The Role of Knowledge Engineering, Management and Media in the Knowledge Society: A Research Agenda

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Abstract: This study aims to explore the intersection of Knowledge Engineering, Management, and Media (KEMM) in enhancing innovation and competitive potential within Knowledge-Intensive Organizations (KIOs). The objective is to understand how these fields interact to optimize the management and dissemination of knowledge in the context of the Knowledge Society (KS). A qualitative methodology is employed, using a scoping review to assess interrelated phenomena and map existing literature. This approach involves an exploratory bibliographic strategy and an interpretative analysis to identify key concepts, theories, and gaps in knowledge. The results indicate that effective integration of KEMM significantly improves decision-making, organizational performance, and innovation. The cultural differences in knowledge management models are highlighted, contrasting the American focus on technology with the Japanese emphasis on socialization. It also underscores the need for balancing technological advancements with human skills to foster a sustainable and innovative organizational environment. In the discussion, the paper emphasizes the critical role of KEMM in navigating the complexities of a BANI world (brittle, anxious, non-linear, and incomprehensible) by enhancing resilience and adaptability among workers. The integration of emerging technologies such as AI, machine learning, and digital platforms is shown to facilitate knowledge sharing and collaborative innovation. The conclusion stresses the importance of a holistic approach to KEMM, suggesting that future research should focus on practical applications in real-world scenarios, including education and organizational learning. By leveraging KEMM, organizations can develop more effective business models and contribute to the creation of Human, Intelligent, and Sustainable Cities. This study provides a foundation for further investigations into the synergistic relationships between Engineering, Management, and Media in the knowledge-based economy.

Keywords: Knowledge Engineering. Knowledge Management. Knowledge Media. Knowledge Society.

1. Introduction

Knowledge is the driving force behind innovation, propelling progress at personal, community, and global levels (Kaźmierczak, 2017). The advent of Knowledge Society (KS) signifies the fusion of technological advancement with social development through creative and experiential education (Stehr, 2015). This society transcends mere information access, emphasizing the attribution of meaning and continual redefinition of achievements amidst complex interrelationships (Muños, Bohórquez, & Díaz, 2022).

The COVID-19 pandemic accelerated the characteristics of the Knowledge Society, reshaping the corporate landscape and emphasizing resilience and adaptability among workers. The concept of a BANI world (brittle, anxious, non-linear, and incomprehensible) underscores the need for flexible approaches to navigate complexities (De Godoy & Ribas Filho, 2021). Behavioral skills like resilience, empathy, and adaptability gained prominence, with organizational knowledge management and leadership playing pivotal roles in facilitating adaptation and fostering continuous learning (Nataliia & Olena, 2023).

In KS, knowledge acts as both an intangible asset and a co-production factor, with interdisciplinary approaches at the intersection of Knowledge Engineering (KE), Knowledge Management (KMa), and Knowledge Media (KMe) playing its own roles in driving innovation, enhancing decision-making, and optimizing organizational performance (Burgin, 2016).

The interplay among these areas is vital for effectively utilizing and disseminating intangible assets within organizations and society. Understanding the integration and synergy among Engineering, Management, and Knowledge Media is essential for effectively governing and leveraging intangible assets in Knowledge-Intensive Organizations (Zieba, 2021).

Hence, this work aims to explore how Knowledge Engineering, Management, and Media (KEMM) intersect and support each other in fostering innovative and competitive potential, particularly for Knowledge Intensive Organizations (KIOs), also proposing a research agenda in these areas.

2. Theoretical Background

2.1 Knowledge Engineering, Management and Media

The fields of Knowledge Engineering, Management, and Media focus on the effective management and utilization of knowledge within systems (organizations, communities, ecosystems, etc.). This interdisciplinary field combines principles of science and technology to improve the acquisition, storage, processing, and sharing of knowledge, as well as collaboration and innovation (Schreiber, 2000; Pacheco, 2007).

KMa enables organizations to leverage their intellectual capital and gain a competitive edge, involving the systematic collection, organization, and dissemination of knowledge to facilitate decision-making, problem-solving, and innovation (Vieira, 2020). Effective knowledge management practices can improve organizational performance, increase employee productivity, and promote a culture of continuous learning (De Carvalho, Ponciano & Bianchi, 2021).

