, addressing ethnocentrism, and fostering cultural intelligence, while advocating for tailored leadership development and inclusive cultures. Rockstuhl et al. (2011) highlight the role of cultural intelligence in shaping leadership effectiveness in multinational contexts. Within the geographic context of this study, Szabo and Reber (2007) analyze leadership related matters in Austria, highlighting the importance of

participative and supportive leadership styles. Additionally, there is a strong emphasis on egalitarianism and a preference for leaders who are approachable and considerate of their employees' well-being. For Ukraine, Sikorska (2015) highlights that socio-cultural factors like collectivism, power distance, and historical influences shape leadership. She notes that the Soviet legacy has led to a preference for authoritative styles, but these are slowly changing with the influence of Western management practices.

1.3 Lifecycle Effects

Sisney (2013) emphasizes the importance of achieving the right balance of organizational development and stability through appropriate leadership practice supporting product and market lifecycles. Ward (2003) states that effective leadership requires assessing the organization's lifecycle stage and adjusting leadership style to meet its specific demands and challenges. Flexibility and adaptability are crucial, as strategies that work in one stage may not suit another. Leaders who adeptly navigate these phases are better positioned for long-term success. Bodolica and Spraggon (2021) review the need for adaptive leadership strategies during organizational decline, emphasizing the enhancement of human capital in economic downturns.

1.4 Research Gap

While the effects of generation, culture, and lifecycle on leadership are well-documented, an individual consideration of these antecedents might be myopic. Therefore, this paper aims to apply a more holistic perspective and address the gap in understanding how leadership styles adapt within the complex interplay of cultural contexts, economic development, and generational transitions in institutions.

2. Conceptual Model

This paper analyzes the evolution of leadership across various stages of the institutional lifecycle, with a particular focus on the interplay of cultural and generational influences. By examining these dynamics within the distinct context of two institutions from different countries and cultural backgrounds, the study offers insights into the adaptive strategies necessary for effective leadership in diverse and continuously changing environments. This research contributes to the discourse on leadership adaptability, offering a deeper understanding of the factors that shape leadership effectiveness over time.

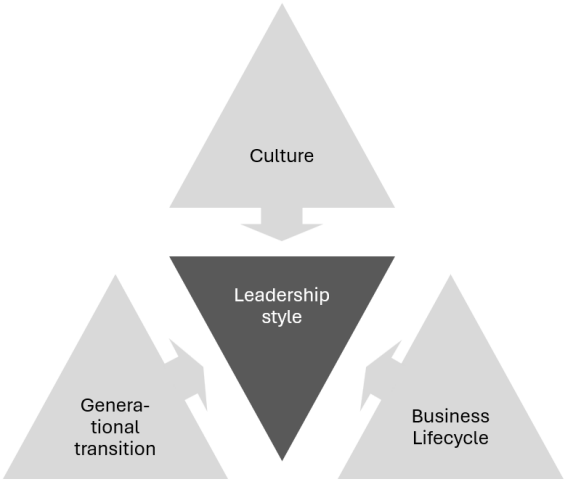

Figure 1: Conceptual model

Our research model examines three key factors influencing the dimension of leadership: business lifecycle, culture, and generational transition. Insights will be gained through a longitudinal study spanning the entire existence of two institutions in different cultural areas.

3. Methodology

The research approach in this study is grounded on behavioral theories, focusing on transformational leadership and transactional leadership (Afsar et al., 2017; MacKenzie et al., 2001). Drawing on Mahoney (2004), we employ a comparative historical case study. The study focuses on two business-oriented universities located in culturally distinct regions: Austria and Ukraine. Through a process analysis highlighting leadership style as the primary

variable, we examine its relationship with business development, life cycle stages, cultural specifics, and economic constraints. This approach facilitates the understanding of the origins and effectiveness of different leadership styles and enables an assessment of their appropriateness in relation to the subjects' performance over time. To address the generational aspect, the authors investigated the age distribution of top leadership positions (rectors, presidents, vice-rectors, vice-presidents) and middle-management positions (program directors, department heads) at both institutions. In addition to that, top and middle managers from both universities (N_{UA} = 20; N_{AUT} = 21) were surveyed regarding their views on changes in the generational structure in the coming years. By considering generational transitions, cultural specifics, and lifecycle stages, the study addresses multiple dimensions that influence leadership practices. This approach ensures a nuanced understanding of how different leadership styles can be applied in varying organizational settings, thereby contributing to both theoretical and practical knowledge in the field of leadership studies.

4. Case Study: Austrian and Ukrainian Educational Institutions

The authors analyzed the historical governance and leadership of the two universities from their emergence until today, focusing on their lifecycles, leadership structures, and generational composition. This is preceded by a presentation of the empirical context to facilitate the interpretation of the findings.

4.1 Empirical Context: Ukraine and Austria

The core values of *Ukraine's* Baby Boomer generation differ significantly from those in Western Europe, as explored by Lepeyko and Blyznyuk (2018). Unlike their Western European counterparts, whose values shifted due to changing family stereotypes after the sexual revolution (Blyznyuk, 2016), Ukrainian Baby Boomers are not defined by anti-war or anti-government sentiments or youth-centric culture. Instead, they demonstrate strong collectivism and long-term orientation, shaped by the USSR's influence as a superpower. This generation aligns with the "prophets" archetype, representing political and public figures (Lepeyko and Blyznyuk, 2016). Currently, this cohort, aged 54 to 72, is transitioning from maturity to old age but remains a dominant segment of Ukraine's population. Generation X in Ukraine, shaped by the challenges of perestroika, shortages, and national independence before 1993 (Lepeyko & Blyznyuk, 2018), shares core values with their Western European counterparts but lacks their informal outlook and patriotism. Despite these differences, Ukrainian Gen X, akin to the "nomads" archetype, exhibits global thinking and tends to achieve significant success in their maturity. Generation Y's values are shaped by terrorism, military conflicts, epidemics, and digital advancements (Blyznyuk, 2016; Lepeyko & Blyznyuk, 2018). Influenced by globalization and modern technologies, this generation exhibits similar values in Ukraine and Western Europe (Lepeyko & Blyznyuk, 2016; Lepeyko & Blyznyuk, 2018), with minimal national differences. As part of the "heroes" archetype, they contribute significantly to community and technological progress, displaying inherent technological literacy compared to previous generations (Blyznyuk, 2017).

In *Austria*, the size of the elderly population is expected to rise, and the Baby Boomers reach retirement age soon. This results in a shortage of skilled workers in the economy, and consequently attracting and retaining talented (young) people will gain importance. Companies are doing their best to convince talents to join and stay with their workforce (Mangelsdorf, 2015). Not only do the demographics change, but the value system does as well. Individuals are not only striving to fulfil their material needs, but also to accomplish their individual goals (Wirtschaftskammer Österreich, 2018). Generation X in the Austrian labor market is characterized by a strong work ethic and independence, also partly due to the strong economic development during the younger ages of this generation. They value job security and stability and are also known for their adaptability to changing work environments and technology. Generation Y in Austria is known for their tech-savviness and emphasis on work-life balance. They value meaningful work, teamwork, and frequent feedback (Bednarska-Wnuk and Januszkiewicz, 2013). Currently, Generation X and Y constitute the largest share of the working population in Austria (Statistik Austria, 2024). Gen Z has entered the Austrian labor market, prioritizing work-life balance and personal growth alongside professional achievements. They seek flexible work arrangements and meaningful work environments that offer development opportunities (Aldjic and Farrell, 2022; Zehetner et al., 2020). Companies must evaluate their capacity to balance work and personal life, requiring significant organizational resources. Globalization and international competition further intensify these challenges (Ng and Parry, 2016; Parry and Urwin, 2011), with technology reshaping employer requirements and employee attitudes.

4.2 Leadership Transformation and Lifecycle at a Ukrainian University

Founded in 1912, the university initially offered advanced commercial courses and became prominent for its high-quality training in commerce and management. By 1930, the Kharkiv Engineering and Economic Institute (KhEEI) emerged, characterized by transformational leadership and informal, collaborative processes, which established its reputation in industrial economics within the Ukrainian Soviet Republic.

In the 1950s, during post-war reconstruction, the university trained engineering economists for heavy industries, with leadership focused on transformation and motivation. Over time, leadership shifted to a more hierarchical and bureaucratic approach to manage increasing administrative complexity.

During a phase of rapid growth from about 1965 - 1980, the university focused on developing its core strengths, including a high-quality educational process and scientific research. Leadership styles transitioned to more transactional approaches to manage the expanding institution effectively. Transactional leadership during this period emphasized structures, rewards, and performance monitoring to maintain stability and drive growth.

In the 1980s, the university reached a maturity stage. It expanded its training programs to include accounting, international economics, IT, finance, and management. Leadership during this period became more formal and hierarchical, with a clear division of responsibilities and a well-structured motivation system. However, the predominant transactional leadership style lacked innovation, leading to stagnation, a decline in educational quality, reduced research programs, and a decrease in employee qualifications. The emphasis on maintaining order and following established procedures resulted in limited progress and adaptability.

In the last decade of the 20th century, the university rebranded and introduced significant innovations in educational technologies and processes. However, leadership remained bureaucratic and rigid, reflecting a Soviet-era mentality that impeded transformative progress and adaptation to new challenges.

In 2000, a significant leadership transition occurred as representatives from the Silent Generation were replaced by Baby Boomers. This was a phase of a second rapid growth, and it allowed for strategic changes and new development foundations. Leadership during this period emphasized transformational approaches, fostering informal relationships with subordinates, and promoting innovative strategies. The university underwent two more rebranding cycles in 2004 and 2014, which helped it achieve leading positions in Ukrainian economic education. Transformational leadership played a crucial role in revitalizing the institution and driving growth.

The period from 2015 to present was marked by challenges such as the Russian invasion in 2014, the COVID-19 pandemic, and the war in 2022, leading to digitalization and virtualization of the educational process. Current leadership, rooted in Baby Boomer traits, struggles with the need for agility and tends towards rigid bureaucracy. This bureaucratic leadership style, focused on maintaining control and stability, has been less effective in responding to the rapidly changing environment. The university now faces a critical juncture, with its future trajectory poised between potential rapid growth and decline, contingent on its ability to adapt leadership styles to meet new challenges.

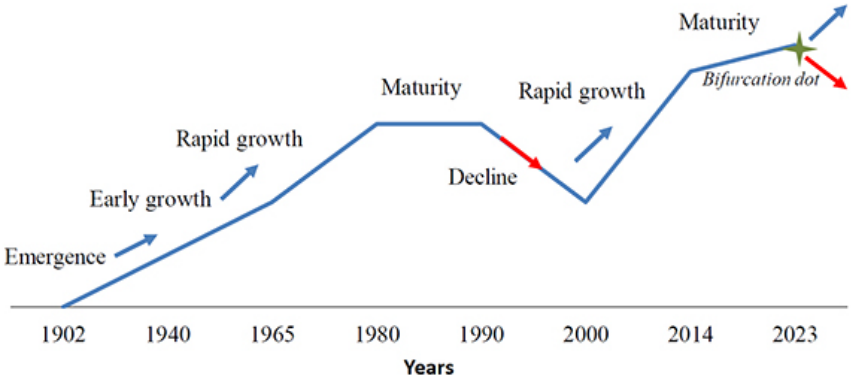

Figure 2: Lifecycle of Ukrainian University

4.3 Leadership Transformation and Lifecycle at an Austrian University

Universities of Applied Sciences in Austria are typically organized under private law, often as limited liability companies, associations, or non-profit private foundations. This specific organizational structure influences the management styles and required organizational frameworks, distinguishing them from those of traditional

universities. The university selected for this case study is a public University of Applied Sciences. In its founding year, 1994, the university launched two academic programs (Automation Technology and Software Engineering). These programs were managed as largely autonomous units by small, subject-specific teams.

The management of the study programs was decentralized, with program directors bearing the main responsibility and performance requirements. These directors oversaw teaching, research, and leadership (including leading professors, administrative staff, assistants, and researchers), as well as marketing and attracting applicants. The (mostly young, 30 to 40 years old Baby Boomer) directors worked in small, interdisciplinary teams, fostering intrinsic motivation, entrepreneurial spirit, and teamwork. Their leadership style was predominantly transformational, characterized by idealization, inspiration, intellectual stimulation, and individual consideration. This period can be considered a phase of awakening in the university's lifecycle.

From 2001, the university's growth phase involved merging the degree programs into four schools and adopting more transactional leadership at the corporate level. Between 2002 and 2006, significant growth in programs and student numbers led to increased costs and revenues. During this time, the university restructured by separating academic and commercial decision-making, introducing deans responsible for commercial aspects while study program directors retained academic oversight. This resulted in a largely informal, matrix-oriented management style, with deans using a blend of transformational and transactional leadership.

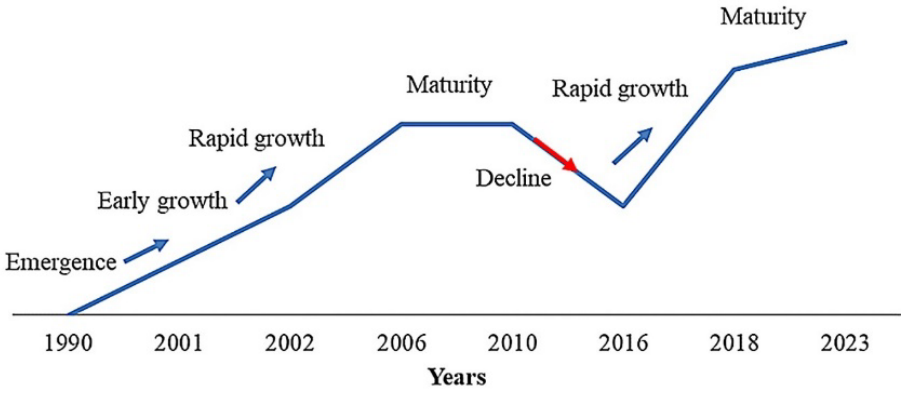

Figure 3: Lifecycle of Austrian University

From 2007 to 2010, continued growth in degree programs and student numbers required further adaptation of the management and organizational structure. A democratically organized body, the “Kollegium,” was established, comprising equal numbers of elected members from teaching, administration, and the student body. This body served in an advisory and decision-making capacity rather than a leadership role. Leaders could consult the Kollegium for decisions in cases of doubt, effectively delegating difficult decisions to this higher, quasi-neutral body.

To align administration, commercial activities, support structures, and academia, a university management board was established, headed by the university president, consisting of leaders from various departments (like IT, research, studies, international relations, organization) and the schools’ deans. This board primarily uses a transactional leadership style, with decisions relayed through deans and unit leaders. In response to external competition, study program leadership adopted a mix of transformational and transactional elements: transactional for administrative and marketing activities, and transformational, collegial for teaching and research. This approach led to record student enrollments between 2014 and 2016, driven by performance-based incentives and sanctions.

By 2018, the university entered a maturity stage, facing crowding-out effects from increased competition. Leadership within programs shifted to a more care-oriented approach, focusing on well-matched teams and high motivation, while striving for differentiation. From 2018 to 2023, intensified national and international competition introduced uncertainty, leading to a blend of transformational leadership to motivate teams and commercial (largely transactional) leadership to meet clear targets and monitor progress for attracting students.

5. Discussion and Implications

The findings of this study reveal that leadership structures oscillate from transformational to transactional or autocratic in response to organizational growth, functional level and changing demands. It underscores the role

of cultural factors in shaping leadership strategies and provides recommendations for selecting appropriate leadership styles at different lifecycle stages.

5.1 Lifecycle and Leadership

The case studies show that leadership styles at both universities evolve with the lifecycle of their organizational units: transformational leadership characterizes the foundation and start-up phases with small teams and flat hierarchies, while transactional elements dominate in larger, mature programs. In programs facing declining enrolment and existential threats, autocratic leadership elements become more prevalent.

These findings support earlier research demonstrating that increasing financial and market pressures lead to a shift from transformational to transactional leadership styles. Carrasco and Fromm (2016) found that financial and market pressures lead to leadership styles focused on market concerns (transactional) rather than collegiality (transformational, laissez-faire), complicating team building and professional development. Haddon et al. (2015) observed that during crises, employees prefer leaders with 'masculine' traits and less emphasis on individualized consideration, contingent reward, and laissez-faire approaches, while valuing inspirational motivation, intellectual stimulation, idealized influence, and management by exception. The insights and conclusions presented in this paper are also in line with the latest findings discussed at the St. Gallen Symposium and the NextGen Value Creation Barometer 2023 and 2024, which examine global trends in intergenerational fairness (Rüdiger and Casas, 2024).

Table 1 provides advise for leadership to choose an appropriate leadership style based on the organization's lifecycle. This generalization, informed by our case studies, outlines actionable recommendations for leaders to adapt their approach according to the organization's current phase, ensuring alignment with evolving needs and challenges.

Table 1: Recommendations for choice of leadership style depending on lifecycle stage

N	Stage	Leadership style	Guidelines
1	Emergence	Entrepreneurial Transformational	Be visionary and innovative to establish a unique identity. Foster a culture of risk-taking and experimentation. Encourage team collaboration and creativity. Lead by example and be hands-on.
2	Early growth	Transformational Coaching	Focus on scaling operations and expanding market reach. Empower employees and delegate responsibility. Develop and mentor the team. Promote a culture of adaptability and agility.
3	Rapid growth	Coaching Transactional	Focus on scaling operations and expanding market reach. Empower employees and delegate responsibility. Streamline processes and improve efficiency. Implement performance metrics and incentives.
4	Maturity	Transactional or Servant Leadership	Streamline processes and improve efficiency. Implement performance metrics and incentives. Serve as a facilitator and problem solver. Encourage employee development and well-being.
5	Decline with revitalization	Transformational Turnaround	Identify root causes of decline and make tough decisions. Revise strategies and reposition the organization. Inspire change and regain market relevance. Communicate openly and transparently.
6	Decline with recovery or sustained growth stage	Transformational Collaborative – employee oriented	Continue innovation and adaptation. Build strong partnerships and alliances. Maintain a focus on long-term sustainability.

N	Stage	Leadership style	Guidelines
			Empower employees to take ownership.
7	Decline with established and dominant stage	Collaborative or Charismatic Leadership	Foster a culture of excellence and continuous improvement. Leverage the organization's reputation and brand. Encourage innovation to stay ahead of the competition. Be an inspiring and visionary leader.

These general implications are not rigid, and leadership styles may overlap or evolve over generations. Leadership styles should be flexible and adaptable to specific needs and challenges of an enterprise throughout its lifecycle. Effective leaders must evolve their styles, potentially combining different approaches to address business aspects and align with the cultural environment, generational values, and organizational objectives.

5.2 Functional/Hierarchical Level and Leadership

The case studies reveal that top management in the commercial sector increasingly adopts transactional leadership styles due to growth and complexity, emphasizing task orientation and corrective measures. In contrast, the academic sector remains predominantly transformational, with leadership styles varying by lifecycle stage. These findings are in line with previous research highlighting differences in leadership styles within universities. Academic settings typically favour collaborative and decentralized decision-making, reflecting a focus on autonomy and informal networks (Kienast 2023). In contrast, commercial areas of universities, often employ a more hierarchical and managerial approach, driven by financial pressures and performance metrics (Gerashchenko 2022).

As an implication, businesses are advised to tailor their leadership approach to align with functional and hierarchical levels. Management should systematically evaluate their organization's current functional and hierarchical stage and adjust their leadership style to address specific needs effectively. This strategic alignment will enhance organizational effectiveness, navigate evolving challenges, and promote growth and success.

5.3 Culture, Lifecycle and Leadership

Leadership styles in Ukraine and Austria demonstrate similarities as well as differences across organizational phases. In start-up phases, both countries exhibit similar leadership approaches. During the growth phase, Ukraine tends toward transactional and authoritarian leadership, influenced by higher power distance and collectivism, while Austria employs more decentralized methods. In restructuring and recovery, Ukraine adopts a bureaucratic and hierarchical style, whereas both countries rely on transactional leadership during periods of rapid growth to provide guidance and structure. Ukraine's bureaucratic approach can hinder progress in rapidly changing environments, necessitating a shift to transformational leadership. In contrast, Austria's individualistic culture supports a blend of decentralized transformational leadership and centralized, matrix-oriented management that integrates both transformational and transactional elements.

Businesses should tailor their leadership styles based on both organizational lifecycle stages and cultural contexts. For instance, during growth and restructuring phases, businesses in high power distance and collectivist cultures may require more transactional and hierarchical leadership, while those in individualistic cultures might benefit from decentralized and transformational approaches. In highly competitive economic situations, transactional leadership prevails in both countries. This is in line with arguments presented by Carrasco and Fromm (2016) and Haddon et al. (2015) as discussed earlier. Adapting leadership strategies aligning with both cultural values and the lifecycle stage can enhance effectiveness and support organizational success.

5.4 Generational Shift in Leadership Roles

In Ukraine, top management (rectors, presidents, vice-rectors, deans) is predominantly composed of representatives from the Baby Boomer generation (over 60 years old). In contrast, nearly 40% of top management positions in Austria are held by Generation X. In Ukraine, the middle management level (program directors, department heads) is largely occupied by individuals aged 40 to 59 (Generation X), while in Austria, this level includes a certain proportion of individuals over 60, as well as nearly 15% from the 20 to 40 age group.

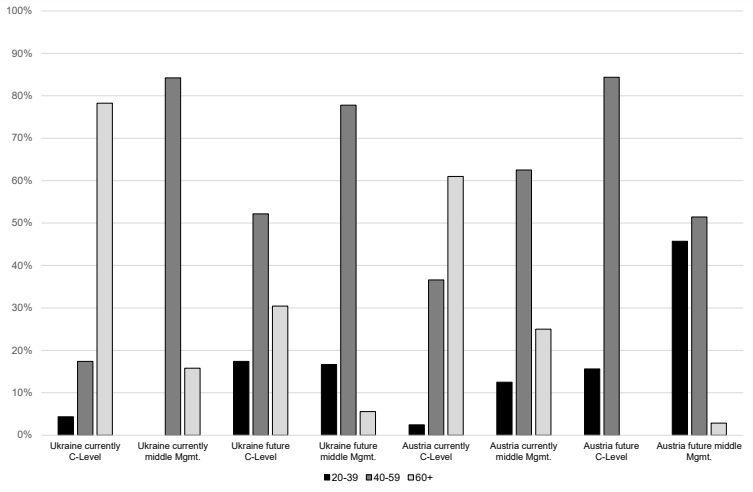

Figure 4: Generational composition of first and second-level leadership and anticipated future changes

In Ukraine, top leadership positions are still expected to be occupied by representatives of the 60+ generation, whereas in Austria, this age group is no longer represented. Both countries, however, anticipate a relatively stable proportion of approximately 15% of young top leaders aged 20 to 40 years.

In middle management roles, notable differences between the two countries exist: in Ukraine, most positions are held by individuals aged 40-59, while in Austria, over 40% are expected to be occupied by younger managers aged 20-39. This trend indicates a significant rejuvenation in Austria's middle management, unlike in Ukraine, where collectivist values lead to a preference for longer-serving, older leaders. This cultural difference underscores the varying approaches to leadership succession and recruitment in the two contexts.

Businesses should account for generational differences in leadership when planning. Organizations with top management predominantly from older generations may face challenges in integrating younger leaders, whereas those with a mix of older and younger managers are likely to experience more dynamic leadership transitions. Understanding these generational differences can help businesses tailor their leadership development and succession planning to better align with evolving organizational needs and foster effective leadership across all age groups.

6. Limitations and Avenues for Future Research

This study focuses on just two countries, limiting its cultural scope; including more diverse contexts could enhance understanding. Evolving political, economic, or social conditions may affect the relevance of the findings. The case study methodology, while providing deep insights, limits generalizability and reliability. Future research should use different methodologies and larger samples for more robust results.

As this study focuses on the academic sector, transferring these findings to other types of organizations should be done cautiously. Future research should include case studies from different industries to better understand the evolution of leadership styles across different contexts.

This research concentrates on generations up to Gen Z. However, generational dynamics are continually evolving, and new cohorts with distinct demands are entering the labor market. Future research could explore these emerging generations, such as Generation Alpha, to offer up-to-date insights for labor market trends. Interesting avenues for further study might include how the technological upbringing of Generation Alpha influences their leadership preferences, the role of digital literacy in shaping their career trajectories, and the impact of their values on organizational culture and leadership practices.

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PhD Research Papers

Addressing Sustainability Reporting Frameworks: A Content Analysis of Western and Eastern European Companies

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Abstract: Corporate reporting has developed globally in the last three decades, encompassing economic, social, and environmental information. From the GRI standing out as the first organization that offers companies guidelines to sustainability reporting, to the recent ESRS standards adopted by the EU, there is an increasing trend in the diversity of sustainability reporting frameworks. This empirical research attempts to provide insights into sustainability reporting frameworks used by European companies from six countries grouped into two regions of Europe, namely Western (France, Germany, Netherlands) and Eastern (Hungary, Poland, Romania) to highlight the directions of action of companies to achieve sustainable objectives. The sample includes 30 companies headquartered in Europe, 15 companies for each region of Europe. The reports of the companies during the period of 2018–2022 were used to extract the information on sustainability frameworks, resulting in 150 sustainability or annual reports used. To achieve the objective of the research, quantitative data were collected through the content analysis of the companies' sustainability or annual reports, the extracted information being applied in statistical analyses. The study finds that the trend of using sustainability reporting frameworks in Western and Eastern Europe increases from year to year. Western European companies stand out with better corporate performance by relying on multiple sustainability reporting frameworks in the preparation and publication of sustainability or annual reports. Most European companies have a low level of compliance with the requirements of sustainability frameworks and are economic science-oriented and business-oriented. Western European companies are more focused on investment and environmental aspects, while those in Eastern Europe are more focused on profitability and social aspects. This study fills the gap in corporate reporting research in relation to the sustainability frameworks used by Western and Eastern European companies.

Keywords: Sustainability Frameworks, Corporate Reporting, European Companies, Content Analysis, Sustainability Reports.

1. Introduction

The diversity of sustainability frameworks involve numerous changes in corporate reporting worldwide over the last three decades. From the Global Reporting Initiative (GRI) standing out as the first organization that offers companies guidelines to sustainability reporting (GRI, 2024; Van Oorschot et al, 2024), to the recent European Sustainability Reporting Standards (ESRS) adopted by the European Union (EU), all sustainability frameworks have contributed to corporate reporting development. In line with Landrum and Ohsowski (2018), Alsayegh et al (2020), Ali and Jadoon (2022), and Gunawan, Permatasari, and Fauzi (2022) this study focus on the use of sustainability reporting frameworks by Western and Eastern European non-financial listed companies to get insights on companies' action to achieve sustainable goals. Thus, three research hypotheses were developed to investigate the evolution and level of use of sustainability frameworks, stages of corporate sustainability, and corporate sustainability performance (CSP) in reporting. Sustainability or annual reports of companies in six countries grouped in Western (France, Germany, Netherlands) and Eastern (Hungary, Poland, Romania) European were content analysed. The sample includes 150 sustainability or annual reports of 30 companies headquartered in Europe, 15 for each European region, analysed for the period 2018–2022.

The study findings show an increasing trend of using sustainability reporting frameworks in Western and Eastern Europe. Western European non-financial listed companies revel a higher level of using sustainability frameworks in corporate reporting. Furthermore, the study finds that most European non-financial listed companies in the sample have a low level of compliance with the requirements of sustainability frameworks, but Western European non-financial listed companies are more focused on investment and environmental aspects, while those in Eastern Europe are more focused on profitability and social aspects.

This paper is structured as follows. After the introduction, the literature review argues for research hypotheses development in Section 2. Next, Section 3 presents the sample selection process and content analysis method, with the results and discussions discussed in Section 4. Finally, Section 5 presents the study's conclusions, research limitations, and future research directions.

2. Literature Review

In the last three decades, corporate reporting has developed globally, by disclosing economic, social, and environmental information based on various sustainability frameworks (Andrew and Cortese, 2013; Ott,

Schiemann, and Gunther, 2017; Landrum and Ohsowski, 2018; Baier, Berninger, and Kiesel, 2020; Gunawan, Permatasari, and Fauzi, 2022; Van Oorschot et al, 2024).

Van Oorschot et al (2024) present the relationship between corporate reporting standardization according to the GRI standards and transparency of sustainability reports. The authors argue that GRI standards positively affect transparency, but when standards are far too complex to be understood, then transparency is negatively influenced. Additionaly, Van Oorschot et al (2024) find that a lower number of GRI standards and a higher clearness improve the level of transparency of sustainability reports prepared by Norwegian companies for the period 2010-2020. The GRI, organization was the first to provide companies with guidelines on ESG information disclosure (GRI, 2024; Van Oorschot et al, 2024). Broadly speaking, ESG information disclosure refers to companies' ability to transparently report their relevant information about environment, social, and governance aspects (Jitmaneeroj, 2016; Alsayegh et al, 2020). Baier, Berninger, and Kiesel (2020) analysing reports of 25 largest companies in the S&P 100 index find that only 4% of the volume of the annual report reveal specific ESG information.

Landrum and Ohsowski (2018) claim that two other dominant sustainability frameworks follow GRI, Integrated Reporting (IR) focusing on value creation, and Sustainability Accounting Standards disclosing information about sustainability for investors. Moreover, Gunawan, Permatasari, and Fauzi (2022) identify the Task Force on Climate-related Financial Disclosures (TCFD) framework as a benchmark for corporate sustainability, as it recommends four reference areas: governance, strategy, risk management, and metrics and targets (TCFD, 2017). Due to common interests, IIRC and SASB merged in 2021 to form the Value Reporting Foundation (VRF). IFRS Foundation instituted International Sustainability Standards Board (ISSB) with the objective of preparing and publishing sustainability standards focused on investors' needs and financial markets. In 2022, the IFRS Foundation consolidated ISSB with both VRF and CDSB (Climate Disclosure Standards Board), but also incorporated TCFD recommendations into its standards (IFRS, 2024).

Although many organizations have combined their goals, other organizations have been established. The Task Force on Nature-related Financial Disclosures (TNFD) published recommendations in 2023 to encourage companies to assess and report their nature-related dependencies, impacts, risks, and opportunities (TNFD, 2023). Another important stage in corporate sustainability was the adoption of 2030 Agenda and the 17 SDGs (UN, 2015). Borges et al (2022) present the need to publish sustainability reports in the case of oil and gas companies in Latin America in relation to the SDGs to achieve targets proposed by 2030 Agenda. Additionally, the EU has adopted directives and regulations on corporate sustainability, such as Non-Financial Reporting Directive (NFRD), Sustainable Finance Disclosure Regulation (SFDR), Taxonomy Regulation (TR), or Corporate Sustainability Reporting Directive (CSRD) embodied by the recent ESRS (European Parliament, 2014, 2019, 2020, 2022). Heichl and Hirsch (2023) analyse sustainability reports of European companies through the lens of NFRD. The results show a constant trend of reporting ESG information through sustainability reports in line with the NFRD.

First, the diversity of sustainability frameworks contributes to an increasing trend from year to year in use more sustainability frameworks in corporate reporting. Gunawan, Permatasari, and Fauzi (2022) highlights the quantitative and qualitative increasing trend of sustainability reporting over the last 20 years, indicating that the lowest reporting rates are usually in the Middle East, Africa, and Eastern Europe. Overall, the authors show that about 75% of the top 100 companies in America, Europe, and Asia-Pacific publish sustainability reports, most of which are listed or large companies. Hamilton and Waters (2022) analysing the sustainability reports of Fortune 50 companies and the top 50 universities from U.S. News & World Report, concludes that companies have relied on a greater diversity of sustainability frameworks. They highlighted that the most used sustainability framework was GRI, followed by SASB. Hence, the first research hypothesis is as follows:

RH_1: Western European companies compared to Eastern European companies have a better evolution and a higher level of use of sustainability frameworks in the preparation and publication of sustainability or annual reports.

Second, the sustainability reports prepared and published by companies have a level of quality reflected by the information inserted in their content. Landrum and Ohsowski (2018) propose five stages of corporate sustainability with which to assess the quality of sustainability reports, from business-oriented to ecology-oriented sustainability reports. Sukitsch, Engert, and Baumgartner (2015) highlights four key objectives of corporate sustainability found through the sustainability reports of European automotive manufacturers: sustainable mobility and society, customers, market, and competitiveness. As a result, the second research hypothesis is as follows:

RH_2: Western European companies compared to Eastern European companies have a higher stage of corporate sustainability in the preparation and publication of sustainability or annual reports.

Finally, the results of using a diversity of sustainability frameworks and ensuring a high level of quality in corporate reporting are highlighted in the level of integration of CSP in reporting. The CSP framework takes into account the economic, environmental and social (EES) concerns adopted and published through the sustainability reports (Alsayegh et al, 2020; Ali and Jadoon, 2022). Analysis of sustainability reports published by multinational companies in the period 2005-2010 highlighted that the main activities targeted were related to local communities, employees, and environmental protection, which indicates increased attention to environmental and social concerns (Leszczynska, 2012). Instead, Gunawan, Permatasari, and Fauzi (2022) concludes that Indonesian companies directed their sustainability reports in the period 2006-2019 towards the disclosure of economic, social and followed by environmental concerns. Therefore, the third research hypothesis is as follows:

RH_3: Western European companies compared to Eastern European companies have a higher level of corporate sustainability performance (CSP) integration in the preparation and publication of sustainability or annual reports.

3. Methodology

The methodology of the study was mainly based on the content analysis of companies' sustainability or annual reports, as well as on a statistical processing of the data collected through the content analysis. To achieve the objective of the paper, three analyses were conducted, one for each research hypothesis: (1) analysis of evolution and level of use of sustainability frameworks, (2) analysis of the stages of corporate sustainability, and (3) corporate sustainability performance (CSP) analysis.

3.1 Sample Selection

The selection of the two regions, Western and Eastern Europe, was based on the evolution of the number of European listed companies for which the Refinitiv Eikon rating agency published the ESG scores, as well as on the mean ESG scores evolution of European listed companies for the period 2018-2022. *Figures 1* and *2* show the two evolutions.

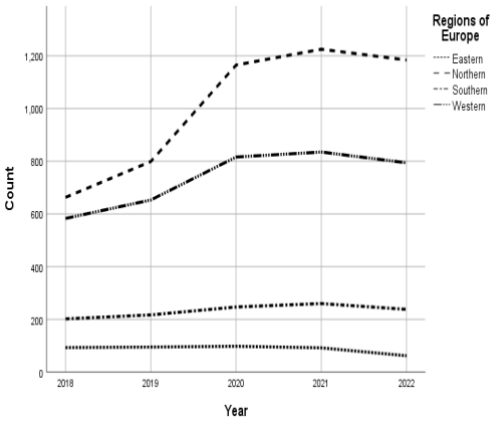

Figure 1: Evolution of the number of European listed companies for which the Refinitiv Eikon rating agency published the ESG scores

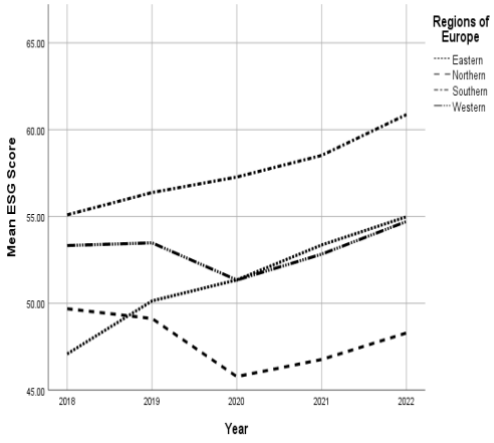

Figure 2: Evolution of the mean ESG scores of European listed companies published by the Refinitiv Eikon rating agency

It was noted that most listed companies for which the Refinitiv Eikon rating agency published ESG scores are Northern European, and the fewest are Eastern European (see *Figure 1*). However, the trend of similar evolution of the mean ESG scores of Western and Eastern European listed companies was observed (see *Figure 2*). This aspect determined the application of the comparative evaluation of the sustainability reporting frameworks used by Western and Eastern European listed companies.

For the two regions, the top 3 countries were selected based on the number of listed non-financial companies for which the Refinitiv Eikon rating agency published the ESG scores for the period 2018-2022. Eurasian or non-

EU countries such as Monaco, Switzerland, Russia, and Ukraine were not considered. Based on this criterion, six countries were selected and grouped in the two regions of Europe, namely Western (France, Germany, Netherlands) and Eastern (Hungary, Poland, Romania).

Finally, the sample selection was completed by establishing the top 5 listed non-financial companies based on ESG performance for each country previously selected. The mean ESG scores published by the Refinitiv Eikon rating agency for the period 2018-2022 was the measure used to evaluate ESG performance. The application of the specific criterion regarding the selection of listed non-financial companies with the highest ESG performance was based on the need to the content analysis of some sustainability or annual reports as complex and transparent as possible (LSEG Data & Analytics, 2023), as well as to ensure the comparability of the results within the two regions of Europe. Similarly, Baier, Berninger, and Kiesel (2020) selected the 25 largest companies by market capitalization in the S&P 100 index, Borges et al (2022) analysed the sustainability reports of the most relevant companies in the oil and gas sector in Latin America considering the revenues of these companies, while Jayarathna et al (2022) analysed CSP through the lens of sustainability reports published in accordance with the GRI frameworks. Thus, the sample includes 30 listed non-financial companies headquartered in Europe, 15 companies for each region of Europe. The reports of the companies during the period of 2018-2022 were used to extract the information on sustainability frameworks, resulting in 150 sustainability or annual reports used.

3.2 Content Analysis Method

First, the analysis of evolution and level of use of sustainability frameworks was based on the content analysis of the 150 selected sustainability or annual reports using the MAXQDA software. This was used to extract keywords specific to the 14 sustainability frameworks selected through the literature review. *Table 1* shows the sustainability frameworks and keywords used for the first analysis.

Table 1: Keywords used to analysis of the evolution and level of use of sustainability frameworks

Sustainability Frameworks	Root Words / Keywords
ESG	ESG; Environmental, Social, and Governance; Environmental, Social and Governance; Environmental Social and Governance
GRI	GRI; Global Reporting Initiative
SASB	SASB; Sustainability Accounting Standards Board
IIRC	IIRC; International Integrated Reporting Council; Integrated Reporting
ISSB	ISSB; International Sustainability Standards Board
CDP	CDP; Carbon Disclosure Project
CDSB	CDSB; Climate Disclosure Standards Board
TCFD	TCFD; Task Force on Climate-related Financial Disclosures; Task Force on Climate related Financial Disclosures; TaskForce on Climate-related Financial Disclosures; TaskForce on Climate related Financial Disclosures
TNFD	TNFD; Task Force on Nature-related Financial Disclosures; Task Force on Nature related Financial Disclosures; TaskForce on Nature-related Financial Disclosures; TaskForce on Nature related Financial Disclosures
SDGs	SDGs; SDG; Sustainable Development Goals; 2030 Agenda
NFRD	NFRD; Non-Financial Reporting Directive; Directive (EU) 2014/95
SFDR	SFDR; Sustainable Finance Disclosure Regulation; Regulation (EU) 2019/2088
TR	Taxonomy Regulation; Regulation (EU) 2020/852
CSRD	CSRD; Corporate Sustainability Reporting Directive; Directive (EU) 2022/2464

Words marked with an asterisk (*) show that all the forms found were considered in the content analysis.

Additionally, to analyse evolution and level of using sustainability frameworks a Frameworks Score was developed for each sustainability or annual report included in the sample. The Frameworks Score is computed by using the following equation:

$$F_SC_j = \frac{\sum_{i=1}^{n} Xij}{n}$$

where F_SC_j is Frameworks Score, n is the maximum expected score of Frameworks Score, 14 points respectively in accordance with the maximum number of sustainability frameworks included in the analysis, and X for sustainability or annual report j and sustainability framework i, assumes the value 1 if the item is revealed in the report and 0 otherwise. The data collected through content analysis were processed using the SPSS Statistics software. Descriptive analysis and comparison of means were applied for RH_1.

The second analysis considered the stages of corporate sustainability proposed by Landrum and Ohsowski (2018). The content analysis of the sustainability or annual reports using MAXQDA software was carried out based on the keywords proposed by Landrum and Ohsowski (2018) for each stage of corporate sustainability, namely:

- *Stage 1*: Compliance (very weak sustainability);
- *Stage 2*: Business-Centered (weak sustainability);
- *Stage 3*: Systemic (intermediate sustainability);
- *Stage 4*: Regenerative (strong sustainability);
- *Stage 5*: Coevolutionary (very strong sustainability).

Searching validation for RH_2, descriptive analysis was applied by processing data collected through content analysis using SPSS Statistics software.

Finally, CSP analysis was based on the content analysis of sustainability or annual reports considering the three components of CSP, economic, environmental, and social (EES) performance. MAXQDA software was used to extract keywords specific to EES performance (Alsayegh et al, 2020; Ali and Jadoon, 2022). For CSP analysis, the frequency of keywords and the connections between them were analysed using Gephi software. Keywords co-occurrence was applied for RH_3. *Table 2* shows the EES performance and keywords used for CSP analysis.

Table 2: Keywords used to corporate sustainability performance (CSP) analysis

EES Performance	Root Words / Keywords
Economic performance	Economic value*; Economic growth; Profit*; Investment*; Productivity; Financial implication*; Financial assistance*; Market capitalization*; Market value*; Procurement practice*; Corrupt*; Anticompetitive behaviour; Antitrust; Market practice*; Fiscal policy*; Tax governance; Risk management; Stakeholder engagement
Environmental performance	Recycled; Energy; Water; Freshwater; Fresh water; Wastewater; Waste water; Effluent*; Spill*; Waste; Non-hazardous waste; Nonhazardous waste; Non hazardous waste; Hazardous waste; Biodiversity; Ecosystem service*; Climate change; GHG emission*; Greenhouse gas emission*; CO2 emission*; Carbon dioxide*; CO2 equivalent emission*; NOx emission*; Nitrogen oxide*; SOx emission*; Sulfur oxide*; VOC emission*; Volatile organic compound*; ODS emission*; Ozone-depleting substance*; Ozone depleting substance*; Environmental criteria; Environmental impact*; Environmental protection expenditure*; Environmental protection expense*; Environmental protection cost*; Environmental expenditure*; Environmental expense*; Environmental cost*; Ecological footprint
Social performance	Employment*; Employee turnover; Management relation*; Labor relation*; Occupational health; Occupational safety; Training; Employee skill*; Diversity; Equal opportuniti*; Discrimination; Freedom of association; Collective bargaining; Collective agreement*; Child labor; Forced labor; Compulsory labor; Human rights; Community; Social criteria; Social impact*; Social expenditure*; Social expense*; Social cost*; Public policy; Customer health; Customer safety; Labeling; Compliance; Customer privacy; Fine*; Sanction*

Words marked with an asterisk (*) show that all the forms found were considered in the content analysis.

4. Results and Discussion

4.1 Analysis of the Evolution and Level of use of Sustainability Frameworks

To investigate the first research hypothesis (RH_1), *Figure 3* shows the evolution of the use of sustainability frameworks in corporate reporting based the Frameworks Score measure by regions of Europe, while *Figure 4* shows the evolution of the use of reporting frameworks by each country in the selected sample.

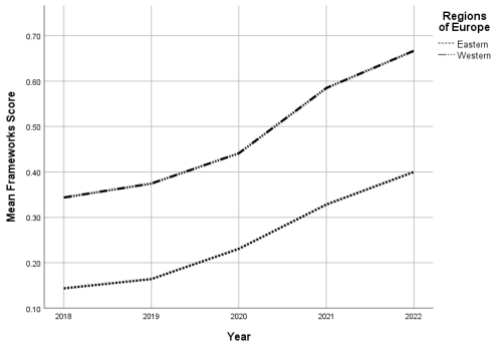

Figure 3: Evolution of the mean Frameworks Score by years and regions

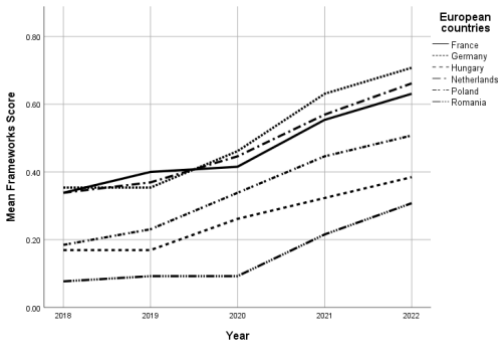

Figure 4: Evolution of the mean Frameworks Score by years and countries

It was noted that Western and Eastern European listed non-financial companies have an increasing trend from year to year in using more sustainability frameworks in corporate reporting. It was also concluded that German listed non-financial companies are rated as the most involved in using different reporting frameworks, while Romanian listed non-financial companies show the weakest interest in using a diversity of sustainability reporting frameworks in the preparation and publication of sustainability or annual reports. The results of the evolution of use of sustainability frameworks are complemented by the analysis of the diversity of sustainability frameworks that led to these evolutions from year to year in the preparation and publication of sustainability or annual reports. *Figure 5* shows the diversity of sustainability frameworks used in corporate reporting by European non-financial listed companies in the period 2018-2022 by regions, and *Figure 6* shows the structure by each country in the selected sample.

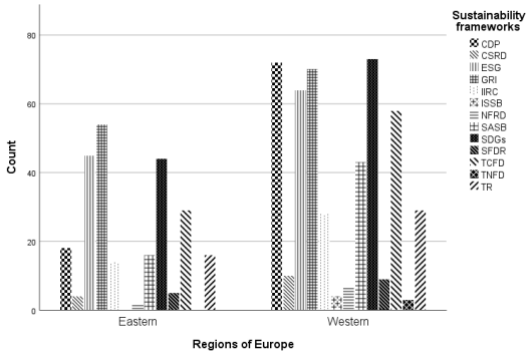

Figure 5: Diversity of sustainability frameworks in use 2018-2022 by regions

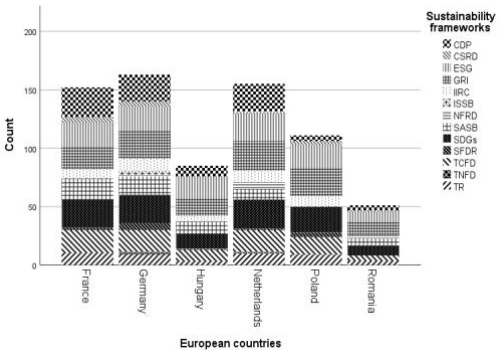

Figure 6: Diversity of sustainability frameworks in use 2018-2022 by countries

It was highlighted that the most used sustainability frameworks used in the preparation and publication of sustainability or annual reports by European non-financial listed companies were the GRI standards, the ESG framework, the SDGs, the CDP project, or the TCFD recommendations. Instead, the CDSB framework, not found at all in the reports, TNFD recommendations, ISSB standards, or European directives such as NFRD, SFDR, and CSRD, these frameworks stood out as the least used in corporate reporting of Western and Eastern European non-financial listed companies. Among the least used sustainability frameworks, the CDSB framework is the least justified. Although established in 2007, in 2010 the first climate change reporting framework was published, but it is not used by the European non-financial listed companies sampled in the 2018-2022 sustainability or annual reports. On the other hand, the low use of the TNFD, ISSB, NFRD, SFDR, and CSRD frameworks is justified considering their recent establishment and adoption, and for most of them, the standards being released after 2018-2022.

Also, observed the increased tendency of Western European non-financial listed companies to achieve the SDGs adopted by all 193 UN member states through the 2030 Agenda, all contributing to global challenges, such as ending poverty, developing the health and educational systems, economic growth, reducing the impact of climate change, and preserving oceans and forests (UN, 2015), to disclose the impact on the climate and the environment in line with the requirements of the CDP framework, and the use of GRI standards in the preparation and publication of sustainability or annual reports. In contrast, Eastern European non-financial listed companies focused primarily on the GRI standards, the ESG corporate reporting framework, and the 17 SDGs adopted by the 2030 Agenda, but not in a significant way on the CDP framework. In addition, in line with previous

assessments, German companies stood out with the greatest diversity of sustainability frameworks used in corporate reporting, followed by those from the Netherlands and France. On the other hand, Romanian companies relied on the lowest diversity of sustainability frameworks in the preparation and publication of sustainability or annual reports, followed by those from Hungary and Poland.

Lock and Seele (2016) suggest that European CSR reports do not have a high level of credibility, and there are aspects to improve in corporate reporting. Also, Gamerschlag et al (2011) show that the disclosure of sustainability information based on GRI standards by German companies is affected by their visibility, shareholder structure, and relationship with stakeholders.

The analysis of the level of use of sustainability frameworks by European non-financial listed companies is based on testing the homogeneity of variances by Levene's test, as well as by applying parametric (Independent Samples T) and non-parametric (Mann-Whitney U) tests. At this stage, the distribution of the Frameworks Score variable of European non-financial listed companies was investigated considering their grouping into Western European (=1) or Eastern European companies (=0). Independent T-tests and Mann-Whitney U-tests were performed to determine whether there were differences in the distribution of the Frameworks Score variable for Western and Eastern European non-financial listed companies. The results show a statistically significant difference between the means of the two regions of Europe (p-value < 0.5). Western European companies stood out with a mean of about 48% sustainability frameworks used in the preparation and publication of sustainability or annual reports, while Eastern European companies stood out with a mean of about 25% sustainability frameworks used. The results are reported in *Table 3*.

Table 3: Comparison between groups on the level of use of sustainability frameworks (Eastern = 0 vs. Western = 1)

Variable: Frameworks Score		Values
Mean (Eastern European non-financial listed companies)	N	75
	Mean	0.253
Mean (Western European non-financial listed companies)	N	75
	Mean	0.482
Homogeneity of variances	Leneve's Test	9.240***
Independent Samples	T Test	-7.992***
	Mean Difference	-0.229
	95% Confidence Interval *Lower*	-0.285
	95% Confidence Interval *Upper*	-0.172
Mann-Whitney	Mean Ranks = Eastern	52.490
	Mean Ranks = Western	98.510
	Mann-Whitney U	1086.500
	Wilcoxon W	3936.500
	Z Test	-6.534***

***, **, * indicate statistical significance at the 1, 5, and 10% levels, respectively.

The assumption of homogeneity of variances was violated for the Frameworks Score variable, as assessed by Levene's test (p-value < 0.5). Therefore, the Mann-Whitney U test for assessing the significant differences between the means of the two regions of Europe is more relevant. The mean ranks of the Mann-Whitney U test clearly indicate that the Western European non-financial listed companies (= 1) are distinguished by a higher level of use of sustainability frameworks in corporate reporting.

4.2 Analysis of the Stages of Corporate Sustainability

Figure 7 shows the degree of use of keywords in the sustainability or annual reports prepared and published by European non-financial listed companies at each stage proposed by Landrum and Ohsowski (2018).