Knowledge modeling and associated technological aspects, such as Knowledge Management Support Systems, are subjects of study in Knowledge Engineering, which is concerned with the development of systems that enable the capture, storage, processing, and retrieval of knowledge (Kendal & Creen, 2004).

Knowledge Media emerges from the convergence of computing, telecommunications, cognitive sciences, and learning sciences, focusing on the communication, dissemination, and sharing of knowledge, including digital platforms, social networks, and communication technologies, providing channels for interaction and learning within organizations (Muller & De Souza, 2020).

By interfacing these three areas, KIO represents a new organizational paradigm in the Knowledge Society, and the areas of Media, Management, and Knowledge Engineering are fundamental to their success and operation. These areas, as evidenced by the work of authors such as Günther and Cunha (2022), Bignetti (2002), and Nadai and Calado (2006), are complementary in terms of people, processes and technology, defining together the essence of KIOs in contemporary business environments.

2.2 Knowledge Society and Knowledge Intensive Organizations

The term "Knowledge-Intensive Organizations" (KIOs) refers to companies that rely heavily on knowledge for producing and offering products and services. These organizations are characterized by a strong base of intellectual skills among employees and effective knowledge management practices (Nadai & Calado, 2006).

To thrive, KIOs must constantly redefine boundaries and adopt new collaboration paradigms, such as business networks and innovation ecosystems. In this context, Knowledge Engineering Management and Media (KEMM) play a crucial role, enabling responsiveness to changing demands and opportunities. Investing in knowledge-based technologies and infrastructures is essential for maintaining competitiveness (Rossetti et al., 2008).

Macedo and Souza (2023) emphasize balancing technological and human aspects within KIOs. Promoting an environment that fosters technological growth while valuing employees' skills is key to long-term success. Operational workers should be granted autonomy, making them primary holders of practical knowledge, while managers provide guidance without imposing strict monitoring. A horizontal structure with low bureaucracy allows greater flexibility and effective communication. Saiti and Stefou (2020) note that flexible networks, open communication, and visionary leaders enhance employee satisfaction and innovation.

KIOs focus on customer experience, directing changes to improve service and deliver personalized products. They also face the challenge of leading in sustainable development, as sustainability practices drive innovation (De la Torre & Berbegal-Mirabent, 2020). These practices can be adopted internally to enhance operations and externally through collaborations with suppliers, extending positive impacts beyond the organization.

3. Methodology

In this study, a qualitative methodology is implemented, using a scoping review to assess the interrelated phenomena in the domain of Knowledge Engineering, Management, and Media. The adopted research strategy includes a bibliographic exploratory approach, intended to elucidate the object of study, and an interpretative methodology (Creswell, 2014). Qualitative research is particularly relevant when detailed exploration of complex nature topics or phenomena is required. This type of study refrains from using statistical methods, allowing for direct observations and interpretation of data.

The purpose of a scoping review is to map existing literature on a specific topic to identify key concepts, theories, sources, and gaps in knowledge. This type of review is particularly useful for emerging, complex research topics or those that have not yet been subject to comprehensive reviews. According to Munn et al. (2018), a scoping review undergoes five stages: identification of the research question; identification of relevant studies; selection of studies; data extraction; and presentation of results.

Following the five mentioned stages, this study aims to examine the interaction between Knowledge Engineering, Management, and Media, especially in the context of Knowledge-Intensive Organizations.

4. Results and Discussion

Regarding Knowledge Management models, there is a notable distinction between American and Japanese approaches, with the former focused on information technology and the latter centered on people and socialization. These divergences can be traced back to the Fordist (American) and Toyotist (Japanese) production models (Paula & Paes, 2022). The roots of these distinctions lie in cultural aspects, where Japan perceives key concepts differently (Mendehall & Oddou, 1986):

- Dualism: In the West, dualism, exemplified by concepts like good and bad, is often seen as a conflict zone, with the aim to eliminate one in favor of the other. However, for the Japanese, both coexist harmoniously, without the possibility of nullifying one for the other. This perspective results in different approaches to facing challenges, conducting negotiations, and perceiving company values.
- Contextuality: While in the West, the search for a sense of belonging often involves internal reflection before interacting with society, Eastern philosophy seeks its purpose in the external context. Easterners strive to fit into society and understand how they can contribute to the environment they are in. This promotes greater flexibility and a less individualistic mindset when facing challenges or diverse environments.
- Principle of flow: The idea that nothing is permanent, including organizational contexts, implies that there can be no rigid and immutable norms. As a result, members' obligations regarding the context are unlimited, and their responsibilities are ambiguous, guiding their actions according to the specific context. This perspective contributes to KM practices such as high loyalty, low turnover, and implicit control systems.
- Holism: Unlike the West, where analyzing the parts often precedes understanding the whole, Easterners approach information and contexts from a holistic view. They start the process intuitively before conducting a rational analysis of the parts. In organizations, this approach implies that managers must keep their teams connected to the company's mission to promote effectiveness and efficiency, stimulating the development of creative and innovative potential.
- Intuitive bias: Due to the understanding of the complexity of contexts and emphasis on the global view, Easterners do not seek total control and absolute understanding of the involved parts. They are not strictly focused on the analytical use of words nor overly rely on logical consistency. When the analytical process fails to solve challenges, they return to the whole, reflecting the true reality.

Eastern mental models have influenced widely-used Knowledge Management (KMa) models, aligning with traits needed in the BANI world. Nonaka and Takeuchi's (2008) SECI model highlights the bidirectional conversion between tacit and explicit knowledge as a competitive advantage. Macedo and Souza (2023) showed that this complementarity fosters innovation and adaptability but is hard to implement in cultures lacking knowledge sharing.

Davenport and Prusak (1998) categorized knowledge as tacit and explicit, aiming to enhance accessibility via structured systems, though it may downplay culture's role. Wiig's (1999) approach integrates knowledge management with strategy, focusing on processes and learning, needing cultural commitment. Choo's (1998) model prioritizes information management before knowledge management, improving efficiency but potentially limiting knowledge creation.

Effective knowledge management in KIOs requires aligning with Engineering and Media areas to avoid knowledge loss, using various approaches based on organizational context.

Examples of knowledge attributes in People, Processes, and Technologies.		
Axis	**Attribute**	**Description**
People	Knowledge managers	Individuals designated to oversee knowledge management within the organization, responsible for defining strategies, guidelines, and processes to optimize the creation, sharing, and application of knowledge.
	Communities of practices	Formal or informal groups of professionals who share common interests and expertise, providing a collaborative environment for the exchange of knowledge, experiences, and best practices.
	Training and communications	Training activities and communication programs aimed at developing knowledge management skills, promoting awareness of the importance of sharing and collaboration.
	Measurement and reward system	Establishment of metrics and indicators to assess the effectiveness of knowledge management practices, as well as the implementation of incentives and rewards to encourage engagement and contribution.
	Knowledge sharing culture	Promotion of an organizational culture that values and prioritizes knowledge sharing, encouraging collaboration, continuous, active, and lifelong learning, and collective creation.
	Knowledge consultants	Specialized professionals, usually external to the organization, designated to provide guidance, insights, and support in the application and dissemination of knowledge in organizational projects and activities.
Processes	Knowledge capture and reuse	Processes and procedures for identifying, capturing, and documenting knowledge generated in projects or past experiences, making it available for future use.
	Collaboration	Establishment of workflows and platforms that facilitate collaborative interaction between teams and individuals, promoting active exchange of information and ideas.
	Selection of good practices	Identification and promotion of best practices and lessons learned within the organization, aiming to optimize processes and future results.
	Content management	Efficient organization, storage, and categorization of documents and relevant information, making access and retrieval of knowledge more effective.
	Metrics and e reports	Establishment of performance indicators and generation of reports to assess the effectiveness of knowledge management activities, identify areas for improvement, and support decision-making.
	Change management	Implementation of strategies to manage organizational transitions resulting from the adoption of new knowledge management practices, ensuring a smooth transition and effective adoption.
Technology	Interface and user experience	Development of intuitive and user-friendly interfaces for knowledge management tools and platforms, aiming for ease of use and adoption by users.
	Community portals	Creation of online spaces where employees can gather, share information, participate in discussions, and access resources related to knowledge.
	Knowledge repositories	Establishment of centralized storage systems for documents, records, and information, facilitating quick and organized access to knowledge.
	Search, storage and support	Implementation of advanced search functionalities, indexing, and categorization to quickly locate relevant information, as well as providing efficient technical support.
	Collaboration spaces	Creation of digital environments that allow asynchronous or real-time collaboration, sharing of documents and ideas, promoting accessible interaction among members.