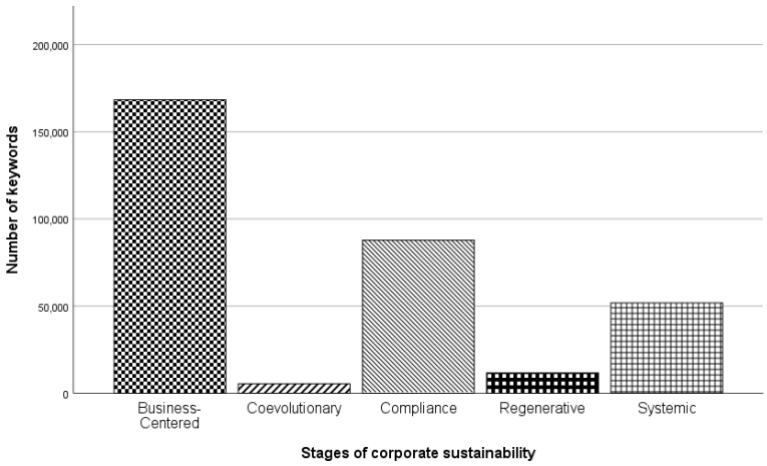

Figure 7: The degree of use of keywords in corporate reporting for the period 2018-2022 by stages of corporate sustainability

It was noted that European companies tend to adopt corporate reporting focused by business-centered (weak sustainability), followed by compliance (very weak sustainability) and systemic (intermediate sustainability). This aspect suggests that most European non-financial listed companies in the sample have a low level of compliance with the requirements of sustainability frameworks and are economic science-oriented and business-oriented in the preparation and publication of sustainability or annual reports.

Figure 8 shows the degree of use of keywords in corporate reporting for the period 2018-2022 by stages of corporate sustainability and regions of Europe, and *Figure 9* shows the structure by each country in the selected sample.

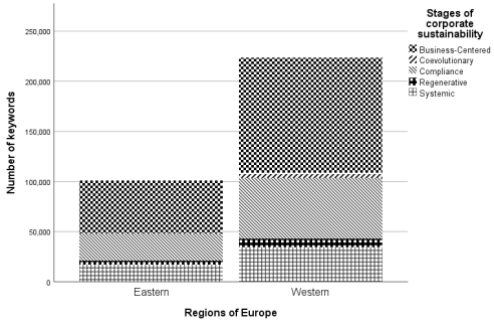

Figure 8: The degree of use of keywords in corporate reporting for the period 2018-2022 by stages of corporate sustainability and regions of Europe

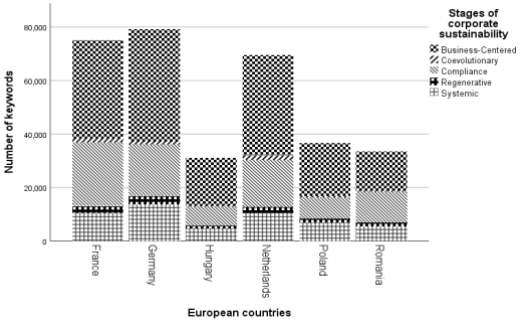

Figure 9: The degree of use of keywords in corporate reporting for the period 2018-2022 by stages of corporate sustainability and countries

Similar to the previous results, there was an increasing degree of use of keywords usage in the preparation and publication of sustainability or annual reports of Western European non-financial listed companies compared to the level of Eastern European non-financial listed companies. German companies were also judged to be the most involved in compliance with the requirements of sustainability frameworks, but Hungarian companies on the other hand were ranked as the least involved in compliance with the requirements for corporate reporting.

4.3 Corporate Sustainability Performance (CSP) Analysis

To investigate the last research hypothesis (RH_3), the EES performance was considered. *Figures 10, 11, 12, 13, 14,* and *15* show keywords co-occurrence maps for each region of Europe and each component of CSP, EES performances.

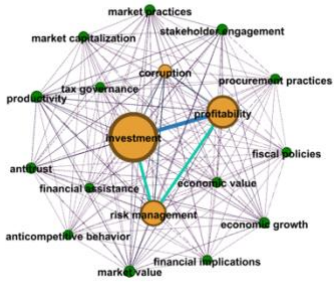

Figure 10: Keywords co-occurrence map for Western companies by economic sustainability performance

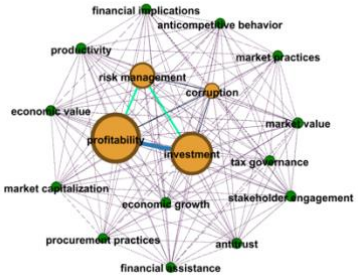

Figure 11: Keywords co-occurrence map for Eastern companies by economic sustainability performance

From the perspective of the economic component of sustainability performance, the results suggest that Western European non-financial listed companies tend to ensure the investments necessary for business, followed by profitability, management risk and avoiding corruption, while the focus of Eastern European non-financial listed companies is primarily on profitability.

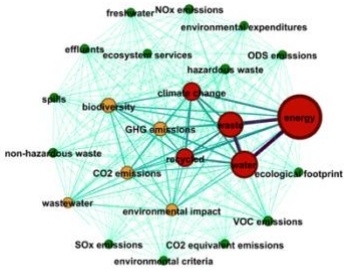

Figure 12: Keywords co-occurrence map for Western companies by environmental sustainability performance

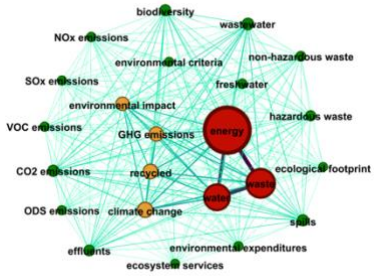

Figure 13: Keywords co-occurrence map for Eastern companies by environmental sustainability performance

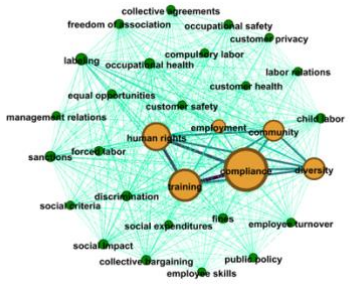

Figure 14: Keywords co-occurrence map for Western companies by social sustainability performance

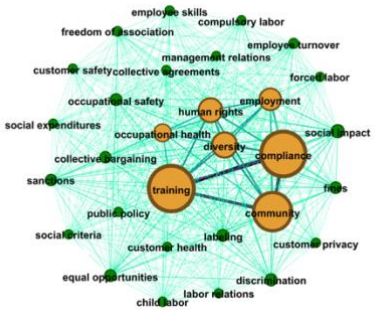

Figure 15: Keywords co-occurrence map for Eastern companies by social sustainability performance

On the other hand, it was noted that Western European companies focused heavily on the group consisting of energy, water, waste, climate change, and recycling issues, followed by the group on reducing carbon emissions, greenhouse gas emissions, biodiversity, environmental impact, and waste water. In contrast, Eastern European companies stood out by focusing on energy, water, and waste consumption, while climate change, recycling, greenhouse gas emissions, and environmental impact were in the background. In the end, the social component regarding sustainability performance was noted as being similar in the case of both regions in Europe, focusing on the issues of compliance, training, community, human rights, diversity, employment, but also health at work in the case of Eastern European companies.

Similarly, Gunawan, Permatasari, and Fauzi (2022) conclude the increasing trend of sustainability reporting by Indonesian companies with emphasis on economic, social, and followed by environmental information. In contrast, Jayarathna et al (2022) appreciate that environmental and social aspects have dominated sustainability reporting in accordance with GRI standards in the case of logistics companies. On the other hand, Heichl and Hirsch (2023) present in the context of the analysis of French, German, Italian, and Swedish companies that the tendency to report ESG information is different for each country or activity sector.

5. Conclusions

The variety of sustainability frameworks focus, to a greater or lesser extent, on encouraging companies to assess and report their economic, environmental, and social dependencies, impacts, risks, and opportunities. On the one hand, the study finds that the trend of using sustainability reporting frameworks in Western and Eastern Europe increases from year to year. Western European companies stood out with a mean of about 48% sustainability frameworks used in the preparation and publication of sustainability or annual reports, while Eastern European companies stood out with a mean of about 25% sustainability frameworks used. The Mann-Whitney U test clearly indicate that the Western European non-financial listed companies are distinguished by a higher level of use of sustainability frameworks in corporate reporting. The study claims that the most used sustainability frameworks used in the preparation and publication of sustainability or annual reports by European non-financial listed companies were the GRI standards, the ESG framework, the SDGs, the CDP project, or the TCFD recommendations. German companies stood out with the greatest diversity of sustainability frameworks used in corporate reporting, while Romanian companies show the weakest interest in using a diversity of sustainability reporting frameworks.

On the other hand, the study finds that most European non-financial listed companies in the sample have a low level of compliance with the requirements of sustainability frameworks and are economic science-oriented and business-oriented in the preparation and publication of sustainability or annual reports. Furthermore, Western European non-financial listed companies are more focused on investment and environmental aspects, while those in Eastern Europe are more focused on profitability and social aspects.

The main practical contribution of this study is based on the fact that Eastern European non-financial listed companies are distinguished by a lower level of use of sustainability frameworks in corporate reporting. Thus, several practical implications can be drawn from this study. The most important practical implication is in relation to Eastern European accountants and managers. They should pay more attention to sustainability reporting within companies to reduce the reporting gap compared to the Western European region. In addition, professionals who prepare sustainability reports can initially focus on the main frameworks used by European companies, such as the GRI standards, the ESG framework, the SDGs, the CDP project, or the TCFD recommendations. Also, sustainability reports developed and published by German companies can be used as a reference in Western and Eastern European countries.

This study was limited to a few analyses, as well as a small group of companies from six European countries. Potential future research may include correlating financial performance with the level of use of sustainability frameworks, addressing other regions of Europe, as well as developing the qualitative assessment of frameworks used in sustainability reporting.

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Are Controversies an Opportunity to Achieve Profitability? The Healthcare Sector Observation

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Abstract: Starting with climate changes, followed by the pandemic period and conflicts between states, companies have been encouraged to align their strategies to ensure business continuity. In addition to these tumultuous periods, sustainability reporting has often remained a relatively voluntary practice in many states. During the pandemic, newspapers highlighted numerous instances of corruption in the healthcare sector, highlighting concerns about how well companies were addressing community needs. This study aims to analyse the impact of controversies on the profitability of the healthcare sector companies and assess the opportunities that arise from reporting them. To investigate this, a sample of 1323 listed healthcare companies was used, and a quantitative analysis was conducted through statistical and econometric methods. Data were gathered from the Refinitiv Eikon Database covering the period 2020-2022 and included sustainability indicators such as ESG Controversies and ESG scores. ROA (Return on Assets) was used as the key profitability indicator. The study's findings reveal that there are no significant opportunities aligned tied to controversies in the healthcare sector during crisis periods. Contrary, controversies negatively impacted the profitability of listed healthcare companies during crisis periods. The novelty of the study is reflected in the analysis of the ESG controversies indicator associated with the profitability of the healthcare sector during crisis periods.

Keywords: ESG Controversies, Sustainability Performance, Profitability, ESGs.

1. Introduction

Climate changes, the SARS-CoV-2 (COVID-19) pandemic, and geopolitical conflicts highlighted the weaknesses of the global healthcare sector, including severe shortages of essential personal protective equipment, diagnostic tools, and clinical management resources, alongside an urgent need for financial assistance (Khanam et al, 2023). In response, governments, health insurance funds, and other financing entities provided resources to combat the crisis, including funding for hiring additional personnel and the acquisition of COVID-19 vaccines from suppliers operating in fiscal paradises. However, these actions triggered controversies creating the perception that the healthcare sector became profitable during the crisis period (Teremetskyi et al, 2021). Fiscal controversies, especially those covering environmental, social and governance (ESG) aspects can impact a firm's financial performance (Anita et al, 2023). In the healthcare sector this impact can be assessed using the ESG Controversies Score which measures the exposure to negative impacts affecting the reputation or increasing the firm's performance based on negative media stories (Wu et al, 2023).

This study analyses the impact of the controversies on the profitability of public listed healthcare companies in the context of multiple crisis periods. Two research hypotheses are proposed: (H1) that *ESG Controversies Score has a positive and significant impact on the profitability of healthcare companies during crisis periods*, respectively (H2) that *both ESG Controversies Score and ESG Score positively and significantly impact the profitability of healthcare companies during crisis periods.*

This analysis uses quantitative methods focusing on key indicators that measure controversies, sustainability performance, and profitability. The author's contribution to this study lies in the analysis of ESG Controversies within the healthcare sector during the multiple crises helping to understand the relationship between controversies and profitability. The novelty of this study is reflected in the focus on how controversies affect companies' profitability during crisis periods.

This article is structured as follows: the literature review examines the impact of ESG controversies on firm performance in the healthcare sector, using stakeholder, legitimacy and agency theory to understand the role of ESG scores and their influence on company value during crises. The methodology section outlines the use of quantitative to assess the effect of these controversies on the firm value. Although this study focuses on quantitative methods, future studies could benefit from a mixed method approach, including an analysis of sustainability reports from public listed healthcare companies published in the crisis period. The next sections present the results of the quantitative analysis, followed by a brief discussion on the findings. The last section of the research focusses on the conclusion of the study.

2. Literature Review

Sustainable and financial performance in the healthcare sector has generated significant interest from researchers and investors due to stakeholder pressures to adopt environmentally responsible business practices (Mousa and Othman, 2019). Voluntary reporting on sustainability performance has become a common practice among companies, serving as an useful tool for ensuring transparency, stakeholder engagement and business continuity (Lungu, Caraiani and Dascalu, 2011).

In the healthcare sector, there has been a shift towards rethinking and evaluating strategies to meet stakeholder expectations and future needs. Kuzey et al (2021) observed that while corporate social responsibility (CSR) analysis from 2011-2018 did not improve firm performance, adopting new sustainable strategies and practices could create value for shareholders. However, the implementation of these new strategies was postponed due to recent crises. Zaremba et al (2021) noted that, in developed countries, the healthcare sector's strategies were able to combat any crisis.

The recent healthcare crisis, caused by COVID-19, was unpredictable and had a significant impact on the healthcare sector. It exposed weaknesses and deficiencies in many countries, leading to severe shortages in daily system operations (Teremetskyi et al, 2021). In response, governments, health insurance funds, and other financing entities were pressured to act quickly, adopting preventive measures to combat the pandemic (Khanam et al, 2023). This often involved providing additional financing resources for the purchase of specialised medical and protective equipment, COVID-19 tests, vaccines, and hiring of additional workforce (Simovic et al, 2022; Teremetskyi et al, 2021).

These actions were perceived as corrupt by citizens, and controversies associated with the healthcare sector became a major media topic. The media played a crucial role in raising public awareness about the pandemic through regular updates on COVID-19 case numbers, educational advice and critical assessments of government measures (Khanam et al, 2023). According to Teremetskyi et al (2021), several forms of corruption significantly impacted citizens and contributed to a global economic crisis. These included irregularities in the procurement of goods and services for COVID-19 treatment, embezzlement of healthcare funds, governance opacity, abuse of power, nepotism in the management, petty corruption in levels of service, and fraud involving theft of medicines and medical devices. They also observed an interesting controversy in Italy, where a public tender for mask procurement in March 2020 included bids from agricultural and forestry companies and a seller of office supplies. Khanam et al (2023) reported similar issues in Bangladesh including money laundering cases, misappropriation of funds, and ineffective monitoring of healthcare supplies during the pandemic. Additionally, report of the European Commission (2023) revealed a controversial fiscal paradise involving Pfizer and Moderna. These companies were accused of paying minimal taxes on their profits from delivering COVID-19 vaccine doses. Such controversies contributed to the perception that healthcare companies were more profitable than ever.

Controversies can significantly affect a firm's financial performance (Anita et al, 2023). Companies involved in controversies often experience stock price volatility, increased cost of capital and reduced market share (Wu et al, 2024). To analyse these effects, databases that track both financial and sustainability indicators such as Refinitiv Eikon, have developed specialised metrics. One such metric is the ESG Controversy Score developed by Thomson Reuters. This score evaluates a company's exposure to negative impacts related to environmental, social, and governance controversies, based on negative media stories (Brinette, Fatma and Pinar, 2024). According to Thomson Reuters (2023), the ESG Controversy Score measures how these negative impacts might affect a company's reputation and potentially influence its firm performance (Anita et al, 2023). The score is calculated considering various related controversies including business ethics, tax fraud, human rights, management compensation, consumer behaviour, environmental concerns, shareholder rights, and employee health and safety (Agnese et al, 2024). Based on the aforementioned information, the first hypothesis was developed:

Hypothesis 1: *ESG Controversies Score has a positive and significant impact on the profitability of healthcare companies during crisis periods.*

The ESG Controversy Score is often analysed in relation to firm value (Aouadi and Marsat, 2018), and in research on how board gender diversity and board independence can mitigate the negative effects of controversies. For example, France mandates that boards of companies with over 500 employees and listed companies, to include at least 40% women (Brinette, Fatma and Pinar, 2024). Shaqil (2021) found that gender-diverse boards reduce risks by influencing ESG activities, which can be crucial for raising investor cash flow during crises. Wu et al (2023) analysed Chinese firms and observed that while board independence can help companies navigate difficulties,

larger boards may reduce decision-making effectiveness, increasing the risk of further controversies. They also noted that independent board members can contribute by using their professional skills and social connection to help the companies navigate challenges.

The ESG Controversies Score reflects the impact of ESG related controversies on companies. ESG scores have become a key tool for demonstrating sustainability performance and creating firm value contributing to sustainable development and reflecting CSR actions (Kuzey et al, 2023). The relationship between ESG performance and firm value is usually explained through multiple theories, but in the context of the healthcare sector three are relevant. Brinette, Fatma and Pinar (2024) highlight these theories: (1) the stakeholder theory suggests that companies engage in CSR activities to achieve sustainability performance, reduce opportunistic management, and maximise shareholder wealth. During the pandemic, healthcare companies followed this path by expanding test capacities and hiring additional workforce. For example, Simovic et al. (2022) analysed measures taken by Croatian healthcare sector and noted that COVID-19 exposed significant gaps in governance revealing that insufficient attention has been paid to good governance and prevention of corruption; (2) According to the legitimacy theory, companies maintain legitimacy by aligning their practices with CSR actions. In the healthcare sector, legitimacy could be maintained by ensuring that organisations are involved in solving the society's challenges such as responding effectively to the pandemic (Brinette, Fatma and Pinar, 2024); (3) The agency theory views sustainability reporting as a practice that may reduce a firm's value due to increased costs (Brinette, Fatma and Pinar, 2024). However, Wu et al (2023) found that agency theory argues that effective governance reduces costs and improves operational effectiveness when shareholders and managers interests align. Therefore, the second hypothesis was developed as follows:

Hypothesis 2: *Both ESG Controversies Score and ESG Score positively and significantly impact the profitability of healthcare companies during crisis periods.*

3. Research Methodology

The impact of the controversies on the profitability of public listed healthcare companies in the context of multiple crisis periods, with a focus on the recent healthcare crisis is analysed using quantitative methods. Descriptive statistics and econometric models are used in these types of analyses to provide a structured approach to assess companies' financial performance. Previous studies that analysed the impact of controversies on company performance used the quantitative approach to draw objective conclusions (Agnese et al, 2024; Brinette, Fatma and Pinar, 2024; Aouadi and Marsat, 2018). This section presents the sample data, the description of the variables included in the analysis, and the tested econometric models.

3.1 Sample Data

The database used for the analysis impact of the controversies on the profitability of public listed healthcare companies, in the context of the COVID-19 pandemic included 1323 companies from Refinitiv Eikon database, resulting in 3969 observations. Since the focus was on the controversies reported during the crisis periods, only companies with available ESG Controversies Score data for the period 2020-2022 were considered. To have better regression results, the missing data of the dependent and independent variables were trimmed from the database. Therefore, the database resulted in 1168 unique listed companies and 2894 observations.

The regional analysis of final observations as presented in *Table 1*, reveals that American listed healthcare companies reported the most information on controversies (1525 observations) followed by Asian (740) and European healthcare companies (599).

Table 1: Sample data

	Overall
Number of listed companies	1323
Initial observations for the period 2020-2022	3969
Less: Observations dropped due to insufficient data to ESG Controversies Score	(500)
Less: Observations dropped due to insufficient data to Board Gender Diversity, Percent Score	(2)
Less: Observations dropped due to insufficient data to ROA	(3)
Less: Observations dropped due to insufficient data to Assets Turnover*	(461)

	Overall
Less: Observations dropped due to insufficient data to Leverage	(18)
Final observations for the period 2020-2022	2985
Number of Final Observations by Region	2985
Africa	20
America	1525
Asia	740
Europe	599
Oceania	101

**Used for study extensions*

3.2 Variables

The descriptive statistics and econometric models were constructed using eight indicators: three independent variables (ESG Controversy Score, ESG Controversy Score Dummy, ESG Score) for analysing controversies and sustainability performance; four control variables (Board Size and Board Gender Diversity Score, Leverage and Firm Size); and one dependent variable (Return on Assets - ROA) to measure the profitability. These indicators align with previous studies on firm financial performance, controversies and sustainability performance (Brinette, Fatma and Pinar, 2024; Aydogmus, Gulay and Ergun, 2022; Constantinescu et al, 2021; Kuzey et al, 2021; Batae et al, 2020). Details for each variable are presented in *Table 2.*

Table 2: Definitions of variables, sources, and references

Indicators	**Definition**	**Data Source**	**Reference**
Independent variables			
ESG Controversies Score (ESG_CS)	Measures the company's exposure to environmental, social and governance related controversies as reflected in the media. The scores must be ranging between 0 (indicating high involvement in controversies) and 100 (indicating no involvement).	Refinitiv Eikon	(Batae et al, 2020)
ESG Controversies Score Dummy (ESG_CS_D)	Measures the engagement of a company in a controversy. Takes 1 if the company has at least one ESG Controversy, 0 otherwise.		(Brinette, Fatma and Pinar, 2024; Jialong et al, 2019; Aoudi and Marsat, 2018)
ESG Score (ESG)	Considers CSR performance change and ESG scores separately.		(Kuzey et al, 2021)
Control Variables			
Board Size (BSize)	Measure specific to company's governance and ownership. It contains the total number of directors on board.	Refinitiv Eikon	(Brinette, Fatma and Pinar, 2024; Kuzey et al, 2021)
Board Gender Diversity Score (BGender)	Measure specific to company's governance and ownership. It contains the percentage of women directors on board.		(Brinette, Fatma and Pinar, 2024; Kuzey et al, 2021)
Leverage (LEV)	(Total debts/total assets) * 100		(Brinette, Fatma and Pinar, 2024; Kuzey et al, 2021)
Firm Size (Size)	Natural logarithm of the total assets		(Brinette, Fatma and Pinar, 2024; Kuzey et al, 2021)
Dependent Variable			
Return on Assets - ROA	(Net Income after taxes/total assets) * 100	Refinitiv Eikon	(Kuzey et al, 2021)

3.3 Regression Models

To construct valid and significant econometric models, a linear regression method based on multiple independent variables and a dependent variable was used. Regression analysis was used to assess the correlation between the independent and dependent variables in this study. Regression analysis was performed based on panel data analysis on cross-sectional and overtime data (Brinette, Fatma and Pinar, 2024; Almeyda and Darmansyah, 2019). The dependent ROA was identified as a profitability efficiency indicator usually used in firm financial performance research (Kuzey et al, 2021). SPSS Statistics software was employed to perform the econometric analysis, and specific models were applied to test the hypotheses as follows:

H1: *ESG Controversies Score has a positive and significant impact on the profitability of healthcare companies during crisis periods.*

$ROA_{it} = \beta_0 + \beta_1 ESG_CS_D_{it} + \beta_4 BSize_{it} + \beta_5 BGender_{it} + \beta_6 LEV_{it} + \beta_7 Size_{it} + \gamma_{year} + \varepsilon_{it}$ (Model 1),

where the subscript $_i$ denotes the firms and $_t$ denotes years, ROA_{it} is the dependent variable testing the impact of ESG Controversies Score Dummy on the profitability, $ESG_CS_D_{it}$ is the independent dummy variable for reporting ESG Controversies and takes 0 for no involvement in any controversies, and 1 for involvement in controversies. $Bsize_{it}$, $BGender_{it}$, LEV_{it}, $Size_{it}$ are control variables for board size, board gender diversity, financial leverage, and company size.

For H2: *Both ESG Controversies Score and ESG Score positively and significantly impact the profitability of healthcare companies during crisis periods,* another model was developed. The global influence of the ESG Controversy Score and ESG score on the profitability of the healthcare sector company was tested as follows:

$ROA_{it} = \beta_0 + \beta_1 ESG_CS_{it} + \beta_2 ESG_{it} + \beta_3 BSize_{it} + \beta_4 BGender_{it} + \beta_5 LEV_{it} + \beta_6 Size_{it} + \gamma_{year} + \varepsilon_{it}$ (Model 2)

4. Results and Discussion

4.1 Descriptive Statistics

The first step before testing the research hypotheses was to analyse descriptive statistics. *Table 3 presents* the descriptive statistics for the dependent, independent, and control variables.

Table 3: Descriptive Statistics Overall

Variables	N*	Minimum	Maximum	Mean	Std. Deviation
ESG_CS	2985	0.68	100.00	93.6932	19.12741
ESG_CS_D	2985	0	1	0.13	0.336
ESG	2985	2.37	95.58	41.4886	20.10402
BGender	2985	0.96	99.99	52.8579	28.71022
BSize	2985	1	70	8.50	2.720
ROA	2985	-1610.45	446.03	-14.0335	53.05034
LEV	2985	0.00	25627.26	80.3288	656.51413
Size	2985	13.02	24.84	19.5903	1.77508

**N is the total number of valid observations*

The independent variable ESG_CS had a minimum score of 0.68 indicating the existence of multiple controversies attached to listed healthcare companies. The ESG_CS_D variable had a mean value of 0.13, suggesting that 13% of company-year observations involved ESG scandals. This mean is lower than the 30% reported by Brinette, Fatma and Pinar (2024) for companies across different sectors, including healthcare in France. Despite this, the mean ESG_CS value of 93.69 and a standard deviation of 19.13% indicate high scores for reported ESG controversies, implying limited involvement in controversies (Brinette, Fatma and Pinar, 2024; Jialong et al, 2019; Aoudi and Marsat, 2018). According to Aydogmus, Gulay, and Ergun (2022), ESG scores ranging from 26 to 50 represent satisfactory ESG performance and moderate transparency in sustainability disclosure. Therefore, the mean value of the ESG score in this study suggests that the healthcare sector has been actively engaged in presenting sustainable information to stakeholders during crisis periods.

The descriptive statistics reveal a negative ROA of 16.10%) during the crisis periods by healthcare companies. Kuzey et al (2021) reported a positive mean value before the pandemic. In this case, the negative value cannot be attached only to the presence of the ESG Controversies, but it may be linked to the effects of the COVID-19 pandemic.

BGender and BSize presented an average of 52.86% of women on board, with board size ranging from 1 to 70 members. The high presence and the existence of women on board were perceived as a good practice in recent studies due to their ability to mitigate negative effects of controversies (Brinette, Fatma and Pinar, 2024). Regarding the control variables, Size has a mean value of 19.590, while LEV has a high mean of 80.33% for LEV, indicating that listed healthcare companies tend to have more debt than assets (Aydogmus, Gulay, and Ergun, 2022).

4.2 Correlation Results

Table 4 presents Pearson's correlation matrix for the variables included in the models. Pearson's correlation is also used in analyses by other authors (Brinette, Fatma and Pinar, 2024; Aydogmus, Gulay and Ergun, 2022).

Table 4: Model 1 & 2 - Pearson's correlation matrix

	ROA	ESG_CS	ESG_CS_D	ESG	BGender	BSize	LEV	Size
ROA	1	-0.010	0.034	.256**	.083**	.155**	0.006	.360**
ESG_CS	-0.010	1	-.853**	-.215**	-.038*	-.165**	-0.004	-.300**
ESG_CS_D	0.034	-.853**	1	.235**	.046*	.157**	0.001	.310**
ESG	.256**	-.215**	.235**	1	.305**	.372**	0.013	.617**
BGender	.083**	-.038*	.046*	.305**	1	.123**	-0.003	.231**
BSize	.155**	-.165**	.157**	.372**	.123**	1	-0.024	.499**
LEV	0.006	-0.004	0.001	0.013	-0.003	-0.024	1	-.075**
Size	.360**	-.300**	.310**	.617**	.231**	.499**	-.075**	1

*** and * denote statistical significance at 1 % and 5% levels, respectively.*

Pearson's correlation matrix suggests that ROA shows a positive but non-significant correlation with ESG_CS_D and a significant correlation with SIZE and BSize. However, the Spearman's correlation matrix (*Table 5)* shows a significant correlation between ESG_CS_D and ROA. In each correlation matrix, the BSize is significantly correlated with the ESG_CS_D.

Table 5: Model 1 & 2 - Spearman's correlation matrix

	ROA	ESG_CS	ESG_CS_D	ESG	BGender	BSize	LEV	Size
ROA	1	-0.035	.039*	.385**	.122**	.209**	.119**	.446**
ESG_CS	-0.035	1	-.997**	-.203**	-.044*	-.178**	-.127**	-.266**
ESG_CS_D	.039*	-.997**	1	.203**	.044*	.175**	.125**	.265**
ESG	.385**	-.203**	.203**	1	.302**	.423**	.270**	.584**
BGender	.122**	-.044*	.044*	.302**	1	.137**	.050**	.223**
BSize	.209**	-.178**	.175**	.423**	.137**	1	.203**	.543**
LEV	.119**	-.127**	.125**	.270**	.050**	.203**	1	.171**
Size	.446**	-.266**	.265**	.584**	.223**	.543**	.171**	1

*** and * denote statistical significance at 1 % and 5% levels, respectively.*

For the second model, both correlation matrices confirm that the independent variable is not negatively correlated with ESG_CS, but is positively and significantly correlated with ESG, BGender, BSize, and SIZE. Additionally, ESG_CS shows a significant negative correlation with BGender and BSize.

4.3 Regression Results

Before running the panel data regression, it was necessary to determine the most suitable panel data model for this study. In general, there are multiple types of linear regression panel data models such as pooled, random, and fixed effects (Aydogmus, Gulay and Ergun, 2022). However, research analysing the relationship between sustainability performance and firm financial performance, ESG disclosure, or corporate social responsibility (Aydogmus, Gulay and Ergun, 2022; Brinette, Fatma and Pinar 2024) use fixed effects models. Therefore, this study uses the F test, which confirmed that fixed effects were suitable for this analysis, with a significance level below 0.01. Additionally, the VIF values were all below 10, indicating no correlation between the independent variables (Brinette, Fatma and Pinar, 2024). The results of the linear regression used to test the validity and statistically significance of the two econometric models are presented in *Table 6*.

Table 6: Models 1 & 2 – Fixed - Effects Regression Results

	Model 1	Model 2
ROA	-246.563***	-260.33***
ESG_CS_D	-13.257***	-
ESG_CS	-	0.301***
ESG	-	0.174***
BGender	-0.005*	-0.028*
BSize	-0.650***	-0.719***
LEV	0.003	-0.003
Size	12.131***	11.244***
Year dummy	Yes	Yes
R	0.374	0.382
R Square	0.140	0.146
Adjusted R Square	0.138	0.144
F test	69.007***	63.633
Durbin Watson test	1.951	1.964
VIF	<10	<10
Model	Fixed Effect	Fixed Effect
Observations	2985	2985

, ** and * denote statistical significance at 1 %, 5% and 10% levels, respectively.*

In the first model, ESG_CS_D has a significant negative impact on ROA (β=-13.257, $p < 0.05$) indicating that involvement in controversies reduces company profitability (Brinette, Fatma and Pinar, 2024). Agnese et al (2024) observed that as the number of controversies related to a company's activity increases (indicated by a score below 100), profitability is negatively affected. Contrary to the findings of Brinette, Fatma and Pinar (2024), this model shows that the BSize and BGender also have a negative significant influence over the profitability of the company during the crisis period. This suggests that having women on board does not mitigate the impact of controversies on the profitability, and the negative interaction between BSize and ROA (β = -.650, $p < 0.05$) suggest that an independent board of directors does not moderate the effects of controversies on the profitability during crises. Therefore, the first hypothesis is not supported.

In the second model, ESG_CS and ESG show a positive statistically significant influence on company profitability during the crisis periods ($\beta_1 ESG_CS_{it} = 0.301$, $p > 0.01$; $\beta_2 ESG_{it} = 0.174$, $p > 0.01$), which confirms that the second hypothesis is supported. An in-depth analysis of the regression results suggests that an increase in ESG_CS (up to 100) positively affects company profitability during crises, indicating that handling controversies effectively can be beneficial (Agnese et al, 2024). Although the existence of controversies may negatively impact

profitability, reporting ESG information offers the opportunity to improve financial performance during crisis periods (Anita et al, 2023).

4.4 Discussion

In the study by Aoudi and Marsat (2018), it was found that while controversies did not have a direct impact on firm value or profitability, their interaction with other factors was significantly associated with higher firm value. Contrary to these findings, the results of this research show that controversies during crisis periods had a negative impact on the profitability of healthcare companies. At the same time, as the number of controversies increased, the profitability of these companies decreased, indicating that the negative effects of these controversies were significantly higher than any potential benefits.

This partially aligns to the study of Anita et al (2023) which suggested that while controversies might expose companies to negative impacts that could affect their reputation, they could also present opportunities to improve performance. However, in this research no opportunity arising from the impact of ESG Controversies on the listed healthcare companies in the crisis period was observed. Moreover, the negative effects of ESG controversies on profitability were highlighted, indicating that the healthcare sector struggled to mitigate their impact during crises.

Therefore, the findings suggest that in the crisis period the healthcare sector was vulnerable to negative effects of the controversies associated with ESG aspects, without being able to turn these challenges into opportunities to improve profitability. These aspects highlight the need for effective crisis management strategies to mitigate the negative financial impact of controversies.

5. Conclusion

This paper analysed the impact of the controversies on the profitability of public listed healthcare companies in the context of multiple crises, between 2020-2022, using a fixed effects panel data approach with ROA as the profitability dependent variable.

The first model revealed that ESG Controversy Score Dummy had a significant negative impact on ROA, indicating that involvement in controversies reduced profitability. Board size and Board Gender also negatively influenced the profitability. Thus, the presence of women on board and the presence of an independent board did not moderate the effects of controversies during the crises.

The second model showed that while ESG Controversy Score and ESG Score had a positive impact on profitability during the crisis periods, the existence of controversies still posed a negative risk. Positive ESG performance indicated that reporting on environmental, social, and governance issues could generate the opportunity to increase the profitability. This study could be extended by analysing the impact of controversies on other profitability indicators such as Return on Equity or Assets Turnover.

The findings provide evidence that controversies associated with the healthcare sector during the crisis periods do not present opportunities for positive outcomes. Instead, these controversies negatively impacted the profitability of healthcare listed companies. Further research could extend this work by exploring opportunities and sustainable practices that improve the healthcare sector's performance during the crisis periods.

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The Importance of Governance and Audit Committee in ESG Reporting Within the Aerospace Industry

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Abstract: In the context of the global situation, against the backdrop of a rather marked instability and perhaps inappropriate behavior of mankind in recent times, as well as climate instability, the study aims to analyze the relationship between the presence of corporate governance, the existence and expertise of the AC as well as reporting on environmental, social and governance (ESG) indicators within the aerospace industry globally, taking into account long-term environmental objectives at global level, such as net carbon emissions to tend towards zero by 2050. The data analyzed were extracted from the Refinitiv Eikon database using, globally, from which a sample of 368 public companies in the aerospace industry was extracted, analyzed over a period of 4 years, respectively 2019-2022. As a methodology used in the research, a linear regression model was used, analyzing the linear relationship between the existing corporate governance dependent variable and the independent variables: the existence of the AC, the AC's expertise and the ESG score. This research contributes to the literature on the reporting of indicators (ESG) by aerospace companies, in which regulators do not play a dominant role in determining the degree of disclosure. Probably, in the future it will be necessary for most companies to realize that transparency in reporting contributes to a balance in the world and humanity would benefit if the polluters would reduce their intensity. In conclusion, corporate governance and the AC can play a key role in the effectiveness of ESG indicators reporting in the aerospace industry, which would lead to sustainable practices and contribute to the industry's efforts to address global environmental challenges.

Keywords: Corporate Governance, Audit Committee (AC), Environmental, Social and Governance (ESG) Reporting, Aerospace, Corporate Social Responsibility (CSR)

1. Introduction

The aerospace industry has a significant impact on the environment, generating greenhouse gas emissions, air pollution and a lot of noise. It is very important for this industry to take measures to reduce its negative impact and comply with increasingly stringent environmental regulations.

Corporate governance as well as the existence and expertise of the AC should play an essential role in ESG reporting especially in the aerospace industry if we take into account the strategic alignment regarding the achievement of environmental objectives, such as net carbon emissions to tend towards zero by 2050.

The chosen sample offers a particularly interesting scenario, as the aerospace industry has been analyzed globally and 368 public companies have been identified, as evidenced by the Refinitiv Eikon database. The analysis was carried out over a period of 4 years, between 2019 and 2022.

The importance of governance, as well as the existence and expertise of the AC have an important role in ESG reporting in certain companies. An increased degree of AC expertise can provide users with increased confidence over the quality of ESG reports. Moreover, the members of the Board of Directors with financial expertise can provide through the Homogeneous Reporting Standards a channeling of the reports in order to have a common understanding of the terms that make up the reports.

A robust governance framework can give companies a competitive edge by demonstrating a commitment to sustainability and responsible business practices that increasingly ensure regulatory scrutiny of ESG disclosures.

AC plays a key role within companies, ensuring sound governance and effective risk management. The aerospace industry faces unique challenges such as complex and costly projects, strict regulations, and an ever-changing environment. A strong AC within this type of companies is essential to navigate through these challenges and ensure long-term success.

As the aerospace industry continues to grow, it is important to find a balance between innovation and sustainability. By implementing green practices and working with governments and environmental organizations, the aerospace industry can help protect the environment for future generations.

So far, the importance of the effect of AC's on transparency in ESG disclosure is not so analyzed according to the literature, so there is a lot of space in this type of analysis and it can also give companies incentives to rethink their governance structures, to take into account more and more that not only financial reporting is important.

Beyond money there is life and it is much more important to live as healthy as possible in a constantly developing world.

2. Literature Review

2.1 Results of Corporate Governance Involvement in ESG Reporting

Firms' environmental, social and governance (ESG) practices form a new responsibility to the extent that they reflect a voluntary commitment to non-financial objectives. Corporate governance and responsibilities of social and environmental firms can provide a clear reference to the firm's ability to create a balance between profitable operations and ethical practices (Je-Yen et al., 2016).

B 'edard J Sand Gendron (2010) suggested that financial expertise allows AC members to ask investigative questions and conduct more thorough investigations, leading to greater transparency in financial reporting and reducing inter-agency conflicts.

Ryu et al. (2021) stated that companies with various financial expertise within their ACs tend to have higher quality financial reporting and stronger CSR practices as they have a better ability to monitor and control management.

Regarding the moderators' analysis, Al-Shaer and Zaman (2018) stated that the negative link between CSR and CSRA committees turns into a positive relationship through the independence and expertise of the AC. Thus, interdependencies between CSR committees and ACs are crucial.

Implementing a robust reporting system requires strict reporting standards that are missing in ESG presentations. Therefore, an independent and active internal control system is required to increase the quality and quantity of ESG reporting without compromising shareholders' objectivity and interest.

Appuhami and Tashakor (2017) argue that an independent AC could provide effective oversight needed to balance managerial and stakeholder objectives in the context of ESG disclosures.

Karamanou and Vafeas (2005) argue that AC is a vital management control mechanism that monitors financial and non-financial reporting practices.

Literature has extensively explored and addressed the connections between business governance and the level of social engagement and reporting, but attention has been given mainly to Western developed countries (Arayssi and Jizi, 2018).

The GCC context is characterised by poor corporate governance (Arayssi and Jizi, 2018). The GCC countries have seen rapid growth in capital markets and have made serious efforts to attract foreign investment (Arayssi and Fakih, 2015) in order to divert their savings from oil and their dependence on gas (Elfakhani et al ., 2008; Reiche, 2010).

Thus, the differences between the mature Western governance system and the Gulf Cooperation on the governance structure of the Council (GCC) is significant, characterized by few investors, protection, weak, segmented capital markets and high shareholding from within (Elfakhani et al., 2008), in the Gulf area

In addition, GCC countries are currently focusing on forming a system of governance (Zeitun, 2014); however, privatization and separation between owners and management are lacking, as corporations boards of directors are dominated by families and governments (Shehata, 2015; Baydoun et al., 2012).

2.2 The Role of the AC in ESG Reporting

The AC is appointed to verify the reliability of the Company's financial records.

The financial expertise of the AC refers to the presence of members with financial expertise, such as accounting or financial professionals or those who hold specialized certifications. The AC' financial expertise and audit knowledge increase the reliability of financial reporting and the quality of disclosure (Salehi and Shirazi, 2016).

The competence of the AC depends on the experience and composition of its members. The AC is vital in determining its effectiveness being made up of more efficient and experienced members. Previous studies have found the effectiveness of the AC positively to influence the quality of disclosure. The effectiveness of the AC is largely influenced by financial reporting.

The efficiency of both finance and volunteering, information disclosure increases with the presence of an AC (McMullen and Raghunandan 1996; Ho and Wong 2001). The effective AC improves the quality of reporting (Xie et al. 2003; Suleiman and Ragab 2014).

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Regarding the analysis of the moderators, Al-Shaer and Zaman (2018), they stated that the negative link between the CSR and CSRA committees turns into a positive relationship through the independence and expertise of the AC. Thus, interdependencies between CSR committees and AC are crucial.

Regarding sustainability reporting, taking into account the importance of the AC as well as its expertise, we analyzed a number of sustainability reports of companies operating in the aerospace industry from all parts of the globe, such as: Boeing (USA), Safran (Europe, France), Dubai Aerospace (DAE, United Arab Emirates), General Electric (USA), IFS Aerospace-Defence (Canada) and Hanwha Aerospace (Asia, South Korea).

Thus, according to Boeing's sustainability report for 2023, the AC and the board of directors have the role of overseeing the compliance and ethics of the programs carried out by the company in close collaboration with Boeing's Chief Compliance Officer. Through these contact points, visibility is provided to the Compliance and Ethics Risk Management Board, as well as specific cases that are identified through various reporting channels.

In Safran's sustainability report for 2023, we found less information on the importance of the AC, limiting ourselves to stating that the committee reports to the Board of Directors on its risk management activity, without specifying how ESG reporting is approached.

According to the 2022 report of DAE (Dubai Aerospace), the company maintains transparent reporting to the management bodies on commercial risks. At the same time, they have an annual report to the Board on the Risk Register, as well as quarterly reporting to the AC on internal audit issues, but regarding the environmental indicators, no clarifications are made in correspondence with the importance of the AC.

GE (General Electric), in its 2022 sustainability report, states the role of the AC on sustainability issues, insofar as these topics relate to financial and regulatory reporting requirements. GE has a rigorous compliance governance process at both corporate and business levels. Each company holds a quarterly review board meeting with the highest business leaders, including the CEO, during which risk assessment, mitigation efforts, and other compliance issues are discussed. In addition, each business line meets with the company's Chief Compliance Officer twice a year to discuss risk assessment, any program weaknesses or improvements, and any compliance trends, and reports annually to the AC on the company's most significant risks and compliance issues. At the corporate level, the Chief Compliance Officer organizes two to three meetings per year with the company's highest officials to discuss significant program updates, open reporting trends, significant investigations, and business updates on key risk areas. In addition, the Chief Compliance Officer and Vice President of Global Compliance and Investigations regularly report to the AC on the same issues, but there are not many clarifications on ESG reporting.

In the sustainability report of Hanwha Aerospace for 2023, we found clarifications regarding the AC. The company has several types of administrative committees. The AC carries out comprehensive audits of the company's general activity, focusing on its financial situation, ensures increased attention to strengthen the AC's expertise, providing training programs necessary for the audit activity. However, I did not find express specifications between the importance of the AC and the ESG reporting.

According to IFS Aerospace-Defence's 2023 sustainability report, we found several clarifications regarding the importance of the AC in ESG reporting. The company has started its alignment with European Union Sustainability Standards Reporting (ESRS) requirements and CSRD gap analysis resulting in an action plan that will help them further improve alignment in 2024. The report shows that IFS has established governance around

CSRD with stakeholders for ESG reporting. At the company level, the governance and sustainable functioning of its services are very important aspects, including the Board of Directors for review and monitoring, which have the role of reviewing strategies and action plans in order to assess the effectiveness of the company's risk reduction.

3. Research Methodology and Analysis of Results

Considering that there is currently a great interest in the reporting of ESG indicators at global level, as well as the mechanisms that ensure the effectiveness of these reports, the general objective of the research is to identify the importance of governance and AC on the reporting of ESG indicators in the aerospace industry, which is one of the industries considered a major polluter worldwide, given the expansion it has experienced in the last hundred years.

The analysis of the information is based on a quantitative research methodology, starting from the sample of data extracted from the Refinitiv Eikon database. In this regard, we resorted to selecting a sample of 368 public companies globally in the aerospace industry, analyzed over a period of 4 years, respectively 2019-2022.

The decision regarding the analysis of the last 4 years started from the idea of observing the changes occurred following the Covid 19 pandemic within this industry, following the importance of the AC in ESG reporting, having as reference the year 2019, before the outbreak of the pandemic.

The Covid 19 pandemic has led to an awareness that the world as big as it seems is actually quite small and we are somehow responsible for what we do and that we are interdependent. Each of us, the more we realize that the future on this planet depends on our actions as individuals, the more we will be able to contribute to creating a clean and natural environment as possible.

The selected sample includes aerospace companies located worldwide (United States, Australia, Vietnam, Bosnia and Herzegovina, Austria, Canada, South Korea, United Arab Emirates, England, France, Japan, etc. At the same time, the study also includes the analysis of sustainability reports of large companies such as Boeing (USA), Safran (Europe, France), Dubai Aerospace (DAE, United Arab Emirates), General Electric (USA), IFS Aerospace-Defence (Canada) and Hanwha Aerospace (Asia, South Korea), which followed the reporting on the importance given to the AC in ESG reporting.

The reasoning for selecting this industry was based on the fact that this sector is considered one of the main global polluters and is in continuous development both in terms of volume and innovation. Given the importance of the sector of activity, we wanted to analyze whether or not the AC is valued within corporate governance. Moreover, given the importance that lately is given to environmental indicators, the AC could have a role in improving reporting on ESG reporting, because through financial expertise it can lead to the harmonization of non-financial information with financial information, so that in the future companies can report in somewhat uniform formats, on the model of Financial Reporting Standards. Currently, the legislation on ESG reporting is in continuous development, some countries are more advanced, others are at the beginning of the road, and some have not even thought about these reports. As we have noticed in the sustainability reports of the companies mentioned above, in the Western part there is a greater interest in ESG reporting and at the same time there is the presence of the AC within the corporate governance. But in the Asian part, especially in the area of the Arab states, the AC is not yet valued so much in the framework of corporate governance. Certainly, these companies will align over time, realizing that we all live on the same planet and pollution, even if it is local, spreads in the atmosphere and can affect the global ecosystem over the years.

3.1 Methodologies for Analysis and Data Processing

To highlight the correlation between the independent variables, the existence of AC, AC expertise and ESG score, and the corporate Governate dependent variable, this research focuses on a linear regression model that was run through the SPSS application.

The linear regression model, being of the form: $Yi=\beta0 +\beta1X1i+\beta2X2i+\beta3X3i+\beta4X4i+\varepsilon i$

Where:

- Yi= ESG score dependent variable for observation i;
- β0 = interception model;

- β1, β2, β3, β4 = coefficients associated with independent variables (Independence of the AC and of the AC's expertise)
- εi = random error associated with observation i.

Therefore, regression (1): ESGi = β * + β * X * i + β * X * i + β * X * i + β * X * X * i + β *i + εi

Where the independent variables are:

- Xi: independence of the AC
- X_2i: Non-executive members of the AC
- Xi: AC Independence Score
- Xi: AC Expertise Score

By estimating these coefficients, the linear regression model explores the linear relationship between the corporate Governata dependent variable and the independent variables mentioned, in order to test the following research hypotheses:

- Null hypothesis (H0): There is no significant correlation between Corporate Governance and independent variables (existence of AC, AC expertise and ESG score).
- Alternative hypothesis (H1): There is at least one independent variable that has a significant correlation with the Corporate Governate score.

In order to analyze both the null hypothesis and the alternative hypothesis, for the analyzed period 2019 – 2022, a distinct regression analysis was performed for each year, respectively the linear regression model was run within the SPSS application 4 times. The centralized results of the 4 regression models, related to the analyzed 4 years, are presented centrally in Table no. 1 – Results of regression models.

Table 1: Results of regression models

Year	R	R Square	Adjusted R Square	Std. Error of the Estimate
2022	.274[a]	.075	.057	.486
2021	.291[a]	.084	.055	.487
2020	.342[a]	.117	.087	.479
2019	.329[a]	.153	DL.118	.465

Source: Author's own research using SPSS software

The correlation coefficient (R) measures the strength and direction of the relationship between two variables. In this case, the value of 0.329 recorded at the level of the first year analyzed, respectively 2019 is the highest of the variables studied. The closer the correlation coefficient is to 1, the closer and more positive the relationship between the variables. Thus, in 2022 the variables have a less close association than the other years mentioned in the table.

For each year, the correlation coefficients and the coefficients of determination are relatively small, indicating a relatively strong correlation and an explanation of the variation of the dependent variable on the independent variables included in the model. The standard estimation error is relatively small for all years, indicating good model accuracy in estimating dependent values.

The coefficient of determination (R Square), which determines the proportion of the variability of the dependent variable that can be explained by the independent variables included in the model, indicates that at the level of 2022, approximately 7.5% (0.075) of the variability of the Corporate Governance can be explained by the independent variables, the difference of up to 100% indicating the variation that remains unexplained, the difference that can be attributed to other factors or variables that have not been taken into account in this research. Higher R-square values indicate better pattern matching with observed data.

Adjusted R-square: This is an adapted determination coefficient metric that takes into account the number of predictors in the model and penalizes the introduction of redundant predictors. Its value for 2022 is .057, which suggests that about 5.7% of the variation in corporate governance is explained by the independent variables in the regression model, given the number and size of the sample. Please note that the value of the adjusted Square R decreases from 0.118 in 2019 to 0.055 in 2021 and 0.057 in 2022.

Std. Estimation error: This is the standard estimation error and is a measure of how close the estimated values are to the actual values. In the present case, we notice that the Standard Error of the Estimate varies between 0.465 and 0.486 in the period 2019-2022. These values indicate that model estimates can vary, on average, by this value from the actual values of the dependent variable. It is important to note that the lower values of this indicator indicate a more accurate model in the estimation of dependent values, while the higher values may indicate a higher uncertainty in these estimates.

Thus, according to the above data, we conclude that predictors (AC existence and ESG score) have a significant influence on the dependent variable, corporate governance. These findings may suggest that the link between the existence of the AC within companies and ESG reporting may have an involvement leading to significant improvements in a company's performance.

The conclusions are that the variables analyzed have an influence, but not significant and constant on the corporate governance of companies during the analyzed period.