When establishing a knowledge ecosystem in KIOs, an environment is created that promotes the flow of knowledge among individuals, teams, and departments (Shaba et al., 2023). This ecosystem embraces the

integration of various knowledge management practices, technologies, and platforms to encourage continuous collaboration, sharing, and innovation. Leveraging emerging technologies such as artificial intelligence, machine learning, the metaverse, among others, can enhance the discovery, extraction, and application of knowledge in KIOs (Wang, Pauleen & Taskin, 2022). Indeed, digital transformation contributes in the long term to the value creation process (Di Vaio et al., 2021).

The interaction of these areas, illustrated in Figure 1, is also strongly influenced by digital transformation, which redefines the operations, value delivery, and interactions of KIOs with stakeholders (Erceg & Zoranović, 2022). This transformation encompasses the digitization, automation, and optimization of knowledge management processes, resulting in enhanced efficiency, agility, and innovation. Furthermore, it enables the adoption of emerging technologies such as blockchain and the Internet of Things to strengthen knowledge sharing, security, and traceability (Frozza, de Lima & da Costa, 2023).

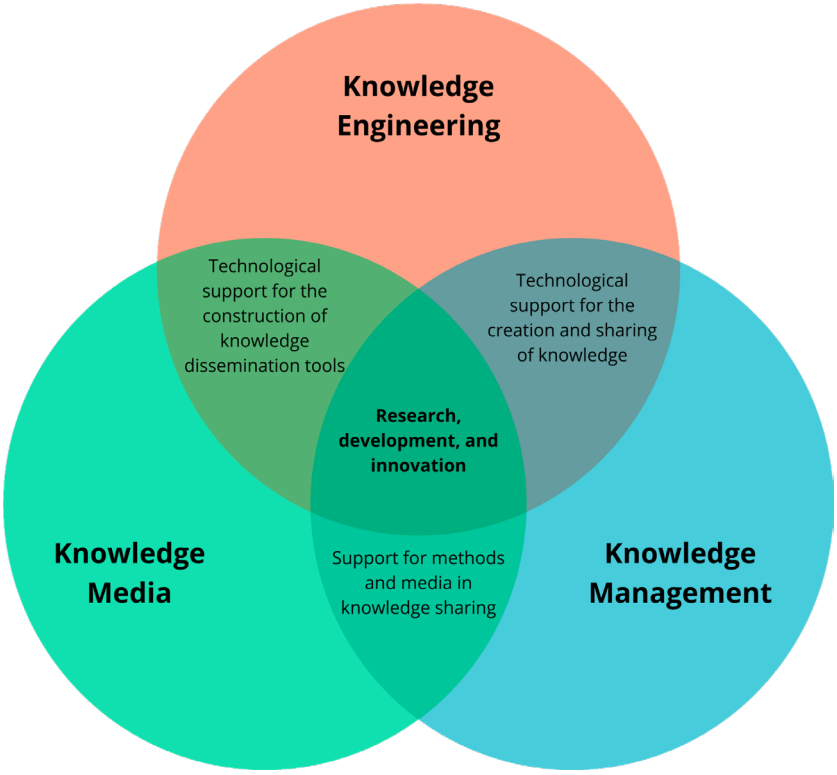

Figure 1: Interrelation between the areas of focus. Source: Adapted from Pacheco (2007).

In Knowledge-Intensive Organizations (KIOs), innovation thrives through KEMM by capturing, organizing, and disseminating knowledge assets. These areas provide infrastructure, methodologies, and tools to foster innovative ideas. Emerging technologies like augmented and virtual reality enhance this process by enabling immersive knowledge sharing and interactive collaboration (Wang, Pauleen & Taskin, 2022).