In order to evaluate the performance of the regression model and determine whether the independent variables contribute significantly to explaining the variability of the ESG score, we will centrally present in the following table, Anova Results - Analysis of Variance.

Table 2: Variance analysis

Year	F	NTC Sig
2019	221	<0.001[b]
2020	173	<0.001[b]
2021	721	<0.001[b]
2022	085	<0.001[b]

Source: Author's own research using SPSS software

The ANOVA test indicates whether the regression model is significant or not. In this case, it gives us information about the variation explained by the model (Regression) and the unexplained variation (Residual), depending on the year under review.

F-test values have very significant statistical significance ($p < 0.001$). This means that there is a significant difference between the variation explained by the model and the unexplained variation, and the model is globally significant in explaining the variation of the ESG score each year.

In conclusion, the ANOVA model shows that the regression model is significant in explaining the ESG score variation in each year analyzed.

Table 3: ANOVA model

Year	Variables	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
2022	(Constant	.128	.151		.850	.397
	Audit Board Committee	-	-	-	-	-
	Audit Committee expertise	.245	.132	.175	1.853	0.67
	ESG Score	.005	.002	.195	2.060	.042
2021	(Constant	.235	.370		.636	.527
	Audit Board Committee	-.186	.374	-.053	-.497	.620
	Audit Committee expertise	.316	.151	.223	2.101	.038
	ESG Score	.005	.002	.194	1.951	.054
2020	(Constant	.047	.198		.237	.813
	Audit Board Committee	.107	.232	.057	.463	.645

Year	Variables	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
	Audit Committee expertise	.336	.155	.269	2.167	.033
	ESG Score	.003	.002	.123	1.205	.231
2019	(Constant	-.011	.200		-.056	.956
	Audit Board Committee	.367	.255	.199	1.444	.153
	Audit Committee expertise	.293	.176	.229	1.669	.099
	ESG Score	.000	.003	.020	.178	.859

Source: Author's own research using SPSS software

Non-standard coefficients indicate the contribution of each predictor to the dependent variable. For each predictor we have: the value of the coefficient (B), the standard error (Std. Error), standardized coefficient (Beta) and statistical value t and p (Sig.).

P-values below 0.05 indicate that predictors are significant at a 95% confidence level. By analyzing the p-values associated with the coefficients for each year, we can draw the following conclusions:

- The AC registers strong statistical significance ($p < 0.001$) in all the years analyzed except 2022, indicating that the number of non-executive members in the AC is a significant predictor of the ESG score.
- The AC's expertise is also significant ($p < 0.05$ or $p < 0.001$) in all years, indicating that the existence of CA has a significant impact on the company's corporate governance.
- The ESG Score does not show consistent statistical significance in all the years analysed. This in ESG reporting would have a limited or variable impact on corporate governance over time.

In conclusion, the existence of AC and AC expertise have a significant impact on corporate governance in companies, while ESG reporting is currently quite limited. Therefore, the analysis indicates that the existence of ACs and their expertise are associated with better influence in corporate governance instead in ESG reporting is still not so significant within this industry globally.

4. Limitations of Research

The existence and expertise of the AC are significantly associated with good corporate governance at the level of companies, but within the aerospace industry it can be noticed that they are not so well valued. However, there are other variables or other factors that can be considered in this model, and the results obtained may definitely be different.

5. Conclusions

This study aimed at analyzing the impact on the presence of corporate governance within aerospace companies globally, the existence and expertise of AC as well as their role in ESG reporting.

In order to carry out the analysis, a linear regression framework was used at company and year level and it was found that the existence and expertise of the AC have a slightly greater influence in the corporate governance in the aerospace industry, compared to their role in ESG reporting but still small compared to other industries.

The findings of this study provide significant information for all stakeholders such as shareholders, managers and regulators to improve ESG reporting within this industry.

Regulatory authorities should insist on the importance of the existence and expertise of AC within companies and in particular their role in ESG reporting.

Corporate governance with all its elements is at the beginning in the aerospace industry, in much of the globe, but with more transparency in the Western part, where there is more regulation.

This paper may have the role of opening the way to an awareness of as many participants as possible in finding a balance between profitability and humanity.

The current literature on the specific role of these variables analyzed in the paper is limited, as is the reporting on these indicators.

The paper presents methodological sub-limits, given that the econometric models used can lead to different results if other variables that have not been taken into account in it are used, which opens the way for other research in the future, in order to observe the phenomena by which society adapts to the new global tendencies, regarding the awareness of the importance of the environment in human life on the planet.

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Military Leadership in a VUCA Environment and BANI Scenario: A Systematic Literature Review

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Abstract: The World has been subjected to successive and rapid changes that modified its order and given rise to a constant state of certainty of uncertainties, as a fluid state of accelerated change and vagueness in the global scenario. For some authors we are living in an environment of Volatility, Uncertainty, Complexity and Ambiguity (VUCA), as for others in a Brittle, Anxious, Nonlinear and Incomprehensible (BANI) scenario that affects organizations, with serious implications for their leadership and management. In the case of countries' military organizations, this affects the operations' design, the type of equipment used and fundamentally their training, from which we highlight leadership. So, how is military leadership characterized in a VUCA world and BANI scenario? According to this research question we carried out a systematic literature review with a qualitative approach doing an update of a previous similar study carried out by the authors, looking for new publications that could enrich the comprehension of the topic. Thus, studies were searched in different databases, according to the selected criteria. Guided by the review question we adopt the PRISMA protocol for screening process divided into three phases: identification, screening and inclusion of studies. So, eleven studies were added . Data collected point out that as traditional leadership models are unable to faithfully reflect the modelling of new challenges and realities and military leadership in a VUCA world and BANI scenario is characterized by a complex combination of competencies in a personal, relational and organizational level. Among them the capacity to think out of the box, to be creative, innovative, intuitive, resilient, flexible and adaptative, based on a state of constant awareness and mindfulness to see the global situation and make the best decisions. No other study was found addressing the same research question. So, it seems to be the first study to systematically analyze military leadership in a VUCA environment. This way, it can be a contribution to understanding this topic and to frame future empirical studies.

Keywords: VUCA World and BANI Scenario, Military Leadership, Military Organizational Culture, Higher Military Education, Systematic Literature Review.

1. Introduction

The successive and rapid changes that have altered the modern world and given rise to a constant state of certainty about political, economic, social and climatic uncertainties, among others, have led many authors to take on the challenge of studying these characteristics. Among them, the studies of Bauman (2000, 2004) on liquid modernity, referring to the uncertainty, fluidity, vagueness and accelerated changes that characterize contemporary society. Other authors pointed out that the world lives in an environment characterized by Volatility, Uncertainty, Complexity and Ambiguity, which gave rise to the acronym VUCA (Codreanu, 2016; Calvosa & Franco, 2022; Abukalusa & Oosthuizen, 2023).

According to some documents VUCA term was originally coined in the late 1990s by the US Army War College (Whiteman, 1998); Stiehm & Townsend, 2002) to "describe the new theatre of war as volatile, uncertain, complex and ambiguous" (Elkington, 2018, p.66), and the "challenges of military leadership" (Calvosa & Franco, 2022, p. 2) by the end of the cold war (Lawrence, 2013; Casey Jr., 2014; King & Badham, 2019); and the events of September 11 (Bennett & Lemoine, 2014). So, this "acronym was initially devised to describe how the post-cold world war might behave in extreme conditions, showing the need to structure organizations to deal with problems that could be presented by the environment" (Calvosa & Franco, 2022, p.2).

Subsequently, the term has been transposed to various professional contexts, particularly leadership, management, administration and business (Elkington, 2018; Fuentealba, Flores-Fernández & Carrasco, 2023). Thus VUCA environment has been shaping contemporary society, with implications at all levels of organizations, which has led to the emergence of many studies. The term appears in the literature in different ways: VUCA world, VUCA environment, VUCA context, VUCA scenario, VUCA framework, VUCA conditions, VUCA business conditions and recently VUCA paradigm (Calvosa & Franco, 2022; Casey Jr., 2014).

As Calvosa and Franco (2022, p.3) argues, ”consensus among authors on the value of studying, analyzing and applying the concepts of the VUCA environment comes from the realization that traditional management models are unable to faithfully reflect the modelling of new challenges and realities”. Therefore, the VUCA environment is seen by some authors as a threat, in a fatalistic perspective, and by others as an opportunity to transform the surrounding environment according to their interests, to create added value, manage risks, changes and innovations (Singh et al., 2020; Calvosa & Franco, 2022). Thus, for some leaders, it goes from being a breaker to a platform for success (Levey & Levey, 2019).

Volatility refers to the unstable nature, speed, volume, magnitude and dynamics of change (Bennett & Lemoine, 2014; Green et al., 2019; Taskan, Junça-Silva & Caetano, 2022), generated by uncertainty due to the unpredictable and lack of information of the issues and events that may occur. This ends up confusing the discernment of issues, by the inability to understand/interpret them clearly (ambiguity) (Taskan et al., 2022). In the meantime, complexity have the potential to attract chaos and confusion to any organization, due to the uncertainty of reality and the quantity and mixture of conditions, factors and meanings to analyze (Bennett & Lemoine, 2014; Green et al., 2019; Taskan et al., 2022; Fuentealba et al., 2023). Nevertheless, for Green et al. (2019, p.2), the concept of volatility has not yet been fully incorporated, ”whether in shaping attitudes, transforming pedagogical delivery or predicting future professional roles”.

According to Lawrence (2013), the volatility of the present time demands agility from leaders, complexity requires understanding; uncertainty requires vision, and ambiguity requires a constant search for clarity.

With the wide dissemination and application of the term VUCA, some authors have studied other related factors and proposed changes to the acronym, from where we highlights: Disruptive, Volatile, Uncertain, Complex, and Ambiguous (DVUCA) (Calvosa & Franco, 2022) and Brittle, Anxious, Nonlinear and Incomprehensible (BANI) (Cascio, 2021). BANI is proposed by this author as an alternative to VUCA, which he believes has been worn out by its widespread use and by leaving out other aspects that he considers important. Thus, he proposed the term brittle as an alternative to volatile to refer to systems that despite all evidence of strength break down, in part or in whole, under certain pressure; As well anxious or anxiety-inducing, to refer to the intrapersonal elements that each person mobilizes to deal with the catastrophic situations that come their way, thus encapsulating a more personal and intra subjective dimension of the term; non-linearity describes processes in which there is extreme disproportionality between causes and effects, thus reflecting more than a complex environment, a totally chaotic one (Cascio, 2021, p.102). And finally, he proposes the term incomprehensible to describe ”a world in which the consequences of the interaction of actions and choices are functionally impossible to understand. They don't make sense because the underlying processes are too chaotic, too complex, too large for the human brain to fully comprehend” (Cascio, 2021, p.103). Nevertheless, as Calvosa and Franco (2022, p.3) point out, ”it is a recent concept, very little disseminated, accepted or investigated, and not published in scientific media”.

Some authors advocate the need for leadership training in a VUCA environment, based on a recent global study on VUCA Leadership Preparedness (Levey & Levey, 2019; Haniff & Daya, 2023). Ramachandran (2021, p.89) pointed that in VUCA environment, “leaders are unprepared to lead effectively. In this fast-changing and disruptive environment, command and control structures fail. They are far removed from the source and are forced to act with a limited understanding of events and their meanings”.. Kiluange, Rouco, Silva et al (2024, p.206) argue that military leadership “takes place in an environment of constant change, high complexity, stress and risk of life, with external environment having a major impact on internal environment of military organization, reflecting on their psychological well-being and professional performance”. Based on this theoretical framework and to summarize the literature's lessons to be learnt (Barros, 2022), this study aims to characterize military leadership in a VUCA environment and BANI scenario.

2. Methodology

Based on the research question we carried out a systematic literature review (Vilelas, 2020), with a qualitative approach, it means a thematic analysis to find the most important research categories or themes doing an update of a previous study made on the first semester of 2023 (Kiluange et al., 2024) looking for new publications that could enrich the discussion.

Thus, studies were collected through an electronic search of the different databases, according to the selected criteria (**Table 1**). For screening process we used the protocol *Preferred Reporting Items for Systematic Reviews and Meta-Analysis* (PRISMA) (Page et al., 2021; Costa & Rouco, 2023), divided into three phases: identification,

screening and inclusion of studies, guided by the review question: How is military leadership characterized in a VUCA environment and BANI scenario?

Table 1: Selection criteria

Inclusion criteria	Type of documents: Articles, conference papers with blind peer review, theses, dissertations, books and chapters. Keywords: "Military Leadership" AND VUCA OR BANI. Selected languages: Portuguese, Spanish, English OR French. Time of publication: between January 2019 and March 2024. Databases: RCAAP, SciELO, Science Direct and Scopus. Subject areas: Social Sciences; Psychology; Business, Management and Accounting; Arts and Humanities; Decision Sciences and Neurosciences.
Exclusion criteria	Documents whose full texts were not in open access, duplicated, or outside the scope of the search, in other languages than those selected and in different fields of knowledge than those indicated.

Source: Adapted from Costa and Rouco (2023)

3. Main Results

Although several studies have existed before to describe crisis contexts, such as world wars, natural disasters and epidemics like the Spanish flu or the black plague, the first recorded study to use the term VUCA is from 2008 (Fuentealba et al., 2023). As the evidence from this study shows, no records were founded of research orientated around the same review question.

Studies considering leadership in a VUCA environment have seen a significant increase in the pandemic years of the Covid-19 and a decrease right after it ended (Figure 1). Many authors believe that the pandemic has accelerated the VUCA environment at a personal, family, organizational and national level (Ramachandran, 2021; Mwenje & Manyanga, 2023; Kulinich et al., 2023).

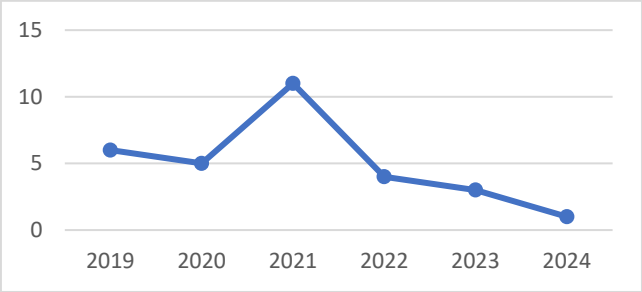

Figure 1: Studies per year

Among the methodologies used in the studies selected, most follow a qualitative approach, corresponding to 60.71%, some follows a quantitative approach (28.57%), and very few follow a mixed approach, making up 10.71% (**Figure 2**). The study's evidence points to the scarcity of studies on the subject which are fundamentally empirical.

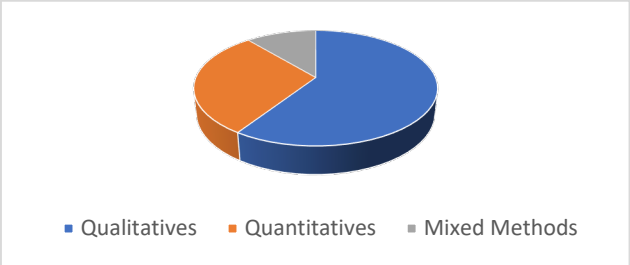

Figure 2: Methodological design of the studies

The screening process for the systematic review is described in the PRISMA diagram in Figure 3 and the selected studies are listed in Table 2. As the data points, the studies on leadership in a VUCA context have seen a

significant increase in the pandemic years of the Covid-19 and a decrease right after it ended. Many authors believe that the pandemic has accelerated the VUCA environment at a personal, family, organizational and national level (Ramachandran, 2021; Mwenje & Manyanga, 2023; Kulinich et al., 2023; Luthans & Broad, 2022).

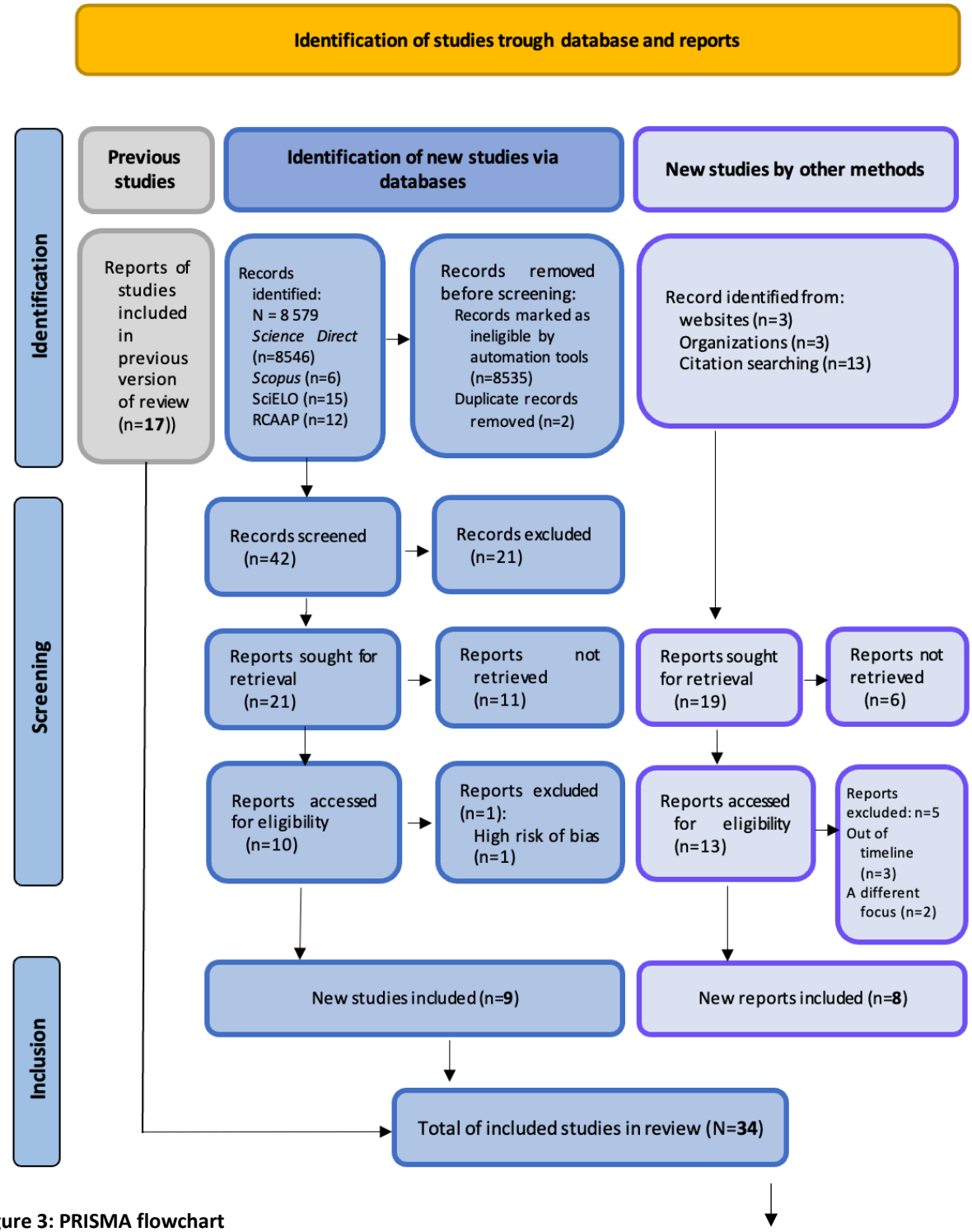

Figure 3: PRISMA flowchart

Table 2: List of included studies in the previous review

Nº	Author (Date)	Country	Sample	Study design	Main results
1	Máquina (2016)	Angola	99 Army, Air Force and Navy officers	Quantitative. Cross-Sectional.	The competencies that characterize the Leadership Competency Model are all positively and strongly correlated with extraordinary effort, effectiveness and satisfaction.
2	Yeşilbaş and Çetin (2019)	Turkey	2 732 (initial study) and 2 308 (the end)	Quantitative. Longitudinal.	Exploratory factor analysis produced an 18item scale with 4 factors: competence, benevolence, integrity and fairness. A scale to measure subordinates' trust in the military leader.
3	Jansen and Delahaij (2020)	The Netherlands	Dutch (Rec) Platoon in Afghanistan	Qualitative. Cross-Sectional	Leadership acceptance depends much more on group processes and contextual factors than on leadership characteristics (...) suggests that a lack of attention to group dynamics and a lack of active entrepreneurship on the part of the leader can catalyze "group entrepreneurship".
4	Cakiroglu et al. (2020)	Portugal	20 NATO country officials.	Qualitative. Cross-Sectional	Five dimensions emerged: driving forces for change, triggers for shared leadership, specific cases of shared leadership, operational team environment and operational team characteristics.
5	Masliy et al. (2020)	Ukraine	30 Military Academy students	Qualitative. Longitudinal.	Leadership programs taught in English and based on content related to the specialty have contributed to fostering the leadership qualities of students at the Military Academy.
6	Trachik et al. (2020)	USA	1 096 Active-Duty Soldiers	Quantitative. Cross-Sectional	The leader who promoted a purpose prevented suicide in his unit, increased resilience and decreased the risk of suicide ideas.
7	Cakiroglu et al. (2021)	Portugal	209 Mid-level multinational officers	Quantitative. Cross-Sectional	Task complexity is the critical predictor of a positive attitude towards shared leadership, and that attitude towards shared leadership is positively related to perceived team effectiveness through self-management in a military context.
8	Gonçalves (2021)	Brazil	Not applicable	Qualitative. Theoretical	Leadership is developed at the direct, organizational and strategic levels. Since current cadets will be the future Generals and Commanders of the Army, their training must be geared towards solving the problems of the future, providing a framework of leadership skills for this purpose.
9	Bunin et al. (2021)	USA	Not applicable	Qualitative. Theoretical	Defends tree key issues: planning and adaptability, cooperation and communication.
10	Šimanauskienė et al. (2021)	Lithuania	275 Top military leadership; 891 Middle management	Qualitative. Cross-Sectional	Top managers: strong and significant correlation at the level of factors such as Intellectual stimulation and Delegation, Rewards and Delegation (RD), Delegation and Innovation Support (DIS), and Innovation Support and Rewards. Middle managers: two strong correlations between factors such as R D, and DIS.
11	Prasetyo et al. (2021)	Indonesia	310 Indonesian Army Officers	Quantitative. Cross-Sectional	Participatory Military Leadership has a positive effect on staff performance.
12	Denny (2021)	USA	7 Senior officers of the National Guard	Qualitative. Cross-Sectional	Theoretical model of key competencies for senior military leadership in domestic operations, along with essential contributors to effectiveness, in disaster and crisis response operations.
13	Bekesiene et al. (2021)	Lithuania	220 experienced soldiers; 37 leaders	Mixed methods. Transversal.	6 "cause" constructs: persuasion skills, leadership skills, results orientation, accurate forecasting, building interpersonal relationships and cooperation with managers.
14	Sakato (2021)	Angola	238 Angolan Armed Forces Officers	Quantitative. Cross-Sectional	In the opinion of Commanders, the transformational leadership style occurs more frequently in the Angolan Armed Forces, while for subordinates the transactional style predominates.
15	Yogev et al. (2022)	Israel	225 Major-Generals and 22 Chiefs of Staff (1948-2018)	Mixed methods. Transversal.	Although the Chiefs of Staff constitute only 8.9% of the senior officers, the number of articles written by officers is 36.5%, while by Generals only 3.4%, focused on the themes of: Military History, Military Theory and Doctrine and daily routine.
16	Metwally and Ruiz-Palomino (2022)	Egypt	Not applicable	Qualitative. Theoretical	Ethical military leadership impacts psychological well-being, mental health and military performance in times of crisis.
17	Siew and Koh (2023)	Singapore & New Zealand	19 Military officers	Qualitative. Cross-Sectional	Military leadership development is a process that is defined by the experiences of establishing oneself as a vocational leader, developing confidence in leadership skills and leading with clarity of mission and genuine concern for one's "subordinates".

Source: Own elaboration of the data

Table 3: List of included new studies in the review

Nº	Author (Date)	Country	Sample	Study design	Main results
18	Antonacopoulou et al. (2019a)	Norway	Not applicable	QT	In a VUCA environment military leadership is more than a personal characteristic or a relational process, is an Sensuous Organizational Learning framework to serve the common good.
19	Antonacopoulou et al. (2019b)	Norway	Not applicable	QT	As individuals, communities and organizations that comprise the institution grow and elevate their practical judgements to serve the common good the capacity to engage in reflexive critique heightens organizational agility and leadership.
20	Levey and Levey (2019)	USA	Not applicable	QT	To invest in mindful leadership training for personal and organizational resilience is a key factor to overcome stress, overwhelming and burnout and increase well-being, reducing the healthcare's costs.
21	Green et al. (2019)	UK	137 students and 12 staff using a VUCA Framework.	QtL	Whilst of limited statistical significance the results do highlight the links between internal (student, staff, course) factors and the VUCA world.
22	King and Badham (2019)	Australia	Not applicable	QT	The mindfulness is a real solution for leadership in uncertainty.
23	Roche et al. (2020)	New Zeeland, USA, UK	Not applicable.	QT	Mindfulness involves a sustained change in employee's mindset, which may require a substantial and sustained investment to take root, since being mindful at work takes more than being involved in a (high-quality) intervention, requires thinking holistically about the workplace context.
24	Ramachandran (2021)	India	Not applicable	QT	In general leaders are unprepared to lead effectively in this fast-changing and disruptive environment were command and control structures fail. They act on incomplete or insufficient information.
25	Pereira and Eusébio (2021)	Portugal	5098, individuals, by military and civil personnel	QtC	A comprehension of how the non-operational stress factors are relevant, from a preventive and interventional point of view, to the adjustment of the training provided for military personnel and to decision support at the command level of the various units of the Portugal Army.
26	Pereira et al. (2021)	Brazil	Not applicable	QT	Essential competences for leadership in a VUCA environment: agility, team alignment, capacity to learn, capacity to decide, capacity to innovate, resilience and self-knowledge.
27	Luthans and Broad (2022)	USA	Not applicable	QT	Positive psychological capital can help combat the mental health fallout from the pandemic and VUCA environment.
28	Munk and Ahmad (2022)	Ukraine	Not applicable	QT	They argue that since modern warfare is hybrid, where cyber warfare plays a crucial role in military strategies, the mobilization of cyber agents is essential to guarantee a country's cyber defense.
29	Kulinich et al. (2023)	Ukraine	Not applicable	QT	Differences between preventive and curative strategies of developing emotional intelligence and intuition, the strategy of non-linear thinking in the VUCA concept and mindfulness training for staff and managers.
30	Mwenje and Manyanga (2023)	Zimbabwe	138 employees	MMC	Possession of certain skills-set coupled with preparation enhance chances of an organization survive in a VUCA world. There's a need to invest on critical skills for leadership personnel.
31	Coronado-Maldonado and Benítez-Márquez (2023)	Spain	Not applicable	QT	Emotionally intelligent leaders improve both behaviors and results and have an impact on work team performance. So, mindfulness practice is recommended for leaders as it helps develop emotional intelligence, social skills and support within organizations. The practice of mindfulness therefore favors the development of resilience and counteracts the effects of BANI and VUCA environments.
32	Begeç and Akyuz (2023)	Turkey	Not applicable	QT	Leadership requirements for digital ecosystems are entirely different from traditional leadership understanding, and orchestration stands out as a key concept.
33	Freire (2023)	Brazil	Not applicable	QT	Synthesis of the main lessons learnt by the Brazilian Army in the fight against Covid.
34	Fattoum et al. (2024)	UK	Not applicable	QT	Delegated autonomy may not be enough to manage the emerging complexity in a VUCA environment. It is necessary to develop intuition combined with knowledge and experience in order to make decisions.

QT: Qualitative. Theoretical; **QC**: Qualitative. Cross-Sectional; **QtC**: Quantitative. Cross-Sectional; **QtL**: Quantitative Longitudinal; MMC: Mixed Methods Cross-Sectional

Source: Own elaboration of the data

4. Synthesis and Discussion

As Table 2 and 3 show, studies about military leadership in a VUCA environment are very recent, as VUCA is an emergent category. Most studies are theoretical as literature review or experience report and studies with an empirical approach are not enough to validate findings and generalize conclusions. No reported studies about

military leadership in a BANI scenario were found. So, the analysis remains on VUCA environment. From the survey carried out, this appears to the authors be the first study to characterize military leadership in a VUCA environment. Despite the scientific production on VUCA and the authors' attempt to separate its four components, there are overlaps between them in the literature. On the other hand, the literature suggests that the four components are not always present in a situation or scenario, which requires a more careful and in-depth analysis of the situation.

Considering the studies selected for analysis, the categories assumed for meta-synthesis in this study emerged, namely: characterization of the military context in a VUCA environment, characterization of military leadership in a VUCA environment, Military Higher Education and leadership competences training in a VUCA environment and Methodology for military leadership in a VUCA framework.

4.1 Military Context in a VUCA Environment

Military context seems to being shaped by the pandemic covid-19 years and by the conflict of Russia-Ukraine (Mun, 2022), in a era of strong digitalization and increasing artificial intelligence, affecting command, control (Ramachandran, 2021) and communications systems (Begeç and Akyuz, 2023) in a complex hybrid war where activism is essential (Mun, 2022).

In fact, military leadership should be expressed by 'responsible action to serve the common good' (Antonacopoulou et al., 2019a; Antonacopoulou et al., 2019b). Furthermore, the volatility, uncertainty, complexity and ambiguity that characterize military operations, moving from the conventional to unconventional warfare, are conducive to the development of high level of stress, overwhelm and burnout on the part of military forces, which can compromise the success on the ground (Trachik et al., 2020; Pereira & Eusébio, 2021). Given the complexity and non-linearity that characterizes military context, there is a need to understand it, mobilizing more appropriate analysis' tools for the internal and external environment of military organizations, to make them more proactive and less reactive, since the global context is reconfiguring military command and leadership.

As pointed out by Gonçalves (2021), Sakato (2021) and Denny (2021), military leadership manifests itself at the direct, organizational and strategic levels, according to the hierarchical levels of command, and is developed in the same way. So, military context is "influenced by many factors that are difficult to predict and determine their course - the geopolitical situation, natural disasters - often, one minor situation has a significant impact on the entire environment, which could not have been predicted in advance" (Kulinich et al., 2023, p.2783). So, leaders need to be intuitive and creative, facing challenges and taking risks to lead effectively.

4.2 Characterizing Military Leadership in a VUCA Environment

The common good is the mission of the military organization what attending to the VUCA conditions shapes the ways of knowing and acting of both individuals, communities and the organization as a whole, aligned by Institutional Reflexivity, High Agility Organizing and Learning Leadership (Antonacopoulou et al., 2019a). The mission of the military organization is thus the compass for the performance of these professionals, who in a VUCA environment are calling for reforms and updating of military leadership learning models. These reforms are necessary because traditional leadership and teaching-learning models are proving inadequate for the disruptive realities of the present and future, marked by the complexity of so many factors at play in the success of their mission.

In general, the studies analyzed focus on a personal characteristics perspective when it comes to leadership (Kulinich et al., 2023; Siew & Koh, 2023; Sakato, 2021). Some focus on a relational perspective (Levey & Levey, 2019; Jansen & Delahaij, 2020; Šimanauskienė et al., 2021; Cakiroglu et al., 2021; Metwally & Ruiz-Palomino, 2022). However, in a VUCA environment, strategically combined action is needed that integrates personal and relational characteristics with the organization's mission. In this way, "leadership becomes an organizational characteristic and not merely a personal or relational process" (Antonacopoulou et al., 2019a, p.15).

Nevertheless, in today's increasingly web-enabled digital world leadership requirements for digital ecosystems are entirely different from traditional leadership understanding, and orchestration stands out as a key concept (Begeç & Akyuz, 2023). This implies that military leaders need to develop a set of digital skills to enable them to operate the cyber and technological defense ecosystem.

In a VUCA environment organizational military leadership have to pay attention to a precise understanding of the problems experienced, articulation of the unity of command in a very well-defined chain of command,

installation and operation of a secure, efficient and effective Command and Control System, preservation of logistical capacity, development of adaptability, flexibility and speed to deal with unforeseen situations, broadening of the concept of interoperability (combining military and civilian, public and private institutions); ability to overcome the country's infrastructure deficiencies (Freire, 2023).

The complexity of the military context makes military leader play the roles of Commander and Manager at certain times (Sakato, 2021). As well as motivating, inspiring and influencing subordinates through the action of command, military leader is responsible for leading them to victory. Thus, imply that military leader had developed confidence in leadership skills to lead with clarity of the mission and genuine concern for one's subordinates (Siew & Koh, 2023). This ethical stance of military leadership has a positive impact on psychological well-being, mental health and military performance in times of crisis (Metwally & Ruiz-Palomino, 2022). The consideration of leadership styles in a military context (Sakato, 2021) assumes a strategic place of paramount importance if one considers the need for "the application of crisis management in certain circumstances and its benefits" (Kulinich et al., 2023, p.2781) as military leadership are expected to perform in peace, war and crisis situation.

Since military leadership is strongly influenced by hierarchy and discipline, the initiative and freedom to make decisions varies according to levels of authority, autonomy and intuition (Šimanauskienė et al., 2021; Fattoum et al., 2024). However, shared leadership has a positive effect on team autonomy and effectiveness on the ground (Cakiroglu et al., 2021).

Levey and Levey (2019, p.740), argue that "awareness of the reactions taking place in the mind and body is of particular importance so that the military leader can, from a position of balance and self-awareness, make personal and professional decisions that will immediately affect him, his subordinates and superiors, as well as the entire nation". Thus, the decision-making process plays a key role in a VUCA context requiring intuition, creativity, innovation and resilience that characterizes a developed mindfulness (King & Badham, 2019; Roche et al., 2020). Understanding the VUCA concept implies that the leader understands the connection between different processes and circumstances, has developed critical thinking, is capable of (re)building if something fails, with a clear vision of their role in these processes and forecasting their trends (Kulinich et al., 2023). Thus, in a VUCA environment military leadership should be more focused on organizational leadership than a personal characteristics or a relational process of leadership (Antonacopoulou et al., 2019a).

4.3 Military Higher Education and Leadership Competences Training in VUCA Environment

According to Antonacopoulou et al. (2019a), in military contexts, learning takes place according to professional practices, configuring learning practices, developed according to values, actions and possible errors. These elements are in constant tension, giving rise to different learning cycles – single loop learning takes account of actions, double loop learning takes account of actions and values, and triple loop learning takes account of actions, values and learning practices making an organizational leadership learning models. For (Antonacopoulou et al., 2019b), these models are based on cultivation of reflexivity going beyond reflecting on one's and other's assumptions and perspective and critically reassessing how each one responds in a VUCA environment. This is particularly essential to define courses of action and this capacity for reflexivity requires practice through systematic activities throughout leadership learning process to foster individually (logbook, for e.g.) and collectively reflection (for example theoretical discussions, practical exercises) (Antonacopoulou et al., 2019). So, leadership learning development must be a combination between individual reflection and collective reflection to develop an understanding, internalization and appropriation of his meanings and social and practical implications.

Military leadership to meet the VUCA context can be developed by combining different teaching-learning methods and different ways of organizing teaching to encourage reflexivity at individual, collective and organizational level. To this end, in addition to the theoretical and practical sessions included in the curriculum, some military higher education institutions in some armies develop Annual Leadership Conferences to discuss essential topics in this area and Mentoring Programs, from senior officers to low-ranking officers, to facilitate dialogical reflection and the exchange of experiences that facilitate the development of the leadership competencies needed for such troubled contexts (Antonacopoulou et al., 2019b).

Understanding the impact of VUCA environment in military leaders' mental well-being (Luthans & Broad, 2022) and the comprehension of how the non-operational stress factors are relevant, from a preventive and interventional point of view, training provided for military personnel and to decision support at the command

level need to be adjusted (Pereira & Eusébio, 2021). Providing a positive psychological capital can help combat the mental health fallout from the pandemic and VUCA environment (Luthans & Broad, 2022)

Levey and Levey (2019) argue that VUCA preparedness of leaders is directly linked to organizational effectiveness, justifying their need. Military higher education (seems to be a privileged environment for developing leadership competences for a VUCA world (Masliy et al., 2020). However, many leadership development programs focus on mastering and manipulating variables from the outside world, without considering the need to train leaders in more intrapersonal dimensions, i.e. to teach them to lead from their personal characteristics and abilities (Levey & Levey, 2019). Leadership should be developed as a personal, relational and organizational quality, supported by an orientation towards practice (Antonacopoulou et al., 2019b). In this way, theory and practice must complement each other, from the design to the development of leadership competences, which in professional practice express the military' competences to solve professional problems in today's uncertain environment. As John Dewey said, If we teach today's students as we taught yesterday's, we rob them of tomorrow.

Gonçalves (2021), defends the need to look at the challenges of the future, which is uncertain and changing, and for which current cadets, who will be the Army's future generals and commanders, must be prepared. This requires that their training be geared towards solving the problems of the future and not today, providing them with a framework of leadership skills to do so. However, from the selected studies for the review, emerged some leadership competences in a VUCA context (Table 4).

Table 4: Leadership competencies in a VUCA environment

Dimensions	Leadership competences in a VUCA environment	Author/Date
Personal	Effective and wise decision-making; **mindfulness**, **resiliency**, creativity, wisdom; awareness, understanding, clarity through strategy, cognitive agility; effective **communication**, commitment, openness; planning, adaptability, cooperation, activism in the hybrid warfare model; **emotional intelligence**, **intuition**, non-linear thinking; open mindedness, dynamism, **flexibility**, **agility**, **adaptiveness**, formulating strategies; attentiveness, alertness, awareness, appreciation, anticipation, alignment, activation; problem structuring and autonomy.	Antonacopoulou et al. (2019); Levey and Levey (2019); Green et al. (2019); King and Badham (2019); Roche et al. (2020); Ramachandran (2021); Bunin et al. (2021); Munk & Ahmad (2022); Kulinich et al. (2023); Mwenje and Manyanga (2023); Coronado-Maldonado & Benítez-Márquez (2023); Fattoum et al. (2024)
Relational	**Trust** in leaders; **empathy**, compassion; collective mindfulness/collective wisdom; social skills; technology-centered, **collaborative**, transformational, participative, agility-focused and innovation-focused.	Yeşilbaş and Çetin (2019); Levey and Levey (2019); King and Badham (2019); Coronado-Maldonado and Benítez-Márquez (2023); Begeç and Akyuz (2023)
Organizational	Precise understanding of the problems experienced; articulation of the unity of command in a very well-defined chain of command; Secure, efficient and effective Command and Control System; preservation of logistical capacity; adaptability, flexibility and speed to deal with unforeseen situations; broadening of the concept of interoperability (combining military and civilian, public and private institutions); ability to overcome the country's infrastructure deficiencies to serve the common good.	Freire (2023); Antonacopoulou et al. (2019b)

Source: Own elaboration of the data

As shown in Table 4, most of the selected studies addresses a personal or relational dimensions of military leadership in a VUCA environment. Very few studies addresses the Organizational level. But, since the VUCA environment affects all individuals, communities and institutions, how can (military) leadership be effective only at the individual or relational level, without a concertation of strategies, factors and actors?

4.4 Methodology for Military Leadership Development in a VUCA Framework

For Levey and Levey (2019), a methodology based in VUCA framework demands to reflect on the preparedness and capability of ourselves and subordinates, regarding to the four domains of the VUCA framework of leadership preparedness. Thus, he suggests employing a Likert scale, addressing the following questions:

1. Volatility: How well do you anticipate and wisely respond to the volatile nature and speed of change?
2. Uncertainty: How wisely and decisively do you act when you lack certainty or a clear sense of direction?
3. Complexity: How wisely do you respond to complexity and confusion, and navigate the chaos present in the world around you?
4. Ambiguity: How well do you maintain your effectiveness when faced with a lack of dependable reference points or predictability?

According to Green et al. (2019, p.1), "the VUCA concept provides a framework for acknowledging these factors and a basis for planned leadership responses (…) each VUCA term needs to be considered individually". The VUCA matrix presented by these authors shows that there is a direct proportional relationship between knowledge of the situation and the ability to predict the results of action in such an environment and defines each of the four dimensions of the matrix. Based on the nature of the VUCA world concept, researchers have developed a similar matrix to address it, embodied in the terms Vision, Understanding, Clarity, and Agility (VUCA), as essential elements for leaders to be agents of change in a world undergoing constant and accelerated transformation (Levey & Levey, 2019).

5. Conclusion

5.1 Strengths

According to the data no other study was found addressing the same research question. So, it seems to be the first study to systematically analyze military leadership in a VUCA environment. This way, it can be a contribution to understanding this topic and to frame empirical studies theoretically.

5.2 Limitations

Despite the study's strengths, it has limitations in terms of the small number of studies available and selected for the review, based on the inclusion criteria. On the other hand, given the exploratory nature of the study, it is limited to a summarizing the evidence found rather than an in-depth discussion of it. Finally, no empirical analyses were carried out on the synthesized evidence.

5.3 Implications for Research and Practice

Synthesizing what is known about military leadership in a VUCA environment can point the way to future research and practice. It would facilitate military leadership to better understand each component of the term and its implications for successful military command and leadership, given the constantly and rapidly changing environments. Nevertheless, as a large majority of studies are theoretical, as literature review and experience report we suggest that more empirical studies need to be done in order to compare findings and generalize conclusions. Furthermore, such research would make it possible to understand the role and/or implications of the VUCA constructs in strategic decision-making. Could the term be an insightful matrix for analyzing situations and guiding modalities of action?

5.4 New Trends

There is a tendency to focus on the application of artificial intelligence, the influence of mindfulness on organizations, the impacts of COVID-19 and the Ukraine war as accelerators of VUCA environments.

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Middle Leadership in Irish Primary Schools: A Critical Analysis of Principals' Perspectives

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Abstract: This paper shares some preliminary findings from doctoral research exploring Irish primary school principals' views regarding middle leadership. This qualitative study used a grounded theory approach to investigating their perspectives, using interviews, observations, and extant documents. The findings reported here relate to interviews conducted with ten principals. Leadership's centrality to quality schooling is widely recognised, but the demands of school leadership have become too vast for individual leadership. Middle leaders (MLs), situated between senior leaders and teachers, are uniquely positioned to assist with this. Their proximity to the classroom enables them to influence teaching and learning more readily than principals. But their role remains under-researched. Investigating principals' perspectives is critical to leveraging the ML role because principals can decide its parameters and act as a barrier or support to the role. The findings in this paper relate to: 1: *How principals understand middle leadership: how it is defined and desirable ML qualities and skills.* Principals had difficulty defining the role, but most expressed an understanding that it did not only encompass formal titles. Informal middle leading was a source of leadership development and staff tension. 2: *How principals utilise middle leadership: duties and responsibilities, oversight, and accountability.* The scope of MLs' duties was inconsistent across settings, and descriptions of ML accountability were ambiguous. Levels of oversight varied, but most sought increased ML autonomy. The subject matter of this paper will be of interest to principals seeking to better understand and utilise middle leadership and MLs wishing to comprehend what principals require and desire from MLs. It also holds value for policymakers wishing to understand how leadership policy is enacted in Irish primary schools. This study relates to a field of leadership and management that is under-researched both in Ireland and internationally. Little is known about how middle-level leadership is utilised in Irish primary schools and principals' understanding of middle leadership practices.

Keywords: Middle Leadership, Grounded Theory, Middle Leaders in Primary Schools, Assistant Principals

1. Introduction and Background

There is a growing understanding that the single-person leadership of the principal is insufficient. The role of leading teaching and learning in complex organisations like schools is too great for one person, necessitating principals to engage with others (Odhiambo, 2014). The 'others' that principals ought to engage with are middle leaders (MLs). MLs are better positioned than principals to affect teaching and learning because their influence is exercised closer to classrooms (Grootenboer and Edwards-Groves, 2020). Research has outlined the potential impacts of MLs on teacher quality and attitudes, student outcomes and school improvement (Bufalino, 2017; De Nobile, 2021; Gurr and Drysdale, 2013)

Despite the role's potential, it remains under-researched, especially compared to the field of leadership in general. There is a crucial need to establish ways for schools to recognise, nurture and develop MLs, given the increasing responsibilities being bestowed upon them (Bufalino, 2017; Bryant and Walker, 2022; De Nobile, 2021; Lipscombe et al., 2021; Odhiambo 2014). They are not simply aspiring principals. It is a specific, crucial form of leadership currently being undervalued and underdeveloped (Bassett and Robson, 2016; Lillejord and Børte, 2020)

1.1 Who is a Middle Leader?

A single definition remains elusive. Two of the more extensive literature reviews in recent years give somewhat conflicting definitions. 'Middle leader' and 'teacher leader' are the dominant terms used in literature. While De Nobile (2021) suggests that these terms may be becoming interchangeable, Lipscombe et al. (2021) state that they are, in fact, distinct, though the boundary is blurred. Lipscombe et al. (2021) describe how some contexts tie the retention of a teaching load to the ML definition and that formal title and accountability distinguish MLs from teacher leaders. However, De Nobile (2021) views tethering the definition to a formal title as problematic because teachers without formal titles may perform ML roles. So, he places more emphasis on influence over titles/positions. Considering both reviews, the tentative definition used in this paper is; *a teacher who can influence policy, practice and staff, operating below the level of senior leaders, who may or may not hold a formal title, while retaining a significant teaching load.*

1.2 What do MLs do, and how can They be Successful in the Role?

Their specific responsibilities vary widely across contexts and so cannot be relied upon as a basis for a definition (Murphy, 2020). However, De Nobile and Ridden (2012) outline their duties under five broad categories. The *management* role involves organising human and physical resources like timetabling, planning events/activities and collecting student data. The *administrative* role involves developing procedures to efficiently use time and resources, such as organising file systems and databases. The *supervision* role includes staff evaluation. The *staff development* role entails building capacity and leading by example. The *leadership* role is about influencing others' attitudes and behaviours.

Specific characteristics are necessary for ML success. Personal attributes such as enthusiasm, drive, communication, and interpersonal skills are essential. They need the trust and respect of staff, strong content and pedagogical knowledge, and the ability to mediate senior leadership's vision for teachers. They require authenticity in the role, the ability to provide advice, work alongside teachers, and be accepted by them. This requires credibility, which comes from experience and access to professional development (De Nobile, 2021; Gurr, 2019; Jorgenssen, 2016). Principal support is another significant factor in MLs' success.

1.3 The Principal's Role

Principals are vital to advancing middle leadership because of their role in constructing it, deciding what tasks are distributed to MLs and what remains under the principal's purview (Gurr and Drysdale, 2013; Lárusdottir and O'Connor, 2017; Odhiambo, 2014). Unfortunately, MLs often lack a clear job description, with their work frequently determined by the principal's need, which can render the job overloaded, unclear, and ineffective (Lillejord and Børte, 2021)

If principals wish to share or distribute leadership rather than simply delegate, trust between them and MLs is key. They need confidence that ML decisions are consistent with school values and policy, and staff need to feel confident enough to enact leadership without fear of negative consequences. If they are granted some agency within broad accountability structures, distribution of leadership can occur. However, it can be constrained by principals' reluctance to share power (Bush and Ng, 2019).

In the future, there will be a greater expectation for MLs to take leading roles in improving teaching and learning. Therefore, principals must ensure MLs have the requisite development and support for this. Principals must identify aspirant MLs and support their development by providing quality professional learning, building a collaborative school culture, and enhancing organisational policies, structures, and processes (Gurr, 2019; Gurr and Drysdale, 2013)

This paper examines how Irish primary school principals understand and use middle leadership in their contexts. Formal leadership structures in a typical Irish primary school consist of a principal, deputy principal, and a number of assistant principals (APs), AP1s (who receive greater remuneration), and AP2s. APs have a full teaching load, whereas the other leaders may be non-teaching, depending on school size. In most schools, staff are employed by voluntary boards of management who oversee schools on behalf of the patron and the minister of education.

2. Methodology

A grounded theory (GT) approach was used, informed by case study. GT is a structured yet flexible methodology appropriate when little is known about a phenomenon that allows a broad focus to be guided by data into a narrower field (Charmaz, 2014; Tie et al., 2019). As this research explores an area in which there is comparatively little research, GT was the most suitable approach.

Context is integral to understanding middle leadership (Lipscombe et al., 2021); hence, incorporating case study allows a deeper exploration than interviews alone. It is a research method that can contribute to knowledge regarding complex individual, group, organisational and social phenomena (Yin, 2009). This study investigates the complex phenomenon of middle leadership and its meaning as held by individual leaders and groups of leaders, as well as how it fits into schools' organisational structures.

Five schools were initially sampled purposively (Teddlie and Yu, 2007). A key feature of GT is concurrent data collection and analysis, enabling the researcher to sequentially focus on the most significant emerging issues (Glaser and Strauss, 1967). Analysis of each interview influenced the next. NVivo software was used to aid analysis, revealing the need for more data to develop emerging concepts further. Five additional schools were

recruited through theoretical sampling to explore the extent to which these concepts were present across contexts. Upon completion of these interviews, all ten were revisited and further analysed in relation to each other (see Figure 1).

Figure 1: Data collection overview

The coding structure, taken from Charmaz (2014), used open coding primarily when analysing individual transcripts immediately post-interview, moving towards more focused coding as all ten interviews were completed. Other data sources from the broader doctoral research (field notes, school policy and inspection reports) have yet to be fully analysed. Therefore, theoretical coding of the entire data set has yet to occur. Some of the preliminary findings from the analysis of these interviews are reported here, giving an overview of how participants understand and utilise middle leadership in their contexts.

3. Findings

3.1 How Principals Understand Middle Leadership

3.1.1 Defining Middle Leadership

Some principals expressed an understanding that middle leadership could encompass the formal title of AP *and* informal leadership practices shown by teachers without formal titles.

> *'You'll always[…]have kind of natural leaders…who could just be very passionate about certain things and have I suppose, the personality and the attributes and the desire for leadership. So even without a formal role or title, can actually end up being MLs' Principal 1*

For these principals, the notion of middle leadership was fluid, with teachers without formal titles entering the middle leadership space at different times, depending on school needs.

However, not everyone understood this informal component. Four principals referred only to the AP title when asked to outline their definition of middle leadership. Two further defined the role by distinguishing between AP1s and 2s, designating AP1s as senior leaders and even meeting and communicating with them separately from AP2s, whom they identified as the MLs.

3.1.2 Informal Middle Leadership

There were many examples of teachers without formal titles assuming responsibilities unclaimed by APs. Principal support was crucial in enabling this. It was one of the primary ways teachers learned leadership skills and prepared for more formal leadership roles. However, the principal's role in developing these informal leaders is not without tension. While recognising their role, some were conscious of potential conflict regarding appearing impartial.

> *'I suppose one thing I was very conscious of was knowing that deputy and AP interviews would be coming up. You have to be very careful in terms of who you give responsibilities and opportunities to, without...because you don't want to be perceived as, as favouring people' Principal 8*.

Further conflict arose when these teachers without formal titles were perceived to take on more than the formal MLs (i.e. the APs).

> *'[The APs] were kind of saying "How dare they?", but at the same time, [the APs] weren't stepping up to do it […]they were sort of like "How dare they, who do they think they are, doing that?"[…]and kind of more or less said that to them, and that really upset the people who were stepping up' Principal 4*

> *'[Informal middle leading] can sometimes cause a bit of jealousy, I think on a staff, if perhaps somebody with responsibility for that feels that they're being overshadowed' Principal 6*

3.1.3 Middle Leader Qualities and Skills

In addition to their efforts to define the role, principals' understanding of middle leadership was further illustrated through their descriptions of desirable ML qualities and skills. Those they communicated in the most detail are reported here.

Principals described varying examples of **initiative.** Essentially, they meant identifying issues before the principal, working independently and taking ownership of issues by finding solutions without rigidly sticking to assigned responsibilities.

> *'Okay you can have a good manager but it's not necessarily a good leader, and I suppose the difference is where they see that it has to be done, they go outside their comfort zone, to make sure that it is looked after that it is done and not everyone has that' Principal 2.*

> *'You take ownership, you take responsibility. Initiative. Being able to go and do it without having to check everything with me or others' Principal 9*

They described a specific **commitment** to their school's context and vision, putting the school's needs above personal ones.

> *'Passion for what we do, belief in what we do […] We are who we are, as a school […] and so you have to buy into that, you know, warts and all. There's probably easier gigs' Principal 9*

> *'I think commitment to the school is probably the best and most important, and that's very broad, but it means making every decision for the good of the school, and that might not be popular, and it might not be the best for any one individual, but it will be the best for the school' Principal 6*

Co-operation, collaboration, and the ability to coalesce as a team and work collectively towards a common goal were important. MLs' ability to see beyond their area of responsibility to the school's wider needs was key to this.

> *'And understanding of the team, that collaborative, I think it's important. That it's not just me in my role, that it's understanding the collaborative piece of leadership and management within the school' Principal 7*

Lacking this collaborative quality can lead to competition rather than cooperation among MLs; this was of particular concern in some larger schools.

> *'It's just that there's an awareness there, that it's the overall running of the school […], that's what the team are meant to be doing, helping run the school. So, by having the competition there, going off on tangents or on a solo run, it's not really happening' Principal 2.*

Principals listed **soft skills,** like communication and interpersonal skills, emotional intelligence, persuasion, and influence.

> *'Liaising with people as well and networking with people in the school, that you don't rub people up the wrong way. So that, interpersonal skill is very important. The emotional intelligence of how to handle people, bring them along' Principal 9*

Adaptability, readiness to *'roll with the punches' (Principal 9)* and willingness to grow and upskill while being reflective were also outlined.

> *'But do people have the skills? Naturally, perhaps. Do they learn them as they go? Yes, if they can be reflective' Principal 1*

MLs were not expected to be experts in specific areas. General leadership skills and the ability to access expertise were preferable.

> *'That's the thing; the MLs are sort of expected, I suppose to have a wider range of skills not just to be able to do one particular thing because you need that flexibility' Principal 8*

Loyalty and trust were highly regarded. One principal described MLs' influential position, which made loyalty essential.

> *'[MLs have] nearly more of the ear of the staff […]I would consider them my biggest asset in a way because of the people that have, I would like to think, would have my back'. Principal 5*

The ability to discuss issues confidentially with the middle leadership team and unity regarding decisions was important.

> *'I would love to be able to go into every meeting and speak freely, openly about things and say that this shouldn't go any further. That doesn't always happen. You know, you can, you can say something to somebody, and next thing it will be up the corridor, and others will know […]I think trustworthiness is very, very significant' Principal 9*

> *'We have to talk about the philosophy of the management team […] that if we agree to something and we present it to the staff, the management team has to have a united front on things' Principal 8*

Principals clarified that 'good' MLs were not homogenous. They valued varying combinations of qualities and understood that an effective team needed a broad array of attributes.

3.2 How Principals Utilise Middle Leadership

3.2.1 Duties and Responsibilities

The work of formal MLs can be grouped under the headings *curriculum and related initiatives*, *policy* and *planning, coordinating special education provision, staff support and development*, *student-related* duties, and *other* duties (see Appendix A). As duties and responsibilities ought, according to policy, to be shaped by schools' needs, it was unsurprising that the specific duties varied across contexts. However, there was also a lack of consistency regarding the number of duties expected of MLs. Even accounting for differences in school size, the differences in expected workload across schools were significant. The duties of an AP2 in some schools resembled that of an AP1 or deputy principal in others.

When deciding duties, most principals referenced consulting the school community regarding the school's needs. In many cases, this was a formal process, an element of which involved gathering information from staff. However, its effectiveness depended on staff engagement, which was not always forthcoming.

When assigning duties, there was a recurring idea of matching these to individuals' strengths.

> *'There's no point in my sports mad [AP] taking on technology[…]They can do it, but they'll do a bad job, or they won't be authentic, you know, they might do a fine job, but it won't be a brilliant job because it's not their passion. Your passion exudes from you, and I think that that's infectious' Principal 2.*

This usually worked well, but challenges arose when a school need could not be matched to an AP. Additionally, this individualisation of roles can only be facilitated if role holders are flexible. In schools where they are not, duties stagnated, and discrepancies appeared between official duties and what APs did in reality, creating a gap between what they did and what the school needed them to do. Narrowly defined duties can cause difficulties regarding workload.

> *'But agreeing the duties, discussing the duties, the narrowness, sometimes of the roles rather than freedom […] And what I mean is, if it says [co-ordinating special education], that's what I'll do, and I won't do anything else.' Principal 10*

3.2.2 Accountability and Oversight

When accountability concerning formal MLs' duties and responsibilities was broached, principals referenced accountability to the board of management. Although they were nominally accountable to the board, this did not translate into real accountability in most cases.

'[MLs] officially are accountable to the board, but I don't even think my board would even know who's [an AP] in my school[…]I reckon one of them is gagging to say, "What's [an AP]?" So, they're not, I don't think they're accountable to the board really' Principal 2

Most referred to MLs being accountable to the principal, but when asked about addressing MLs' role performance, most described feeling ill-equipped and reluctant to appraise MLs' work.

> *'There's no mechanism[…] There's no way to pull rank, really, you know, without just being straight with someone saying […] "I don't think you're doing a really good job", particularly if the person doesn't agree with you […]then you're gonna be really in a tricky situation, and we don't have the tools' Principal 3*

Levels of oversight varied across schools, but all felt they gave MLs some freedom, with most requiring them to check in.

> *'There has to be an oversight and accountability. I'd like to have that because you never know. You know, ultimately, you're meant to know what's going on' Principal 2*

> *'At the end of the day, I need to know what's going on, of course, and the buck does stop with me, but I'm quite happy for senior members of staff and all middle management to actually take the lead' Principal 9*

Principals recognised the importance of ML autonomy and sharing leadership but found embedding it challenging.

> *'I think it's important to share these things. Am…I don't find it easy to give over control of things unless I'm sure' Principal 2*

> *'No, my main fault is delegation. I'm very poor at delegation […] I micromanaged a lot of things for a long time […] And have been trying to delegate more' Principal 6*

Factors that appeared to influence their willingness to give over control were ML seniority, trust that MLs shared their vision, and their perception of MLs' competence, which is notable given the general reluctance to address underperformance.

4. Discussion and Analysis

No unequivocal ML definition was shared between these principals, reflecting previous research. Some principals saw a clear place for those without titles, as De Nobile (2021) did, while others tied it firmly to the title of AP in keeping with Lipscombe et al. (2021). Accountability, which Lipscombe et al. hold as a critical element of what constitutes a ML, appears absent from these principals' accounts.

This lack of accountability presents a significant challenge. Their unwillingness to appraise MLs hinders improvements in competence or confidence in MLs, which in turn hobbles the type of ML autonomy and leadership sharing described by Bush and Ng (2019) that these principals claimed to want to cultivate. Bush and Ng describe MLs as needing the ability to act without fear of negative consequences, but in this research, it was many of the principals who feared acting to address ML underperformance due to possible adverse outcomes. This is significant as Bassett and Robson (2016) described that a balance of appraisal and development is needed for improvement.

Principals tended to control the work of MLs and limit delegation, as in Lillejord and Børte (2020). Trust in MLs, a pivotal component to sharing leadership (Bush and Ng 2019), was not strongly evident in most of the principals' accounts, meaning they could not give over control even when describing a desire to do so. This could also be linked to the issues surrounding accountability.

As stated, most principals shared De Nobile's (2021) understanding that middle leadership can be aligned with demonstrating influencing behaviours rather than a title alone. However, De Nobile (2021) did not sufficiently detail the potential tensions between ML leaders with titles and those without, as experienced by some of these principals. While developing informal MLs can add an additional dimension to school leadership, it requires careful management to complement rather than undermine formal leadership structures. Schools where formal roles were less rigid were better able to incorporate informal middle leadership. If principals could endeavour to provide relevant professional learning and collaborative school culture as outlined by others (Gurr, 2019; Gurr and Drysdale, 2013), this could be an antidote to this tension. Some principals fulfilled their ML development role and identified aspirant MLs, as described in the literature (ibid.), by providing opportunities for those without formal titles to lead. Still, caution needed to be exercised to avoid the appearance of favouritism.

More of a shared understanding of middle leadership was evident when principals connected their understanding to desirable ML qualities and skills. Influence, communication and interpersonal skills, and the need for collaboration have been discussed by others (Grootenboer and Edwards-Groves 2020, Gurr 2019) and were echoed here. Notably, content and pedagogical knowledge, which were highly valued elsewhere (Jorgenssen, 2016), were less valued by these principals, who preferred more generalised leadership skills over expertise.

ML duties somewhat corresponded with the categorisation outlined by De Nobile and Ridden (2014), with the notable absence of evaluating other staff. However, there was no consistency in the amount of work expected

of MLs across schools, confirming Murphy (2020). Rather than the ML role being based on principal needs, as Lillejord and Børte (2020) described, efforts were made to link it to school needs. However, most roles were tailored to the role holders, either their strengths or what they were willing to do. In some schools, rather than MLs being overloaded, some principals had difficulty getting MLs to take on work if their roles were too narrowly defined. While role clarity and clear expectations are important, flexibility is needed to prevent this. Other principals, in contrast, overwhelmed the ML role with various tasks, which was conspicuous when comparing the roles in similar schools.

5. Conclusion

This research provides insights into principals' perspectives on middle leadership. Though these findings are preliminary, they can make a valuable contribution to the field if they are viewed in the context of the study's limitations in terms of its small scale, singular focus on principals' perspectives and the incompleteness of the analysis at this stage. Although further analysis is needed, some tentative conclusions and recommendations can be offered for policy, practice and professional development, as well as some implications for further research.

The lack of a shared definition of a ML and the inconsistency regarding their workloads were apparent. There was some shared understanding of desirable ML qualities and skills and a desire to share more leadership with MLs. However, principals' ability to do so was limited, possibly due to the lack of accountability measures related to the roles and responsibilities of MLs and the reluctance and discomfort expressed regarding appraising MLs' work or addressing underperformance.

These findings suggest the need to seek a shared understanding of middle leadership. More precise guidance is needed at a policy level regarding defining the role and its parameters, including the number of duties assigned to APs, to ensure consistency across schools. Whether informal middle leadership should be included in this understanding should be explored. If it is to be included, principals require guidance on nurturing it, both for the inherent value it contributes to schools and as a cradle for future leadership. Policy needs to clarify the role of informal middle leadership and how principals can incorporate it in addition to formal middle leadership rather than in competition with it. Clear guidance and procedures are also needed to enable principals to ensure fairness and transparency regarding development opportunities for all staff.

The extent to which MLs are accountable for their work is an issue that needs further investigation. In practice, principals should make efforts to link the work of MLs to the board of management to increase accountability by requesting periodic reports and board meeting attendance. In terms of professional development, principals require training and guidance appraisal of ML performance. Better training in this regard would make it easier to delegate or distribute to MLs they develop confidence in. For MLs, training should seek to cultivate the desired qualities and skills outlined by principals, particularly collaboration and cooperation, as principals who described high levels of this described more examples of informal middle leading, less difficulty with distribution and fewer concerns regarding underperformance. What has been uncovered so far points to the need for further research, particularly into how principals view their role regarding staff appraisal, the source of this reluctance, principals' awareness of common management concepts (e.g. feedback and performance reviews) and whether these could be adopted in the context of Irish primary schools to address the accountability issue thereby improving principals' ability to facilitate increased ML autonomy.

Findings so far indicate some unrealised potential regarding the ML role. However, they also show a willing principal population that is eager to enhance their use of this level of leadership though they feel unable to do so in some respects. The next stages of analysis will enhance and advance what is reported here.

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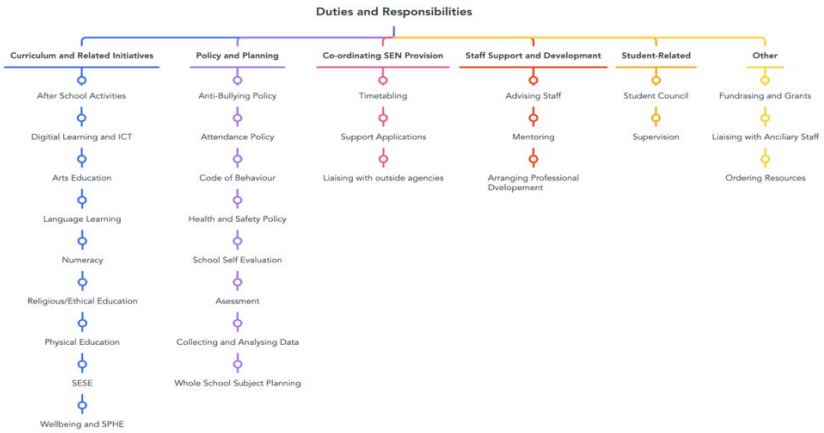
Appendix

Overview of ML duties and responsibilities outlined during participant interviews.



Corporate Governance, ESG, Audit Committee and Financial Performance in European Investment Holding Companies

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Abstract: The purpose of this research paper is to explore the connection between Corporate Governance, Environmental, Social and Governance (ESG), Audit Committee (AC) and Financial Performance in European Investment Holding Companies. This paper aims to understand whether there is a correlation between these elements. The study answers the following research question: "What is the impact of corporate governance indicators, ESG and financial performance on investments in public holding companies in Europe?" Our findings reveal significant correlations between corporate governance structures and financial performance metrics, as well as the influence of ESG ratings on financial performance and corporate governance. Additionally, we identify the effects of audit committee characteristics on financial performance and ESG outcomes. The reported data is collected from a sample of companies included in the Refinitiv Eikon Database and analysed using a panel data analysis at both regional and industry level. The sample is composed of 228 European Companies, covering a period of 4 years, from 2019-2022. I chose this because it includes the impact of the pandemic and the post-pandemic recovery period, providing insight into the adaptability and resilience of companies in the face of major economic challenges. This research contributes to a deeper understanding of the dynamics between corporate governance, ESG practices and financial performance, providing valuable insights for investors, managers and regulators aiming to navigate sustainable investment strategies in the European market. This sample is considered large enough to provide meaningful data and draw relevant conclusions. Companies from various European countries were included to reflect the diversity of the market and to analyse variations in governance and ESG practices in different national contexts. The focus on public holding companies provides a specific perspective on how these entities manage corporate governance and ESG, given their importance in the European economy. The selection of the sample was based on the availability of financial and corporate governance data to ensure the reliability and validity of the analysis. This data will be used to investigate how governance and ESG practices influence companies' financial performance, thus providing important insights for understanding the relationship between these aspects within the European market.

Keywords: ESG (Environmental, Social, Governance), Corporate Governance, Audit Committee (AC), CSR (Corporate Social Responsibility), Financial Performance)

1. Introduction

Organisations are increasingly expected to play leading roles in creating a net-zero economy, meaning an economic system where total greenhouse gas emissions are balanced by the amount removed. Organisations are expected to lead this transition by reducing their carbon footprint and investing in sustainable practices. The themes of corporate governance, financial performance, ESG, transparency, and disclosure have been a prominent subject in accounting and finance literature in recent years.(Kim S., Li F. Z, 2021) The growing interest from local and foreign investors, as well as the financial risks and opportunities it has presented, can be attributed to the growing demand for greater (ESG) and sustainability disclosure. (Greenberg K, 2021);(Reali P. et. al 2021) For investment holding companies, the benefits and hazards related to ESG factors are becoming more significant. Investment businesses are interested in both the increasing attention that regulatory agencies are paying to disclosures on ESG risks, as well as the ESG risks that they face as lenders. As a matter of fact, the disclosure of ESG elements is an essential instrument for market discipline, enabling stakeholders to evaluate the environmental risks and sustainable financing strategy of investment holding firms. Moreover, prioritising sustainability is crucial for the business and its portfolio companies to successfully fulfill their mission. By integrating sustainability into their operations, they can ensure long-term success and positive impact. “We believe our sustainability agenda is important in ensuring our business and our portfolio companies are able to deliver on our shared mission – to get products to patients who really need them.” (Chris Hollowwod,Chief Executive Officer, Syncona Investment Management Limited, 2023)

2. Literature Review

In my research, I used a linear regression model to examine the relationship between the independent variables (Corporate Governance Board Committee, Audit Board Committee, Environmental Pillar Score, Social Pillar Score, Governance Pillar Score, Audit Committee Expertise, Revenue, Audit Committee Independence Score, and Audit Committee Expertise Score) and the dependent variable (Net Income After Taxes). The analysis was based on the following research hypotheses:

- Null hypothesis (H0): There is no significant correlation between Net Income After Taxes and independent variables
- Alternative hypothesis (H1): There is at least one independent variable that has a significant correlation with Net Income After Taxes.

Growing stakeholder interest in corporate transparency and disclosure stems from societal pressure and awareness. Stakeholders need more open, comparable, and trustworthy data on businesses' ESG (environmental, social, and governance) risks and performance to make informed decisions (Nuhu Y., Alam A., 2024). Within businesses, major corporate decisions are made in the boardroom. In response to societal, political, and regulatory pressures, boards have expanded their agendas to include sustainability issues, leading to the formation of specialised committees like the CSR committee (Agnese P., et al., 2024).

2.1 Financial Outcomes of ESG and CSR Initiatives in Investment Holding Companies

With the industry's rapid expansion, worries over greenwashing and rainbow washing, which are related to the Sustainable Development Goals, have grown. Covid-19 has also contributed to this increase. The investing community has also been impacted by the worries around greenwashing. (Meyers S. et.al, 2024)

Concept as ESG or Corporate social responsibility (CSR) has experienced considerable growth over the last decade, not least in the financial sector. In 2010, the market value of all assets managed under socially and environmentally responsible criteria reached US$3 trillion, which corresponds to a 380 percent increase compared to 1995 (US SIF, 2010). In turn, this has triggered a large number of academic studies that try to establish whether responsible investment is associated with higher returns and/or lower risk.

There is substantial literature on the financial implications of companies' CSR activities. CSR can be seen as a voluntary effort to address negative social and environmental impacts, potentially reducing profits. This behavior contrasts with mainstream economic theory, which views profit-maximisation as a company's primary motive. Studies such as (Bansal and Roth, 2000; Reinhardt and Stavins, 2010) suggest that CSR investments are influenced by economic conditions, internal strategies, and external mediators like governmental and non-governmental organisations. Key drivers for CSR adoption include increased managerial awareness and a favorable economic climate, which help integrate social responsibility into a firm's competitive strategy. This integration can enhance market position through product innovation, cost optimisation, and access to new technologies.

Resource dependence theory posits that improved ESG performance strengthens a company's access to critical resources, such as financial capital. Thus, companies might focus on projects that support these resource dependencies, indirectly benefiting the environment while serving other strategic goals. These theories highlight how ESG performance influences capital allocation and environmental investment, showcasing the complex interplay between sustainability and financial decision-making. (Yu. Z. et.al, 2024)

2.2 Audit Committee’s Attributes

The role and attributes of the audit committee have become increasingly significant as business practices evolve, particularly with respect to their influence on the degree and reliability of corporate social responsibility disclosures. A broader audit committee is thought to bring together people with different backgrounds and viewpoints. This diversity can aid in the development of a more thorough understanding of the business's effects on the environment and society. A larger committee would have more people with experience in corporate social responsibility, ethics, or sustainability, which would improve the committee's capacity to direct and promote CSR disclosure. (Dwekat et al., 2020; Fahad & Rahman, 2020; Yekini & Jallow, 2012)

According to a report published by Deloitte (2024), as the regulatory environment becomes increasingly complex and organisations face new and ongoing challenges, audit committees are shouldering additional responsibilities. Their scope now extends beyond traditional areas like financial reporting, internal controls, and ethics programs to include pressing issues such as cybersecurity, artificial intelligence, and climate risk, particularly in the context of regulatory disclosure compliance.

Attention should also be given to audit committee independence. Independent directors are supposed to approach decision-making with an impartial and objective viewpoint. Independent directors on the audit committee may help provide more objective evaluations and a stronger sense of accountability in the context of CSR disclosure, resulting in assuring accurate and transparent CSR reporting. (Al-Najjar, 2011; Qaderi et al., 2023; Uyar et al., 2023).

Regular audit committee meetings offer an opportunity for in-depth conversation and supervision of business operations, including CSR projects. More frequent meetings enable committee members to monitor the CSR disclosure process actively, raise relevant questions, and keep updated, resulting in more thorough and thorough reports. Also, by holding regular meetings, the audit committee can keep up with new developments in CSR. More convening opportunities enable the committee to react quickly to new events in a corporate environment that is changing quickly. This keeps CSR disclosure timely, relevant, and in line with changing stakeholder expectations.

2.3 Corporate Governance in Investment Holding Companies

Currently, numerous nations have established minimum corporate governance standards. While these indicators differ widely among countries, listed companies on the stock exchange are obligated to adhere to these standards. The quality of accounting disclosure and assessment of information quality are influenced by the structure of corporate governance and provide guidance to analysts for accurately predicting future performance. (Cheng et. al 2019)

Investing in companies with a robust monitoring system result in higher efficiency. According to agency theory, managers aim to maximise their own interests within a company. They prioritise investing free cash flow in projects, even those that may not be profitable, to serve their own interests. Strengthening the quality of corporate governance leads to improved investment efficiency. A strong monitoring system in a company can be indicated by high investment efficiency, leading to an increase in investment efficiency. Corporate governance's proactive monitoring of high-risk investment events allows for the early identification of ineffective investments in the organisation, thus preventing inadequate investments. (He Y. et. al 2019).

In a report titled "Corporate Governance Policy in the European Union"-"Through an investor's lens", published by (CFA Institute, 2016), the complex nature of corporate governance in European investment holding companies is emphasised, emphasising the importance of achieving a balanced approach between control and independence. Standardised policies and procedures, including whistleblower policies, are implemented uniformly across subsidiaries to ensure consistent governance practices. Managing the relationship between parent and subsidiary requires careful attention to align subsidiary governance with the parent company's values, ethics, and strategic direction. This necessitates significant oversight from parent boards, as they invest considerable time in overseeing subsidiary business and risks. Effective subsidiary governance prevents unnecessary bureaucracy while maintaining strong control, ensuring that sound governance practices are consistently upheld across the organisation. This approach helps mitigate reputational and economic risks, fostering a cohesive and effective governance framework across all levels of the company.

3. Methodology

Given the theoretical framework, as well as the fact that there is currently a great interest in the nexus between Corporate Governance, ESG, Audit Committee and Financial Performance in European Investment Holding Companies, the main purpose of the research is to identify and analyse if there is a connection between all these indicators and how do they influence each other, and how they can vary depending on the observation time and the specifics of the scores used. Thus, through a quantitative research methodology, we analysed the information presented in the Refinitiv Eikon database.

In this regard, I resorted to selecting a sample of all public Investing Holding Companies in Europe, namely 223 companies, which published data on Refinitiv Eikon, between 2019 and 2022.

Therefore, I analysed the correlation between the financial performance indicators such as net income after taxes and revenue, AC indicators such as AC independence and expertise along with all the 3 ESG pillars score (Environmental, Social, Governance), for a period of 4 years, respectively, 2019 – 2022, based on data published by 223 companies in the European Investing Holding Companies industry. Russia and Ukraine were excluded from the study because they are in a conflict zone.

This approach was chosen to ensure a thorough representation of the industry across the specified period.

Encompassing all companies in the European Holding Companies industry and utilising data from Refinitiv Eikon ensured comprehensive representation as well as the reliability of the analysis.

The selected variables are relevant for assessing key aspects such as corporate governance, sustainability, and audit effectiveness, providing valuable insights into industry financial performance.

The sample consisting of 223 companies encompasses all companies in Europe that have published information regarding the analysed variables during the period 2019 – 2022, while also highlighting a varied distribution within the sample. Some countries, such as United Kingdom (49), Germany (41), and Bulgaria (42), have a significantly larger number of included companies, presumably reflecting the combination of attractiveness of capital markets, favorable regulations, tax benefits, access to investors and developed or developing financial infrastructure in these countries for Investment Holding Companies Industry.

On the other hand, there are countries with a reduced number of companies in the sample, which may reflect the combination of economic, regulatory, capital market infrastructure and political context, all influencing companies' decision. Overall, the distribution of companies suggests considerable geographic diversity in the sample, thus reflecting the complexity and variety of the European Investment Holding Companies. The detailed composition of the sample used to test the two hypotheses is presented below.

Table 1: Distribution of companies

Country	Number of Companies
Austria	3
Belgium	6
Bulgaria	42
Croatia	1
Cyprus	3
Denmark	2
Estonia	1
Finland	1
France	9
Germany	41
Hungary	3
Italy	2
Luxembourg	3
Netherlands	7
Norway	6
Poland	5
Republic of Montenegro	2
Romania	2
Slovak Republic	1
Slovenia	4
Spain	1
Sweden	24
Switzerland	5
United Kingdom	49

Source: Authors' own research

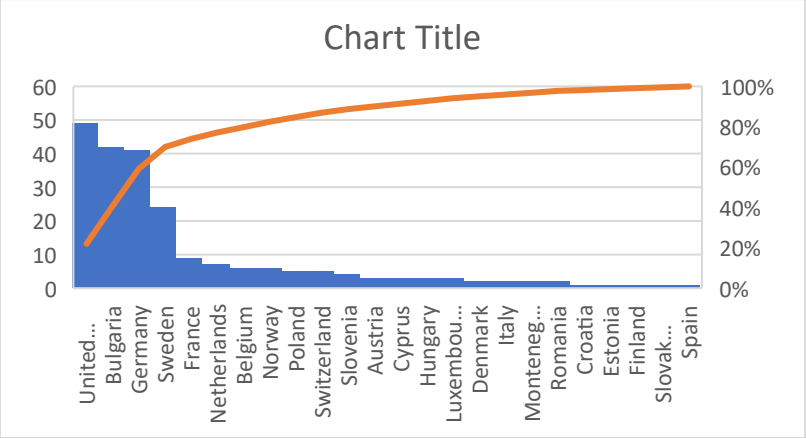

Figure 1: Number of Public Investment Holding Companies in Europe by Country

Source: Authors' own research

Analysing data from 2019 to 2022 enables the identification of trends over time, while the distribution of the sample across various European countries demonstrates the geographic diversity within the industry. The decision to analyse the last four years was based on the idea of observing changes following the Covid-19 pandemic in relation to ESG scores, Audit Committee (AC) scores, and financial performance, using 2019 as the reference point. I considered that reporting on the pandemic period is essential to understand the global impact on the Investment Holding Companies industry, the changes in human behavior, and the necessary adaptations, thus providing relevant insights and information for managing similar future events.

To highlight the correlation between independent variables such as Corporate Governance Board Committee, Audit Board Committee, Environmental Pillar Score, Social Pillar Score, Governance Pillar Score, Audit Committee Expertise, Revenue, Audit Committee Independence Score, Audit Committee Independence

Audit Committee Expertise Score, and the Net Income After Taxes dependent variable, this research employs a linear regression model, which was executed using the SPSS application. The linear regression model is formulated as follows:

$Yi=\beta 0 +\beta 1X1i+\beta 2X2i+\beta 3X3i+\beta 4X4i+\varepsilon i$

Where:

- Yi= Net Income after Taxes dependent variable for observation i;
- β0 = model intercept.
- β1, β2, β3, β4 = coefficients associated with independent variables (Audit Committee Expertise Score, Audit Committee Independence Score, Environmental Pillar Score, Governance Pillar Score, Social Pillar Score, and Audit Committee Independence)
- εi = random error associated with observation i.

4. Results and Discussions

To analyse both the null hypothesis and the alternative hypothesis, for the analysed period 2019 – 2022, for each year, a distinct regression analysis was performed, respectively the linear regression model was run within the SPSS application 4 times. The centralised results of the 4 regression models, related to the 4 years analysed, are presented centrally in Table no. 1 – Results of Regression Models.

Table 2: Results of Regression Models

Year	R	R Square	Adjusted R Square	Std. Error of the Estimate
2022	.731[a]	.534	.512	554067783
2021	.847[a]	.717	.704	271469821
2020	.916[a]	.839	.831	629817206
2019	.928[a]	.861	.855	175636507

Source: Authors' own research

The strength and direction of the association between two variables are determined by the correlation coefficient Pearson (R). In the present case, the independent variables and the independent variable show a positive, moderate to strong correlation, as indicated by the value of 0.731 obtained at the level of the most recent year examined, that of 2022.

About 53.4% of the variability at the level of 2022 can be explained by the independent variables, according to the coefficient of determination (R Square), which calculates the percentage of the dependent variable's variability that can be explained by the independent variables in the model.

From 2019 to 2021, there is an increasing trend in the R and R Square values, indicating an improvement in model fit and the strength of the linear relationship. However, in 2022, there is a noticeable decrease in these values, suggesting a weaker model performance for that year. At the same time, given the associated value in the year 2022 analysed to the Adjusted R Square coefficient of 0.512, I can say that the analysed model indicates a significant correlation between the variables in the model, but about 48.8% of the variation of the dependent variable remains unexplained by the independent variables included in the model. On the other hand, during the entire analysed period, an increase in the coefficient of determination (R Square) can be observed. Starting with the second year (2021), the values consistently exceed 50%, indicating an improvement in the model's ability to explain the variation in the dependent variable (Net Income after Taxes). Specifically, the R Square values are 0.534 in 2022, 0.717 in 2021, 0.839 in 2020, and 0.861 in 2019.

To evaluate the performance of the regression model and determine the level of significance of the independent variables in explaining the variability in the Net Income after Taxes, I will present the ANOVA (Analysis of Variance) results in the following table.

Table 3: Analysis of Variance

Year)	F	Sig.
2022	23,996	<.001b
2021	53,559	<.001[b]
2020	110,406	<.001[b]
2019	146,009	<.001[b]

Source: Authors' own research

The ANOVA results demonstrate that for each year analysed, the regression models are statistically significant, meaning the independent variables significantly explain the variability in the Net Income after Taxes.

The increasing F-values from 2022 to 2019 suggest that the explanatory power of the model was highest in 2019 and gradually decreased each year thereafter.

Despite the decrease in F-values, the models remain statistically significant across all years, confirming the overall robustness and validity of the regression analysis.

These insights from the ANOVA results underscore the importance of the independent variables in explaining the Net Income after Taxes' variability over the analysed period, providing a strong foundation for further analysis and interpretation of the regression models.

In order to highlight the relative contribution of each independent variable to the dependent variable (probably Net Income after Taxes), I will present the results on the situation of B and Beta coefficients in a centralized manner.

	Audit Committee Expertise Score	27752218.9	3.469.165.569	.697	8.000	<.001
	Audit Committee Independence	-126133444	23600177.0	-4.142	-5.345	<.001
	Audit Committee Independence Score	143323046	17352918.2	3.244	8.259	<.001
	Revenue	.088	.024	.155	3.713	<.001
	Governance Pillar Score	-19371425.7	7.211.177.058	-.467	-2.686	.008
	Social Pillar Score	27956993.9	5.794.285.729	.613	4.825	<.001
	Environmental Pillar Score	-38607109.1	4.873.590.017	-.505	-7.922	<.001
	Audit Board Committee	2980642322	1019730082	1.206	2.923	.004
	Corporate Governance Board Committee	9.904.525.747	12107836.0	.003	.072	.943
2019	(Constant	2.278.648.372	12107836.0		.188	.851
	Audit Committee Expertise Score	-193301248	104062700	-1.560	-1.858	.065
	Audit Committee Independence	-75561712.2	14406408.1	-.794	-5.245	<.001
	Audit Committee Independence Score	221283832	18228234.3	1.598	12.140	<.001
	Revenue	1.003	.072	.640	13.929	<.001
	Audit Committee Expertise	1,88E+13	7001870811	2.143	2.685	.008
	Governance Pillar Score	-35579606.0	11089226.5	-.301	-3.208	.002
	Social Pillar Score	132009859	12738451.2	.966	10.363	<.001
	Environmental Pillar Score	-85954840.9	14057554.1	-.446	-6.114	<.001
	Audit Board Committee	-6,70E+12	613820961	-.988	-10.911	<.001
	Corporate Governance Board Committee	-4,67E+12	431354796	-.452	-10.824	<.001
2020	(Constant	-32993227.3	43860610.5		-.752	.453
	Audit Committee Expertise Score	-71164143.4	40232459.8	-1.759	-1.769	.078
	Audit Committee Independence	4.758.642.843	4.447.358.223	.171	1.070	.286
	Audit Committee Independence Score	-58970151.1	6.144.566.132	-1.469	-9.597	<.001
	Revenue	-.024	.023	-.050	-1.043	.298
	Audit Committee Expertise	2776987335	2655382143	.975	1.046	.297
	Governance Pillar Score	25910432.1	4.386.477.748	.740	5.907	<.001
	Social Pillar Score	-96806528.5	7.024.276.716	-2.529	-13.782	<.001
	Environmental Pillar Score	71112526.7	6.237.454.021	1.431	11.401	<.001
	Audit Board Committee	2708291284	224968787	1.365	12.039	<.001
	Corporate Governance Board Committee	.134	.043	182	3,148	<.001
2021	Constant	9.178.938.490	19072855.0		.481	.631
	Audit Committee Expertise Score	28849104.0	118181344	.473	.244	.807
	Audit Committee Independence	20792726.1	10063153.8	.490	2.066	.040
	Audit Committee Independence Score	7.906.586.234	13255235.1	.133	.596	.551
	Revenue	.256	.040	.384	6.426	<.001
	Audit Committee Expertise	388631313	7788422659	-.092	-.050	.960
	Governance Pillar Score	20094833.8	8.391.784.130	.359	2.395	.018
	Social Pillar Score	27582803.6	12532793.0	.459	2.201	.029
	Environmental Pillar Score	-30520081.2	9.861.097.602	-.428	-3.095	.002
	Audit Board Committee	-2,06E+12	499520879	-.657	-4.128	<.001
	Corporate Governance Board Committee	-3,18E+12	390430162	-.598	-8.135	<.001
2022	Constant	-25655621.4	39161413.0		-.655	.513
		B		Beta		
Year	Variables	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.

Figure 1: Coefficients

Source: Authors' own research

The analysis of standardised beta coefficients in regression studies reveals how each independent factor affects Net Income After Taxes. These coefficients show the change in Net Income After Taxes for a one standard deviation shift in each independent factor, accounting for other variables in the model.In this study, Revenue is consistently found to have a positive and significant effect on Net Income After Taxes over a period of years, highlighting its significant role in influencing the dependent variable. This indicates that higher revenue is strongly linked to higher Net Income After Taxes. Variables that have both significant positive and negative effects point to the intricate relationship between different financial performance indicators and aspects of corporate governance. For example, the large negative coefficient for the Corporate Governance Board Committee in 2020 indicates that an increase in this factor leads to a decrease in Net Income After Taxes. On the other hand, the consistent positive coefficients for revenue over several years show a strong positive relationship between increased revenue and higher Net Income After Taxes. The Social and Environmental Pillar Scores show a wide range of variation over the years, with these scores sometimes having negative effects and other times positive effects, highlighting the subtle role these factors play in overall financial performance. For instance, in some years, better environmental performance is linked to lower Net Income After Taxes, while in others, it's linked positively. Similarly, the impact of the social pillar score varies, reflecting its complex and context-dependent relationship with financial results. In conclusion, these findings reveal the complex connections between financial performance, corporate governance, and sustainability indicators, with revenue consistently being a strong indicator of Net Income After Taxes.

5. Conclusion

The examination of corporate governance in European investment holding firms uncovers a complex link between corporate governance structures, ESG factors, and financial performance. The research found notable connections between corporate governance measures and financial performance criteria, illustrating that strong corporate governance and efficient audit committees have a positive impact on financial results. However, the influence of these factors is not consistent over all periods and can vary significantly depending on the broader economic and regulatory context.

The findings underscore the significance of revenue as a consistently strong positive factor in affecting net income after taxes, while the impacts of corporate governance board committees and audit board committees displayed variability. Notably, the ESG scores demonstrated fluctuating influences, with some years indicating adverse effects, highlighting the intricate nature of these associations. The importance of conducting thorough, situation-specific analysis becomes evident when examining the connections between corporate governance, ESG practices, and financial performance.

Financial performance is impacted by multiple factors working together, and the impact of each factor can vary depending on the specific circumstances of each period. Understanding these metrics necessitates in-depth scrutiny of each factor and how they interrelate over varying time frames.

Simply put, there is no straightforward and direct correlation between corporate governance and financial performance; rather, there exists a intricate web of connections that necessitates detailed scrutiny.

In summary, our research offers valuable perspectives for investors, executives, and policymakers seeking to formulate sustainable investment strategies in the European market. The combination of governance, environmental, social, and governance factors has a significant impact on financial performance, emphasising the interconnected nature of these elements rather than a sole determining factor. Given this intricate web of relationships, a more nuanced and thoughtful approach to corporate governance and ESG integration is essential to maximise financial results.

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Conceptual Trends in Internal Audit

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Abstract: The evolution of the economic environment amidst multidimensional changes, i.e. development, globalisation, economic crises, pandemics, stakeholder interest in credible, relevant and transparent information, has led to continuous changes in the framework for doing business. These changes have generated for entities operating in a globalised economic environment business opportunities, significant profits, financial downturns, but also exposure to diverse and complex risks and therefore proactive risk management. From this perspective, internal audit has gradually, over time, become the key actor supporting the entity in achieving its objectives, adding value as well as corporate governance. In this context, the objective of the research is to identify the internal audit trend and related conceptual connotations. The research approach includes a literature review of the Web of Science from Clarivate Analytics. The research involves a systematic analysis on internal auditing, conducted through a quantitative research methodology. The research sample includes 29 articles extracted from the Web of Science Core Collection database, covering the publication period 2005-2024. The sample was established after several stages of keyword filtering. This analysis focuses on identifying author affiliations, content of papers, research methods used, and citations and references to highlight significant trends and changes in the field of internal audit. The results demonstrate a concrete and consistent interest in the field of internal audit, highlighting the identification and analysis of significant trends and changes in internal audit practices and roles over time. In addition, it highlights a trend towards a more holistic approach to internal audit that goes beyond its traditional assurance role and extends to providing strategic advice and support to organisations. The research will thus contribute to the identification of future research directions and to a deeper understanding of the role and importance of internal audit in today's economic environment.

Keywords: Internal Audit, Internal Audit Function, Systematic Analysis, Specialized Literature

1. Introduction

In an economic context characterised by rapid dynamics and multidimensional changes, internal audit has evolved significantly, becoming an indispensable element in the process of creating added value in companies. Transformations brought about by globalisation, economic crises, pandemics, and socio-political turmoil have required business entities not only to exploit business opportunities and make profits, but also to proactively manage the complex risks associated with them. Within this framework, the role of internal audit has been redefined, moving beyond its traditional assurance function and expanding to providing strategic advice and support for corporate governance.

The premise of the research is based on the importance of internal audit in the contemporary business environment, where transparency and credibility of information are essential for investors and other stakeholders.

From this perspective, the objective of the research is to analyse trends and conceptual changes in the field of internal audit. The study aims to highlight major developments in internal audit practices, methodologies and paradigms, providing a solid basis for future research and development directions in this crucial area. In this context, drawing from the internal audit literature, this research addresses two research questions:

RQ1. How has the field of internal audit developed in recent years?
RQ2. What factors have led to changes in the field of internal audit?

To address these questions, the research uses a systematic review of literature extracted from the Web of Science Core Collection database. The applied quantitative research methodology involves the examination and coding of a sample of 29 articles, selected through a rigorous filtering process based on specific keywords and criteria.

Finally, to further develop the analysis, the following hypothesis is then stated:

H.1. Internal audit research has evolved with the need to adapt to regulatory requirements in a turbulent business environment.

2. Literature Review

Conceptual approaches to internal audit are multifaceted in the literature. Behrend and Eulerich (2019) through a bibliometric research on the evolution of internal audit argues that major historical events, such as the founding of the Institute of Internal Auditors and the issuance of the Sarbanes-Oxley Act in 2002, have been linked to an increase in publications over time.

The analysis of publications revealed an academic trend towards author collaboration, identifying a small core of interlinked researchers who publish frequently on this topic, most often in accounting journals. In terms of the evolution of internal audit, a significant transformation was noted, emphasising the shift from simple assurance functions to more complex roles including strategic advice and support, while highlighting the increasing importance of internal audit quality in improving corporate governance and financial reporting processes.

Using the analysis of the historical development of internal audit, Sridhar Romammorti (2003) pointed out that an early definition of internal audit was given by Brink Victor, director of the IIA Research Foundation, in 1958: "Internal audit is revealed as a special segment of the broad field of accounting, using basic techniques and methods of auditing. The fact that the financial accounting department and the internal auditor often use the same techniques often leads to the erroneous presumption that there are insurmountable differences between their work and objectives. The internal auditor, like any other auditor, is concerned with investigating the validity of transactions, but in his case the transactions to which he turns his attention cover a much wider perimeter and face more problems. In addition, the internal auditor is an employee of the organisation, and it goes without saying that he is very interested in helping to improve these operations and maximise their profitability."

In the view of other authors (Jones et al.,2017) as corporations and the accounting profession ushered in the new millennium with a plethora of financial scandals (accounting and corporate fraud) caused by the collapse of large companies, internal audit has seen significant growth.

Internal audit has an increasingly important role with the advent of the Sarbanes Oxley Act (2002). Although the Sarbanes Oxley Act is one of the regulations issued that impact on internal audit. Although it does not specifically address the role of internal audit in corporate governance, there are corporate governance requirements for audit committees, external auditors as well as suggestions on the importance of internal audit (Fülöp et al.,2017).

Thus, academic research has begun to explore more deeply the role of internal audit in fraud prevention and detection.Initially focused on fundamental issues such as the independence of the internal auditor and its role in evaluating internal controls, and the influence of external and internal pressures on the internal audit function (Felix et al.,2015) and (Munro, et al.,2010), subsequent research has also addressed the relationship between internal audit and fraud. Ege (2015) investigated the quality of the internal audit function and its impact on managerial behavior, demonstrating that a high quality internal audit function can deter non-compliant management behavior. Other research has examined internal auditors' moral courage in reporting fraud (Khelil et al.,2018). In addition, Zheng et al. (2019) explored internal auditors' personal values and their impact on their willingness to report irregularities, highlighting the significant influence of cultural norms and personality on internal auditors' decision-making.

On the other hand, the COVID-19 pandemic has significantly accelerated the development of virtual audit capabilities. Emerging technologies have the potential to increase audit quality and add value. Auditing is moving from a reactive, backward-looking activity to a proactive, predictive and forward-looking one that operates in real time. (Butaka, 2022)

As a result, research topics have diversified to include more complex and technical issues, such as the impact of emerging technologies on audit procedures (Elbardan et al., 2015) and the role of the internal audit function in managing cyber risks and protecting information infrastructure (Slapnicar et al., 2022). These studies reflect a continuing evolution of internal audit research, highlighting the importance of adapting the internal audit function to contemporary regulatory requirements and ethical challenges. They also highlight the crucial role of internal audit in strengthening corporate governance and preventing and detecting fraud, contributing to strengthening confidence in financial reporting and the stability of financial markets.

3. Research Methodology

This research conducts a structured literature review (SLR) in the field of internal audit using a quantitative research methodology. The SLR method establishes, in a scientific manner, the necessary prerequisites for identifying gaps in the literature, formulating research hypotheses and identifying future directions of investigation (Lungu at al.,2018). Proposed by Massaro et al. (2016), SLR is a method that facilitates the development of perspectives and critiques on the current state of a field of knowledge.

The research builds on previous research by Dumay et al. (2016), Massaro et al.(2016), Guthrie et al.(2012), Pisani et al.(2017) and Lungu et al.(2018).

Therefore, the research approach includes a literature review of Clarivate Analytics' Web of Science. Therefore, we conducted a systematic review on internal auditing based on a quantitative research methodology. The research sample includes 29 articles extracted from the Web of Science Core Collection database after going through several filtering steps, described as follows.

First, we performed a computerized search on 30.03.2024 of the Web of Science Core Collection database using search terms such as "internal audit" and "internal auditor", which resulted in 1913 indexed articles. At the same time, the search results for the articles were refined. As part of the article selection and filtering process, we first applied a quick filter to include only open access articles. This criterion initially reduced the sample to 404 indexed articles. This was followed by filtering by document type, limiting us to Review Articles and Article, resulting in 366 relevant articles. Continuing the selection, we restricted the search to articles written in English, reducing the number to 352 articles. In order to focus the search, we focused on the specific field of Business Economics, resulting in 271 articles. We then considered the Web of Science category, to limit the selection to research topics relevant to internal audit only. As this study focuses on the internal audit literature, the categories selected were: Business Finance, Management, Business and Economics. Applying this filtering did not influence the total number of articles relevant to the study, which remained constant at 271. Finally, among the six main indexes in which the Web of Science Core Collection is organized, the Social Science Citation Index and the SCI - Expanded index were selected. Taking into account the described criteria, an initial sample of 111 articles published between 1993-2024 was established. Following this step, the articles were selected, saved and organized by category.

Second, the sample of 111 articles was manually processed to eliminate articles that did not fall within the scope of internal audit research. This analysis involved examining the keyword section, i.e. abstract to eliminate articles that did not contain the phrase "internal audit". In some cases, the full text of the articles was analysed because the abstract or keywords did not provide relevant information to determine whether or not the article fell within the scope of internal audit research. After processing, articles dealing with topics such as accounting, external audit and internal quality audit were excluded, which resulted in narrowing the sample search to 29 articles published between 2005 and 2024.

4. Results and Discussion

Analyzing the distribution of the 29 articles according to indexing category, we have identified the predominant trends and priorities in academic research. Thus, 68.97% of the articles are published in journals indexed in the category "Business, Finance", followed by the categories "Economics" and "Management" (6.90%), respectively "Business" (3.45%). At the same time, the analysis identified cases where articles are included in more than one category, such as "Business, Finance; Management" (6.90%), followed by "Business; Business, Finance; Management" (3.45%) and "Business; Management" (3.45%), indicating a multidimensional approach.

On the other hand, in terms of the distribution of articles by publication, 20 journals were identified that addressed internal audit research. The International Journal of Auditing (27.59%) being the most active publication in promoting and developing knowledge related to internal auditing in the academic sphere. Looking at the other journals and their contribution to research, we note that although the number of articles published in each journal is smaller, they still make significant contributions and reflect the diversity of research interests and approaches, such as "Contemporary Accounting Research" and "Managerial Auditing Journal" (6.90%).

Table 1: Distribution of articles

Categories	Number of Articles Published	%
Business,Finance	**20**	**68.97%**
ACCOUNTING AND FINANCE	1	3.45%
ACCOUNTING AUDITING & ACCOUNTABILITY JOURNAL	1	3.45%
ACCOUNTING FORUM	1	3.45%
ACCOUNTING ORGANIZATIONS AND SOCIETY	1	3.45%
ACCOUNTING REVIEW	1	3.45%
AUDITING-A JOURNAL OF PRACTICE & THEORY	1	3.45%
AUSTRALIAN ACCOUNTING REVIEW	1	3.45%
CONTEMPORARY ACCOUNTING RESEARCH	2	6.90%
CRITICAL PERSPECTIVES ON ACCOUNTING	1	3.45%
EUROPEAN ACCOUNTING REVIEW	1	3.45%
INTERNATIONAL JOURNAL OF AUDITING	8	27.59%
REVISTA DE CONTABILIDAD-SPANISH ACCOUNTING REVIEW	1	3.45%
Economics	**2**	**6.90%**
ECONOMIC RESEARCH-EKONOMSKA ISTRAZIVANJA	1	3.45%
ECONOMIC COMPUTATION AND ECONOMIC CYBERNETICS STUDIES AND RESEARCH	1	3.45%
Management	**2**	**6.90%**
ACADEMY OF MANAGEMENT LEARNING & EDUCATION	1	3.45%
JOURNAL OF ENTERPRISE INFORMATION MANAGEMENT	1	3.45%
Business	**1**	**3.45%**
JOURNAL OF BUSINESS ETHICS	1	3.45%
Business,Finance;Management	**2**	**6.90%**
MANAGERIAL AUDITING JOURNAL	2	6.90%
Business; Business, Finance;Management	**1**	**3.45%**
INTERNATIONAL JOURNAL OF ACCOUNTING INFORMATION SYSTEMS	1	3.45%
Business;Management	**1**	**3.45%**
RBGN-REVISTA BRASILEIRA DE GESTAO DE NEGOCIOS	1	3.45%
NumărArticole	**29**	**100%**

Source*: Authors' own research*

In order to answer research question RQ1. "How has the field of internal auditing developed in recent years? ", we conducted a detailed analysis of the development of internal audit research between 2005-2024. This analysis was summarized in Figure 2, which highlights the distribution of articles published in audit, accounting and other journals. From the analysis, we could observe a positive development of internal audit research in recent years, with an increase in the number of published articles and a diversification of interest from different academic journals. The data analysis suggested that auditing and accounting journals have played a key role in promoting and developing knowledge in the field of internal auditing, with a significant and steady contribution over the period analyzed.

At the same time, it has been possible to observe an increase in the interest of other journals in internal audit in recent years, indicating an extension of internal audit into the academic sphere. At the level of audit journals we observed that 12 articles (41%) were published, suggesting a significant involvement in the promotion and development of knowledge. On the other hand, accounting journals published 11 articles (38%). A significant increase in the publication of articles by these journals has also been observed in recent years, indicating a continued interest and a substantial contribution to the advancement of knowledge. Other economic journals reflect about 21% of the sample analysed.

Table 2: Evolution of internal audit research

Year Publication	Total Articles	%	Audit Journals		Accounting Journals	
			No.	%	No.	%
2005	1	3.45%	0	0.00%	1	3.45%
2010	1	3.45%	0	0.00%	1	3.45%
2011	1	3.45%	0	0.00%	1	3.45%
2015	2	6.90%	0	0.00%	1	3.45%
2016	1	3.45%	0	0.00%	1	3.45%
2017	4	13.79%	1	3.45%	2	6.90%
2018	1	3.45%	1	3.45%	0	0.00%
2019	5	17.24%	2	6.90%	1	3.45%
2020	2	6.90%	2	6.90%	0	0.00%
2021	2	6.90%	1	3.45%	0	0.00%
2022	2	6.90%	1	3.45%	1	3.45%
2023	5	17.24%	2	6.90%	2	6.90%
2024	2	6.90%	2	6.90%	0	0.00%
Total Articles	**29%**	**100%**	**12**	**41%**	**11**	**38%**

Source: Authors' own research

One of the essential components of the evaluation of academic literature in a particular field of study is citation analysis. In this context, using the information published in the Web of Science Citation Report provided by Clarivate Analytics, we analysed the impact and relevance of articles in the academic literature based on the total number of citations. This method is applied in research conducted by Dumay et al. (2016), Lungu et al. (2018), and is also recommended by Massaro et al. (2016).