Humans, as co-creators, attribute meanings to reality through language and communication (Briggle & Christians, 2017). In the knowledge-based economy, Knowledge Management (KM) recognizes knowledge as a competitive advantage (Burgin, 2016). Knowledge Media and interdisciplinary approaches are crucial for understanding complexity. Online collaboration tools and social media enhance knowledge dissemination and problem-solving. Technologies like ontologies, Natural Language Processing (NLP), and Machine Learning (ML) aid in organizing and managing knowledge from diverse sources.

Engineering, KM, and Media extend beyond organizations, impacting broader contexts like Innovation Ecosystems and Smart, Human, and Sustainable Cities (Almeida, Doneda, & Da Costa, 2018). Amid challenges like information overload and AI, distinguishing "information" from "knowledge" in KEMM is vital. Expanding "cognition" emphasizes cognitive beings' roles in knowledge processes (Santos & Sousa, 2010).

Effective KEMM practices are crucial for KIO innovation and success, relying on the triad of People, Processes, and Technologies, with emphasis on "People".

4.1 The Central Role of People

The writers perceive that at the heart of any successful KEMM implementation is the human element. People are the primary drivers of knowledge creation, sharing, and utilization. They bring diverse perspectives, creativity, and expertise, which are indispensable for fostering innovation. Therefore, building a culture that values and promotes continuous learning, collaboration, and knowledge sharing is fundamental. This involves not only providing the necessary tools and technologies but also creating an environment where individuals feel empowered and motivated to contribute.

4.2 Building a Knowledge-Centric Culture

The authors believe that cultivating a strong organizational culture centered around knowledge is vital. This culture should emphasize values such as trust, openness, and mutual respect. By fostering a culture that encourages experimentation and tolerates failure as a learning process, organizations can create a safe space for innovation. Leaders play a crucial role in this regard by modeling knowledge-sharing behaviors, recognizing and rewarding contributions, and providing opportunities for professional development.

4.3 Integrating Processes and Technologies with Human Factors

While processes and technologies are essential components of KEMM, the authors perceive that their effectiveness is significantly enhanced when integrated with human factors. Processes should be designed to be user-friendly and supportive of the ways people naturally work and collaborate. Similarly, technologies should be selected and implemented with a focus on how they can best support human interactions and knowledge workflows. For instance, leveraging collaborative platforms and tools such as Microsoft Teams, Slack, and Trello, which facilitate real-time communication and seamless knowledge exchange, can greatly enhance productivity and innovation.

4.4 Creating an Enabling Environment

It was concluded that creating an enabling environment that supports KEMM practices is crucial. This includes not only the physical and digital workspaces but also the organizational policies and structures. An environment that promotes flexibility, autonomy, and cross-functional collaboration can significantly boost the effectiveness of KEMM initiatives. Moreover, aligning these initiatives with the broader strategic goals of the organization ensures that knowledge management efforts are purposeful and impactful.

4.5 The Synergistic Relationship of People, Processes, and Technologies

The authors believe that the synergistic relationship between people, processes, and technologies is what ultimately drives the success of KEMM practices. Each element of this triad supports and enhances the others, creating a holistic system that promotes continuous improvement and innovation. For example, well-designed processes and advanced technologies can facilitate knowledge capture and dissemination, but it is the people who apply this knowledge in creative and meaningful ways to solve problems and drive progress.

By focusing on the human element and building a culture and environment that supports KEMM practices, organizations can harness the full potential of their knowledge assets. The authors perceive that this approach not only enhances organizational performance and competitiveness but also contributes to the personal and professional growth of individuals, leading to a more engaged and innovative workforce.

5. Research agenda

In a world of knowledge creation and innovation, the authors perceive that working with interdisciplinary knowledge and the merging of different technologies are key factors influencing the main research areas. Drawing from the seminal works of Bernardi and Diamantini (1932) to recent discussions by Freire et al. (2021), the writers concluded that the intersection of multiple disciplines and the convergence of diverse technological domains foster new opportunities for collaborative research endeavors. The research agenda, with detailed topics following, seeks to explore the synergistic relationships between different disciplines, such as Engineering, Management, and Media, within the context of interdisciplinarity and technological convergence. By examining the ways in which these disciplines intersect and complement each other, the authors believe researchers can uncover novel insights and approaches to address complex societal challenges and technological advancements.