Table 3: Top ten articles by total number of citations

Title Article	Author YearPublication	Citations
Does Internal Audit Function Quality Deter Management Misconduct?	Ege,M.S.(2015)	99
Ethical Awareness, Ethical Judgment and Whistleblowing: A Moderated Mediation Analysis	Latan,H.et al.(2019)	42
The influence of nonaudit service revenues and client pressure on external auditors' decisions to rely on internal audit	Felix,W.L.et al.(2005)	40
External auditors' reliance on internal audit: the impact of sourcing arrangements and consulting activities	Munro,L.and Stewart,J.(2010)	26
Practice Variation in Public Sector Internal Auditing: An Institutional Analysis	Arena,M.and Jeppesen,K.K.(2016)	21
Watchdogs, helpers or protectors? - Internal auditing in Malaysian Local Government	Ferry,L.et al.(2017)	20
The Role of Auditing in Corporate Governance in Australia and New Zealand: A Research Synthesis	Hay,D.et al.(2017)	17
Breaking the silence: An empirical analysis of the drivers of internal auditors' moral courage	Khelil,I.et al.(2018)	16
The effects of disclosure type and audit committee expertise on Chief Audit Executives' tolerance for financial misstatements	Norman,C.S.et al.(2011)	15
The influence of construal of self on internal auditors' judgments on whistle-blowing: Evidence from China	Zheng,B.Z.et al.(2019)	12

Source: Web of Science-Citation Report, accessed at 11.05.2024

The ranking of the top 10 most cited articles provides insight into the diversity of topics covered in the literature, including topics such as the performance of the internal audit function, ethical issues in organizations, the impact of non-audit revenues and the influence of client pressure on external auditors' decisions. By analyzing in terms of total number of citations, it was observed that articles published in the last five years failed to rank in the top 10, indicating a change in the approach to internal audit research.

However, by analyzing the average number of citations per year, it was shown that these articles are likely to be in the process of being recognized and will be cited more in the future as their influence on the field is consolidated. Analyzing the average number of citations of articles published between 2022 and 2023, we identified 2 articles cited out of the sample of 29 articles, these articles had an average citation between 2.5%

and 3.67%. This reveals that although the total number of citations is not significant, the research has the potential to have a significant long-term impact in the literature. This observation is evidenced by the citations published in 2019, which were found both in the top 10 articles ranked by total citations and in the top 10 articles ranked by average citations per year. It was also noted that eight out of the top ten articles published between 2005 and 2019 ranked in both rankings, illustrating a lasting and significant impact on the academic debate in the field of internal auditing.

Next, to answer the RQ2 query. "*What were the drivers of change in the field of internal audit?"*, we defined the analytical framework of this research by considering six criteria used in previous research by Lungu et al.(2018), Dumay et al.(2016), Guthrie et al.(2012), Dumay and Garanina(2013), and Broadbent and Guthrie(2008). By applying this set of criteria, we coded articles downloaded from Clarivate Analytics by classifying them into the following categories:

- Jurisdiction (A) allows differentiation between research with an international and a national approach, including subcategories that highlight the focus on a general setting, a specific industry or an organisational setting. Thus, articles that are not based on empirical data, such as literature reviews or normative research, are coded as 'general'. Conversely, those that focus on internal audit in a specific industry or on a specific organisational setting are classified according to their international or national focus. Case studies that focus on a single organisation are also categorised separately.
- Organizational orientation (B): classifies articles according to the type of organizations investigated in the study. The attributes of this criterion define different categories of organisations, such as listed companies, small and medium-sized enterprises (SMEs), private enterprises (other than SMEs), public sector, non-profit organisations and other types of organisations (general/other category).
- Research location (C): classifies studies by region or country of origin, allowing assessment of the geographical diversity of research practices and contexts. This criterion divides locations into six distinct categories, reflecting the different regions or countries involved in internal audit studies, such as the United States and Canada, Australia, the European Union (excluding the United Kingdom), South Africa, and Asia-Pacific. Articles that are not associated with a specific research location are classified under "Other".
- Data Source (D): classification according to the sources used to collect the data, such as: corporate sources (Compustat, Thompson Reuters or other corporate databases), authors' primary data (collected through interviews, questionnaires or surveys), data from databases of professional or regulatory organisations, internal company data, stock market data. Subcategories have also been included: multiple sources in cases where more than one distinct data source is used, and other sources in cases where the data does not fit into any of the other specific subcategories mentioned above.
- Research Methodology (E) aims to provide a detailed understanding of the methodological approaches used in research, with two main subcategories: E.1.Theoretical and E.2.Empirical, each of which is subdivided into subcategories relevant to the different research methods. The Theoretical attribute includes conceptual articles or literature reviews, which are based on the development of theoretical concepts related to internal audit. On the other hand, the Empirical attribute is subcategorised into three subgroups: qualitative (case studies, interviews or content analysis), quantitative (statistics, surveys) and multiple. (includes both qualitative and quantitative approaches).
- Frameworks, Models, Tools (F) includes subcategories: none proposed (indicates where no specific internal audit frameworks, models or tools are proposed or discussed), apply or consider previous models, propose new (indicates where new internal audit frameworks, models or tools are proposed or developed).

Given the criteria established for the analysis of the articles, the coding results for each category are presented in the figure below.

Table 4: Analytical Framework

Jurisdiction (A)	Organisational focus (B)
A.1. International A.1.1. International – General (4 articles) A.1.2. International – Industry (1 article) A.1.3. International – Organisational A.2.Național A.2.1. National – General (2 articles) A.2.2. National – Industry (1 article) A.2.3. National – Organisational (17 articles) A.3. One Organisation (4 articles)	B.1. Listed on the stock market (7 articles) B.2. Private - SMEs (2 articles) B.3. Private – Other (1 article) B.4. Public sector (5 articles) B.5. Non-profit (1 article) B.6. General/Other (13 articles)
Location of research (C)	**Data sources (D)**
C.1. USA/ Canada (3 articles) C.2. Australia (3 articles) C.3. European Union (UK excluded) (8 articles) C.5. South Africa (1 article) C.6. Asia-Pacific (4 articles) C. 7. Other/Mixed (10 articles)	D.1. Corporate information database D.2. Authors' primary data (18 articles) D.3. Intergovernmental organization (1 article) D.4. Corporate website or internal data (1 article) D.5. Stock index (0) D.6. Mixed data sources (8 articles) D.7. Other (1 article)
Research methodology & Research methods (E)	**Frameworks, models, instruments (F)**
E.1. Theoretical (1 article) E.2. Empirical E.2.1. Qualitative (7 articles) E.2.2. Quantitative (19 articles) E.2.3. Multiple (2 articles)	F.1. None proposed (1 article) F.2. Applies or considers previous (20 articles) F.3. Proposes a new (8 articles)

Source: Developed from Lungu et al.(2018), Dumay et al.(2016), Guthrie et al.(2012), Dumay și Garanina(2013), Broadbent și Guthrie(2008) și Pisani et al.(2017)

Initially focused on particular case studies and specific organisations, the research has progressively diversified and adapted to global changes and business dynamics, motivated by the need to address internal audit in a globalised context.

Analysis of research articles on internal audit reveals a varied distribution of studies by jurisdiction. Of the total 29 analysed, 5 are classified as international in nature, of these, 4 articles address general topics of international interest, and one article focuses on a specific industry at the international level, with no articles identified in the international-organisational category.

On the other hand, at national level, 24 articles (83%) were identified, of which 7% address general topics at national level and 3% focus on a specific industry at national level. A significant majority, 59% fall into the national-organisational category. This shows a strong preference for national-organisational research, highlighting the importance of the local context in internal audit studies.

The shift from quantitative to qualitative and combined methodologies reflects the need to address the complexity of internal audit in depth, and the diversification of data sources and expansion of research areas illustrates the adaptation of the discipline to a dynamic business environment.

Analysis of the research articles according to organisational orientation revealed various directions of focus. Out of the total of 29 articles analysed: 45% fall into the general/other category, indicating a broader or diversified approach to internal audit research without focusing on a specific type of organisation, while 24% focus on listed companies, showing a significant interest in internal audit in the context of financial markets and strict corporate governance imposed by stock exchange regulations. Other research addresses the following areas: 7% small and medium-sized enterprises in the private sector, 17% the public sector, 3% non-profit and other types of private organisations. The results suggest a distributed focus across different types of organisations, with a notable preference for general studies and on listed companies.

A specific contribution to internal audit research in the context of globalisation is evidenced by the analysis of research articles by geographical location. The analysis revealed a varied distribution of internal audit research, with particular interest in the European Union (28%) and Asia-Pacific (14%) regions.

On the other hand, the analysis of articles in terms of sources of data use reveals a clear distribution of preferences for different types of sources. The majority of studies, 62%, rely on primary data collected directly by the authors, highlighting the importance of original data and direct empirical research in the field of internal audit, while 28% use multiple sources, reflecting an integrated and diversified approach to data collection.

Analysis of the articles according to research methodology reveals a predominant use of empirical methodologies, reflecting a tendency to base conclusions on concrete data and analysis in the field of internal audit. Out of 29 articles: 3% are based on a theoretical approach, 97% use empirical methodologies (24% qualitative methodology, 66% quantitative methodologies) and 7% use a multiple approach (qualitative and quantitative methods).

In analysing the articles according to the frameworks, models and tools used, the data suggests that while researchers predominantly build on previous analyses (69%), there is a significant segment that makes new and original contributions (28%) to the conceptual development of internal audit.

Looking for an answer to RQ2. "*What were the factors that led to changes in the internal audit field?"*, there is a change in perspective. The research results highlighted the trend in academic research towards a holistic approach, whereby internal audit goes beyond its traditional assurance role and extends to providing strategic advice and support to organisations. Research initially focused on fundamental issues such as the independence of the internal auditor and its role in assessing internal controls, and the influence of external and internal pressures on the internal audit function (Felix et al.,2015) and (Munro,2010). Over time, as a result of the financial crises, research topics have diversified to include more complex and technical issues, such as the impact of emerging technologies on audit procedures (Elbardan et al.,2015), and the role of the internal audit function in managing cyber risks and protecting information infrastructure (Slapnicar et al.,2022).

Therefore, given the answers to the two research questions regarding the development of research focused on internal auditing, as well as the factors that have generated changes in the trend of academic research, the research hypothesis: H1: "*Internal audit research has evolved with the need to adapt to regulatory requirements in a turbulent business environment*", is confirmed. Financial crises and rapid changes in the business environment have had a significant impact on the level of regulations applied in the business environment, which has contributed to the diversification of research topics, thus supporting a constant adaptation of internal auditing.

5. Conclusions

The research findings highlight the continuing evolution of internal audit approaches as a result of the need to adapt to regulatory requirements in a turbulent business environment. Research in the literature highlights that internal auditing has moved beyond its traditional assurance role to providing strategic advice and support to organizations.

By analyzing a sample of articles published between 2005 and 2024, starting with the research question (RQ1) "*How has the field of internal auditing developed in recent years*?", a steady increase in the number of articles published in both auditing and accounting journals was found. Auditing and accounting journals have played a central role in promoting research in internal auditing, accounting for 79% of the published articles, while other business journals contributed 21%. These articles are predominantly included in the "Business Finance" research area, which emphasizes the importance of internal audit in the corporate finance context.

Regarding the answer related to the second research question (RQ2) "*What were the drivers of change in the field of internal auditing*?" , it shows a paradigm shift in internal audit research, generated by the broadening of research areas from the assessment of internal controls and auditor independence to more complex topics such as the impact of emerging technologies, cyber risk management. Another important aspect of the evolution of internal audit is its contribution to strengthening corporate governance. Through continuous assessment of internal controls and regulatory compliance, internal audit ensures transparency and accountability within organizations, which is the foundation for maintaining the trust of investors and other stakeholders, as well as ensuring ethical and responsible leadership.

In this context, the research hypothesis H1: "*Internal audit research has evolved with the need to adapt to regulatory requirements in a turbulent business environment*", was validated. This evolution is supported by the diversification of research topics and the continuous adaptation of internal audit to new challenges, demonstrating that the audit function remains central to maintaining transparency and effective corporate governance.Therefore, the diversification of research topics and the adaptation of internal audit practices reflect a continuous commitment to improving efficiency, transparency and corporate governance.

5.1 Limitations and Avenues for Further Research

Regarding the limitations of the research, these are that the present research focused exclusively on articles from the Web of Science database. This approach may exclude relevant contributions published in other databases or academic journals that are not indexed in Web of Science. However, the research will help to identify evolving research directions on the role and importance of internal audit in the business environment. Future research directions include both an expansion of the databases that publish research on internal audit, as well as an expansion of the literature review on internal audit in the context of corporate governance, applying the same systematic review methodology used in this research. This could include a detailed assessment of how internal audit contributes to transparency, accountability and efficiency in corporate governance.

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Retrospective and Current in the Conceptual Approach to Financial and Non-financial Reporting

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Abstract: In a context where financial information provided by economic entities is no longer sufficient to illustrate an accurate picture of the factual situation, as well as health crises, climate change, increasing stakeholder interest in non-financial information, all these have led to the progressive development of literature especially in the field of non-financial reporting. However, the quality of financial reporting is also a topic of interest among authors, as international financial reporting standards have been adopted by a wide variety of countries, and other countries are likely to adopt such standards in the near future. The objective of the research is to investigate aspects of financial and non-financial reporting previously addressed in the literature. The current stage of the research is carried out by systematic analysis on publications indexed in the Scopus database, and the period analysed is from 2000 to 2023. The systematic literature review is conducted by following the steps defined in previous studies. Each subsequent adaptation will be explained in the paper. In order to carry out the analysis, the coding procedure is applied. The research will be conducted in a two-dimensional framework, focusing on financial and non-financial literature. The first dimension will consider the direction in which the perimeter of financial and non-financial reporting has developed in recent years. Taking also into account that interest in financial and non-financial reporting has gained more and more ground in most fields in recent years, it is expected that the results will show an increase in the number of relevant articles published in recent years in this area. The second dimension concerns factors that have led to changes in financial and non-financial reporting. In order to achieve this objective, I will carry out a detailed analysis by defining an analytical framework built on criteria previously used in other similar works, and adapted to the current sample of articles. I believe that the paper addresses a topical issue and will be of interest and relevance for future academic research on financial and non-financial reporting.

Keywords: Financial Reporting, Non-Financial Reporting, Systematic Review, Stakeholders, Reporting Quality, Globalisation

1. Introduction

The paper addresses a topical issue, with non-financial reporting in particular gaining ground in recent years. This is mainly due to the fact that in addition to individuals and entities concerned with the well-being of companies for the purpose of gain and other benefits, i.e. investors, an increasing number of stakeholders have become consumers of business information. The latter are also turning their attention to issues such as environmental and social issues, which are often presented in descriptive form and not always quantifiable such as company position or performance over a defined timeframe.

In terms of financial reporting and its evolution, factors such as globalisation, the dynamism and complexity of international operations have been the basis for the development of internationally applicable standards that are continually being improved so that financial reporting presents a true and fair picture and the homogeneity and comparability of information is possible.

Factors such as climate change, financial and health crises and stakeholder interest have also driven the evolution of the financial and non-financial reporting literature. Scientific research areas are responding to and studying effects on the ground, seeking to understand and explain the causes behind observable effects and proposing new research directions.

This paper focuses on two research questions, addressing financial and non-financial reporting, as follows:

RQ1: How has the field of financial and non-financial reporting developed in recent years?

RQ2: What have been the drivers of change in the field?

This paper does not review and is not based on a reconstruction of previous work.

The paper is structured in the following sections: the first section presents the literature review; the second section is devoted to the research methodology, and is followed by the results, the third section. The last section is devoted to conclusions, research limitations and future research directions.

2. Literature Review

The paper addresses a topical issue of interest in both the academic and business fields, with non-financial reporting in particular attracting increasing attention from researchers in recent years. This section of the paper reviews the literature, tracing the evolution of financial and non-financial reporting from the early 2000s to the present.

Financial reporting is not an area to which researchers have recently turned their attention. Studies such as Salter's (1998) show that financial reporting by organisations is influenced by capital structure and capital markets. Another perspective is offered by Jaggi (1975) cited by Jaggi and Low (2000) who argues that the dissemination of financial information within a country is strongly influenced by the cultural environment of that country.

The need for worldwide implementation of high quality Generally Accepted Accounting Principles (GAAP) has been recognised since 1966 (Ampofo and Sellani, 2005), which is also when professional accounting bodies began working towards a set of international standards (Irvine, 2008). This has resulted in capital markets becoming much more connected to each other (Turner, 2001) and national economies becoming increasingly vulnerable to external disturbances (Lehman, 2005).

Ball, Robin and Wu (2003) refer to the quality of financial statements and state that it is not uniquely influenced by accounting standards. They argue that beyond accounting standards, characteristics such as the ownership structure of the organisation, the enforcement mechanisms of the standards, and the incentives given to those who prepare and audit financial statements, among others, influence the outcome in terms of financial reporting.

Palea (2013) argues that the question of whether or not IAS/IFRS bring improvements on financial reporting has not been fully addressed in terms of mandatory adoption in Europe. Bruggemann et al. (2012) cited by Palea (2013) also analysed the adoption of IAS/IFRS in the European Union and considered a range of effects, from compliance and accounting choices on IAS/IFRS implementation to macroeconomic effects.

The concept of qualitative financial reporting refers to both financial and non-financial information content that can form the basis of economic decision-making (Herath and Albarqi, 2017; Asyik et al., 2022).

Currently, the world is moving towards the adoption of a globally applicable reporting standard so that financial reporting can be credible, comparable and useful (Asyik et al., 2023).

As of 2005, most companies listed on stock exchanges in Europe and other countries are required to prepare financial reports in accordance with International Financial Reporting Standards (IFRS) (Asyik et al., 2023). However, voluntary adoption of IFRS is relatively low among the categories of companies for which there is no requirement (Beuselinck et al., 2023).

Albu et al. (2020) argue that the adoption of a non-financial disclosure directive is an important step for European companies towards sustainability. However, the reporting infrastructure of Central and Eastern European countries shows weaknesses (Albu et al., 2017), which may be a consequence of the communist regime present until the end of the last century here, compared to Western countries oriented towards capitalism and market economy.

Another perspective regarding the development of accounting in the context of digitization is presented by Botar (2024), who states that the acceleration of digitization in accounting has been substantially impacted by the recent pandemic period established globally. Therefore, the effects of digitisation on accounting also have implications for financial and non-financial reporting.

3. Research Methodology

3.1 Method Used in the Research

In this paper I have used the systematic literature review method, financial and non-financial reporting being broad topics with economic, social, organisational, regulatory and political impacts. Using this method, I aim to identify gaps in the research that has already been undertaken, formulate research hypotheses, as well as establish future research directions.

This paper is based on works such as Lungu et al. (2016), Guthrie et al. (2012), Dumay et al. (2016) and Pisani et al. (2017), Manes-Rossi et al. (2020), which used the structured literature review (SLR) proposed by Massaro et al. (2016).

Systematic literature reviews, according to Page et al. (2021), have numerous essential roles, from presenting summaries of the state of knowledge in a field at a given point in time, to addressing research questions that could not be answered by individual studies, as well as identifying problems in research that should be corrected by undertaking new studies. The authors' "transparent, complete and accurate account" of why the research was undertaken are the qualitative elements of systematic literature review.

3.2 Research Database

For the study on financial and non-financial reporting, the research methodology was based on a systematic literature review and aimed at illustrating an overview of international scientific publications.

The research questions - *RQ1: How has the field of financial and non-financial reporting developed in recent years; RQ2: What have been the drivers of change in the field?* - have as their approach, previous studies conducted in the literature (Lungu et al., 2016; Guthrie et al., 2012; Dumay et al., 2016; Pisani et al., 2017 and Manes-Rossi et al., 2020).

In order to answer the research questions, I have resorted to identifying relevant articles from the Scopus database for the reference period 2000-2024. The filtering was based on the keywords: *financial disclosure, corporate reporting, non-financial disclosure, financial reporting, non-financial reporting*. Subsequent selection of papers consisted of identifying Article documents published in English. Initially, 759 articles were obtained, but all papers that did not contain the keywords used for the initial filtering in the title were removed. The next step was to determine the average number of citations on 11 April 2024 in Excel software and eliminate articles below this average, i.e. below 21.11. Citation count is a tool that can be used to recognize whether an article is relevant to the literature, according to Massaro et al. (2016). Exceptions to the rule were 2023 and 2024 because, due to the articles being very recent, the number of citations is very low, or there are no citations, and in order not to affect the relevance of the sample, they were kept. Thus, following this processing, 109 articles were kept in the sample. The next step was to eliminate articles containing the word "bank" in the title, because the financial-banking sector was not the subject of the study due to its particularities, together with articles that focused on the influence of audit activity on financial reporting, considering that the emphasis in these articles was on the audit side and not on financial reporting. Following the analysis of the abstracts for the remaining 83 papers, 12 papers were excluded as they were outside the scope of the study. Also, articles published in 2024 have been eliminated as it is premature to make a selection of relevant papers published in the first quarter of this year.

Following the application of professional judgement, I filtered the remaining articles as follows: I kept all articles published in journals with "accounting" in the title, i.e. 36 articles, and added articles with "non-financial"/"non-financial" in the abstract, which were published in journals other than those with "accounting" in the title, i.e. 11 articles. This resulted in a sample of 48 articles.

The final sample on which the research is based was established following a content analysis of the articles, finding that 5 of them did not meet the criteria for the purpose of the proposed objective. In this context, the research is based on 43 articles published in 24 journals and the period analysed is between 2000 and 2023. In this context, I consider that the relevant papers have been identified for the proper conduct of the research, both in terms of the way the papers were selected and the period covered, which includes existing crisis situations at a global level, namely the Great Recession of 2008, the health crisis caused by the Coronavirus pandemic declared in 2020, as well as the war that broke out in 2022 on Romania's border after Russia invaded Ukraine, with effects that have spread internationally.

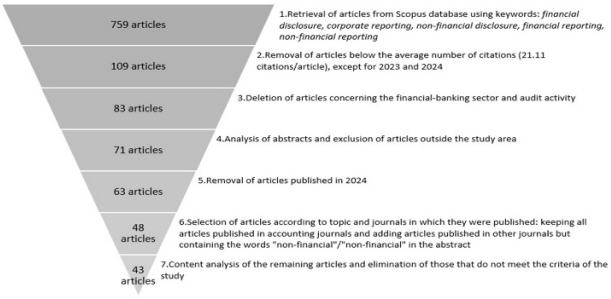

Figure 1: Illustration of the filtering process of the articles relevant to the study

3.3 Analytical Framework for Analysis

In the analysis process, I used the coding system, based on criteria used in previous studies by Lungu et al. (2016), Guthrie et al. (2012), Dumay et al. (2016), Pisani et al. (2017) and Manes-Rossi et al. (2020). The pre-coding phase was carried out for four articles, this is also the time when coding criteria and attributes were revised, replaced, modified or deleted.

Finally, the selection of sample articles was based on eight criteria (Jurisdiction, Organizational focus, Country of research, Data sources, Research methodology & Research methods, Authors' affiliation, Focus on type of reports, Theory), each of which was composed of six to nine attributes.

Table 1: Analytical framework

A	**Jurisdiction**	**B**	**Organisational focus**
A1	Supra-national/International/Comparative	B1	Publicly listed
A1.1	*Supra-national/International/Comparative – General*	B2	Private – SMEs
A1.2	*Supra-national/International/Comparative – Industry*	B3	Private – Others
A1.3	*Supra-national/International/Comparative – Organisational*	B4	Public sector
A2	National	B5	Not-for-profit
A2.1	*National – General*	B6	General/Other
A2.2	*National – Industry*		
A2.3	*National – Organisational*		
A3	One Organisation		
C	**Country of research**	**D**	**Data sources**
C1	USA/Canada	D1	Corporate information database
C2	Australia	D2	Authors' primary data
C3	United Kingdom	D3	Intergovernmental organization
C4	European Union	D4	Corporate website or internal data
C5	South Africa	D5	Stock index
C6	Asia-Pacific	D6	Mixed data sources
C7	Other/Mixed	D7	Other
E	**Research methodology & Research methods**	**F**	**Authors' affiliation**
E1	Theoretical	F1	USA/Canada
E1.1	*Commentary/Normative/Policy*	F2	Australia
E1.2	*Literature review*	F3	United Kingdom
E2	Empirical	F4	European Union
E2.1	*Qualitative*	F5	South Africa
E2.2	*Quantitative*	F6	Asia-Pacific
E2.3	*Multiple*	F7	Other/Mixed
G	**Focus on type of reports**	**H**	**Theory**
G1	Sustainability report	H1	Stakeholder
G2	Popular report	H2	Institutional
G3	Integrated report	H3	CSR
G4	Webpage/Social media	H4	Resource-based
G5	Mixed reports	H5	Culture
G6	Financial reports	H6	Other
G7	Other	H7	Multiple theories
		H8	Not specified theory

Jurisdiction (A) and *Organizational Focus* (B) are adopted from the work of Dumay et al. (2016). The *Country of research* criterion (C) is adopted from Dumay et al. (2016) and Lungu et al. (2018), and the *Data source* criterion (D) is according to Pisani et al. (2017) and Lungu et al. (2018). The next two, namely *Research Methodology & Research Methods* (E) and *Authors' affiliation* (F) are adopted from Lungu et al. (2018), Pisani et al. (2017), Dumay et al. (2016) and Guthrie et al. (2012). The criterion *Focus on type of reports* (G) is in line with Manes-Rossi et al. (2020), but the attribute *Financial reports* has been added within it, as the other attributes refer to non-financial reporting in multiple forms of presentation. The last criterion, *Theory* (H), is adopted from Pisani et al. (2017), but since some of the articles in this study were not based on a theory, I considered adding the *Not specified theory* attribute.

4. Results

The evolution of publications in the financial and non-financial reporting literature is approached from multiple perspectives. Publications were classified by year of publication, by the type of journal in which they were published (accounting and non-accounting journals), by the type of reports studied (financial, non-financial or mixed reports), and by their relevance, as measured by the number of citations. Last but not least, an analysis was carried out on the keywords adopted within the sample articles, followed by the application of the analytical framework to the whole database according to the eight criteria outlined above.

Table 2: Distribution of articles by journal type

Journal	Total articles	%	Financial reports	Non-financial reports	Mixed/Integrated reports
Accounting journals	37	86,0%	24	8	5
Non-accounting journals	6	14,0%		6	
Total	**43**	**100,0%**	**24**	**14**	**5**

In terms of the journals in which articles were published, accounting journals comprise 86.0% of the sample, with publications based on both financial (24 articles) and non-financial (eight articles) or mixed (five articles) reports. The difference of 14.0% is represented by non-accounting journals whose articles deal exclusively with non-financial reporting topics. Non-financial reporting covers a wide range of areas, which is also the reason why articles dealing with non-financial reporting are more present in other journals than in accounting journals.

The aforementioned results are influenced by the collection methodology, with the emphasis in the sample selection falling on accounting journals, as the topic of the paper is closely related to the field of accounting.

Table 3: Distribution of articles by year

Year	Total articles	%	Financial reports	Non-financial reports	Mixed/Integrated reports
2000	1	2,3%	1		
2003	1	2,3%	1		
2008	2	4,7%	2		
2009	1	2,3%	1		
2010	1	2,3%	1		
2013	1	2,3%	1		
2014	1	2,3%		1	
2016	3	7,0%	3		
2017	1	2,3%			1
2018	6	14,0%	3	1	2
2019	2	4,7%	1		1
2020	4	9,3%		4	
2021	1	2,3%		1	
2022	1	2,3%		1	
2023	17	39,5%	10	6	1
Total	**43**	**100,0%**	**24**	**14**	**5**

In the analysis, 2014 is marked by the first article addressing non-financial reporting at EU level and the adoption of the European Directive on the disclosure of non-financial and diversity information by certain entities. Based on this aspect, in conjunction with the size of the studies that focus on the intra-EU area, i.e. 30.2% of the sample, the analysis of the development of the field of financial and non-financial reporting involved dividing the sample

results into three categories according to the time of publication, as follows: the period prior to the adoption of the Directive at EU level, the years 2000-2013; the transitional and post-adoption period of the Directive, the years 2014-2022; and the year 2023 as the articles selected for this year were not filtered in terms of number of citations and represent the largest share of the sample, i.e. 39.5%.

After 2023, the years with the most publications are 2018 with 6 publications, i.e. 14.0% of the sample, 2020 with 4 publications and a share of 9.3% of the sample and 2016 with 7%, i.e. 3 publications. While 2016 contains only articles that investigate the financial domain, 2018 presents a more complex picture in that both financial and non-financial information is analysed, and 2020, the year marked by the outbreak of the health crisis caused by the COVID-19 pandemic, contains exclusively non-financial papers. Similar to 2020, the years 2021 and 2022 are also presented.

Table 4: Key words

Key Words	Total	%
Financial reporting quality	14	6,4%
Non-financial reporting	11	5,0%
Sustainability reporting	7	3,2%
Corporate reporting	6	2,8%
Integrated reporting	5	2,3%
Others	175	80,3%
Total	**218**	**100,0%**

In terms of keywords used, out of a total of 218 keywords, the top five in terms of weight are *Financial reporting quality* (6.4%), *Non-financial reporting* (5.0%) and *Sustainability reporting* (3.2%), *Corporate reporting* (2.8%) and *Integrated reporting* (2.3%) with a distribution in most years under analysis.

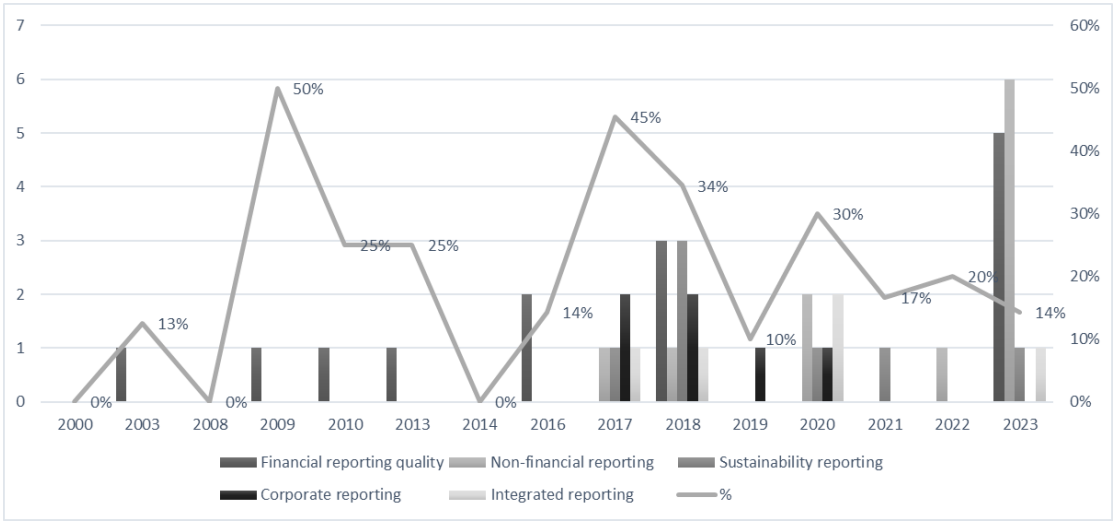

Figure 2: Evolution of the top five keywords over the period analysed in relation to total keywords

The evolution over time of the first five keywords used, a shift in perspective from financial to non-financial/sustainability can be observed according to Figure 3. While in the period 2000-2016 financial reporting quality was exclusive, since 2017 the situation is more complex and takes on new dimensions, presenting a different picture of the phenomena to which researchers have turned their attention.

Table 4: Jurisdiction

Code	Description	Total	%	2000-2013	2014-2022	2023
A	**Jurisdiction**	**43**	**100,0%**	**7**	**19**	**17**
A1	Supra-national/International/Comparative	20	46,5%	6	8	6
A1.1	*Supra-national/International/Comparative-General*	*10*	*23,3%*	*2*	*5*	*3*
A1.2	*Supra-national/International/Comparative-Industry*	*0*	*0,0%*	*0*	*0*	*0*
A1.3	*Supra-national/International/Comparative-Organisational*	*10*	*23,3%*	*4*	*3*	*3*
A2	National	23	53,5%	1	11	11
A2.1	*National-General*	*4*	*9,3%*	*1*	*2*	*1*

Code	Description	Total	%	2000-2013	2014-2022	2023
A2.2	*National-Industry*	*0*	*0,0%*	*0*	*0*	*0*
A2.3	*National-Organisational*	*19*	*44,2%*	*0*	*9*	*10*
A3	One Organisation	0	0,0%	0	0	0

In seeking an answer to the first research question *RQ1: How has the field of financial and non-financial reporting developed in recent years*, by looking at it from a jurisdictional perspective, there is a shift in perspective in that the field of research is moving from international to national.

Table 5: Organisational focus

Code	Description	Total	%	2000-2013	2014-2022	2023
B	**Organisational focus**	**43**	**100,0%**	**7**	**19**	**17**
B1	Publicly listed	21	48,8%	4	7	10
B2	Private-SMEs	0	0,0%	0	0	0
B3	Private-Others	5	11,6%	0	3	2
B4	Public sector	1	2,3%	0	1	0
B5	Not-for-profit	1	2,3%	0	0	1
B6	General/Other	15	34,9%	3	8	4

In contrast, the organisational approach retains its predominance over the general approach throughout the period analysed. Thus, companies listed on stock exchanges account for almost half of the sample, with 48.8% of the studies analysing this sector. The authors' focus on these companies may be due to factors such as complex transactions with international implications and treatment, regulation in most cases in accordance with International Standards, as well as the availability of information in a transparent manner and a higher volume compared to other categories of companies.

Table 6: Country of research

Code	Description	Total	%	2000-2013	2014-2022	2023
C	**Country of research**	**43**	**100,0%**	**7**	**19**	**17**
C1	USA/Canada	2	4,7%	0	2	0
C2	Australia	0	0,0%	0	0	0
C3	United Kingdom	3	7,0%	0	2	1
C4	European Union	13	30,2%	1	7	5
C5	South Africa	2	4,7%	0	1	1
C6	Asia-Pacific	7	16,3%	2	1	4
C7	Other/Mixed	16	37,2%	4	6	6

The most promising regions for research addressing financial and non-financial reporting are the European Union and the Asia-Pacific region. The former has seen a significant increase in its share of the total since 2014, which is also the year when Directive 2014/95/EU was adopted in relation to non-financial and diversity reporting by certain large companies and groups.

Table 7: Data sources

Code	Description	Total	%	2000-2013	2014-2022	2023
D	**Data sources**	**43**	**100,0%**	**7**	**19**	**17**
D1	Corporate information database	7	16,3%	2	4	1
D2	Authors' primary data	1	2,3%	0	0	1
D3	Intergovernmental organization	0	0,0%	0	0	0
D4	Corporate website or internal data	1	2,3%	0	1	0
D5	Stock index	1	2,3%	0	0	1
D6	Mixed data sources	20	46,5%	2	9	9
D7	Other	13	30,2%	3	5	5

The most commonly used data sources are mixed data sources, which usually include, in addition to data extracted from corporate information databases, other data sources published by companies or other third parties in relation to them.

Table 8: Research methodology & Research methods

Code	Description	Total	%	2000-2013	2014-2022	2023
E	**Research methodology & Research methods**	**43**	**100,0%**	**7**	**19**	**17**
E1	Theoretical	7	16,3%	2	4	1
E1.1	*Commentary/Normative/Policy*	*3*	*7,0%*	*1*	*2*	*0*
E1.2	*Literature review*	*4*	*9,3%*	*1*	*2*	*1*
E2	Empirical	36	83,7%	5	15	16

Code	Description	Total	%	2000-2013	2014-2022	2023
E2.1	*Qualitative*	*10*	*23,3%*	*1*	*4*	*5*
E2.2	*Quantitative*	*25*	*58,1%*	*4*	*10*	*11*
E2.3	*Multiple*	*1*	*2,3%*	*0*	*1*	*0*

In terms of research methodology and research methods, the trend holds for the entire period under review, with quantitative empirical research taking first place, followed by qualitative empirical research, literature review theoretical research, normative or commentary theoretical research, and, last but not least, multiple empirical research.

Table 9: Authors' affiliation

Code	Description	Total	%	2000-2013	2014-2022	2023
F	**Authors' affiliation**	**43**	**100,0%**	**7**	**19**	**17**
F1	USA/Canada	5	11,6%	3	2	0
F2	Australia	1	2,3%	1	0	0
F3	United Kingdom	1	2,3%	0	1	0
F4	European Union	11	25,6%	1	5	5
F5	South Africa	1	2,3%	0	0	1
F6	Asia-Pacific	4	9,3%	0	0	4
F7	Other/Mixed	20	46,5%	2	11	7

In terms of authors' affiliation, joint collaborations rank highest with 46.5% of the total. The next position is occupied by authors working in the European Union, accounting for 25.6%, and third place is occupied by authors from the USA and Canada, with 11.6%.

Table 10: Focus on type of reports

Code	Description	Total	%	2000-2013	2014-2022	2023
G	**Focus on type of reports**	**43**	**100,0%**	**7**	**19**	**17**
G1	Sustainability report	1	2,3%	0	0	1
G2	Popular report	0	0,0%	0	0	0
G3	Integrated report	1	2,3%	0	1	0
G4	Webpage/Social media	0	0,0%	0	0	0
G5	Mixed reports	4	9,3%	0	3	1
G6	Financial reports	24	55,8%	7	7	10
G7	Other	13	30,2%	0	8	5

With regard to the reports analysed in the research examined, the period 2000-2013 includes only information extracted from financial reports. The period 2014-2022 is marked by the predominance of non-financial reports, followed by financial and mixed reports, and the year 2023 sees a new change in the trajectory, with financial reports regaining ground to the detriment of other types of reports.

Table 11: Theory

Code	Description	Total	%	2000-2013	2014-2022	2023
H	**Theory**	**43**	**100,0%**	**7**	**19**	**17**
H1	Stakeholder	3	7,0%	0	2	1
H2	Institutional	2	4,7%	1	0	1
H3	CSR	1	2,3%	0	1	0
H4	Resource-based	0	0,0%	0	0	0
H5	Culture	0	0,0%	0	0	0
H6	Other	13	30,2%	0	5	8
H7	Multiple theories	4	9,3%	1	0	3
H8	Not specified theory	20	46,5%	5	11	4

In terms of the theories addressed in the papers under analysis, Table 11 shows their structure in the sample. The top three theories are as follows: Stakeholder with 7%, Institutional with 4.7% and CSR with only 2.3%. However, the largest share, i.e. 46.5% of the sample does not specify the theory used. In order to better understand the role and evolution of the studies in the sample, I believe that the development of a theory analysis, addressing the definition, explanation, emergence and usefulness of the theories, could bring major clarifications.

To answer the second research question *RQ2: What have been the drivers of change in the field*, based on the results presented above, I can argue that regulations adopted at national, regional or even international level, together with voluntary non-financial reporting standards developed globally, increasingly sophisticated requirements on the need to inform stakeholders and, not least, crises instituted globally may underlie changes in reporting behaviour of entities so that disclosures are relevant, but also changes in the fields of scientific

research, which react to and study effects on the ground, seek to understand and explain the causes behind observable effects and propose new research directions.

5. Conclusions

Systematic literature review highlights an upward trend towards non-financial reporting in recent years, due to an increasing number of stakeholders also turning their attention to environmental and social issues. In terms of the evolution of financial reporting, factors such as globalisation and the complexity of international operations have been behind the development of internationally applicable standards. Thus, companies listed on stock exchanges in Europe, as well as in other countries, are required to adopt International Financial Reporting Standards.

The events of recent decades, namely the Great Recession of 2008, the health crisis caused by the Coronavirus pandemic declared in 2020, and the war that broke out in 2022 on the Romanian border, have had a significant influence on the development of accounting and therefore financial reporting. In order to ensure that the information disseminated presents as accurately as possible the real situation of companies, in the context of increasingly complex transactions at international level, with markets becoming more and more dynamic and digitisation spreading its effects in all areas, the full representation of information to the public can only be achieved if, alongside traditional financial reporting, information on actions taken that have an impact on the environment and society, as well as other non-financial information, is also included.

Similar to other studies, the present work has limitations. These are represented by the fact that the coding process did not include a review of the results by other authors.

As future research directions, I will develop an analysis of the theories addressed in the sample studies during the period under review, as well as an analysis on the level of economic development of the countries where these studies were conducted, to see if the level of development has influences on reporting.

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Abnormal Stock Market Returns to Business Model Extension Announcements: Value Drivers and Moderators

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Abstract: The value-creation potential of business model extensions (BME) in incumbent companies remains a subject of ongoing debate and is currently not substantiated by market-value focused empirical research. Especially the moderating role of economic uncertainty and the interplay with traditional product-industry diversification have not been empirically examined. This study aims to close that gap. We utilize an event study setup to measure the value-creating effect of BME and its moderators. Using a unique dataset of joint ventures in the high-tech industry industry, we measure the effects of BME and its moderators on abnormal stock market returns. Our findings indicate that BME leads to higher abnormal stock market returns. This effect is further amplified under company-level, industry-level, and macroeconomic uncertainty. Additionally, we discover that, under these uncertainties, combinations of BME and product-industry diversification are value-creating, whereas product-industry diversification alone tends to be value-destroying.

Keywords: Business Model, Business Model Extension, Uncertainty, Diversification, Event Study

1. Introduction

Companies commonly operate multiple business models in parallel (Aversa and Haefliger 2016). In recent years, there has been growing interest in analyzing the introduction of or extension to a new business model—representing a new way to create, deliver, or capture value (Teece 2010) for incumbent firms. An increasing number of companies are engaging in this form of business model extension (BME) and there is growing scholarly interest in the topic (Leppänen et al. 2021). However, despite this growing interest, empirical research on market value creation through BME remains scarce (White 2022, Snihur 2023).

Furthermore, it is not yet clear which factors influence the BME-performance relationship. Consider the British coffee chain *Pret a Manger*, which extended its business model portfolio with a subscription business model, in addition to its traditional transactional retail business model, to respond to shifting demand during the COVID-19 pandemic (Bryson 2021). It seems intuitive that BME will aid companies during times of uncertainty, but there is a lack of empirical research into the moderating role of uncertainty in the BME-performance relationship. We seek to close this gap. Similarly, the interplay between BME and "traditional" product-industry diversification seems intuitively relevant but lacks empirical research. The effect on performance of a new business model in a new industry might be fundamentally different to that of a new business model in a company's core market (such as the *Pret a Manger* example above). We consider BME to be an orthogonal form of diversification and explore the moderating effects of product-industry diversification on value creation through BME.

Because we cannot directly measure the BME-performance relationship, we create a novel research approach using an event study design to assess the impact of BME announcements on abnormal stock market returns. BMEs are not typically announced explicitly; we therefore analyze the BMEs companies pursue when creating joint ventures (JVs). Because JVs entail equity holdings, they are announced to financial markets, and these announcements can be dated precisely. We build on existing research on the BME-performance relationship (such as Aversa et al. 2015, 2020, Heij et al. 2014, Snihur and Markman 2023, Sohl, Vroom and Fitza 2020, Sohl and Vroom 2014) and hypothesize that uncertainty moderates the BME-performance relationship.

Drawing on corporate diversification theory, we develop hypotheses suggesting that the combination of product-industry extension and BME is likely to receive positive capital market responses, whereas product extensions without BME will be viewed unfavorably. Incorporating the moderating effect of uncertainty, we hypothesize that the presence of uncertainty—whether at the company, industry, or economy-wide level—will amplify the positive effect of BME combined with product extension, but conversely, will exacerbate the negative impact of pursuing isolated product-industry extension.

Using a sample of publicly-traded U.S. firms, we test our hypotheses in an event study. We leverage a sample of S&P 500 companies that engaged in JVs in the high-tech industry between 1998 and 2019. This industry is commonly used in research studies as it is characterized by dynamism and strategic renewal (Bouncken and Fredrich 2016, Kohers and Kohers 2019, Villalonga and McGahan 2005).

In the past, measurement challenges have limited large-sample research on BME. Therefore, we manually assess and categorize JV announcements and employ an artificial intelligence tool to support this categorization (Leppänen et al. 2021). We then use ordinary least square models to analyze our sample and find evidence supporting most of our hypotheses. We discuss these findings and illustrate that, depending on company circumstances, BMEs can generate substantial market value.

The value of BME is still debated in the academic community (Massa 2017, Snihur 2023). The present study contributes to this debate in general and to the literature on the BME-performance relationship more specifically. We show that uncertainty and its interplay with product-industry diversification are important moderators that have previously not been systemically assessed. We also extend the literature on corporate strategy by showing the importance of considering the effect of BME when analyzing the performance implications of corporate diversification. We respond to calls for research into moderators of the BME-performance relationships (Sohl, Vroom and McCann 2020), external drivers of BME (Foss and Saebi 2018), and the interplay between BME and other types of innovation (Demil et al. 2015).

Not only academics but also practitioners discuss the importance of BME (Foss and Saebi 2017). Many firms have experimented with BME in recent decades, but their efforts have not achieved blanket performance improvements. The nuanced perspective presented in this paper aids practitioners by drawing attention to the important role of moderators in the BME-performance relationship. Our findings provide guidance about situations in which BMEs are most value-creating and how they are best combined with traditional product-industry diversification.

2. Literature and Hypotheses

A growing stream of management literature investigates the concept of the business model (Bosbach et al. 2020, Lanzolla and Markides 2020, Sohl et al. 2022, White et al. 2022, Wirtz et al. 2016). A business model is a system that combines a unique way to create, deliver, and capture value (Baden-Fuller and Haefliger 2013, Teece 2010).

2.1 Business Model Extensions

In recent years, scholars have begun to recognize that multiple business models exist in parallel within the same company (Casadesus-Masanell and Ricart 2010, Sohl and Vroom 2014). BME describes the extension of a firm's business model portfolio by introducing an innovative model to create, deliver, or capture new value (Spieth et al. 2021).

Several studies examine the performance effect of BME, concluding that it is broadly positive (Aversa et al. 2015, Heij et al. 2014, Loon and Quan 2020, Sohl, Vroom and Fitza 2020, Sohl and Vroom 2014). However, despite this growing research, we know little about how shareholders in particular, or the capital market in general, react to the strategic decision to extend a business model. A recent review by White et al. (2022) identifies only a small proportion of studies (not all peer-reviewed) that use market-based measures to assess the impact of BME. Because BME is a commonly-used tool in well-established "incumbent" companies, understanding its impact on market-based measures is highly relevant.

Research at the intersection of BME and interfirm relationships remains scarce despite some much-cited theoretical work (Christensen et al. 2011, Sohl and Vroom 2017). Corporate alliances allow companies to build off their partners' resources when engaging in BME and can speed up the process of new business model innovation (Loon and Quan 2020). Empirical work combining alliances and BME focuses on analyzing non-equity contractual partnerships. For example, Spieth et al. (2021) focus on the business model innovation process and show that it occurs within alliances. We build on this research and follow suggestions to analyze the effects of BME in alliances at a larger scale (Spieth et al. 2021, Velu 2015). Combining these research streams, we therefore expect that the positive effects of BME will continue to hold for market-based measures and can be operationalized through JV announcements. Specifically, we hypothesize the following:

H1: Business–model-extending joint venture announcements lead to higher abnormal stock market returns than regular JV announcements.

2.2 The Moderating Effect of Uncertainty

Companies use BME to maximize the value of their existing capabilities (Zott and Amit 2010) and react to changing business environments (Spieth et al. 2014). BME provides a company with a new source of revenue

and profits by satisfying untapped market demand (Priem et al. 2018). As such, the levels of uncertainty and transformation pressure may influence the use and effectiveness of BME. In a meta-analysis, White et al. (2022) show that the relationship between changing an existing business model and firm performance is more positive during times of economy-wide instability. Their study utilizes a macroeconomic environment indicator as a proxy for macroeconomic stability. In their conclusion, the authors call for the identification of additional moderators that impact the performance effects of BME.

Macroeconomic uncertainty is only one level of uncertainty that may increase the benefits of BME. Past research shows increased levels of BME as a response to industry-level uncertainty (Christensen and Raynor 2013, Karimi and Walter 2016). We propose that companies also engage in BME in response to uncertainty about company-level profits (in addition to industry-level, and economy-wide uncertainty). We therefore expect that capital market reactions to BME announcements depend on the degree of uncertainty at firm-, industry-, and economy-wide levels.

The use of JVs during times of uncertainty, capitalizing on risk- and resource-sharing opportunities, is well documented (Luo 2007). Kogut (1991) demonstrated that JVs provide an risk mitigating option when the development of technology is uncertain. The literature on JVs as real options further describes how diversifying via JVs enhances a firm's growth option value (Tong et al. 2008). As an option for future growth opportunities, JVs seem a suitable vehicle for BME under uncertainty (Trigeorgis and Reuer 2017). This indicates that business model extension via JVs is a suitable setting to test the effect of uncertainty.

Based on this conjecture, we further explore the circumstances in which the addition of a new business model to a portfolio is value-creating. Specifically, we hypothesize:

H2a: Company-level uncertainty reinforces the positive effect of BME on abnormal returns.

H2b: Industry-level uncertainty reinforces the positive effect of BME on abnormal returns.

H2c: Economy-wide uncertainty reinforces the positive effect of BME on abnormal returns.

2.3 The Interplay between Product-Industry Diversification and BME

The phenomena of business model portfolio diversification and extension have reshaped industry boundaries and traditional definitions of diversification (Massa et al. 2017, Sohl, Vroom and McCann 2020). There are multiple examples of companies targeting the same product industry with a new business model (see the above *Pret a Manger* example) or extending into a new industry with an existing or new business model (Chesbrough and Rosenbloom 2002, Markides and Charitou 2004, Zott and Amit 2008). This shift motivates research on the use of BME in combination with traditional product-industry diversification.

We build on this foundation to distinguish between these types of portfolio extensions (business model and product-industry extensions). This provides corporate managers with four distinct strategic options: (1) stay in the same product industry with the same business model; (2) extend into a new product industry with the existing business model; (3) extend the business model portfolio with a new business model in the current product industry; or (4) extend the business model portfolio by entering a new product industry with a new business model. The relationship between BME and company performance has been shown to be positive overall (Aversa et al. 2015, Heij et al. 2014, Loon and Quan 2020), whereas the relationship between product-industry diversification and performance is more complex, and is broadly accepted to be inverted-U-shaped, where too low (or too related) or too high (or too unrelated) a level of diversification is value-destroying (Pierce and Aguinis 2013, Schommer et al. 2019). Based on these findings, we propose that combinations of BME and product-industry diversification are value-creating, whereas product-industry diversification alone tends to be value-destroying. More specifically, we hypothesize:

H3a: Product extension (PE) in conjunction with BME will lead to positive abnormal returns.

H3b: PE without BME will lead to negative abnormal returns.

The relationship between product-industry diversification and performance is influenced by uncertainty, whereby a high degree of uncertainty typically leads to increased capacity for diversification (Benito-Osorio et al. 2012, Volkov and Smith 2015). However, researchers on this topic have focused on product-industry diversification without controlling for the effect of BMEs (Schommer et al. 2019). The combination of business model and industry extension might allow us to overcome typical challenges of scope (Aversa and Hueller 2023, Sakhartov and Folta 2014).

We therefore propose to isolate the effect of BME, and hypothesize that:

H4a: Company-level uncertainty reinforces the positive effect of PE with BME and reinforces the negative effect of PE without BME.

H4b: Industry-level uncertainty reinforces the positive effect of PE with BME and reinforces the negative effect of PE without BME.

H4c: Economy-wide uncertainty reinforces the positive effect of PE with BME and reinforces the negative effect of PE without BME.

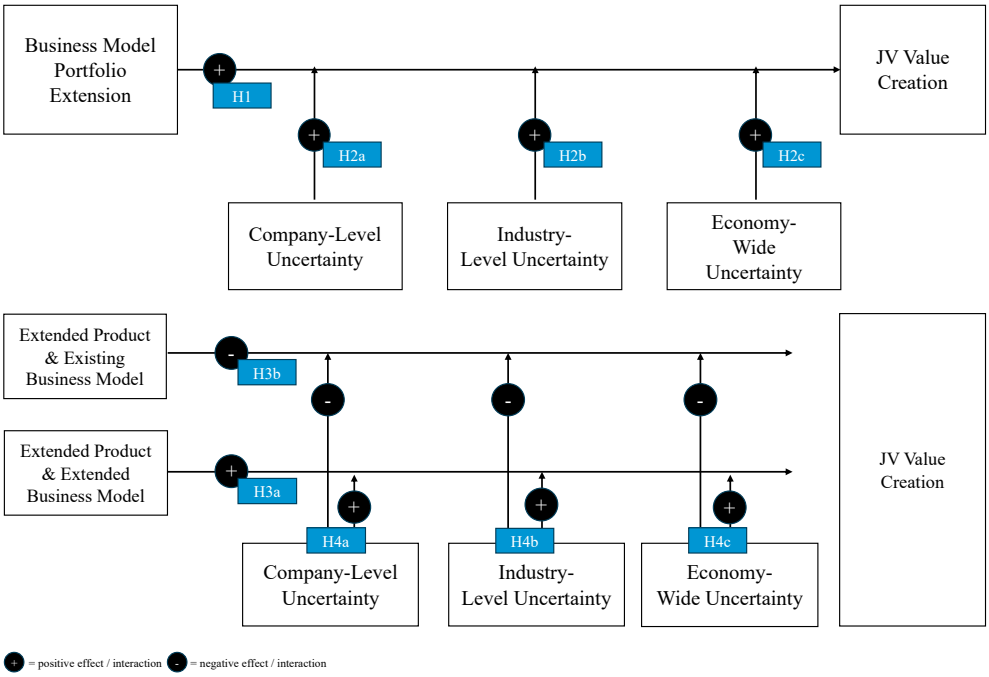

Figure 1: Overview of hypotheses.

3. Methodology and Research Setup

To explore our hypotheses, we conduct an event study analyzing capital market reactions to the announcement of business–model-extending JVs. The event study setup provides evidence of the market perspective on future earnings and value creation, represented in the change in the company's share price (Jones and Danbolt 2005). In this study, our dependent variable is the abnormal return following a JV announcement that either involves or does not involve a BME. We construct a sample of JV announcements by S&P 500 firms between 1998 and 2019 which we analyze for the effects of BMEs. This long time period has the advantage of including bull and bear markets as well as several severe recessions (Lüthge et al. 2020).

3.1 Data and Sample Collection

The initial sample was constructed using alliance data from the Securities Data Company (SDC) database via Refinitiv SDC Platinum. To construct our sample, we collected data for all U.S. high-tech JVs announced during the 22-year period from January 1998 to December 2019 from SDC. The high-tech JV identifier describes JVs in high-tech industries such as computer equipment, software, advanced electronics, and communication.

The initial firm-level dataset consisted of 1,432 individual firms that announced entry into high-tech JVs. We obtained financial data for these firms from COMPUSTAT and market data from the Center for Research in Security Prices (CSPR), and excluded firms that were not part of the S&P 500 index, substantially reducing the sample to 268 observations. The focus on S&P 500 companies enables us to create a homogenous sample and facilitates retrieval of financial and performance information.

3.2 Coding for Business Model Extensions

Information about business models is not available in a database such as exists, for example, for information about company product industries (SIC codes). Scholars therefore typically analyze archetypes of business models that they identify based on empirical observations (Aversa et al. 2015, Schwarz et al. 2017, Sohl and Vroom 2014). To identify BMEs, we conducted an in-depth qualitative content analysis of the JVs in our sample (Schreier 2012). We follow the recommendations of recent literature and applied content analysis supported by natural language processing capabilities in the form of a generative AI (Leppänen et al. 2021).

We started by collecting a rich database of JV information for our sample of 268 announcements. Then a coding framework was developed based on relevant literature on JVs (Bamford and Jenkins 2021, Koh and Venkatraman 1991, Reuer and Koza 2000) and a finite list of relevant business models (Gassmann et al. 2014). This framework was challenged and refined together with experienced business model scholars. We followed a five-step coding approach.

1. Review the company's main business description.
2. Analyze the JV deal text and the JV business description for keywords related to specific business models or joint venture archetypes (e.g., e-commerce, entering the Chinese market).
3. Review additional information on the purpose of the JV (collected from 10-K filings, Capital IQ Key Developments database, company websites, books, and JV websites). A minimum of four data sources were considered for each company.
4. Compare the company's main business with the JV business and provide a description of the JV in relation to the focal firm.
5. Define the final coding of the JV announcement anchored in the above-mentioned coding framework.

In addition to manual, human-based coding, we deployed an artificial–intelligence-based coding tool that utilized the coding framework to challenge human coding. The tool was fed the coding framework and the diverse qualitative information we collected for each JV. It then leveraged a generative artificial intelligence model to classify the JV announcement and provided a specific rationale for its classification. The outcomes of this model were then manually compared with the human coder's assessment. We observed consistent coding in 88% of cases. Through this coding, we identified about 24% of companies in our sample as engaged in a business–model-extending JV, evidencing that JVs are a commonly-used vehicle for BMEs. An illustrative example is the JV that Ford Motors Co entered with Microsoft in 1999: This joint venture focuses on providing an online build-to-order system for cars and is viewed as a BME for Ford. It enables customers to customize their order online and receive updates on availability and delivery (new value proposition), and introduces a new way of purchasing vehicles (value capture) that was a shift from the traditional car buying process.

3.3 Abnormal Stock Market Returns

To measure the value-creating effect of joint venture announcements, we utilize abnormal stock market returns as our dependent variable. This measure is commonly used in the strategic management and finance literature (Hoechle et al. 2012, Kale et al. 2002, Kothari and Warner 2004, Villalonga 2004a).

We obtained abnormal returns using the Wharton Research Data Services event study function. In the first step, we use an estimation window of 250 days before the event to calculate the expected return around the event window using the Capital Asset Pricing Model prediction (Markowitz 1991). The cumulative abnormal return is the sum of the abnormal returns (CAR) in the three days surrounding the JV announcement: -3, 0 (event day), and +3.

3.4 Value Drivers, Moderators, and Controls

To test the moderating effect of company-level uncertainty, we measure variance in quarterly return on assets (EBIT/Total Assets) for the eight quarters before the JV announcements. Return on assets is a frequently-used variable in the business model literature and variance in return on assets provides a scaled measure of the consistency of company profits (Sohl et al. 2022).

To test the moderating effects of industry-level uncertainty, we assess dynamism in industries at the two-digit SIC code level. We follow Malhotra and Harrison (2022) and assess the predictability of industry revenue. To account for seasonality in industry revenue, we use annual data instead of quarterly data over a longer time

horizon (three years or 36 quarters). We regress industry-level revenue for the three years before the year of the JV announcement, and our measure of industry-level uncertainty is the standard error of that regression.

Finally, to assess the moderating effects of economy-level uncertainty, we use recession indicators for the U.S. economy from the National Bureau of Economic Research. Recessions create demand-based uncertainty (Folta and O'Brien 2004) and by the time a country's economy is deemed to be in a recession, a prolonged period of uncertainty (at least seven quarters) has passed (Karnizova and Li 2014). We create a binary variable that equals 1 if the JV announcement was during a quarter in a recession, and 0 otherwise.

In addition to the above-mentioned moderators, we control for several factors. Firm size may influence the relative importance of a BME. We therefore control for the natural logarithms of full-year revenue and assets in the year of the JV announcement. Similarly, we also control for the value investors assign to the future growth of the company using the natural logarithm of company market capitalization. We control for the percentage holding of the focal firm in the JV because there may be an investor preference for high or low ownership in the JV. Finally, we control for alliance experience because this has been shown to influence shareholders' reactions to the announcement of additional alliances. For this, we use the number of high-tech JVs the firm has entered before the current JV announcement relative to the total assets of the firm. All independent variables are winsorized to take a 90% interval.

For several of the companies in our research sample, moderating and/or control variables could not be obtained. Our final sample therefore comprises 215 announcements.

4. Analysis and Results

We test our hypotheses using ordinary regression models in multiple settings. First, we use a setup with the abnormal stock market return as the dependent variable, our BME dummy as the explanatory variable, and a set of controls. The results of Model 1 are reported in Table 2. This initial research setup was validated using the Breusch-Pagan test for heteroskedasticity (Baum 1999). Because the test results could not rule out the presence of heteroskedasticity we adjusted the model by adding industry fixed effects by controlling for two-digit SIC industry code, which removes heteroskedasticity in Model 2. This configuration was used for all further models.

Our results support H1, because BME consistently has a positive and statistically significant impact on abnormal stock market returns. Our control variables generally do not have a statistically significant impacts.

Table 2: Regressions (1)–(5) with Cumulative Abnormal Return (CAR) as the dependent variable.

	(1)	(2)	(3)	(4)	(5)
BME=0	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)
BME=1	0.049***	0.052***	0.027*	0.013	0.050***
	(0.00)	(0.00)	(0.02)	(0.58)	(0.00)
Alliance Exp. to tot. Assets	9.358	-28.784	-18.779	-29.105	-30.470
	(0.68)	(0.28)	(0.47)	(0.27)	(0.24)
JV Percentage Hold	0.000	0.000	0.000	0.000	0.000
	(0.66)	(0.33)	(0.34)	(0.32)	(0.43)
Ln(Revenue)	0.008	0.023	0.020	0.024+	0.023
	(0.44)	(0.11)	(0.14)	(0.09)	(0.10)
Ln(Assets)	-0.008	-0.020	-0.014	-0.022+	-0.021+
	(0.35)	(0.10)	(0.24)	(0.08)	(0.09)
Ln(MarketCap)	0.006	-0.003	-0.004	-0.002	-0.002
	(0.15)	(0.63)	(0.41)	(0.65)	(0.65)
8-Quarter ROA Variance			-7.223		
			(0.83)		
BME=0 # 8-Quarter ROA Var.			0.000		
			(.)		
BME=1 # 8-Quarter ROA Var.			220.383***		
			(0.00)		
Industry Dynamism				-0.205	
				(0.58)	
BME=0 # Ind.Dyn.				0.000	
				(.)	
BME=1 # Ind.Dyn.				0.985+	
				(0.06)	
Recession					-0.012
					(0.57)
BME=0 # Recession					0.000
					(.)
BME=1 # Recession					0.231***
					(0.00)
Industry fixed effects	excluded	----------	included	----------	
Constant	-0.084+	-0.031	-0.043	-0.032	-0.025
	(0.10)	(0.64)	(0.49)	(0.69)	(0.69)
Observations	215	215	215	215	215
R-squared	0.125	0.250	0.315	0.265	0.288
Adjusted R-squared	0.100	0.128	0.195	0.136	0.163

p-values in parentheses
+ p<0.10, * p<0.05, *** p<0.01

Table 2 also reports results of tests for hypotheses H2a–H2c in Models 3 to 5. We introduce a series of moderators and analyze their impacts on the cases that included a BME and those that did not. We find that company-level uncertainty (measured by variance in quarterly return on assets) positively moderates the effect of BME, suggesting that companies with higher uncertainty realize higher abnormal stock market returns upon announcements of business–model-extending JVs. As Model 4 shows, our results also support H2b, indicating that uncertainty (measured by industry dynamism) also positively moderates the effect of BME, although this effect is only weakly significant (at the 10% level). Finally, the interaction between BME and economy-wide uncertainty (measured by recession status) has a positive and statistically significant influence on abnormal stock market returns, supporting H2c and suggesting that investors value BME more strongly during economic downturns (Model 5).

The plots in Figure 2 with linear fitting illustrate the above-mentioned effects. Across the sample, economic uncertainty at the company, industry, and economy levels typically has a negative effect on abnormal returns (the higher the uncertainty the lower the abnormal returns after a JV announcement). However, for JV announcements that indicate a BME, uncertainty positively influences abnormal returns.

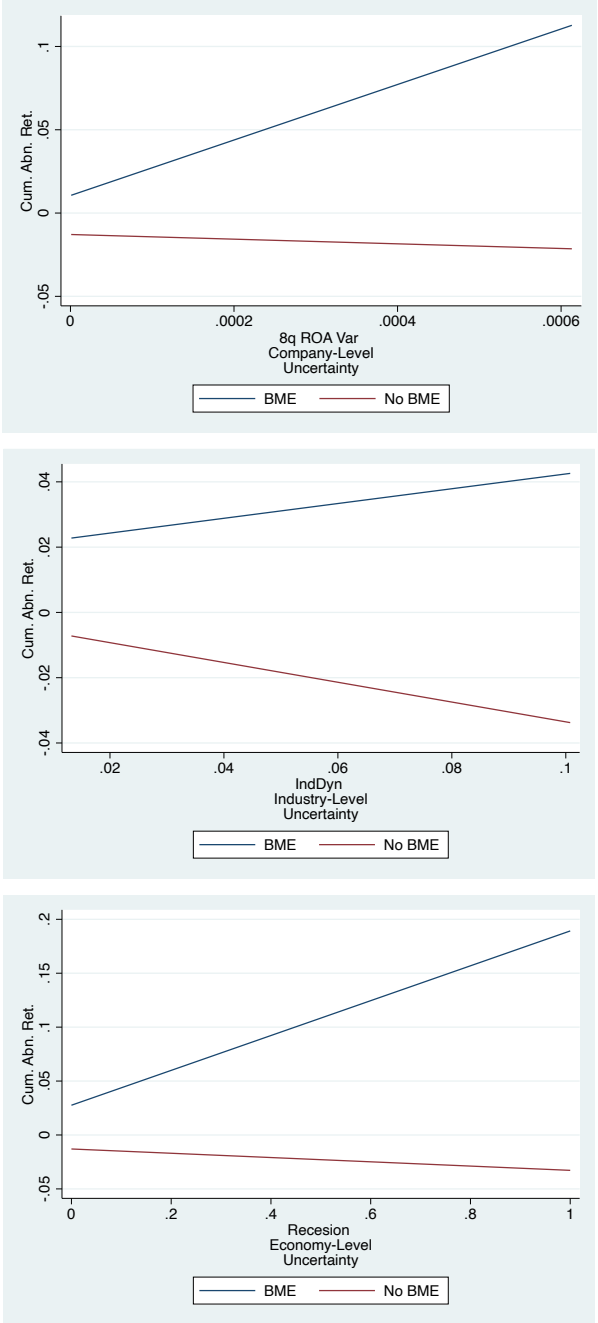

Figure 2: Plot of CAR–Uncertainty relationship split by BME vs. no BME JV announcements.

To test hypotheses H3 and H4, we combine our BME codings with traditional measures of industry diversification. Specifically, we create a binary variable identifying cases where companies expand in new product industries, defined as a JV in an industry that is at least two digits from the SIC code of their focal company.

We then combine this indicator with our BME variable, creating two new variables: "PE w/ BME" equals 1 if the JV indicates a new product industry with an extended business model, and 0 otherwise. "PE w/out BME" equals 1 if the JV indicates a new product industry without an extended business model, and 0 otherwise.

Table 3: Regressions (6)–(13) with Cumulative Abnormal Return (CAR) as the dependent variable.

	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Alliance Exp. to tot. Assets	-69.953	-60.787	-60.950	-56.380	-60.582	-39.501	-73.840	-68.383
	(0.18)	(0.23)	(0.25)	(0.26)	(0.25)	(0.32)	(0.16)	(0.17)
JV Percentage Hold	0.000	0.000	0.000	0.000	0.000	-0.000	0.000	0.000
	(0.58)	(0.48)	(0.48)	(0.36)	(0.46)	(0.76)	(0.52)	(0.58)
Ln(Revenue)	0.022	0.017	0.023	0.015	0.023	0.020+	0.023	0.017
	(0.15)	(0.23)	(0.13)	(0.31)	(0.13)	(0.08)	(0.14)	(0.22)
Ln(Assets)	-0.020	-0.016	-0.020	-0.011	-0.021	-0.016	-0.020	-0.016
	(0.12)	(0.20)	(0.13)	(0.36)	(0.11)	(0.10)	(0.13)	(0.18)
Ln(MarketCap)	-0.003	-0.003	-0.003	-0.004	-0.003	-0.006	-0.004	-0.003
	(0.60)	(0.58)	(0.55)	(0.42)	(0.62)	(0.15)	(0.52)	(0.57)
PE w/out BME = 1	-0.028***		-0.021+		0.013		-0.027***	
	(0.00)		(0.07)		(0.54)		(0.01)	
PE w/ BME = 1		0.049***		0.033*		0.012		0.047***
		(0.00)		(0.01)		(0.53)		(0.00)
8-Quarter ROA Variance			79.571*	17.730				
			(0.04)	(0.59)				
PE w/out BME=1 # 8-Quarter ROA Var.			-91.587					
			(0.10)					
PE w/ BME=1 # 8-Quarter ROA Var.				143.368*				
				(0.03)				
Industry Dynamism					0.582	-0.348		
					(0.21)	(0.23)		
PE w/out BME=1 # Ind.Dyn.					-1.065*			
					(0.03)			
PE w/ BME=1 # Ind.Dyn.						0.809+		
						(0.07)		
Recession							0.006	-0.017
							(0.85)	(0.40)
PE w/out BME=1 # Recession							-0.032	
							(0.43)	
PE w/ BME=1 # Recession								0.237***
								(0.00)
Industry fixed effects	----------	----------	----------	included	----------	----------	----------	----------
Constant	0.021	0.000	-0.001	-0.014	-0.017	0.051	0.016	0.009
	(0.78)	(1.00)	(0.99)	(0.85)	(0.86)	(0.47)	(0.83)	(0.90)
Observations	215	215	215	215	215	215	215	215
R-squared	0.185	0.229	0.203	0.258	0.206	0.285	0.189	0.270
Adjusted R-squared	0.052	0.104	0.063	0.128	0.066	0.160	0.046	0.141

p-values in parentheses
+ p<0.10, * p<0.05, *** p<0.01

The findings of this analysis are reported in Table 3. Model 6 analyzes the effect of a product-industry extension using an existing business model (PE w/out BME = 1). The results show that these JV announcements receive negative investor reactions, thus indicating that industry-product diversification using an existing business model is not value-creating. The results of Model 7 show that, conversely, entering a new product industry with a new business model has a positive influence on abnormal returns. Models 8–13 use a consistent setup and test for the interaction between product-industry extension with/without BME and company-, industry-, and economy-wide uncertainty. Models 8 and 9 provide statistically significant evidence that announcement of JVs that extend into new product industries and use an extended business model are positively influenced by our measure of company-level uncertainty. Such JVs without an extended business model are negatively influenced by company-level uncertainty. However, this negative influence is only weakly significant (P-value 0.1).

Models 10 and 11 test the interaction between industry-extending JVs with and without a new business model and industry-level uncertainty. The results suggest that extending a product industry without an extended business model destroys value, whereas doing so with a BME creates value. Finally, Models 12 and 13 test the interaction between product-industry extension with/without BME and our variable for economy-wide

uncertainty (identified by recessions). We find evidence that product-industry extension using a new business model during a recession statistically significantly increases abnormal stock market return.

5. Discussion of Results

Our analyses substantiate the notion that BME positively influences value creation, particularly in uncertain and dynamic environments, and in combination with traditional industry diversification. First, we find empirical evidence of the positive economic impact of BMEs. Our evidence adds to the growing empirical confirmation of the value of BME (Aversa et al. 2015, Heij et al. 2014, Loon and Quan 2020, Sohl, Vroom and Fitza 2020, Sohl and Vroom 2014), but also extends these studies because we show that capital markets positively value the extension of business models.

Second, we find that uncertainty at the company-, industry-, and economy-wide levels increases the positive impact of BMEs. Our results indicate that extension to a novel business model is a value-creating strategy during times of uncertainty. This finding adds to the literature on external moderators of BME (Foss 2018, Spieth 2014). We show that in addition to macroeconomic uncertainty (White 2022), industry- and company-level uncertainty also have positive effects on BME. Whereas previous research on alliances and BME focuses on non-equity partnerships (Spieth et al. 2021), our research shows that JVs are a commonly-used tool to engage in BME. Our study is thus linked to the literature on alliances as strategic options by emphasizing that BME JVs are used to explore new markets and growth opportunities (Hoffmann 2007, Reuer and Tong 2010, Varadarajan and Cunningham 1995). We also show that BME JVs are appropriate—and value-creating—tools under uncertainty (Tong et al. 2008, Trigeorgis and Reuer 2017).

Third, examining JVs that extend into a new product industry (PE, assessed by SIC code), we find that pure product-industry extension is value-destroying, whereas parallel BME and product-industry extension is value-creating. Company-, industry-, and economy-wide uncertainty moderate this effect. These findings enrich our understanding of the interplay between BME and other types of innovation and diversification (Demil et al. 2015). We link our study to research on traditional industry diversification (Schommer et al. 2019) and demonstrate that the unique properties of BME—providing a company with a new source of revenue and profits by satisfying untapped market demand—are valuable in new product industries.

For theory, we provide a novel perspective that is relevant in multiple research areas. For research on business models, we provide large-scale empirical evidence of the already-documented positive effect of BMEs. We also show that this effect is evident in market-based measures of company performance. Further, we provide novel insights into the role of uncertainty as a moderator of BME's impact, which has previously only been demonstrated in case studies. We contribute to research on corporate diversification by demonstrating that traditional product-industry diversification moderates the BME-performance relationship. Methodologically, we demonstrate an event study design that uses abnormal stock market returns as the dependent variable. To our knowledge, this has not previously been deployed in the field of BME and innovation.

For practitioners, we demonstrate the value-creation potential of BME, particularly during times of uncertainty. We show that creation of new business models is a value-creating strategic option during uncertainty. This is particularly important given the high degree of uncertainty and innovation potential in the current economic climate. Drivers of uncertainty and change, such as global de-integration, digitalization, and sustainability, will only increase the need for individual managers to find value-creating responses such as BME (Adner et al. 2019). We also offer practitioners a novel perspective on external collaborations in general and JVs in particular (Christensen et al., 2011; Sohl & Vroom, 2017). We provide a framework that differentiates between different types of JVs (whether business–model-extending and whether product–industry-extending) and reveals the performance implications of each type.

5.1 Limitations

This research is not without limitations. Our key findings rely on the coding of business–model-extending JVs. A business model is, by definition, a simplified model that will not capture the full complexity of a company or a joint venture (Baden-Fuller and Morgan 2010). Our coding nevertheless suffers from the inherent challenge of empirical business model research: business models require human interpretation, and therefore not every coding will be replicable by other scholars (Aversa et al. 2020). Second, the archetype-based assessment of business models does not provide a perspective on business model portfolio-level synergies, which have been

proven important in value creation (Mawdsley and Somaya 2018, Sohl, Vroom and McCann 2020) and should be a focus of future research.

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Masters Research Paper

Leader Emotional Capital Matters in The Automotive Manufacturing Industry

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Abstract: The ability of an organisation to adapt to constant change determines its long-term viability. Organisations that understand the value of excellent leadership in organisational performance will see growth and sustainable profitability. This research focused on the automotive industry in Isipingo, Durban, KwaZulu-Natal, South Africa. To thrive and remain competitive, the automotive sector must adapt to changing conditions, be efficient, and respond rapidly to external forces. Managers are frequently challenged with balancing the frustrations of different interest groups within the sector; becoming skilled and successful leaders; and steering the organisation in the appropriate direction. The emotional competency of employees is a valuable resource designated as emotional capital. The purpose of this study was to investigate whether the emotions of leadership influence employee performance in this Industry Therefore, the research question entailed, what is the role of leaders' emotions? Analysis of extant literature was related to aspects that impact leaders' emotional capability. The main variables included emotional capital, leadership, emotions, and employee performance. This study was based on a quantitative approach. Primary data was collected through a survey which was analysed using Spearman's rho correlation. The results highlighted how a leader's emotions affect employees and demonstrated a substantial association between employee performance and the leader's overall emotional state. It was determined that a leader's emotions can have both beneficial and negative effects on employee performance. The recommendations offered useful advice on how to choose tactics that would yield appropriate results for the organisation to be sustainable.

Keywords: Emotions, Employee performance, Leadership Influence, Sustainability

1. Introduction

The ability of organisations to adapt to constant change determines their long-term viability. Organisations that recognise the importance of strong leadership in organisational performance will achieve growth and sustained profitability. The complexity of business environments in today's fast-paced world, mainly in the Automotive Manufacturing industry necessitates businesses to hire leaders with good management skills as well as strong intrapersonal and interpersonal skills (Goleman 1998). Leaders who cannot distinguish and measure their emotions may miss critical signals from co-workers or subordinates. Similarly, managers who exhibit poor emotional management could allow their feelings to affect their leadership effectiveness. This research is based on the Automotive industry in Isipingo, Durban in KwaZulu-Natal. Toyota South African Motors plays a major role in supporting the economy and are leaders on the market in South Africa. The company also has a worldwide approach that prioritises efficiency, as well as a framework that allows for varied levels of plan and process coordination. To thrive and remain competitive, the Automotive industry must adjust to the new circumstances, be effective and react quickly to external influences. For a business to be successful, it must address the demands of its clients, which necessitates being locally relevant. Hence, the Automotive industry must be flexible and adapt to changes rapidly if they are to thrive and remain competitive in this rapidly changing environment. When an industry culture is excessively rigid, it is hard for its leaders to adjust or evolve, which often leads to conflict. Task abilities and technical knowledge are not enough for managers who are frequently confronted with reconciling the frustrations of conflicting interest groups within the industries. To be competent and successful leaders and to drive the organisation on the right path, these managers will need interpersonal and intrapersonal skills amongst their employees (Tyagi, 2013). This article highlights the results of a research study that investigated whether the emotions of leadership influence employee performance in the Automotive Manufacturing Industry. Through an in-depth look at leaders' emotional capital, this study helps to illustrate ways possible that managers may combine leadership standards and emotional capital to deal with the day-to-day problems of their jobs. The paper provides a review of literature related to sustainability, leadership and leadership development. This is followed by an overview of the methodology and key results of the study, discussion as well as a conclusion.

2. A Review of Extant Literature

2.1 The Notion of Emotional Capital

The term 'capital' comes from economic discourse and describes a supply of capital that can be traced back to its origins and returns (Gendron 2013). Capital was traditionally thought of as tangible goods that were utilised and useful during the production process, according to traditional economic theory. However, the idea of capital has evolved into a more general method of thought, especially in cases where some elements of its definition offer a helpful framework for thinking in a different field (Gendron et al. 2016). Emotional capital is explained as the skills or routines that translate the control of emotions into numerous social advantages (Froyum 2010). Moreover, emotional capital refers to the sources that are advantageous for the development of an individual's career, personal, and organisational (Gendron 2004). The idea of emotional capital was created by Nowotny (1981). As a result of relationships, social and cultural elements known as emotional capital have formed (Reay 2004). A person's behaviour, relationships, key decisions, and even their economic activities are all influenced by their emotions, which are unique and stem from their personal feelings (Newman 2008).

2.2 The Leadership Construct

The idea of leadership is complex and constantly changing. According to Robertson (2007), Benmira and Agboola (2021), leadership includes the deliberate acts that have an impact on the ongoing improvement of teaching and learning. Some people seem to emit a field of influence that others will react to in a similar way to how iron filings align in a magnetic field (Northouse 1997; Bennis 2009). A leader is always determined by self-interest—not by any specific goal, nor by the desire to pursue personal perfection (Northouse 2007). The longing to thrive drives the best leaders as it is a desire and a source of great personal fulfilment. According to Northouse (2007), effective leadership is the process of motivating a team of individuals to strive towards a shared goal.

2.2.1 Leadership Theories

*I*n recent years, experts have focused on a leader's psychological and charismatic qualities. Early studies on leadership frequently saw a leader as a strategist rather than as an inspirational person (Arnold et al., 2005). Leaders were viewed as those who could encourage their subordinates and help the organisation succeed by motivating teams to work towards shared objectives. This is supported by the definition of leadership provided by Yulk and Van (1992) and Ahmed and Nawaz (2016), who define it as a process that affects an organisation's task objectives and strategies; motivates employees to carry out the strategies and objectives; and shapes the organisation's culture.

Many theories have been proposed about leadership and leaders' attributes since it became clear that leadership involves more than the application of reasoning and practical skills. For instance, it is said that leadership entails the capacity to shape the behaviour of others; the possession of a range of abilities, such as strong conceptual and analytical abilities to shape the goals and strategies of a task; and interpersonal and persuasion abilities to persuade others to carry out plans and strategies (Jex & Britt, 2008). Leadership is sometimes viewed as a process rather than an end-product. To make sure the team works together efficiently, leaders have a number of responsibilities. For instance, leaders must set team goals, create strategies to reach those goals, put those strategies into practice and maintain them, and ensure that the team adheres to the organisation's culture.

2.2.2 Emotions and the Link with Leadership

Over time, researchers have come to understand that there are other qualities that make for good leaders, in addition to intelligence. For leaders, especially when working with others, the ability to handle emotions wisely is crucial (Goleman et al. 2002). Prior leadership theorists believed that certain behaviours, independent of the situation, were necessary for leaders to exhibit in order to be effective (Arnold et al. 2005). In contrast, leaders who can adjust to a diversity of circumstances in the actual world are required. The authorities must be adaptable in this situation. To address this weakness, Fiedler (1967) and Yusof et al. (2013), suggested a contingency theory of leadership, stating that a leader's success is measured by the circumstances in which they find themselves and how their personal traits respond. He also mentioned that depending on the situation, a leader is required to adjust accordingly.

Later, Fiedler (1995) and Siebert-Adzic (2012) made known a new resource, suggesting that some cases will require a leader to use experience rather than intellect to address any situation at a workplace. He thought that leaders might use their proficiency as a guide to handle a variety of scenarios that arise in the workplace, which could be solved better when using emotional capital. Vroom and Yetton (1998) and Karakus et al. (2021) argued that it is crucial for a leader to be flexible in decision-making. In 1998, their theory proposed that leaders must be able to adjust to any situation at work. They affirm that a variety of factors, including time restraints, clearly defined decision parameters and subordinates' approaches, can affect the nature of a scenario. Leaders need to use emotions as a skill to judge a situation. Leaders who are emotionally capable respond better to difficult situations, and their decisions are not based on emotions.

2.2.3 Leadership and the Nexus with Organisational Performance

It is widely understood that strong leadership is a prerequisite for effective organisations, and that if this requirement is disregarded, the organisation's performance will suffer (Fatma and Adiguzel 2020). High-performing businesses are able to deliver a number of benefits for their businesses and society, including resource attraction, income development and employment creation, according to Madrid-Guijarro et al. (2007). Employee potential is transformed into reality by leadership. Leadership in transition is more challenging than anticipated and involves a variety of approaches, concepts and strategies, only some of which are successful (Jeffrey and Laurie 2012).

Charismatic individuals are regularly sought after by organisations in need of strategic transformation in order to lead change initiatives. Leadership is always supportive of fostering innovation through culture, which leads to better results (Dissanayake, Norsanina and Hamid 2017). Strategic teams may be a better option for organisational transformation than full of personality leaders (Landrum, Howell and Lori 2000). Creating a common vision for the company; managing personnel and activities across divisions; disseminating information throughout the entire organisation; identifying and correcting activity deviations; and inspiring workers to work harder are just a few of the managerial tasks carried out by the leadership. Stakeholder agency or relationships are necessary for the corporation to perform (Kahandawaarachchi, Dissanayake and Maitra 2016).

2.3 Performance – Individual and Organisational

Performance in an organisational setting is frequently determined by how much a member of the organisation contributes to attaining its goals. Employees are the primary source of competitive advantage for organisations that specialise in providing services. Employee performance is the essential component of every business and the most crucial aspect for the profitability and effectiveness of the business (Sabir et al. 2012). Both the employee's actions and inactions are used to assess performance. Employee performance comprises output quantity and quality, attendance at work, courtesy and adaptability, and milestones of output. Individual performance was the subject of Yang's (2008) study, and the results showed that it was difficult to confirm an individual's performance. In a similar vein, he claims that corporations may apply merits depending on individual success (Yang 2008). Most organisations rely on their employees. To reach the goals and objectives of the organisation, all employees, including leaders, must give their best performance, effort and make the best use of their skills. Organisations have certain demands on both their leadership and employees. Employees therefore strive to meet these expectations in many circumstances, but occasionally they are reliant on their leaders for direction (Sabir et al. 2012). The question of how an employee may be competent and effective in enhancing the modernity, performance and productivity of an organisation arises. An effective leadership strategy can be a powerful tool for finding and refining leadership qualities amongst the organisation's staff.

2.3.1 The Role of Leaders in Employee Performance

There is an adverse relationship between job satisfaction and transformational leadership, according to several empirical studies (Draft 1988; Pacasila 2020). The concept develops into a shared vision as subordinates work to make it a reality. Stated differently, many transformational leadership behaviours, such as assigned full of personality, idealised impact, inspirational motivation, stimulating thoughts, and individualised concern, can be used to identify the transformational process (Bass and Avolio 2003). To achieve organisational objectives, a leader who employs transformational leadership offers his team members the freedom and trust to execute their functions in accordance with his philosophy.

Butler (1999), Farooqui and Nagendra (2014), mentioned that a transformational leader motivates followers to have a vision, a mission and organisational goals. Transformative leadership has the potential to increase

employee happiness more than indifferent or uninterested leadership. According to professionals, leadership that is solely concerned with employee output and ignores the opinions of its followers will not be successful in obtaining the best performance from its workforce (Cummings 2010).

3. Methodology

This section discusses the methodology, the research design, the data sources, the target population, as well as the data sampling methods and sample size, data collection tools. Research provides the opportunity to ascertain the causes of a series of events, as well as the effects of those events. The same data showing up repeatedly allows the researcher to reach conclusive conclusions and establish reliable generalisations (Sutton and Austin 2015).

3.1 Study Design and Participants

For this study, the quantitative research methodology was used. To collect primary data, a quantitative data collection tool – namely, a questionnaire was created and distributed. Thereafter, capturing of data, analysis of data and processing and data interpretation were taken into consideration for this study. To give a thorough description of a phenomenon, a descriptive study design was used. This method was chosen because it assists the researcher to translate the identified variables into numerical form, facilitating a wider application of the study's findings. In this particular research, the target population entailed employees from the Automotive Manufacturing Industry in the KwaZulu Natal (KZN) area. The particular company in this study has more than 8000 employees. Moreover, the company has 170 managers who have more than 10 people reporting to them within the structure of the organisation.

According to Krejcie and Morgan (1970), a key factor in the research study is the sample size from the target population because it affects how generalisable the research findings are. The sample size of 120 managers was selected for this study from the 170 managers that made up the target population group. The study sample involved employees (managers) employed in the automotive manufacturing industry in KZN who participated in the primary data collection procedure for this project. Rather than being chosen at random, managers were requested to participate in the survey by email, which was sent on the 11th of July 2023. A total of 120 invitations were emailed to managers, and the participation was strictly voluntary. After being emailed information about the research aim, the managers were requested to complete a questionnaire. For those individuals who wanted to participate in the study, the requirement was for the participants to sign a consent form before beginning the questionnaire.

3.2 Data Collection Method

Every participant had first-hand knowledge of the constructs, such as employee performance, emotional capital and leader's emotions. The research topic, anonymity, estimated time of the survey and potential contributions from each participant were all explained in advance. Depending on the participants' pace, experience and level of emotional involvement, the questionnaire took between 4 and 10 minutes to complete. A total of 98 sample respondents completed the survey and all these responses were valid. Descriptive and inferential statistics were used to analyse the questionnaire results. Key relationships were identified, and this information was summarised.

4. Results

A questionnaire with total of 15 questions with a Likert response scale, was distributed to the sample participants to ascertain whether there is a relationship between leader emotional capital and workforce performance. Every statement in the questionnaire included a response scale between 1 (for strongly disagree) and 4 (for strongly agree). Table 1 below summarises all the questions regarding Leaders' emotions. All the statements were determined to have a mean score of 2.9 or higher. For example, the majority of respondents (59.14%) stated that they can regulate disruptive emotions; respondents 'set aside emotions to complete a task' (50.54%); 'be aware of which emotions they are experiencing and why' (53.76%) and 'be conscious of your moods' (55.91%).

Table 1: Leaders' emotional capital

Statements	Strongly Disagree	Disagree	Agree	Strongly Agree	Mean	Standard Deviation
1. Control your distressing emotions.	3.23%	11.83%	51.61%	33.33%	3.15	1.7749366
2. Help others feel better when they are down.	3.23%	10.75%	46.23%	39.78%	3.23	1.7959399
3. Control your anger.	2.15%	16.13%	39.78%	41.94%	3.22	1.79307
4. Be aware which emotions you are experiencing and why.	1.08%	13.98%	53.76%	31.18%	3.15	1.7749366
5. Understand why people feel the way they do.	3.23%	20.43%	59.14%	17.20%	2.90	1.7038486
6. Understand the effects your emotions have on others.	1.08%	20.43%	48.39%	29.03%	3.03	1.7413501
7. Be aware of your moods.	1.08%	15.05%	55.91%	27.96%	3.11	1.7628103
8. Confront problems without demeaning the members of the team.	1.08%	15.05%	45.16%	38.71%	3.22	1.7930421
9. Not allow negative feelings of others to inhibit collaboration.	1.08%	17.20%	48.39%	33.33%	3.14	1.7719199
10. Set aside emotion in order to complete a task.	0.00%	17.20%	50.54%	32.26%	3.15	1.7749754
11. Recognise the external factors influencing the organization.	2.15%	15.05%	59.14%	23.66%	3.04	1.7444228
12. Be aware of non-verbal messages that are sent to others.	2.15%	21.51%	53.76%	22.58%	2.97	1.7227135
13. Provide emotional support to others during stressful times.	1.08%	17.20%	47.31%	33.33%	3.11	1.7628179
14. Control disruptive emotions.	1.08%	16.13%	59.14%	23.66%	3.05	1.7475021

Source: Authors

Due to the non-normal distribution of the data, Spearman's rho correlation analysis was used to determine whether leadership emotions affect employee performance. Results indicated a strong correlation between a leader's emotion and workforce performance ($r= 0.71855$, $p< 0.01$). The Spearman's rho correlation table is shown below in Table 2.

Table 2: Spearman's rho correlation analysis output

		emotions of leadership	Employee performance
emotions of leadership	Correlation Coeffcicient	1.00	0.718552984
	Sig. (2-tailed)	.	0
Employee performanc e	Correlation Coeffcicient	0.718552984	1.00
	Sig. (2-tailed)	0	.

Source: Authors

Leaders benefit from the use of emotional capital because they can better manage their teams and the workplace by having the capacity to detect, synthesise, comprehend and control emotions. Moreover, followers respond favourably to and have a higher opinion of highly intelligent leaders. Employees will feel at home and

motivated at work with emotionally intelligent leaders, and they will provide their best effort to achieve the company goals.

5. Discussion

As the objective of this research was to investigate whether the emotions of leadership influence employee performance in the Automotive Manufacturing Industry, the theoretical analysis on the emotions of leadership was based on extant literature. In order to determine the relationship between employee performance and leadership emotions, correlation statistical analysis was used to analyse the primary data. The results of this study can be utilised to highlight the organisation's advantages and disadvantages. Discussions on suggestions for enhancing leadership emotions can then be constructed. The data analysis presented suggests 55% of respondents can regulate disruptive emotions and set aside emotions to complete a task; whilst 51% are aware of which emotions they are experiencing and why; and 56% are conscious of their moods. The current analysis reveals that, at the very least, emotions and emotional capital are important factors to consider when evaluating leadership. The two major categories of human emotions are, namely, positive and negative and these entail two categories that should be seen as opposites or polarities. Negative emotions are fuelled by a deep-seated dread of the unknown or the actions of others, and a desire to restrain or prevent them to prevent harm (Watson and Clark 1984). Positive emotions, in contrast, are propelled by a hidden yearning for harmony and pleasure.

The results demonstrated a strong correlation between employee performance and the leader's overall emotions ($r= 0.71855$, $p< 0.01$). There are several ways that emotions impact organisational behaviour. The impact might be immediate, such as behaviour brought on by various emotions; or indirect, such as performance-affecting mediating mechanisms, namely motivation and perception. Although organisational procedures can also change emotions, organisational behaviour is not the only thing that is impacted by emotions. Emotions are undoubtedly present in both those who lead and those who are led, but until recently, research, theory and possibly even practice, have ignored the emotions of leaders. However, as they have a direct impact on not just the performance of their subordinates but also that of the entire business, leaders must continually control their emotions to act in the manner expected of them. Emotions have been shown to affect how subordinates view their leaders (Newcombe and Ashkanasy 2022) and followers tended to attach more credence to leaders' emotive displays than to the messages themselves. Leaders' emotional expressions are crucial in helping followers determine their genuineness (Humphrey 2002). For example, leaders that constantly have antagonistic expressions on their face will encourage an unfriendly setting, which could affect the follower's morale and zeal. However, making followers feel at ease and inspired at work using favourable body language and facial gestures reveals that leaders must control their emotions on both personal and professional levels. The emotions of a leader have a large impact on those of others. In the same way that leaders who are themselves joyful, excited and energising are likely to positively stimulate their followers, so are leaders who are themselves troubled and antagonistic. According to Glaso et al. (2006), a leader's melancholy emotional responses can make them appear less effective and cause followers to lose interest. These results imply that leaders who have better emotional competence are viewed as being more effective. Leaders with positive emotional traits are viewed as more trustworthy by followers than those with negative emotional traits. According to Jin et al. (2022), strong empathetic leaders are more likely to connect with their team members, comprehend their emotional states, and spread their own emotions to their subordinates by controlling their own emotions. Furthermore, the way that subordinates perform on the work can be impacted by their emotions.

Studying the emotional facets of leaders has numerous ramifications. Firstly, leaders can gain from research demonstrating the value of emotional capital to them. Leaders could improve their efficiency in dealing with tough co-workers and assignments by developing their emotional capital. As a result, leaders emotional as well as cognitive traits are crucial. In the workplace, leaders would be more effective and have a higher likelihood of success if they used both emotional and cognitive skills equally. Secondly, leaders who have high emotionally capital are more capable of identifying their followers' needs and build strong relationships with them. In the workplace, social interaction between leaders and followers is crucial. For their team to accomplish the objectives of the organisation, leaders can give instructions and direction by developing strong leader-follower relationships. Leaders could create this connection by using emotions in the right way. Leaders would be able to deal with the difficult events they encounter in the workplace by learning effective emotional management techniques. It might be a tool to help individuals manage their stress, thus boosting their efficiency and productivity at work. The results presented in the correlational analysis, show a positive correlation between leaders' relationship management and followers. Thus, it can be said that connections exist between the follower's performance and the leader's ability to manage relationships. Relationships and assertiveness have

statistically been shown to be associated with subordinate performance, whereas empathy and adaptability have not been found to be related. This research findings concur with Ngirande and Timothy's (2014) research findings, which also indicated a strong positive correlation between employee work satisfaction and a leader's emotional intelligence. The correlation analysis's (r=0.62) conclusions suggest that higher levels of emotional capital in leaders may increase worker job satisfaction. Emotional capital leaders are more likely to make wise judgments at work, which will increase their employees' level of job satisfaction.

6. Conclusion of the Study

The main aim of the research study was to assess whether emotional capital matters in the Automotive Manufacturing Industry. Based on the analyses presented, it can be concluded that emotional capital is unquestionably a key component of effective leadership. Emotional capital is a skill that leaders may use to better manage their teams and the workplace environment. Leaders need to be able to notice, assimilate, comprehend and manage emotions in order to effectively lead their teams. To summarise the findings of this research study, the results indicate that emotional capital does indeed play a fundamental role in the automotive manufacturing industry. Furthermore, the objective of the study was achieved, by virtue of the fact that emotions of leadership do have a vital influence on employee performance. The correlation analysis showed that there is a correlation between leaders with high emotional capital and employee performance, and they can improve the emotional state of employees and also motivate employees to want to achieve more in their work. Developing an environment that is regarded as equitable and assisting employees to become more empathic in their interactions with clients are two crucial steps in reaching this objective. The findings appear to indicate that leaders must develop their leadership abilities to motivate others to follow them and assist them in bringing about beneficial changes in the organisation by raising employee satisfaction and productivity. Thus, to maintain a high degree of employee performance amongst the employees, leaders must possess a high degree of emotional capital. Doing so, will help the organisation achieve both its short- and long-term objectives and thus become sustainable.

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Work in Progress Papers

Identifying the Urban Development Pattern of Subway Cities Using Predictive Analysis

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Abstract: Starting from the hypothesis that there are structural differences in urban development between cities that have implemented underground transport and those that have not, the paper aims to provide a predictive analysis model to identify cities that show the pattern for the development of the subway network. In order to identify the predictive analysis model capable of classifying urban settlements, the predictive analysis part consisted of two stages. In the first stage, a Random Forest classification model will be estimated on a sample of the 27 capitals of the European Member States. Subsequently, based on this model, 9 cities in Romania will be classified from the perspective of the existence of the urban development pattern for the development of underground public transport. In order for the classification error of the predictive model to be as low as possible, variables from all areas specific to urban development (economic development, population density, circular economy, green city, digitalization, urban mobility) were used. The element of originality of the paper consists in calculating variables on the area of urban mobility, urban infrastructure and circular economy, using GIS coordinates. Thus, in addition to official international data sources, variables calculated by using geospatial technology (average distances, densities of green spaces, etc.) were included in this research. The main results of the research show that there are cities in Romania that present the same pattern of development similar to the capitals of the Member States of the European Union that have implemented underground public transport. Therefore, it can be said that for these cities it is necessary to implement this type of transport, the depreciation of the investment representing an easy process, which can be achieved in a medium or short term.

Keywords: Urban Development, Predictive Analysis, Urban Mobility, Public Transport, GIS

1. Introduction

Urban development is a particularly important aspect when the concept of "sustainability" or "sustainable development" is discussed. One of the important aspects for achieving goal 11 "Sustainable cities and communities" is the development of sustainable urban transport (Monteiro et al., 2024).

Therefore, the paper aims to identify the development patterns of sustainable urban transport among the 27 capitals of the European Union member states, but also to provide a tool for identifying the urban development patterns that require the development of the subway network. The second objective of the research, the development of a tool for the identification of urban development patterns that require the implementation of the subway network, represents the element of originality of the work. This work also offers an element of originality intended to help in the process of substantiating decisions at the level of local public administration.

2. Literature Review

The implementation of subway systems has emerged as a pivotal strategy in alleviating traffic congestion, prompting the widespread construction of subway networks in various cities. It is imperative that the dependability and resilience of these subway systems be ensured to effectively address the pressing issue of traffic congestion (Zhao and Hu, 2019). Gonzalez-Navarro and Turner (2018) examined the prevalence of subway networks in cities. Their analysis focused on a sample of 632 of the largest cities globally, with 138 of them having established subway systems. The study found that while larger cities are more inclined to have subways, the impact of these systems on urban population growth is minimal from an economic standpoint. Additionally, the research suggests that the presence of subways may lead to a degree of decentralization in cities, although the magnitude of this effect is modest. In contemporary urban transportation systems, rail transit has become a pivotal mode of passenger travel, with a particular emphasis on its operational efficiency and dependability. This is exemplified in the examination of Wuhan city, where research findings indicate that the subway network exhibits characteristics of a scale-free network (Liu and Tan, 2013). Moreover, the subway construction increases the spatial connectivity by 25%, the overall accessibility by 30.33%, and the polycentricity by 7.82%. These results demonstrate that the subway construction can significantly improve the connectivity and accessibility of Wuhan's urban spatial structure, especially the accessibility of peripheral districts, but improving polycentricity is weak (Song et al., 2023).

The integration of subway and bus networks has become an effective solution to reduce the growing congestion (Owais et al.,2021). However, Mourente and Benito (2015) state that the subway network exhibits better structural parameters than the urban bus network, with higher performance since in average a stop is reachable passing through less number of stops and carrying out less number of transfers between lines. Counterintuitively, it is found that transfer stations with large numbers of connections are not the most crucial, but the stations and lines with large betweenness centrality are essential, if subway networks are being attacked (Xiao et al., 2018).

3. Data & Methodology

The data analysis part consisted of two stages. In the first stage, using the Random Forest algorithm, a training model was developed at the level of the capitals of the European Union member states, with the classification variable being the implementation of underground transport (1- yes, 0- no). Subsequently, based on this model, a predictive model was estimated for 9 cities in Romania (Cluj-Napoca, Timisoara, Iasi, Constanta, Brasov, Craiova, Ploiesti, Galati, Oradea). These are cities that have not yet implemented urban underground transport. Therefore, the purpose of the second model is to identify the urban pattern that necessitates the implementation of urban underground transport.

To achieve the main objective of the research, the Random Forest classification algorithm was used. This classification method was chosen because its random nature provides the highest estimation accuracy. According to James et al. (2013), Random Forest trees offer an improvement in classification accuracy over "bagged trees" through a small random modification that influences the decision tree formation process. As with the "bagging" approach, it builds a series of decision trees on bootstrapped training samples (Scornet et al., 2015).

4. Results & Discussions

By using the Random Forest algorithm, the aim is to identify the factors contributing to the existence of an underground transport network in the capitals of the European Union member states. To ensure comparability between the capitals of the European Union member states and the most populated 9 cities in Romania, a common set of variables was used, with the dependent variable being the existence of a subway network in the city (1- the city has underground public transport, 0- the city does not have underground public transport).

The estimation error of the model is slightly below 20%, with slight fluctuations observed in the range of 500-600 trees. Therefore, to reduce the estimation error, the model was estimated using 700 decision trees, resulting in a prediction error of approximately 18.52%.