5.1 Sustainability and Social Responsibility

The imperative of sustainability and social responsibility permeates contemporary discourse, driving scholarly inquiries into the ethical, environmental, and socio-economic dimensions of human activities. As articulated by the Instituto Brasileiro de Governança Corporativa (IBGC, 2021) and the Brazilian Court of Audit (TCU, 2014, 2020), governance principles underscore the importance of responsible decision-making and accountability in corporate and public sectors. This topic aims to investigate how KEMM intersect in promoting sustainable practices, fostering social inclusion, and addressing pressing environmental concerns. By exploring innovative approaches to sustainability and social responsibility, researchers can contribute to the development of strategies that reconcile economic growth with environmental stewardship and social equity.

5.2 Governance and Ethics

The discourse on governance and ethics occupies a central position in contemporary discussions, reflecting growing concerns about transparency, accountability, and ethical conduct in organizational practices. Building upon the definitions provided by the Information Systems Audit and Control Association (ISACA, 2012) and the Brazilian Court of Audit (TCU, 2014, 2020), a research agenda covering governance themes seeks to examine the intricate relationship between governance, ethics, and organizational performance. By investigating how Engineering, Management and Media intersect in shaping governance structures and ethical frameworks, researchers can advance our understanding of the principles that underpin responsible decision-making and stakeholder engagement.

5.3 Digital Inclusion and Accessibility

The digital revolution has ushered in unprecedented opportunities for connectivity, innovation, and access to information. However, disparities in digital access and literacy persist, posing challenges to achieving universal inclusion and accessibility. In line with the discussions by ABBUD (2017) and Al-Ruithe et al. (2018), this research agenda aims to explore the intersection of Engineering, Management, and Media in promoting digital inclusion and accessibility. By examining strategies to bridge the digital divide, foster digital literacy, and ensure equitable access to digital resources, researchers can contribute to creating more inclusive and accessible societies.

5.4 Digital Transformation and its Impacts

The advent of digital technologies has precipitated a paradigm shift in various spheres of human endeavor, from business and governance to media and communication. As highlighted by TCU (2020) and Freire et al. (2021), digital transformation encompasses far-reaching implications for organizational structures, processes, and relationships. This research agenda seeks to investigate the multifaceted impacts of digital transformation on Engineering, Management, and Media domains. By analyzing the challenges and opportunities posed by digital disruption, researchers can inform strategies for navigating and harnessing the transformative power of digital technologies in diverse contexts.

6. Conclusion

Collecting data in these organizations is challenging due to their complex activities. However, constant efforts in data explanation and process improvement stimulate innovation.

Knowledge is complex and dynamic, influenced by social, cultural, and organizational contexts. Managing it requires understanding epistemological assumptions and embracing complexity for effective strategies (Bento, 2020).

Exploring interactions between Knowledge Engineering, Management, and Media within KIOs highlights their importance in the Knowledge Society. This study opens room for further reflection and future perspectives.

Future research should focus on practical applications of these concepts in real-world scenarios within KIOs. Strategies valuing knowledge as a co-production factor, new governance systems, and technologies like Virtual Reality, Augmented Reality, Metaverses, and AI can drive significant innovations.

Studying how KEMM can create comprehensive innovation ecosystems is crucial. Viewing knowledge as a shared resource ("commons") can lead to effective business models and support Human, Intelligent, and Sustainable Cities. Additionally, exploring KEMM's role in education and organizational learning is essential for

promoting agile learning and knowledge updates.

KEMM transcends organizational boundaries, applicable to governments and ecosystems. Understanding its role in driving collaboration, innovation, and knowledge dissemination is key to addressing global challenges.

This study encourages future investigations to enhance understanding and practical application of KEMM.

Acknowledgments

The present work was carried out with the support of the Coordination for the Improvement of Higher Education Personnel – Brazil (CAPES) – Financing Code 001.

References

Abbud, E. B. (2017). Governança colaborativa: uma abordagem teórica, empírica e prática em parques tecnológicos. Universidade Federal de Lavras.

Abel, M., & Fiorini, S. R. (2013). Uma revisão da engenharia do conhecimento: Evolução, paradigmas e aplicações. International Journal of Knowledge Engineering and Management (IJKEM), 2(2), 1-35.