Analyzing the error matrix of the classification, it can be stated that the model has high accuracy for classifying cities that have implemented underground transport, with an estimation error of approximately 5.8%. On the other hand, the model does not perform with a high level of accuracy for cities that have not yet implemented urban the capitals Valletta, Riga, Dublin, and Bratislava are incorrectly classified by the model as having implemented underground public transport. Therefore, it can be argued that these cities exhibit exactly the type of urban development that necessitates the implementation of this type of public transport, but currently do not have a subway network as a mode of public transport.

For the second category of cities that have already implemented underground public transport, the only capital misclassified is Athens, the capital of Greece. This city does not exhibit the urban development pattern, in terms of infrastructure, urban mobility, and population density, of the other 16 capitals that have implemented underground public transport. In general, the subway network was implemented in densely populated cities, confirming the idea supported by Mourente and Benito (2015) that the subway is a faster means of transport than the bus. Also, analyzing the distribution of the cities that have implemented the subway network, the hypothesis supported by Gonzalez-Navaro and Turner (2018) is confirmed, which stated that large cities tend to develop the underground public transport network.

The main predictors of the predictive model are the number of buildings with 10 and 4 floors, as well as population density. So, it can be stated that subway could improve the traffic decongestion (Zhao and Hu, 2019). However, to ensure a structural decongestion of traffic, the local public administration must connect underground transport with public road transport (Owais et al., 2021). This result suggests that the urban development pattern, whether horizontal or vertical, significantly influences the implementation of an underground public transport network (Song et al, 2023).

Using the Random Forest model used at the level of the capitals of the European Union member states to classify whether they have implemented underground transport or not, a similar classification was performed for the other 9 cities in Romania. From these 10 cities, the most populous ones at the national level, Bucharest, were excluded since it is part of the training set. It is important to mention that up to this point, none of the nine municipalities have implemented underground public transport.

The model suggests that Cluj-Napoca, Constanta and Craiova are having the pattern of cities that have implemented the subway network. So, its public administrations should take into account the opportunity to develop the underground public transport system.

5. Conclusions

The random forest model resulting from the training set, at the level of the 27 European capitals, offers a good estimate for the cities that have implemented underground urban transport, with a classification error of approximately 6%, with only one capital being incorrectly classified, Athens (Greece). The main factors that influence the implementation of underground urban transport are the residential development model, horizontally or vertically, population density, as well as variables associated with urban mobility, mainly, the average distance from residential buildings to educational institutions. That is why, based on this model, there are European capitals that have not implemented the subway network, but that present the pattern of urban development that requires the development of this sustainable public transport (Valletta, Riga, Dublin, and Bratislava).

Having a classification error of up to 10% for the cities that implemented the underground public transport network, this model could also be used on the test set consisting of the 9 cities in Romania. Thus, it is found that cities such as Cluj-Napoca, Craiova and Constanta show the pattern of urban development that requires the development of underground public transport.

Acknowledgement

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Enhancing Women's Leadership and Agency in the Context of University Spinouts and Businesses

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Abstract: This paper is reporting the preliminary results of a case study at Coventry University. Using innovative methodologies, we map needs of women in academia who intend to start a university spinout/business and develop a supportive tool in line with the co-creational approach of Living Labs. Data collected at our creative workshop reveals how women struggle in a toxic masculine environment, in which they both identify external and internal barriers and difficulties in defining 'business success'. Our suggestion to support them is to invest in Living Lab based networking opportunities, role models, and to develop a tool that models the business journey.

Keywords: Gender, Academia, Business, Spinout

1. Introduction

The commercialisation of university-based research is generally considered a means of increased economic agency. As thought leaders, universities should be leading the way by investing in women entrepreneurs and modelling the structural supports needed to create pathways for women to lead in academia and beyond. However, women are not benefiting from the economic, social, and symbolic power or the leadership opportunities that follow from creating a successful spinout at the rate expected.

Research shows that in the United Kingdom, the number of women-led university spinouts (businesses developing of university-based research) is very low compared to those that are led by men. As shown by Griffiths and Humbert (2019, p. 16), the percentage of women 'C-Suite' leaders (CEOs, CTOs, or CFOs) is only 13%, as "[o]n average, there are 4.6 individuals listed as members of the C-Suite in each active spinout, consisting of 4 men and 0.6 women". Spotlight on Spinouts shows that in January 2023, founders of UK-based spinouts were 7.6% of all-female, 17% of mixed gender, and 75.4% of all-male; as for directors, only 3% were female, 44.9% were mixed-gender, and 52.1% were male (Whorwood et al., 2023, p. 28).

Literature also shows that the industry itself is influenced by a lot of gender stereotypes, which results in a gender imbalanced environment. Women leaders are mostly to be found in smaller spinouts, and there is a negative correlation between a spinout having a woman founder and being a recipient of a large innovation grant and featuring in a high-growth list. Related to this, women tend to label the mere 'survival' of their business as a kind of success already. They struggle much more with juggling their professional and private responsibilities and suffer from lower confidence than men (Griffiths et al., 2020). This data cannot merely be explained with the lower numbers of women in higher-level academic positions (Advance HE, 2021), as literature show a visible engagement of early career researchers in spinout activities, therefore often being multiply disadvantaged as both early career and woman (Griffiths et al., 2020).

Coventry University is conducting a study to investigate reasons for the gender imbalance in research-inspired female entrepreneurship as the first stage in co-creating a means of encouraging more women based in academia to successfully commercialise their research (e.g. through patents, spinouts). Women should be supported in commercialising their passions, research results, or inventions to fulfil their ambition and enable them to gain leadership positions in academia and beyond.

2. Preliminary Research Results

This case study entitled *Brick by Brick: Supporting Women in Academia in Their Spinout/Business Journey (AOE2)* is one of fifteen Action Oriented Experimentations undertaken by the Gendered Innovation Living Labs (GILL) project.

The focus of AOE2 is on the gender gap in entrepreneurship and innovation in academia. To engage with this issue, AOE2 employed a literature review, semi-structured expert interviews, and participant observations at the 2023 EBN TechCamp in Coventry to understand the barriers faced by would-be female entrepreneurs. Our data has shown that the gender imbalance in the academic spinout/business industry is related to complex structural disadvantages, including geographic, industrial, and intersectional ones.

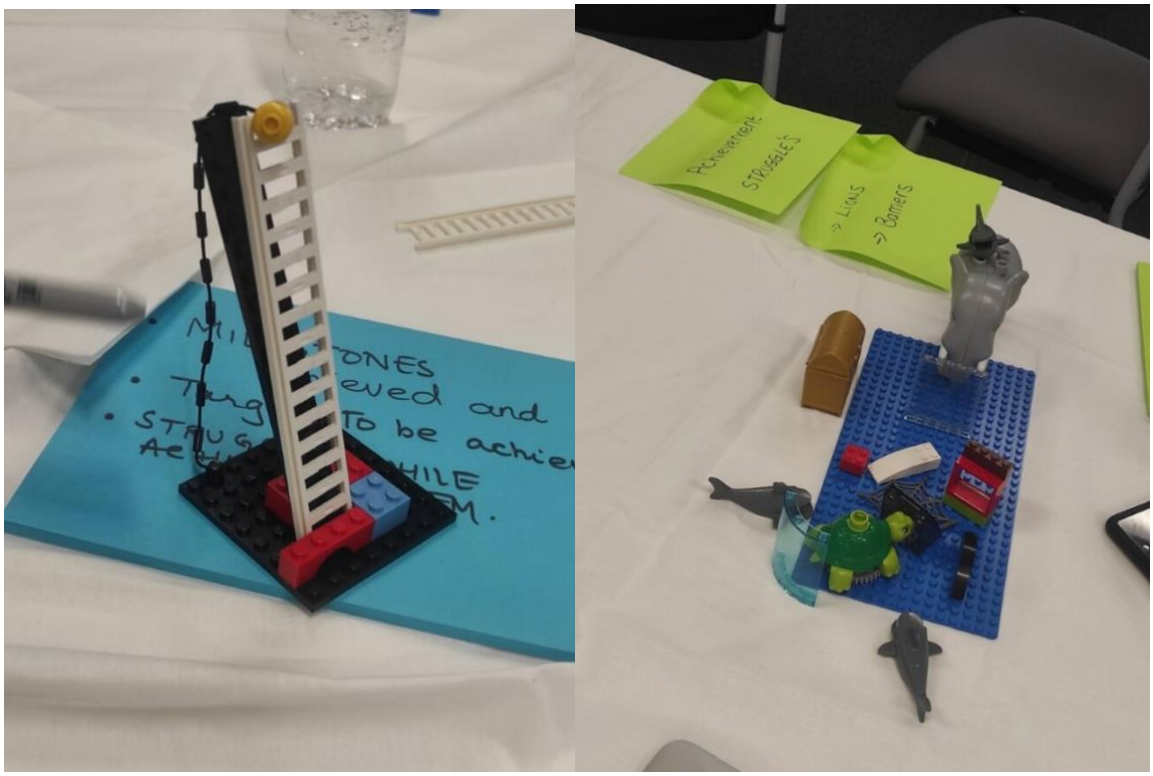
Women who decide to start and run a business are forced to be part of an environment which glorifies 'masculine' values, operates with information that is difficult to gain and understand, requires a lot of flexibility in terms of adaptation to new trends, and expects women to juggle various roles, including a division of time between academia, business and family. This creates additional barriers for middle-aged or elderly women, women with children (especially single mothers), as well as racialised women (see Chance, 2022, Ferraro, 2023). Also, the geographic data shows that university spinouts/businesses are generally more strongly represented in certain geographic areas (Russell Group universities, the 'Golden Triangle', and Scotland) and industries (STEM) (see Whorwood et al., 2023).

Coventry University is based in the West Midlands, in a relatively diverse region of the UK. This diversity is also represented in local higher education institutions. In order to understand more about the needs and aspirations of local female academics who wished to develop business concepts and start new businesses, a Co-Creation workshop 'Brick By Brick' was held in February 2024, inspired by LEGO® Serious Play®. The creative exercise was chosen to stimulate nontraditional thinking patterns; we aimed the workshop to be completely bottom-up and participant-led, letting participants work freely.

Seven women attended the workshop, mainly from the BAME communities. The workshop consisted of three phases, each operating with four cycles. The first cycle consisted of the workshop leader announcing the self-reflective exercise. In the second cycle, participants built a model, using the modelling bricks on the table. This was followed by the third cycle, in which participants described their model, and discussed it with the others. In the fourth cycle, they wrote their reflections on post-it notes. The three exercises were the following:

- Creating a model that symbolises participants' current situation with respect to their work, life, and possible business idea.
- Creating a model that symbolises the challenges and difficulties participants face in this regard.
- Creating a model that symbolises the way they imagine overcoming these challenges and difficulties.

Visual and written data was collected during the process: 1) photographs of the models, 2) research jottings that were subsequently turned into fieldnotes, 3) the reflective notes written by participants. The analysis was already started by the participants when they described and critically discussed their models, and was continued by researchers, creating analytical codes and notes. These were also fed into a Theory of Change.



Figures 1-2: models of challenges/difficulties

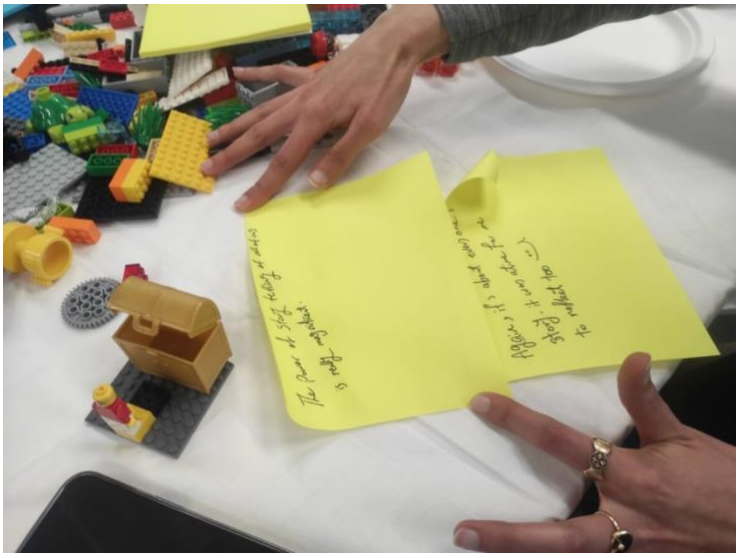


Figure 3: reflective notes.

A limitation of this method is, like in focus group-based qualitative research in general, the relatively small and non-representative group. Nevertheless, the method itself is replicable in other communities, and it is useful in providing multidimensional snapshots of challenges and opportunities within the respective community at a given time and space. The biggest strength is the support of innovative, nontraditional, and creative thinking, which results in new symbols and analogies of women's leadership issues (see Srivastava and Nalawade, 2023). Also, a huge level of trust and a sense of community was achieved during the workshop.

Results show multiple challenges that women in academia face in terms of spinouts/businesses. Despite our previous expectations, most did not come with a developed business idea they were willing to share with any confidence; instead, they had a lot of doubts what counts as a business at all (such as a proofreading firm or income from real estate investment). It turned out that most of them do not think about commercialising their research; they have parallel academic interests and business motivations, but their subjects might be different. What is common in both is the desire of more freedom in their time management and more economic security. This result shows that although academics are interested in starting businesses, those business ideas are not necessarily spinout ideas: this has been underrepresented in literature, as the focus has been more like on spinouts. Further research is needed to investigate whether the business ideas of these female academics show a desire to rather leave academia, and if yes, for what reasons.

The conversations revealed that many suffered from the current business environment. To name a few examples:

- Its toxic masculine understandings of 'success' and 'work-life balance'. Most participants reported to juggle career and carer duties already (see Participant 003's visualisation of this in Figure 1), and they have been concerned about putting more extra (possibly volunteer) work into a new business, despite their desire of the advantages of a business.
- Internal barriers (self-doubt, negative self-talk, anxiety, impostor syndrome). This was another general experience; most participant mentioned having negative 'voices' in their heads or be under 'a dark cloud'.
- External barriers (glass ceiling, discrimination at workplace and beyond, misogynistic environment, lack of financial and practical support). Various participants symbolised a glass ceiling or a transparent cultural barrier: see the latter in Participant 004's symbol in Figure 2.

They also expressed the need for a network where they can meet women in similar situations to theirs, and they emphasised the importance of role models.

3. Preliminary Conclusion and Moving Forward

At the current stage of research, we are considering various tools and practices to be implemented which could support local women in their spinout/business journeys. These include:

- Increased networking opportunities through regular meetings, in which women of academia who plan to start a business can meet and share experiences. These will be held at least every two months, face-to-face in informal settings outside of the university. These meetings will give women the chance to seek for peer support and share their experiences, challenges, and resources with others.
- Role models. To the network, speakers and workshop leaders will be invited who are 1) experts and leaders of already existing successful spinouts (any gender, but preferably women), 2) Enterprise & Innovation staff members of West Midlands based universities. Members of the network will have the chance to learn from role models and seek mentoring if needed.
- A supportive tool of the business journey. At the workshop, more needs for creative approaches were expressed, especially in collecting and sharing information on the legal and administrative sides of business. We will design an interactive storytelling app which models the necessary steps of the business journey, including hindrances and ways of overcoming them. The story will be co-designed with network members.

The intended network will be based on Living Lab philosophy, i.e. it will be an 1) open innovation ecosystem (welcoming anyone who needs networking and support) in a 2) real-life environment, using 3) iterative feedback processes throughout a lifecycle approach of an innovation (as built in the project design) to create 4) sustainable impact (in terms of both academic and applied research outcomes). Therefore, our long-term goal is to create a new Living Lab in Coventry, supporting business/spinout goals of women in academia.

Research outcomes of AOE2 are expected in terms of the development of entrepreneurial skills sets, clearer business goals, and a higher confidence among women in academia who plan to start a business. This will hopefully also feed into a more gender-sensitive and gender-equal environment of academic businesses and spinouts at the site of our case study and beyond.

4. Ethics

The workshop was approved by Coventry University Ethics, P173148.

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Disclosure of Interests

The authors have no competing interests to declare that are relevant to the content of this article. Views and opinions expressed are those of the authors.

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The Post Office Scandal: Implications for Management, Leadership, and Governance

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Abstract: Many have become more aware of the Post Office (PO) scandal because of the screening of the docudrama *Mr Bates vs The Post Office* in 2024 (ITV, 2024) and coverage of the recent Public Inquiry (*Post Office Horizon IT Inquiry*, 2024). However, there are also now several publications concerning the case which highlight key failures in governance, leadership and management that can be addressed. This working paper reviews the case from documented sources and applies critical insight to understand the case from the perspective of both business ethics and organisational behaviour. The author is a former Manager of Ethics and Responsible Business Practices for a global professional services firm, and the co-author of the Economist book, *Business Ethics* (Moon and Bonny, 2001). The paper highlights the need to build ethical and responsible decision-making cultures from the top down. However, setting the 'tone at the top' is no longer a useful paradigm. Too often senior leaders' distance themselves from the actual running of the enterprise to be fully aware of potential risks that need to be managed. In the case of the PO, key learning points are highlighted in this regard with reference to the work of the investigative journalist Nick Wallis (2021, 2022) and other key authors.

Key words: Post Office Scandal, Ethics, Governance, Leadership, Management.

1. Introduction

Between 1999 and 2015, more than 900 sub-postmasters were convicted of theft, fraud, and false accounting with about 700 prosecutions taken by the PO itself (JFSA, 2024). In 2019 it was ruled that the Post Office's contracts with the sub-postmasters were unfair, and that the Horizon system not only "contained bugs, errors and defects" but that the PO and its supplier Fujitsu were aware of these defects and covered them up (BBC, 2024a). In 2024 the public inquiry is ongoing, and the Metropolitan Police are investigating executives from the Post Office and its software provider, Fujitsu.

Wallis (2021,2022) provides the definitive account of the scandal, according to the BBC journalist and broadcaster Mishal Husain. Several aspects to the scandal are focussed on including *Rolling Out of the Horizon system, The Whistleblower, Cultural Blindness, and Corporate Denial.* However, this paper goes further and focusses on Ethics, Governance, Leadership, and Management. Indeed, none of these words appear in the index to the account provided by Wallis.

This paper includes a discussion of academic literature pertaining to the scandal including ongoing research conducted by Augustine et al (2023) for the British Academy/Leverhulme Small Research Grant. This research drew attention to the reasons for individuals not to speak out, and the decade or more it took for the tide of public opinion to turn in favour of the sub-postmasters affected. Further, Dennis (2024) draws attention to 'red flags of poor leadership', Jackson (2024) to toxic management culture, and West (2024) concerning lessons for directors.

2. Background

Like the docudrama, *Mr Bates vs The Post Office*, the Public Inquiry (The Post Office Horizon IT Inquiry, 2024) could be described as '*The Public vs Paula Vennells'*. Ms Vennells was the CEO of the Post Office from 2012-2019 and gave testimony at the Public Inquiry on 22-24th May 2024. The BBC posits that her testimony centred around five big 'moments' (BBC, 2024b). Firstly, that Ms Vennells had misled MPs during a meeting in June 2012. Secondly, texts from Dame Moya Greene, Royal Mail's former boss, stating that she felt Ms Vennells knew about the issues when she claimed she did not. Thirdly, Ms Vennels claim that she did not know, for at least five years, that the Post Office conducted its own prosecutions of sub-postmasters. Fourthly, an email from Ms Vennells in which she said her "goal" was that all press be "scoured for negative comment and refuted". Fifthly, Ms Vennells admission that she'd arranged for a reference to the Horizon IT system in the prospectus for the flotation of Royal Mail to be deleted, and her concomitant message to the PO Chair, Alice Perkins, that "I have earned my keep on this one."

3. Literature and Theory

The Public Inquiry drew attention to the role of the CEO in the scandal and other corporate executives, external agencies, organisational hierarchy and decision-making processes, the Post Office culture and values. Lawyers for the Sub postmasters argued that Ms Vennells cared more about PO profits and reputation than the plight of the Sub postmasters, and that Ms Vennells arguments that she did not know about the computer bugs and did not know about the prosecutions of Sub postmasters, were false (BBC, 2024c).

Dennis (2024) identifies several 'red flags' for poor leadership and toxic culture including, not facing up to bad news, ignoring mounting evidence, stubbornness, tunnel vision, refusing to be open and transparent, being institutionalised e.g., 'groupthink', and information overload. Similarly, Jackson (2024) reiterates the judgment from Bates and others vs POL, in which Mr Justice Fraser stated that there was "a culture of secrecy and excessive confidentiality" at the Post Office. Similarly, Shaikh (2022:190) describes the Horizon's 'cloak of invisibility'; and West (2024) states that the case evidences the failure of governance by successive boards of Post Office Limited (POL).

The above assertions point to the failure of governance, the toxic culture, and institutionalisation, and the role of various stakeholders including the software supplier Fujitsu, the Post Office executives including the CEO, General Counsel, Chief Information Officer, Risk Managers, the Post Office Investigation Division (POID), external consultants and external lawyers. This points to the need for a thorough stakeholder analysis of the various actors, their interests, and roles. This paper thus explores the efficacy of the stakeholder approach to analyse the PO case, the efficacy of any codes of conduct, and lessons learned for developing an ethical and responsible decision-making culture.

4. Findings and Discussion

Stakeholders in the scandal included: Post Office executives including Paula Vennells CEO PO 2012-2019, Chris Day Chief Financial Officer, Alice Perkins Chairwoman of the Post Office 2011-2015, Tim Parker former Post Office chairman, Angela van den Bogerd, PO business improvement director, PO senior IT executives Mike Young and Lesley Sewell, PO general legal counsels - Susan Crichton, Chris Aujard and Jane MacLeod, Jarnail Singh former PO Criminal Lawyer, PO Investigation Division (POID), Cartwright King lawyers for the PO, Fujitsu Services Limited, Richard Christou, CEO of Fujitsu 2000-2004, Rod Vawdrey, executive chairman of Fujitsu Services Ltd, with responsibility for UK operations 2011-2014, Gareth Jenkins Fujitsu Chief IT Architect and Horizon engineers, Fujitsu whistleblower Richard Roll, UK Government Investments, Department for Business & Trade, National Federation of Sub postmasters, the 900+ Sub postmasters, Second Sight Support Services Limited including Ian Henderson, forensic accountant, Sir Ed Davey postal affairs minister 2010-2012. This is not an exhaustive list.

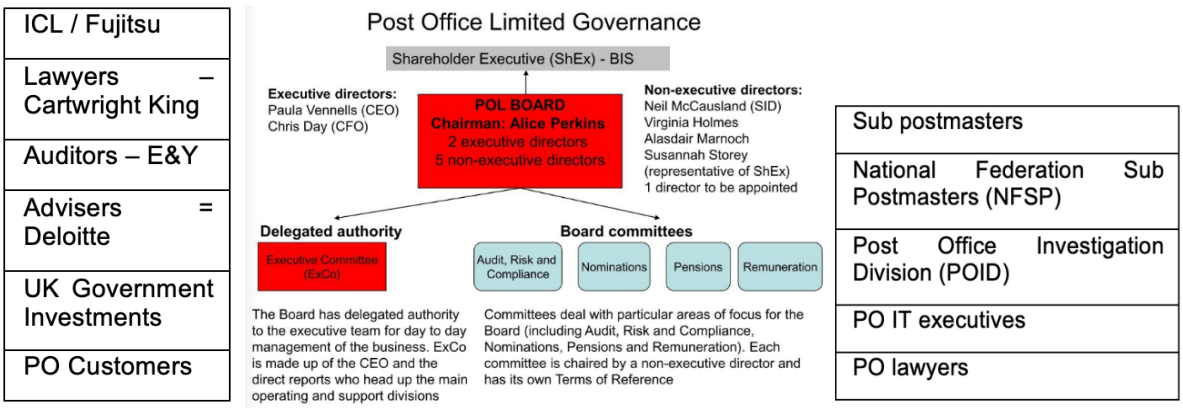

Figure 1: Stakeholder map of key stakeholders in the PO Horizon IT scandal (Adapted from Yumpu, 2014).

One drawback of providing a stakeholder map is that it does not provide an account of the personal experience of the different actors. The plight of the Sub postmasters included suicides, bankruptcies, loss of livelihoods and homes, mental health treatment including electroshock therapy, criminal prosecutions, prison sentences, victimisation, and public humiliation. One Sub postmaster was jailed when she was pregnant.

Other significant issues are that the PO does have a Code of Business Conduct, reviewed by the Institute of Business Ethics. The code requires mandatory training (PO, 2024) and is dated 2024. However, it is not yet known

whether the code existed at the start of the Horizon IT scandal in 1999. The PO ethical decision-making model is shown in Figure 2 and the current whistleblowing mechanism is called *Speak Up*.

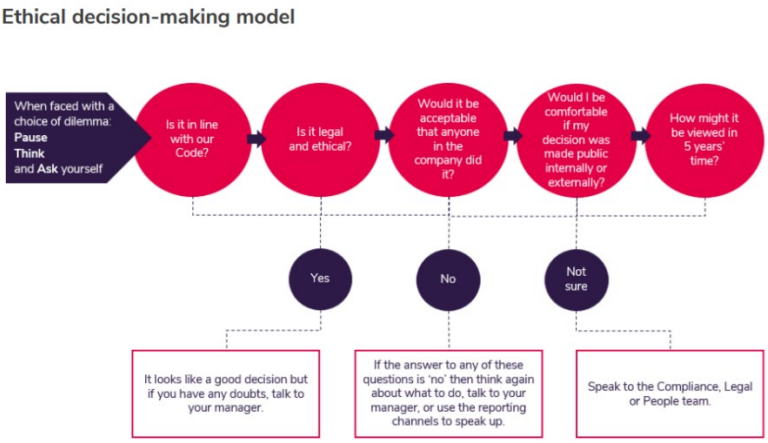

Figure 2: PO Ethical decision-making model, 2024.

5. Conclusions

What is clear is that PO executives did not abide by any ethical code that existed at the time of the Horizon IT scandal. And the Sub postmasters that raised concerns about Horizon IT were more likely to be prosecuted than protected. Paula Vennels gained a degree with Economics from University of Bradford and was ordained in the Church of England. According to the BBC she earned over £5m during her time at the Post Office (2024c). Did her highly paid role and the need to focus on PO profits lead to lapses of ethical judgment? This case calls into question the governance, leadership, and training of senior executives.

Moon and Bonny (2001) provided a model of business ethics that is based on building an ethical and responsible decision-making culture. Based on a survey of FTSE 350 companies a model was devised to explain that most companies formulate their values into mission statements and produce written codes of conduct. Nevertheless, unless genuine steps are taken to build and maintain a responsible decision-making culture, the written statements and codes may not be worth the paper they are written on. Figure 3 Indicates that a holistic approach is needed with leaders as role models, performance systems that are effective, and third-party verification.

IDENTIFY	COMMUNICATE	BUILD AND MAINTAIN A RESPONSIBLE DECISION MAKING CULTURE				
Values/mission statements	**Codes of conduct**	**Feedback gathering and analysis**	**Functional responsibility**	**Education and training**	**Performance reviews/ standards**	**External assessment**
Articulation of what the company stands for Top management commitment Management consistency between values and actions	Common framework to guide behaviour Code should emphasise principles over procedures Developed and supported by both management and staff	Stakeholder views Surveys / focus groups / interviews Diagnostics Whistle-blowing mechanisms	In-house expertise Leadership Corporate Governance needs Accessible to employees / management Ownership	All employees How wrongdoing occurs Realistic examples Sensitivity to diverse employee groups	Setting decision making as well as financial performance measures Key Performance Indicators Rewarding responsible behaviour / penalising inappropriate behaviour	Best Practice Objectivity & Independence Public Confidence Verification

Figure 3: Building an ethical and responsible decision-making culture (Moon and Bonny, 2001).

With even a cursory examination of the Post Office scandal a reasonable person would conclude that many of the above recommendations were lacking. There are clear implications for governance, management, and leadership. Governors need to ensure that there is critical oversight of key risks. In the case of the PO scandal the key risks were IT related. Yet, managers should have ensured that errors in the system were identified and corrected without finding Sub postmasters at fault.

Leaders in the organisation clearly colluded to present the rosiest picture they could about the Post Office by concealing the problems. This meant leaders became blind to ethics and integrity. Managers ruthlessly investigated Sub postmasters and pursued them with false accusations. The Post Office scandal is yet another reminder that the education of leaders and managers needs to be based on ethics and integrity rather than the ruthless pursuit of profits. Questions remain – where did the funds the PO say were stolen and reclaimed from Sub postmasters go? Who defrauded the Sub postmasters by forcing them to pay for these errors? Will there be restitution? What changes have the PO made to its working practices? What are the key lessons learned that can be applied to other organisations?

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More Money and Less Diversity: What is the Ideal Workplace According to the Gen-Z Perception?

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Abstract: In the evolving employment landscape, organizations are compelled to confront the formidable challenge of managing a multigenerational workforce. Generation Z—also referred to as Gen-Z, iGen, or the post-millennial cohort—are embarking on their initial career endeavors and are anticipated to significantly transform the work sphere in the forthcoming years. To tailor the prospective work milieu to the traits, necessities, and expectations of these youths, comprehending their conception of an optimal workplace is imperative. Concurrently, to efficaciously navigate talent management, it is paramount for organizational leaders to gain a nuanced comprehension of the factors influencing young individuals' decisions to depart from their jobs. This manuscript offers preliminary insights from a research endeavor conducted to discern Gen-Z's perspectives regarding the job market. A digital survey was disseminated in the summer of 2023 among Gen-Z individuals, garnering 461 responses. The investigative outcomes afford a distinctive opportunity to enhance our grasp of the anticipations and vocational ambitions harbored by this nascent workforce. In addition to a pronounced preference for substantial remuneration, commensurate benefits, and superior, adaptable working conditions, data indicates that Gen-Z places considerable value on the prospect of professional growth. We deduce that if employers accentuate their commitment to employee development and progression, they will more readily captivate this demographic's allegiance. Given the findings and Gen-Z's heightened propensity for intrinsic motivation relative to preceding generations, it is incumbent upon business executives to cultivate managerial competencies conducive to bolstering the young workforce's sense of purpose. These revelations provide a propitious foundation for extended inquiry into the future of employment, particularly concerning the assimilation of "digital natives" therein.

Keywords: Generation Z, Labor Market Entry, Future of Work, Talent Management, Career Expectations

1. Introduction

In the changing work landscape, organizations are forced to face a significant new challenge in managing a workplace that contains several generations at the same time. Organizations with a diverse generational composition currently include under one roof four generations of employees: the baby boomers who are retiring at an increasing rate; Generation X who have been employed for many years; the millennials who manage a career alongside a family; and Generation Z – also known as Gen-Z, iGen, or postmillennial – who are taking their first steps in the job market. The intergenerational gap in the world of work is contributed by the fact that each generation has a different set of expectations, unique behavior patterns, and other motivational factors (Racolţa-Paina and Irini 2021).

Gen-Z is generally considered to be young people born from the mid-1990s to 2010, with the oldest among them currently in their 20s (Benitez-Marquez et al. 2022). From their infancy, they experience a digital environment that develops at an accelerated rate, with multiple screens and a multitude of stimuli (Seemiller and Grace 2018). Given that they do not know a world without the Internet and that they were raised with mobile technology, they are often called “digital natives” (Barhate and Dirani 2023; Benitez-Marquez et al. 2022; Chillakuri 2020). Moreover, due to the high level of digital literacy, Gen-Z is considered more technologically savvy than any previous generation (Iorgulescu 2016).

2. The Research Purpose

Gen-Z is expected to change the world of work noticeably in the upcoming years (Kirchmayer and Fratricová 2020). To adapt the future work environment to the characteristics, needs, and demands of these young people, it is essential to understand what their perception of an ideal workplace is. Alongside this, and to take effective steps to manage talent, it is critical that corporate leaders develop a better understanding of the reasons why young people choose to leave their workplace. This paper presents preliminary evidence from a study we conducted intending to identify the Gen-Z's attitudes concerning the employment market.

3. Methodology

An online questionnaire was distributed in the summer of 2023 among Gen-Z and was answered by 461 respondents. In terms of gender, 241 men (52%) and 220 women (48%) took part in our study. Among the

participants, 67% work part-time (N=151) or full-time (N=157), while the rest do not work (N=153). The sample included 42% job seekers (N=192), of which 58% are employed who looking for their next professional challenge (N=111). Most of the respondents had a secondary school education (N=248, 54%), and 24% were defined as academics. To comply with accepted ethical rules and with the aim to collect authentic points of view on the world of work, we did not include minors in this study. Descriptive statistics were initially applied to the dataset, with subsequent plans for comprehensive statistical tests to identify correlations.

4. Preliminary Results

We asked the subjects to choose from a set of 10 elements what is the main element that motivates them in choosing a workplace. We understand that Gen-Z aspires to high salaries, with good benefits and extended conditions (N=176, 38%). Opportunities for promotion, self-development, and career growth came second on the list and were also identified as critical to the decision (N=140, 31%). When we asked the respondents what the second most important consideration in their search for a future employer is, the results were quite similar (see **Figure 1**).

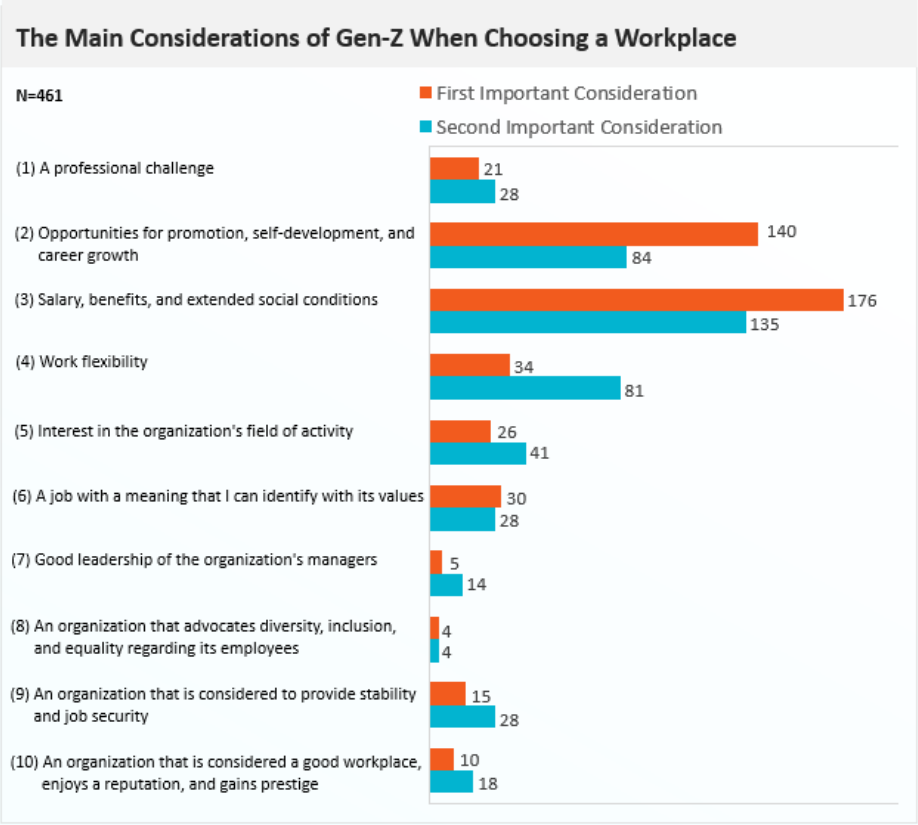

Figure 1: Key workplace priorities for Gen-Z candidates

If in the past stability and job security were the most important values in the employees' considerations when applying for a job (Maloni et al 2019), we discover that the new generation of employees is less conservative and does not place them as the top priority (N=15, 3%). Moreover, despite the growing awareness of the issue in recent years, less than 1% indicated that they would choose a workplace according to its degree of support for diversity, inclusion, and equality (N=4, 0.8%).

For the past decade, global media discourse has extensively covered the far-reaching impacts of climate change on our daily lives. The multitude of articles on this subject encouraged the perception that sustainability has a warm place in the hearts of the younger generation. Nevertheless, our research unexpectedly discloses that one-third of the respondents conveyed that the commitment of their organization to sustainability and environmental quality is of negligible or minor importance to them (N=152, 33%). It can be assumed that even if the issue deserves treatment in their view, they do not see corporate responsibility as directly related.

The participants' responses to inquiries about their core message for business leaders emphasized the importance of a substantial income and fair compensation for their work. Within this discourse, a remark from one respondent illuminates the dominant stance among the younger generation on entering the job market: "Gen-Z is unwavering in its employment conditions, thereby rejecting any form of exploitation."

It is interesting to find that about a third of the respondents (37%) agreed (N=106) or completely agreed (N=66) that they would prefer an interesting job with an average salary to a boring job with a high salary. In other words, over 60% are interested in making a good living, even at the cost of a lack of interest in work (see **Figure 2**).

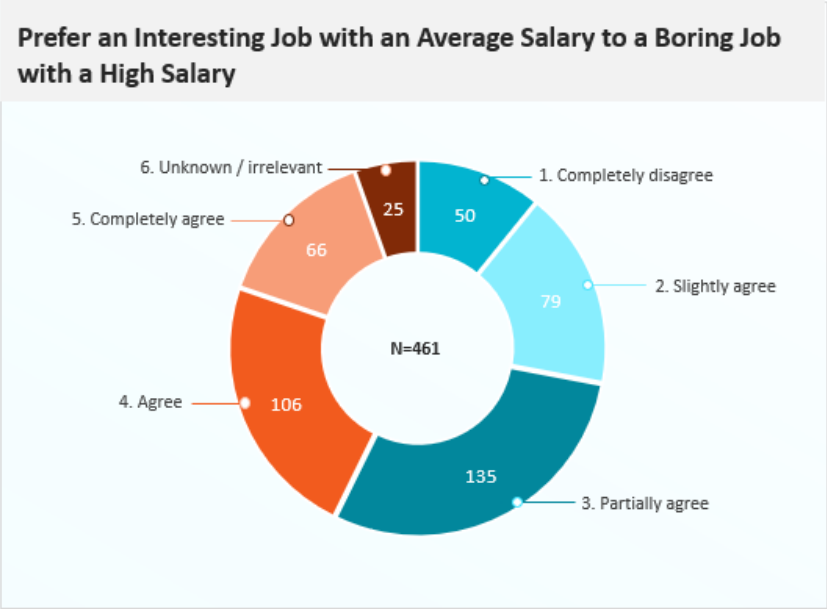

Figure 2: The preference for engaging work at average pay over monotonous roles with high compensation

Our research also delved into the potential catalysts for the digitally native generation's decision to exit their organization and seek a career change (see **Figure 3**). In corroboration with the results above, a quarter of the participants expressed they would tender their resignation if the salary did not fulfill their expectations, or if the benefits were found to be inadequate (N=114, 25%). Therefore, the predominant cause for resignation, as well as the chief incentive for affiliation with an organization, are intimately linked to opportunistic motives, encapsulated by the query, "What do I gain from this?".

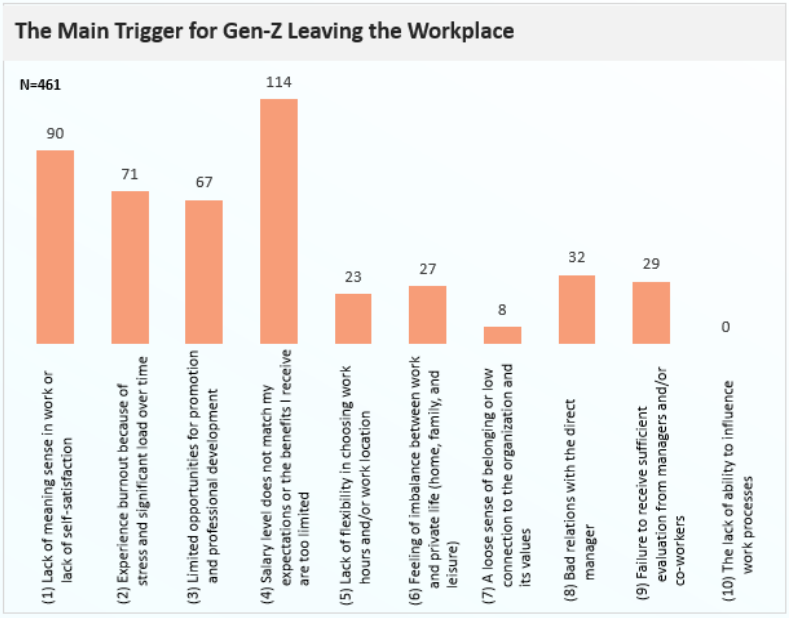

Figure 3: Principal catalysts for Gen-Z's workplace departure

Gen-Z is widely recognized for its idealism and goal-oriented approach in personal endeavors. The respondents highly value a sense of purpose and personal fulfillment in their professional roles, with 20% indicating that the lack thereof would compel them to consider resigning from their position (N=90).

In line with previous works, which claimed that Gen-Z places a high value on work-life balance (Kodithuwakku et al. 2018), our findings show that 71% agreed strongly (N=127) or agreed very strongly (N=201) that flexibility in working hours is extremely important for them. Moreover, 86% stated that they feel a high appreciation for organizations that encourage their employees to decide where they want to perform their tasks – from the office or home (N=398). Nevertheless, we find that only 8% would consider resigning if their employer required them to come to work in the office at least 3-4 times a week (N=35). This finding may be related to our discovery that the socio-economic situation worries the younger generation; Many of them chose to mention the harsh reality of the high cost of living in response to the open questions.

5. Summary

As a new generational wave begins to enter the workforce, it is imperative for corporate leaders to prepare their organizations for the workers of tomorrow. This research, with its preliminary results presented here, provides important insights that may help attract, retain, and manage Gen-Z talent, while creating a thriving and dynamic workforce.

The findings reveal a unique window for developing an improved understanding of the expectations and career aspirations of the new generation of workers. Along with the distinct desire for a high salary, adequate benefits, and excellent and flexible employment conditions, there is a statistic that suggests that Gen-Z attaches great importance to the feeling that they have where to grow. We understand that if employers emphasize the efforts they make for the development and advancement of employees, they will more easily win the hearts of this generation.

Considering the findings and that Gen-Z is more motivated by internal motivation compared to the generations that preceded it (Mahmoud et al. 2018), business leaders must adopt managerial skills that will be useful in strengthening the young workforce' meaning sense. Added value for businesses can be achieved by implementing effective support mechanisms for changes in work environments and developing career paths tailored to this new age group.

The results provide a rich foundation for further research on the future of work, particularly regarding the integration of “digital natives.” Future studies could delve into the evolving expectations of Gen-Z as they advance in their careers, examining how their needs and aspirations change over time.

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Capacity Planning in Paediatric Palliative and Hospice Care: An Italian Case

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Abstract: Although the growing demand for healthcare services has enhanced the occurrence of inefficiencies in care provision, healthcare systems should ensure safe, timely and equitable access to care. In particular, the long waiting lists, the lack of beds, and the shortage of healthcare workforce have highlighted the necessity to effectively manage and strategically plan the available resources. Capacity Planning (CP) contributes to determine what, when, where and how much product or service to deliver, with the goal of analysing and optimizing the use and allocation of human and material resources (e.g., physical spaces, equipment, beds, workforce) based on the demand. CP demonstrates to be extremely relevant for hospital units to schedule appointments, diagnostics, surgeries and admissions. Complex contexts and broader healthcare networks could benefit even more from this approach, helping to coordinate multiple care providers and aligning the available resources with the demand pace. The current research presents the implementation of CP in the context of Paediatric Palliative and Hospice Care (PPHC), delivered in an Italian facility. PPHC provides long-term, interdisciplinary and coordinated care between territorial, ambulatory and hospice services. It encompasses follow-up activities, parental training, end-of-life and respite care. In the Italian case analysed, the shortage of beds affects the quality of care delivered to these patients, in terms of accessibility to the service, effectiveness and timeliness of care. Hence, a CP analysis has been performed to pursue a twofold objective: a) to understand if the current capacity of the facility meets the demand for care; b) to improve productivity through an optimized allocation of resources, particularly the available beds and the healthcare workforce. The expected results involve a more effective use of resources, an increased bed occupancy rate and a reduction in rescheduled admissions due to inadequate planning. Optimizing capacity in this specific setting can serve as a pilot project for other similar contexts, aiming to improve patients' access to healthcare services, their quality of life and supporting the workforce involved in PPHC. This research offers new insights from both the academic and managerial point of view, providing evidence about the implementation of CP in complex healthcare settings.

Keyword: Hospice Care, Paediatric, Capacity Planning, Resource Planning and Management

1. Introduction and Theoretical Background

The healthcare system is currently under significant pressure to enhance productivity and performance while ensuring safe, timely and equitable access to care (Eriksson *et al.*, 2017; Youn, Geismar and Pinedo, 2022). With demand usually exceeding capacity, creating unmet demand, and optimization often lacking, the need to efficiently and effectively utilize scarce resources to maintain high levels of quality is evident (Humphreys *et al.*, 2022; van Hulzen *et al.*, 2022). In this challenging context, Capacity Planning (CP) emerges as a critical approach to optimize healthcare delivery. Healthcare capacity, generally defined as the upper limit of productivity (i.e. the output or number of patients treated in a given period) represents the best possible performance. However, the capacity utilized is often lower than this theoretical maximum due to resource limitations and operational inefficiencies (Burdett and Kozan, 2016; Humphreys *et al.*, 2022). Research highlights the impact of capacity strain on patient outcomes; in fact, periods of resource strain are correlated with higher patient mortality rates and compromised health outcomes. This consideration highlights the necessity of effective CP to mitigate risks (Eriksson *et al.*, 2017).

CP proves to be highly significant for hospital departments in scheduling appointments, diagnostics, surgeries, and admissions, resulting in numerous enhancements such as cost reduction, quality and productivity improvement, and risk mitigation (Youn, Geismar and Pinedo, 2022; Fei and Kang, 2023). In complex contexts and broader healthcare networks, CP can be particularly advantageous, as it helps coordinate multiple care providers and align available resources with the pace of demand (Youn, Geismar and Pinedo, 2022). The current research aims to implement CP in the complex context of Paediatric Palliative and Hospice Care (PPHC). PPHC support fragile children with life-limiting, severe and incurable diseases and their families enhancing their quality of life (Klick and Hauer, 2010; Feudtner *et al.*, 2013). Paediatric hospice offers an alternative residential structure

to hospital for patients with high care complexity (Benini *et al.*, 2024). This setting encounters numerous challenges, including a severe shortage of human and material resources, compounded by rising demand and clinical complexities. In Italy, only 15% of the demand for PPHC is currently being met, underscoring the urgent need for improvement (Benini *et al.*, 2024).

2. Methodology

This research aims to conduct a CP analysis within the context of PPHC in an Italian facility with two primary objectives:

1. To evaluate whether the current available capacity is adequate to meet the demand. If it is inadequate, the analysis will calculate the necessary level of capacity required to provide the appropriate level of care.
2. To improve productivity by optimizing the allocation of resources, with particular attention to the availability of beds.

This research is carried out in "Casa del Bambino", an Italian hospice selected because it is the regional and national referral centre as it provides all the services required by the Italian essential levels of care and is in extreme need due to a shortage of resources. In fact, the centre serves approximately 400 children, with only 4 beds available. This shortage has a significant impact on service accessibility, care effectiveness, and timeliness, compromising the overall quality of care provided. The hospice operates with a multidisciplinary team of 5 physicians, 24 nurses, 2 psychologists, and 1 physiotherapist, delivering continuous and coordinated care through various services, including territory care and hospice.

To address the two objectives of the study, the methodology is structured into the following steps:

a. Demand analysis: data from 2021 to 2023 were compared to assess changes in the need for PPHC. Several indicators such as number of patients and number of admissions were calculated.
b. Segmentation by type of admission: patients were grouped based on the type of care and assistance services they received. This allowed the assessment of specific metrics related to each category.
c. Trend analysis: temporal trends were identified by analysing the distribution of admissions over the years and by day of the week, providing insights into the patterns of care demand.
d. Capacity analysis: current and projected demands were compared with available capacity to assess whether adjustments are required and, if so, to quantify the extent of those adjustments.
e. Resource optimization: to address the second objective, simulations of alternative bed utilization scenarios will be performed, utilizing both historical and forecasted data. These simulations will help identify the most efficient scenarios for maximizing occupancy. Additionally, techniques such as linear programming will be applied to further refine the balance between demand and capacity

3. Preliminary Results

The comparison between different years revealed a significant increase in the demand for hospice services, attributable to the extended lifespan of children requiring PPHC (Cohen and Patel, 2014) and the growing knowledge and awareness of these services in the region. Specifically, the increase in patients in care from 2022 (282 patients) to 2023 (404 patients) was 43%. The number of patients with non-elective admissions has also increased, with the proportion of unplanned admissions rising from 20% of the total admissions in 2022 to 27% in 2023.

The segmentation of admissions according to the care and assistance services provided led to the identification of five different groups:

- Introductory: for newly admitted patients requiring comprehensive evaluation by the healthcare team.
- Parental Training: to educate parents on daily management and emergency responses for their child's care at home.
- Follow-up: for periodic clinical assessments and re-evaluations of the patient's condition.
- End-of-Life: to manage end-of-life phase.
- Aggravation: to offer an alternative to hospitalization during periods of clinical decline.
- Respite care: to provide temporary relief to families from the continuous care and management of their child.

These categories can be further divided into two main types: elective (Introductory, Parental Training, Follow-up) and non-elective (End-of-Life, Aggravation) admissions. Analysis of admission trends indicates significant variability throughout the year, with certain months, such as October, showing higher numbers of non-elective hospitalizations, while others, like July, exhibit lower volumes. Mondays consistently record the highest volume of both scheduled and unscheduled admissions. Due to the long admission process, this analysis suggests avoiding the scheduling of hospice admissions on Monday, to prevent staff overload.

Since bed capacity emerged as a bottleneck, the comparison between the current available capacity and demand was performed considering the number of beds. The preliminary findings indicate that the current available capacity is inadequate to meet the demand, revealing a need for at least 2 additional beds. Furthermore, to optimize bed capacity, priority should be given to unscheduled admissions that cannot be postponed. The analysis suggests assigning 1.5 (depending on the month) beds specifically for non-elective admissions to ensure urgent care readiness. However, these results will be validated through further analyses.

4. Conclusion

In conclusion, the need for effective CP in PPHC is highlighted by the increasing demand and limited resources available. By optimising resource allocation and, in the long term, expanding bed capacity to meet demand, it becomes possible to guarantee quality of care to all patients, enhance care pathways and improve patient outcomes.

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Addressing Lean and Safety Readiness Assessment in Territorial Ambulatory Healthcare

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Abstract: Within the international healthcare landscape, it is incumbent upon all organisations to proactively address individual patient needs by offering a wide range of services. In this context, Territorial Ambulatory Healthcare (TAH) is critical to promote equal access to care as the primary point of contact between National Healthcare Systems and individuals. To achieve this goal, the adoption of Lean and Safety Management (L&SM), a managerial approach to proactively reduce clinical risk and process inefficiencies, can support organisations in pursuing high quality care objectives. Despite the positive benefits associated with the adoption of this approach, the feasibility of guaranteeing a sustainable care quality over time may encounter several challenges. Among these, key contributors to failure include the lack of tailored tools and practices suitable for the healthcare environment, insufficient readiness of the context for implementation, and the absence of a comprehensive system-wide performance strategy. Recent studies in literature address these issues presenting theoretical and practical models to assess readiness levels, highlighting opportunities for future developments of these topics. The current empirical study contributes to the existing knowledge by creating a framework to assess the level of readiness for L&SM implementations within TAH. While this context is essential for ensuring high-quality care and equitable access to care services, successfully implementing L&SM initiatives within TAH is challenging due to the organizational complexity and the involvement of multiple, fragmented stakeholders and care providers. Addressing weak Critical Readiness Factors (CRFs) before starting a project can significantly contribute to successfully implement L&SM and sustain improvement over time. This study will be conducted within the TAH setting of a healthcare organisation in Northern Italy and aims 1) to evaluate the specific care setting readiness for L&SM implementations and 2) to develop practical guidelines to support the organisation in increasing its actual readiness level. The theoretical framework will be grasped integrating prior research on Lean readiness assessment, along with specific literature on L&SM sustainability implementation factors within TAH. Once refined and tested with the purpose of developing a practical assessment tool, the framework will be applied within the selected setting, leading to the identification of practical guidelines to facilitate project success and improvements sustainability. Overall, this research will contribute to enrich the knowledge about L&SM implementation within TAH, supporting health organisations, managers, and clinical leadership to sustainably improve care quality, enhancing the role of territorial care to foster social well-being.

Keywords: Lean and Safety Management, Care Sustainability, Ambulatory Care, Outpatient Care, Readiness

1. Introduction and Theoretical Background

In recent decades, the healthcare sector has encountered multiple crisis and challenges, including demographic changes and a shortage of resources. As a result, it has become essential to enhance organisations by empowering community care services. This shift directs the focus from inpatient to outpatient care, emphasising health prevention as a core strategy (World Health Organization, 2016). In this scenario, it is important to proactively address individual patient needs by offering a wide range of services. Among these, Territorial Ambulatory Healthcare (TAH) promotes equal access to care and patient safety, serving as the primary point of contact between National Healthcare Systems and individuals, and addresses care needs without relying on inpatient facilities (OECD, 2020; World Health Organization, 2021).

To achieve these objectives and efficiently manage patient care at a territorial level, the adoption of a structured managerial approach to improve both care pathway performance and patient safety can support organisations in pursuing care quality objectives (Tiso et al., 2022). This managerial approach, known as Lean and Safety Management (L&SM), combines Clinical Risk Management (CRM) and Lean Healthcare Management (HLM) to proactively reduce risks and waste. Although its relevance is acknowledged, there is still little evidence of its implementation at a territorial level (Crema & Verbano, 2015; Radnor et al., 2012; Tiso et al., 2022).

Despite the positive benefits associated with the adoption of this approach, guaranteeing the sustainability of care quality over time may encounter several challenges. Among these, a key factor contributing to failure is the insufficient readiness of the context for implementation (Narayanamurthy et al., 2018). The recent literature has addressed these issues by developing theoretical and practical models to assess readiness levels, thus presenting opportunities for future investigation of these topics. Territorial care services have only been partially

explored by Narayanamurthy et al. (2018) in their study conducted within a primary care centre. Nevertheless, safety aspects are often absent in HLM readiness level assessments, warranting further investigation (Alnajem et al., 2019; Costa et al., 2024; Narayanamurthy et al., 2018; Vaishnavi & Suresh, 2020). Furthermore, the literature suggests that future research should validate readiness assessment models by considering the entire improvement implementation process and determining whether it effectively prevents project failure. Despite this, there is a scarcity of studies that specifically evaluate the readiness level in organisations that have never implemented HLM or L&SM, or have only partially implemented it to an extent that is not widely known within the setting (Alnajem et al., 2019; Costa et al., 2024; Narayanamurthy et al., 2018; Vaishnavi & Suresh, 2020).

For these reasons, the purpose of this study is to develop a L&SM readiness assessment model. This model, based on the existing literature and integrating sustainability and safety aspects, will be developed to outline the Critical Readiness Factors (CRFs) needed to support project success and sustain improvements over time. Additionally, the study aims to implement this model by evaluating the readiness level through the administration of a questionnaire to the personnel within a healthcare organization in Northern Italy. The questionnaire will enable the assessment of the L&SM readiness level for each CRF, identifying those that are weaker and need to be addressed to support the healthcare organization in successfully implementing L&SM. Subsequently, by drawing on existing literature and brainstorming with involved healthcare personnel and L&SM experts, practical guidelines will be developed to enhance the L&SM readiness level in the target setting. The evaluation will be focused on settings where L&SM has not been previously widely adopted. In the following of this paper the methodology adopted and some preliminary results on the L&SM theoretical readiness model development will be presented.

2. Methodology

To address the purpose of this study, a theoretical model was developed by analysing the literature on HLM readiness assessment. The search performed on scientific literature databases using the keywords “Lean” and “Readiness” identified only a few papers, as this is a emerging area of study. In particular, the two theoretical frameworks proposed by Costa et al. (2024) and Narayanamurthy et al. (2018) were integrated with other specific studies on L&SM. This integration led to the identification of a comprehensive framework of 39 CRFs to support the L&SM initiatives and to maintain the improvements achieved over time.

The two over-mentioned studies were selected due to their extensiveness and rigour in the identification of CRFs through comprehensive literature reviews, providing an overview of the current state of the art. Furthermore, the work produced by Narayanamurthy et al. (2018), although preliminary to that of Costa et al. (2024), was deemed particularly relevant to this study, as it is focused on a primary care centre.

The CRFs of both studies were combined after several stages of in-depth analysis of the two papers and the available literature. The results of this process were independently validated by the four authors. The resulting CRFs were organised into six different categories, each corresponding to specific stakeholder groups: top management; frontline employees and the L&SM project team; L&SM experts/leaders; patients and other customer groups; suppliers: and health organisations. The categorization of the CRFs based on the stakeholders involved, was defined through brainstorming sessions with L&SM experts. An in-depth description of each CRF was provided, drawing on previous literature. A final validation was conducted by comparing all CRFs to ensure that each CRF feature is unique and not duplicated in other CRFs.

3. Preliminary Results

The resulting theoretical framework encompasses 39 CRFs, organised into six different categories, based on the specific stakeholders they involve, as identified in the literature (Table 1). CRFs related to top management emphasise the need for high personal commitment and involvement, along with a deep understanding of L&SM culture and principles. For frontline employees and the project team, significant knowledge of L&SM is also required, with an emphasis on providing appropriate training on tools and practices. It is crucial that employees are empowered and encouraged to proactively participate in L&SM projects. Regarding L&SM experts and leaders, the primary focus is on their fundamental role in guiding and facilitating L&SM improvement projects, aligning stakeholders' expectations, and tailoring L&SM tools and practices to the specific context. Patients and their caregivers are recognised as an important customer group, considering their perception of value to be of the utmost importance. On the contrary, suppliers receive attention primarily in terms of understanding their alignment with the needs and objectives of the organisation. Finally, the healthcare organisation category encompasses several CRFs addressing various aspects, focusing on communication and the promotion of a

supportive environment. In the coming months, the theoretical framework will be refined to highlight aspects closely related to sustainability and safety. A specific literature review is currently underway.

Table 1: CRFs stakeholders' categories

Stakeholder Category	N. of CRFs
Top management	8
Frontline employees and the L&SM project team	12
L&SM experts/leaders	5
Patients and other customer groups	3
Suppliers	2
Health organisation	9

Considering the future steps of this research, they will include the assessment of the readiness level within a TAH setting in Northern Italy, involving employees with little to no prior knowledge of L&SM. In this regard, a questionnaire was developed to evaluate the presence of each CRF within the selected setting. It was designed to be administered to health personnel and management. A pilot test of this questionnaire was conducted, allowing the refinement and development of the final version. Concurrently, a second questionnaire has been developed to be administered to L&SM experts, to assess the level of importance of each factor in supporting the success of L&SM projects. This dual evaluation approach will allow to rank CRFs by processing the linguistic variables with fuzzy numbers (Narayanamurthy et al., 2018; Wang & Chang, 2007; Zavadskas et al., 2010). The weakest factors in terms of presence but considered very important for the success of a L&SM implementation will be prioritised for improvement actions. To this end, practical guidelines will be grasped to support the organisation in increasing its actual readiness level.

Overall, this research will contribute to enrich the knowledge about L&SM implementation within TAH by providing valuable insights into L&SM readiness aspects, thus contributing to the expansion of the current literature on these topics, characterized by few empirical and theoretical papers. Furthermore, this research will support health organisations, managers, and clinical leadership to sustainably improve care quality, enhancing the role of territorial care to foster social well-being.

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The Current State of Leadership Research: Identifying Key Trends through Natural Language Processing and Machine Learning Analysis

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Abstract: The impact of leadership on organizational performance and success is a well-established theme, leading to a significant expansion in related scientific studies. This has made identifying and understanding the current state of literature challenging. Most studies focus on specific aspects of leadership, offering a fragmented view of the field. This study employs Natural Language Processing (NLP) techniques and a machine learning approach to analyze 19,429 research papers from Web of Science and Scopus. We aimed to identify and interpret current trends in leadership research, providing a comprehensive overview of the leadership domain, highlighting five key research trends: (1) Leadership and Digital Transformation Research (LDTR); (2) Leadership and Organizational Performance Research (LOPR); (3) Educational Leadership Research (ELR); (4) Leadership Practices and Development Research (LPDR); and (5) Gender and Diversity Leadership Research (GDLR). This overview not only delineates current trends but also aids researchers in identifying significant gaps in existing literature, thereby facilitating the development of innovative research projects and initiatives.

Keywords: Leadership; Research trends; Research gaps; Natural Language Processing (NLP); Latent Dirichlet Allocation (LDA) Analysis.

1. Introduction

The recognition of leadership's significance in organizations has become increasingly salient within the rapidly evolving global context (Fareed *et al.*, 2022; Piwowar-Sulej and Iqbal, 2023). This recognition is particularly pertinent in light of the challenges posed by globalization, technological advancements, and socio-cultural shifts (Sum, 2022), all of which accentuate the critical role of effective leadership in enhancing organizational performance (Hilton *et al.*, 2023; Piwowar-Sulej and Iqbal, 2023). Consequently, leadership is not only acknowledged as a pivotal element for organizational success (Fareed *et al.*, 2022; Piwowar-Sulej and Iqbal, 2023) but is also increasingly valued across various organizational domains (Fladerer and Braun, 2020), leading to a significant increase in studies on leadership.

However, the increasing volume of leadership studies has made identifying and understanding the current state of the literature challenging. Most studies focus on specific aspects of leadership, offering a fragmented view of the field. This fragmentation is exacerbated by the diversity of theoretical perspectives and methodological approaches employed by researchers and the emergence of new topics and areas of investigation (Badura *et al.*, 2022; Oc *et al.*, 2023), which complicates efforts to understand the current state of leadership research.

This study employs Natural Language Processing (NLP) techniques and a machine learning approach to identify and analyze research trends in leadership research. By managing and interpreting extensive large volumes of data, this study provides a comprehensive overview of the current state of research in this field. This overview not only delineates current trends but also aids researchers in identifying significant gaps in existing literature, thereby facilitating the development of innovative research projects and initiatives.

2. Methodology

We conducted a comprehensive search using Scopus and Web of Science about the keyword “leadership”, excluding literature reviews and conference proceedings. 133078 peer-reviewed research publications were found by this search. A total of 42847 research publications were found to be duplicated. To find research publications unrelated to leadership (e.g.: price leadership, market leadership, fashion leadership, supply chain leadership, brand leadership, technological leadership, and others), a manual human review was carried out, which led to removing 33 684 research papers, improving the quality of the data. A total of 56547 research

papers were obtained. To identify trends, we restricted the study to research papers published from 2021 to 2023, which corresponded to 19429 research papers. This study used research paper abstracts, which are easily accessible, provide a succinct synopsis of main ideas, and facilitate preprocessing and NLP analysis due to their standard format (Kim and Kim, 2022).

Figure 1 illustrates the overview of the steps processed. Key Python packages used included NLTK for preprocessing (Bird *et al.*, 2009) and Gensim for applying LDA (Rehurek and Sojka, 2010). Preprocessing the data to ensure suitability for unsupervised machine learning is essential before implementing the Latent Dirichlet Allocation (LDA) algorithm. Preprocessing involved lowercasing, lemmatization, stop word removal, tokenization, n-grams evaluation, and removal of numerals and punctuation. Pointwise Mutual Information (PMI) scores were calculated for n-grams to select the most relevant ones. An LDA function was created and a grid search approach was employed to optimize LDA parameters, evaluating the number of passes, topics, and hyperparameters alpha and beta. The coherence scores (C_v) and perplexity scores (Ps) were used to choose the best model.

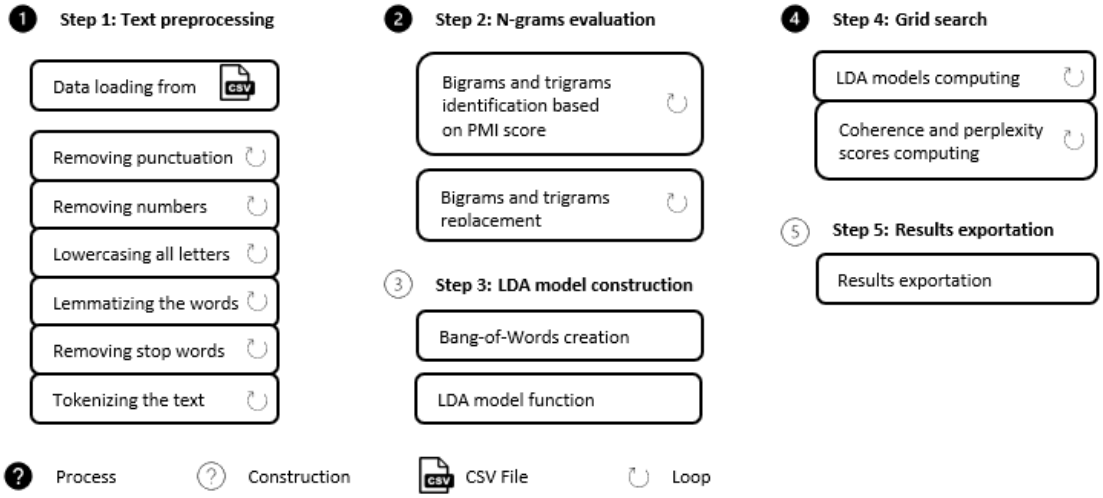

Figure 1: Study method overview.

3. Findings

A wide range of set values was covered by these grid search parameters, and 675 distinct potential LDA models were generated. The coherence and perplexity scores for the combination of the number of trends and passes are displayed in Figure 2.

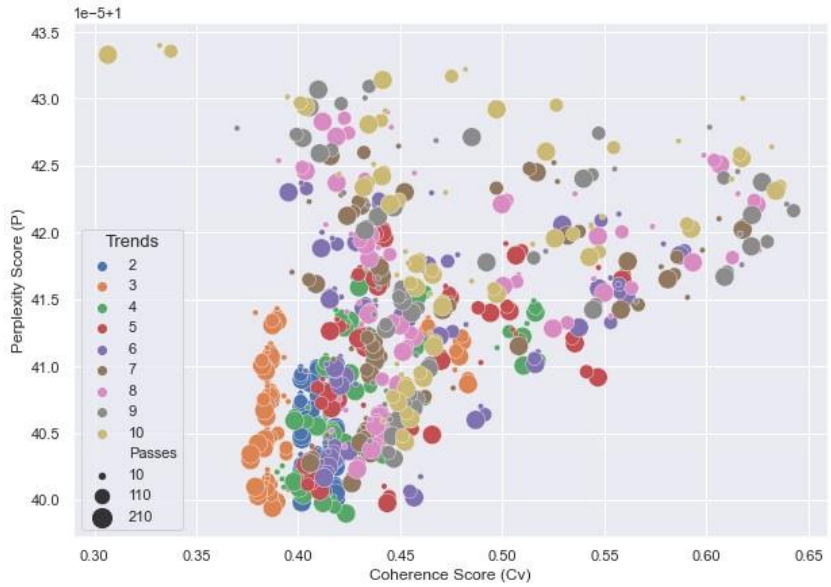

Figure 2: Coherence and Perplexity Scores by Number of Trends and Passes.

In selecting the LDA model, the 9-trend model (K=9) had the highest coherence score (Cv=0.643), while the 2-trend model (K=2) had the lowest perplexity score (Ps=43.399e-5 + 1), indicating statistical robustness. However, a 5-trend model (K=5; Cv=0.503; Ps= 41.863e-5 + 1) was chosen for its balance between topic coherence and model perplexity, ensuring coherent and interpretable topics without oversimplification or excessive complexity. The term-topic matrix for the 5-trend model is presented in Table 1.

Table 1: Term-topic matrix

Trend Number	Terms expressed as lemmas									
1	Digital	Digital Transformation	Digital Technology	Charismatic	Strategizing	Century	Sometimes	Text	Chief Executive	Discursive
	(0.004)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
2	Leadership	Study	Employee	Leader	Relationship	Performance	Behavior	Organizational	Effect	Organization
	(0.039)	(0.026)	(0.018)	(0.013)	(0.011)	(0.010)	(0.008)	(0.007)	(0.007)	(0.007)
3	School	Teacher	Student	Principal	Learning	Instructional	Educational	Teaching	School Principal	Reform
	(0.045)	(0.038)	(0.020)	(0.015)	(0.014)	(0.006)	(0.005)	(0.005)	(0.004)	(0.003)
4	Leadership	Leader	Practice	Study	Change	Development	Approach	Process	Experience	Management
	(0.028)	(0.013)	(0.009)	(0.007)	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)
5	Woman	Female	Gender	Position	Diversity	Career	Sport	Coach	Athlete	Academic
	(0.018)	(0.010)	(0.010)	(0.007)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)

Note: The terms are listed according to their decreasing probability of occurring in the trend k.

Based on Table 1, the results suggest the following research trend topics in the leadership field.

Trend 1: Leadership and Digital Transformation Research (LDTR) – This trend focuses on the relationship between leadership and digital technology in organizations. Keywords like "digital" and "digital transformation" indicate research on how leadership adapts to digitalization, addressing its benefits and challenges. The terms "charismatic" and "strategizing" highlight leaders' personal attributes and strategies in the digital landscape.

Trend 2: Leadership and Organizational Performance Research (LOPR) – This trend examines the connection between leadership and organizational performance, using keywords like "performance," "organizational," and "leadership." Studies focus on how leadership impacts employee performance and organizational success, aiming to improve overall performance and cultivate strong work relationships.

Trend 3: Educational Leadership Research (ELR) – This trend highlights the role of leadership in educational environments, with keywords like "school," "teacher," "student," and "principal." Research explores how school leaders influence student performance, teaching quality, and educational reforms, emphasizing leadership's impact on learning outcomes and the educational process.

Trend 4: Leadership Practices and Development Research (LPDR) – This trend investigates the implementation and development of leadership, with keywords like "leadership," "practice," and "development." It delves into leadership tactics, the evolution of methods, and the processes of enhancing leadership competencies, focusing on adaptive leadership and change management.

Trend 5: Gender and Diversity Leadership Research (GDLR) – This trend explores gender and diversity in leadership, using keywords like "woman," "female," "gender," and "diversity." It examines the obstacles and opportunities for women and diverse groups in leadership roles, particularly in sectors like sports, highlighting the importance of inclusivity and the benefits of diverse leadership.

4. Discussion

The increasing complexity and globalization of organizations have highlighted the need for effective leadership, leading to substantial growth in leadership research with new areas and research topics (Badura *et al.*, 2022; Oc *et al.*, 2023). We identified five key trends: LDTR, LOPR, ELR, LPDR, and GDLR. Each trend represents unique research interests and offers directions for future investigation.

The LDTR trend focuses on leadership's role in digital transformation, a niche yet critical area given the rapid adoption of digital technologies. Future research could explore how traditional leadership styles adapt to digital contexts and develop new competencies for managing digitally mediated environments. The LOPR trend emphasizes the link between leadership practices and organizational performance. Future research could

expand to include destructive leadership behaviors and their negative impacts. The ELR trend focuses on the impact and role of leadership within educational settings. Future research could explore how different leadership styles influence student engagement and success, and develop new practices tailored to educational contexts. The LPDR trend highlights leadership practices and development. Future research could investigate the mechanisms of leadership development and how competencies are acquired and refined over time. Additionally, the GDLR trend addresses diversity in leadership, highlighting the barriers faced by underrepresented groups and the benefits of diverse leadership teams (Zattoni *et al.*, 2023). Intersectionality and the experiences of marginalized leaders are key areas for further study.

5. Conclusion

The identified research trends in leadership studies highlight the current dynamics of leadership in response to technological advancements, shifting organizational structures, and societal expectations, indicating a critical juncture for addressing contemporary organizational challenges. These trends emphasize the need for adaptive, innovative leadership practices to navigate modern workplace complexities. Future research should integrate these diverse insights to foster a holistic understanding of leadership, exploring synergies and interdependencies among the trends for more robust findings.

Some limitations can be pointed out in our study. This research's reliance on Web of Science and Scopus may exclude pertinent studies from other databases, and the use of the LDA algorithm might result in less accurate topic classifications, missing subtle meanings discernible through human analysis, that would not be possible given the volumes of data analyzed.

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Late Submissions

Using Machine Learning CART Decision Trees for Predicting the Causes of Delays in Projects from the Construction Industry

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Abstract: Construction projects are complex endeavours, with potential obstacles that can cause delays which can have particularly profound implications potentially impacting on company's financial health, business continuity and reputation. It is becoming increasingly recognised that delays are context-specific and multifaceted, requiring more industry-oriented perceptions. This work proposes the exploratory use of Machine Learning based on Classification and Regression Trees (CART) Decision Trees (DT) to assess the predictive analysis of these approaches, considering surveys (primary data) collected from 100 specialists with different backgrounds and experiences in the construction industry. Survey responses are discussed, followed by the CART DTs, which are used as predictor for clarifying underneath relationship among different variables in a project environment. The major issue presented is related to Project Design, with "The firm is not allowed to apply for an extension of contract period", with two possible predictors, firstly, as the main factor it is found "Mistakes, inconsistencies, and ambiguities in specification and drawing", while other aspect highlights "Poor site supervision and management by the contractor". The results indicate that the correct use of Artificial Intelligence techniques with relevant data are potential tools to support the analysis of scenarios and avoidance of project delays in Project Management.

Keywords: Project Management, Project Delay Management, Decision Trees (DT), Machine Learning (ML).

1. Introduction

Construction projects are often complex endeavours, fraught with countless potential obstacles and challenges that can cause delays (Abdul-Rahman, 2008). The impact of these delays can be far-reaching, including cost overruns, missed deadlines, legal disputes, and reputational damage for the entities involved (Olalusi & Otunola, 2012). As per the construction with the expansion of the application of new technologies, the continuous emergence of new methods, and the rapid changes in the market. The parties in the construction industry urgently need to reshape the knowledge structure and professional connotation to deliver project results in a more agile, innovative and efficient way. (Project Management Institute, 2021)

Although various studies have investigated construction delays, they have typically adopted a generalised approach. Often, they have used broad-brush techniques that look at causes on a national or global scale rather than focusing on specific regions or contexts (Haseeb et al., 2011). However, it is becoming increasingly recognised that construction delays are context-specific and multifaceted, requiring more nuanced, localised understandings (El-Razek et al., 2008).

One of the critical areas for improvement of current studies is the need for a comprehensive framework for identifying, analysing, and assessing the impacts of causes of construction delays (Kazaz, Manisali & Ulubeyli, 2008) and this is intrinsically related with the project management methodology adopted in the project (Marques et al., 2023). Many existing studies have focused on the identification or impact analysis of causes, but only some within the same framework (Marzouk & El-Rasas, 2014). This research gap prevents a comprehensive understanding of the interconnections between causes and their impacts, which is crucial for developing effective mitigation strategies.

The use of Artificial Intelligence (AI) based on Machine Learning (ML) techniques are becoming popular as predictive tools for managerial decisions and are already used in many different areas, from stock investment decision (Lin & Lobo Marques, 2023), consumer ad preferences (Marques et al, 2024) and project management planning (Elmousalami, 2020).

Considering a primary data source collected from 100 specialists with different backgrounds and experiences in the construction industry, the main objective of this work is twofold. Firstly, the use Machine Learning based on Classification and Regression Trees (CART) Decision Trees (DT) to assess the predictive analysis of design-related

delays in construction. Second, to propose a potential solution with risk mitigation analysis for the design-related delay.

In the remaining of this work Section 2 provides a literature review on the area, followed by the proposed methodology in Section 3. In Section 4, the results are presented in discussed. Finally, the Conclusion is presented in Section 5.

2. Literature Review

Construction projects face significant challenges related to delays, which can have substantial implications for project success, cost, and overall economic development. Understanding the causes of delays is crucial for developing effective strategies to mitigate their impact.

Projects with effective planning should stay on schedule without adjustments and complete their tasks with minimal delay, and contractors prefer to work on projects where the plans have been done properly, and there will be no more revisions or interruptions. In a perfect world, construction projects would be completed without any delays, adjustments, or disturbances, and most contractors would prefer to run projects to completion without alterations, despite the widespread misbelief that they "make their money" during the changes of a project (Molner, 2007).

While this would be the case, in theory, only some major construction projects start with all drawings fully completed and authorised. The project's significant stakeholders should agree on who will be responsible for making and implementing changes, while the owner and the contractor will benefit from this, creating a perception of a win-win situation. The constant pursuit of excellence necessitates adopting modifications, even though they may cause some disruption to the works in progress. Nevertheless, the end outcome after incorporating the adjustments is likely to be better than the first, and obtaining a better final product makes the modifications more acceptable than no modifications.

Changes introduced late in the project's development are more likely to add unnecessary complexity, alter the timeline, and lengthen the time it takes to finish the project. Ultimately, unsuccessful works, modifications, and changes add to the project's overall cost, resulting in Owners' dissatisfaction, since "changed work" adds more effort, raises prices, and causes delays. (Molner, 2007).

2.1 Types of Project Delays

As a preliminary analysis, in this work, project delays include critical and non-critical delays, non-excusable/excusable delays, and compensable and non-compensable delays.

Determining whether a delay is essential or non-critical is a prerequisite to understanding its effect on the project. In addition, there is no such thing as an acceptable amount of uncertainty. There are two types of delays, excusable or not, depending on whether they co-occur. There are two types of holds: those that are compensated for and those that are not.

2.1.1 Critical & Non-Critical Delays

Program delays can be evaluated relative to the importance of individual tasks. The crucial path is included in the contract-compliant baseline master program. The most symbolic link in a network is called the "critical path." Project delays arise when a crucial path operation is delayed, causing ripple effects. These tasks, known as critical operations, are essential and must go without interruptions along the critical path.

The whole project suffers when critical path tasks go behind schedule. Therefore, examining the essential functions and determining if they can be rescheduled for efficient project management is necessary. Rearranging the order of building tasks is vital to efficient project management. When resequencing tasks, planners must identify each activity's influence on those after it, while activities' statuses must also be established (Koo et al., 2007).

Planners must know the reasoning behind and the order in which activities occur to identify their purpose and priority. Using precedence logic and relationships, the critical path method (CPM) determines the order of tasks and ranks their importance in terms of deadlines. Therefore, monitoring the sense and order of individual activities in complicated and massive projects is impossible to conduct manually.

The critical path is used to determine how long the project will take. Activities off the critical path may experience delays, and these non-essential tasks become crucial as the project progresses if they become a component of the project's new trajectory. The utilisation of tasks' floats is a contentious topic in construction projects. Still, current scheduling methods indicate that allotted float time belongs to the project and can be used by both owners and contractors to cushion the blow of delays. Consequently, the "first-come, first-served" principle applies to float usage (de la Garza et al., 2007).

Any party responsible for a delay in the later stages of the project will be held liable for the entire delay since the protocol and concept of first come, first served basis exploitation of float make it clear that the float is to be used in this order. As a result, disagreements arise whenever a project is delayed over who is responsible for the float and how it should be used.

The critical path technique of developing project schedules calls for introducing the idea of pre-allocating float and its management. In addition, the liability for any resulting delay in the project and the principles of pre-allocation and supervision of "total float" must be agreed upon in a written contract. The total float is an asset for both sides, but all involved must acknowledge this for the concept to work.

The critical route scheduling method has become a standard practice for project management. This approach to scheduling is also extensively used for requesting additional time and assessing delays using impact software. After making changes to the critical route method schedules, it may be necessary to provide evidence of which tasks are essential versus those that can wait.

The owners sometimes use the available float for less critical tasks to make the most of the situation. "Owners will occasionally take advantage of the float time of low-priority jobs to further their agendas. They could incur additional expenses as a result. In the case of a cost-plus contract, the owner is often responsible for covering these overages. In the case of a fixed-price contract, any overages must be paid for by the contractor. Such expenses may be reasonable claims for delay or impact in the latter scenario. (Householder, 1990).

Contractors may submit higher bids when the tender documents explicitly state that the owner will be responsible for float.

Delay claims and their analysis depend heavily on how responsibility for project delays is divided between the owner and the contractor. The critical route approach highlights the crucial and non-critical tasks in the project schedule. It shows how much time can be added to each activity's float or how much of a delay in one action will not influence the project's completion date. Assigning responsibility for the float and agreeing on its use can settle the disputed ownership problem.

2.1.2 Non-Excusable & Excusable Delays

Project delays directly attributable to contractors are unacceptable. The contractor assumes entire liability and risk for the delay, and the owner is entitled to demand damages under the contract's terms and conditions if the project is delayed. When a contractor is late, the owner often files a claim for monetary compensation in fines or punitive damages. Delays in starting work at the site, improper coordination that slows down the job, an inability to finalise, order, and purchase in time, and a lack of workers are common reasons owners cite why contractors are running behind schedule.

Delays are common in any project, from constructing a single structure to building a nuclear power station. It is essential to identify and categorise the critical contributors to non-excusable delays (Majid & McCaffer, 1998). The client's delays are compensable delays over which he has more control and thus more opportunity to take prompt corrective action. The contractor's delays are not reimbursable and cannot be excused, so it is in the contractor's best interest to take all necessary precautions to avoid them.

While there have been many investigations into the causes of these delays, comprehensive research has yet to determine the root causes of delays that cannot be justified. To better identify and solve the issues that contractors confront on building sites, it is essential to understand the underlying reasons for non-excusable delays (Majid & McCaffer, 1998).

Recent developments and disappointing project outcomes in the contracting construction sector provide an opportunity to reflect on the nature and scope of the industry's perennial issues. The contractor has visited the site and is familiar with the conditions there; therefore, these unknowns are included in the contract. Following the terms and circumstances of the agreement, the risk associated with any buried power or water lines that are not visible from the surface transfer to the contractor and the project manager is solely and entirely

responsible for any delay caused. "Clauses that waive the contractor's obligations and rights to lien the job from the start. Economic factors have mostly prompted these shifts, increasing the contractor's risk exposure." (Shumway, 2004)

Various distinguishing features of contaminated site restoration projects set them apart from more typical building projects, such as authoritative regulatory procedure control and a need for more information about underground utilities and soil conditions. The recommended solutions may need to address the requirements identified adequately. Features that are out of the ordinary for remediation projects suggest that contractors' novel approaches may prove more valuable and practical.

According to (Ruff et al., 1996), an analysis of sixty finished remediation projects was conducted to determine and record the effect of various project planning modules and contracting tactics on project outcomes. The research showed that restoration projects frequently experience scope changes, delays caused by numerous stakeholders, cost overruns, disagreements, and modification orders. Turnkey and partnering arrangements and cost-plus-fee contractual schemes were more adaptable to project scope changes than rigid approaches to project administration. Overall, the best results were shown with the turnkey and architecture construction organisations out of all the reported managerial practices. Project success, as measured by criteria such as budget and time, was greatly aided by mechanisms encouraging partnership and teamwork.

In addition, (Schumacher, 1995) states that the contractor is responsible for the claims made by the owner or subcontractors due to the contractor's controllable delays. Delays induced by the contractor, such as those resulting from late deployment, late material deliveries, or an insufficient project workforce, are not covered by the contract and are therefore not compensated. Architects risk delay claims from subcontractors and owners punitive damages (or payment of damages if there is no civil penalty provision) for not excused delays.

2.1.3 Compensable & Non-Compensable Delays

In the analysis of Compensable and Non-Compensable Delays, the perspective of delay's time and money effects are on the owner's side. The owner may be liable for the contractor's claims of interference, late delivery of owner-purchased equipment or supplies, and other delays induced by the owner's acts or omissions. Despite being able to restrict its culpability, a property owner cannot contract out of its need to pay for compensable delay. Any provision in a building contract that claims to waive, release, or extinguish a contractor's, subcontractor's, or supplier's entitlement to damages or an appropriate settlement arising out of excessive delay in performance where such delay is induced by the acts or negligence of the contractor or individuals acting for the contractor is contrary to public policy and therefore unlawful.

The client's request for a change order is the most typical cause of project delays, and the issue of the modification order impacts the completed work. The change approval stipulates that new work be performed, current work be modified, and the results be removed and reinstalled. A critical path analysis must be completed to prove the delay in receiving compensation for lost time and money. Another aspect to be aware of is the variation in time loss due to efficiency loss. Due to its qualitative nature and the difficulty of attributing the production loss to a specific cause, inefficiency can only be measured indirectly. The data was gleaned from contractor data, and there are disparities between the contractor's claims and the entitlement per the owner. Client sources such as regular updates, drawings, requirements, and change orders inform a statistical model that attempts to estimate productivity loss. Loss of productivity due to the modifications is also quantified, and a model is constructed to support this estimate.

From the work of (Serag, 2008), relevant aspects were examined, such as "(1) characteristics that predict which party—the owner or the construction company to the productivity loss and (2) variables that predict, from a legal standpoint, productivity deficits for which only the proprietor is accountable. It revealed a discrepancy between the contractor's requested compensation and the amount they are legally entitled to. This concept provides an objective means for the owner and contractor to settle their differences by calculating the cost of lost productivity caused by modification orders".

From a legal perspective, nominations are determined at the beginning of the project and involve both the client and the consultant. Since the final scope of work has yet to be determined, the customers must confirm their selections of contractors, each of whom will get a provisional sum from the contract.

Customer and consultant work on completing the scope of works, bidders, selections, and certifications around the time the candidacy is due, which might cause a delay in the process.

Regarding the procurement management area, the standard method of construction procurement has no unique elements and is ideal for projects with a clear scope of work. In such procedures, one step must be finished before the next one can begin, creating a logical and sequential flow of labour. After a project has started, any changes made during development only add extra work and cost.

The customer can integrate the contractor's design at any point. There is room for scope definition on multiple levels thanks to the design-and-build methodology. The project would profit from such a setup since design and construction would be integrated immediately (Chritamara et al., 2001). To cut down on wasted time and money, clients often choose the design and build procurement method for projects. Usually, scope specification by the customer, adjustments adopted, how those changes are reflected in the sophistication of the project, and successful coordination with key stakeholders are relevant elements that affect time and cost efficiency. While it is known that the variables above will impact the project's early-stage budget and schedule, the total amount of that impact has yet to be determined. Simply put, the most efficient way to save money is to use the time-tested process of design and building known as "design and build" (D/B), while the most efficient way to save time is to use the expedited method of D/B construction utilising a design and set of parameters that have already been finalised.

According to (Chritamara et al., 2001), fast-track construction with a defined design, procurement, and construction schedule is the most efficient at reducing construction time, while D/B using the conventional approach is the most cost-effective. Due to design delays, nominations have been pushed out, although having specialist contractors provide advice for specific activities early on in the design process would have been beneficial.

Specialist contractors have the expertise and knowledge to contribute to the early design and engineering stages. Nevertheless, their participation in the early stages of the design process has expanded, suggesting a shift in the status quo. Involving vendors in the creation and production of products is a profitable strategy. There were increases in process efficiency and enhancements in product quality, according to reports from studies that emphasised the achievements of the early design phase by speciality contractors. Companies are stepping up the communication between their design teams and their subcontractors.

In addition, specialised subcontractors might be implemented to lessen the impact on the project's schedule. With their extensive knowledge, specialised contractors can anticipate potential issues and plan accordingly. The duration and importance of activities must be evaluated for project risk management. However, there is a significant dependency between task durations, which might significantly affect the results (Yang, 2007). When actual data is lacking, and planners must rely on educated guesswork, they need the leeway to provide varying durations for the activities.

Clients in the construction industry need to learn the hard way that basing their choice of contractor on the lowest bid may result in costly delays and subpar work. Consequently, value for money is maximised when the best contractor is chosen, and the practice of assessing contractors using a variety of metrics is gaining traction. (Singh & Tiong, 2005). Due to the unpredictability of building projects and the owners' discretion, contractor selection in multi-criterion environments is highly subject to these factors. In their work, (Singh & Tiong, 2005) proposes a systematic process grounded in fuzzy set theory for determining whether or not a contractor's capabilities are compatible with those of the building's owner. Each criterion's global value or relative importance in reaching the ultimate decision-making goal is calculated using the Shapley value. This investigation is a component of a larger project to create a fuzzy decision model for choosing a construction firm that considers the client's preferences and several other criteria.

Finally, (Zhao et al., 2007) proposed a three-dimensional model to assess the various elements contributing to the delay in projects, with the findings implying that delays happen at a crucial point in the construction process, considering the contractor and the client primarily to blame but also suffering the most damage. The model creates a ranking with actionable indicators that can be adapted to reduce the effects of or even avoid the most common causes of delays.

3. Methodology

3.1 Instrument and Sample Characterization

For the current work, a quantitative methodology is considered. The study performed a survey data collection shared online for professionals related to project management selected using convenience non-probabilistic

sampling, with a population of 100 construction projects' stakeholders. The information gathered provided support to identify root causes of construction project delays in the southern region of China, Province of Guangdong, the region known as the China Greater Bay Area. In addition to the issues under investigation, the study collected data on participants' demographics and company characteristics to perform group analysis and inferential analysis.

The questionnaire was divided into three primary sections:

Section 1: Demographic Information and Organizational Background

Section 2: Evaluation of Delay Causes - Impact

Section 3: Evaluation of Delay Causes – Frequency of Occurrence

The first part aims to gather information about the respondents and their companies. This section included questions on the company's size, the types of projects typically undertaken, and the respondent's role. Sections 2 and 3 contained a series potential causes of delay in construction projects, considering 8 dimensions, with "Design-related" identified dimension 5.

In Section 2, respondents were asked to rate on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), in terms of how significant is the impact of that cause in project delays. On the other hand, in Section 3, respondents were asked to rate on a 4-point Likert scale, ranging from 1 (Rarely) to 4 (Very likely), in terms of the likelihood of occurrence of the delay, based on previous experience of the professionals with different roles and backgrounds.

3.2 Data Analysis – CART Decision Trees

In the overall research, an exploratory data analysis is performed considering multiple data analytics approaches for predictive analysis. In this specific work, Decision Trees are the considered approach for the proposed intelligent support system. Decision Trees can be defined as Machine Learning or Data Mining technique based on hierarchical clustering. The main objective is to determine a hierarchy of clusters by iteratively dividing or merging them based on distance measures.

The results are typically displayed as a dendrogram, or "tree-like diagram," which displays the sequence and locations of merges and splits. Identifying and comprehending the groups or categories within the delay causes in a construction project can be made easier with hierarchical clustering, which can reveal underlying structures and relationships in data (Murtagh & Legendre, 2014; Johnson, 1967).

In the present work, Classification and Regression Trees (CART) Decision Trees (DT) are used, and the gini-index is considered, which indicates a degree of impurity in the data, establishing the hierarchy. The method provides unique insights into the data, helping us understand the patterns and relationships between different causes of delays in construction projects.

4. Results and Discussion

In this section, the focus is on the analysis of design-related delays, which are classified as compensable delays, impacting on the contractor's obligations. The results are presented in three parts. Firstly, the survey results are presented, with a clear descriptive representation of the sample under study. Following that, a predictive analysis of design-related delays in a project based on CART Decision Tree Machine Learning technique is presented. Finally, as part of the major output of the analysis, actionable strategies for delay management, including risk mitigation are proposed.

4.1 Survey Results on Design Changes

As presented in Figure 1, the survey results on the design-related matters are presented. First of all, it is important to highlight that the neutral choice presented the highest percentage for all the questions. Considering the other answers, 38% (24% Disagree + 4% Strongly Disagree) considered that changes in design may not necessarily generate impact in time changes.

Considering the item "firm not allowed to apply for an extension of the contract period", might also have time impact, 37% disagreed and 2% strongly disagreed that this should be a contractual clause, with only 20% agreeing that this might be possible.

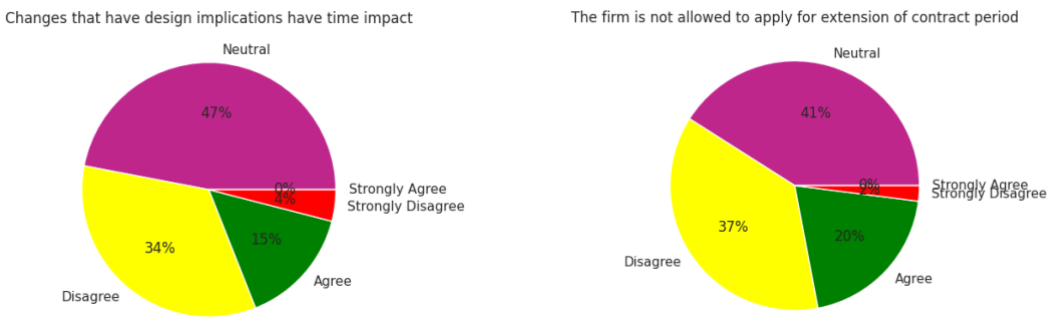

Figure 1: Survey results on design related delays.

4.2 Decision Trees for Project Design-Related Delay Management

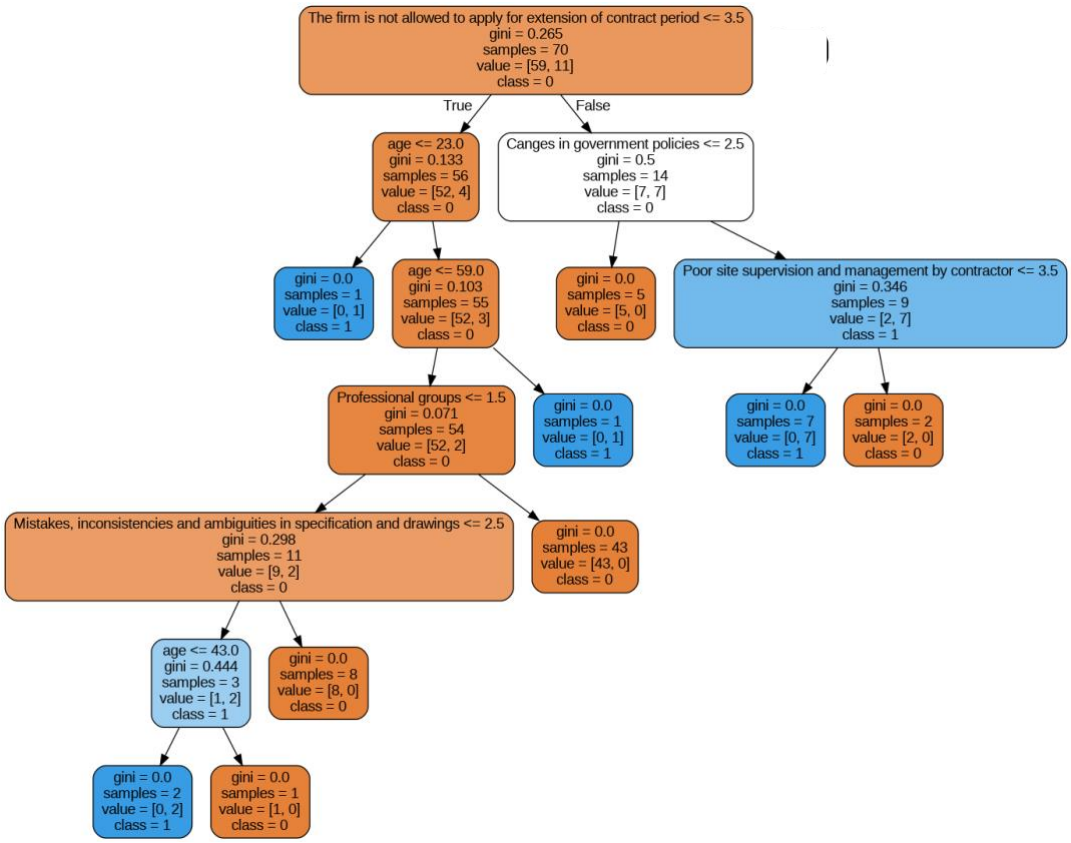

Figure 2: Decision Tree for Design-related Delays.

As presented in Figure 2, the DT allows the evaluation as a potential predictive aspect of the sequence of project decision flow, considering bottom-up analyses. In this work, a contractual constraint regarding the design issue is presented in the survey and identified as “The firm is not allowed to apply for an extension of contract period”, which, if happened, may generate a compensable design-related delay in the project.

Following the specialists’ perception in the collected database, to identify clear predictors for the problem, as presented in the DT, the vast majority of the respondent disagree with that contractual constraint (considering the likert-scale answers <= 3.5), linking the most relevant branch of the DT to “Mistakes, inconsistencies, and ambiguities in specification and drawing”, which is directly linked to scope management, more specifically with requirements definition.

4.3 Mitigation Proposition for Design-related Delays

Considering the predictive analysis proposed by the Decision Tree, in Figure 3, some design changes may cause the Main Contractor to suffer direct loss, so it will directly submit a claim to the client to recover their direct loss, classified as a compensable event. the design-related delay may have caused the parties involved to identify whether it is the employer, consultants, or the contractor's default. Furthermore, in case the delay will impact in the Project Critical Path, the parties should agree in a solution that comprises how to clearly predict the actual delay, provide the solutions and, finally, an extension of time may be granted.

The project triple-constraints are addressed with the contractor claiming on the project duration extension (time constraint) and also the subsequent prolongation costs (cost constraint), and finally in agreement of the design changes with different stakeholders (scope constraint).

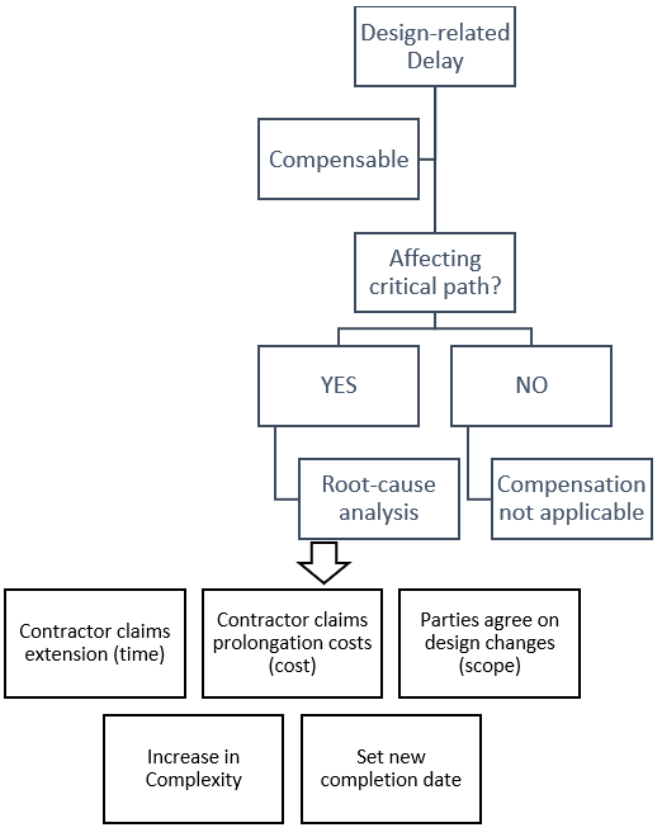

Figure 3: Design-related delay solutions framework.

In a project environment, considering the possibility of mitigation for design-related delay, it is recommended that different stakeholders, such as client, architect, and consultant freeze the design to avoid further design concept modification. In case of continuous changes, they may grant the contractor the eligibility for an Extension of Time and Prolongation cost. Or else, they could have initiated a contract clause called "Delay Recovery Measure Clause", in which they may have the contractor to come up with a delay recovery resolution, pay the contractor for his action in absorbing the delay, and complete on the original completion date, with a conditional, i.e., if the contractor succeeds, full payment should be issued; otherwise, partial or no payment would be paid to the contractor, proportional to the extent of the delay the contractor could recover.

4.4 Discussion

The type of event that typically triggers a construction delay is a design change in the building/civil construction projects. Design changes are indeed a variation towards the construction project, and the meaning of variation includes the following:

- Material- Quality, type and standard change
- Works- quantity- Admission, Omission or Replacement
- Removal of Existing Works, Demolition, Removal of Works

- Architect Instruction's matter- Site Access
- Architect Instruction's matter- Limitation of Working Space
- Architect Instruction's matter- Limitation of Working Hours
- Architect Instruction's matter- Resequencing of Works
- Architect Instruction's matter- Any other Addition/ Alteration/ Omission of obligation/ restriction imposed by the contract

Although design changes are mostly solely involved with variations, they will sometimes involve contractors incurring direct loss and expenses due to undertaking the variation works. Additional tasks, such as re-preparation of material submission, structural calculation, chiselling, and even abortive works, may or may not be related to construction claims. For instance, when the architect issued a new instruction regarding substituting a block wall for drywall, the original block wall was already installed. In this case, the contractor must arrange to hack off the concrete and remove the rebar task before undertaking the variation works. Such an example has described how the contractor has incurred direct loss and expenses.

Whenever there is a design change, it must mostly deal with the client, the architect, and the consultant. Such a delay is considered to be a compensable delay, provided that the contractor has not been time-barred from claiming for the matters mentioned above; otherwise, if the contractor fails to fulfil the notification of delay requirement, his right to claim for loss and expenses would be forfeited, however, under this situation, the contractor will be granted with the extended of time, and a new completion date would replace the original completion date (Ajayi & Chinda, 2022).

5. Conclusion

From the presented results, the use of Decision Trees could establish predictive analysis for the case of design-related delays. As a major conclusion practical contractual aspect such as "The firm is not allowed to apply for an extension of contract period", is potentially predicted by on clear problem from the project design, such as "Mistakes, inconsistencies, and ambiguities in specification and drawing", while the other aspect is focused on operational management, with "Poor site supervision and management by the contractor".

In addition, the work also proposes a general actionable set of potential solutions and mitigation strategies based on the output of the ML system, which may be used for any projects in the construction industry, proposing that the Contractor should initiate claiming for the extension and related costs, agreement between the parties with the new scope, including the changes in complexity, and finally setting a new date of conclusion and restructuring the project expectations.

Finally, it is possible to conclude that the use of Machine Learning intelligent support system for project management is a promising tool for managing project delays.

A limitation of this work is the localized sample from one geographical region, the Greater Bay Area (GBA), in China, which may lead to regional bias. Future works may consider the use of other techniques for detection of other potential predictors and also applying the same questionnaire and analysis in different regions of the world.

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