Aires, R. (2020). Desenvolvimento de competências gerais para a sociedade em transformação digital: uma trilha de aprendizagem para profissionais do setor industrial [Dissertação de mestrado, Universidade Federal de Santa Catarina]. Florianópolis, SC.

Almeida, V. A. F., Doneda, D., & da Costa, E. M. (2018). Humane smart cities: The need for governance. IEEE Internet Computing, 22(2), 91-95.

Al-Ruithe, M., Benkhelifa, E., & Hameed, K. (2018). Data governance taxonomy: Cloud versus non-cloud. Sustainability, 10(1).

Ames, M. C. F. D. C., Serafim, M. C., & Zappellini, M. B. (2020). Phronesis in administration and organizations: A literature review and future research agenda. Business Ethics, 29(S1), 65–83.

Andersen, M.; Skjoett-Larsen, T. Corporate social responsibility in global supply chains. Supply Chain Management: An International Journal, [s. l.], v. 142:75-86, 2009.

Anderson, J. E., et al. (2020). Defining adaptive capacity in healthcare: A new framework for researching resilient performance. Applied Ergonomics, 87, 103111.

Anderson, J., Ross, A., & Jaye, P. (2013). Resilience engineering in healthcare: moving from epistemology to theory and practice. Proceedings of the fifth resilience engineering symposium. Em: Fifth Resilience Engineering Symposium. Soesterberg, NE.

Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. International journal of social research methodology, 8(1), 19-32.

Arthur, J., Kristjánsson, K., & Vogler, C. (2021). Seeking the Common Good in Education Through a Positive Conception of Social Justice. British Journal of Educational Studies, 69(1), 101–117.

Bachmann, C., Habisch, A., & Die Ksmeie, C. (2017). Practical Wisdom: Management's No longer Forgotten Virtue. Journal of Business Ethics, 153(1), 147–165.

Belani, H., et al. (2022). Towards ontology-based requirements engineering for IoT-supported well-being, aging and health. In 2022 IEEE 30th International Requirements Engineering Conference Workshops (REW) (pp. 65-74).

Bento, F. C. (2020). Uma introdução crítica à pesquisa em gestão do conhecimento e desafios da complexidade. Revista Femass, (2).

Bento, F., Garotti, L., & Mercado, M. P. (2021). Organizational resilience in the oil and gas industry: A coping review. Safety Science, 133, 105036.

Bergerød, I. J., Braut, G. S., & Wiig, S. (2020). Resilience From a Stakeholder Perspective: The Role of Next of Kin in Cancer Care. Journal of Patient Safety, 16(3), e205.

Berghaus, S. (Year). Digital Maturity & Transformation Study.

Berghaus, S., & Back, A. (Year). Stages in Digital Business Transformation: Results of an Empirical Maturity Study.

Bignetti, L. P. (2002). O Processo de Inovação em Empresas Intensivas em Conhecimento. RAC, v. 6, n. 3, Set./Dez., 33-47.

Bordelau, F.-E., & Felden, C. (Year). Digitally Transforming Organisations: A Review of Change Models of Industry 4.0.

Bramley, G.; Power, S. Urban form and social sustainability: the role of density and housing type. Environment and Planning & design, [s. l.], v. 361: 30, 2009.

Briggle, A., & Christians, C. G. (2017). Media and communication. The Oxford handbook of interdisciplinarity, 2, 201-213.

Burgin, M. (2016). Theory of knowledge: structures and processes. World scientific.

Carter, C. R.; Jennings, M. M. Social responsibility and supply chain relationships. Transportation Research Part E: Logistics and Transportation Review, [s. l.], v. 381, p. 37-52, 2002.

Carter, C. R., Jennings, M. M. The role of purchasing in corporate social responsibility: a structural equation analysis. Journal of business Logistics, [s. l.], v. 251, p. 145-186, 2004.

Castells, M. (1997). An introduction to the information age. City, 2(7), 6-16.

Creswell, J. W. (2014). Investigação Qualitativa e Projeto de Pesquisa-: Escolhendo entre Cinco Abordagens. Penso Editora.
Conroy, M., et al. (2021). Using practical wisdom to facilitate ethical decision-making: a major empirical study of phronesis in the decision narratives of doctors. BMC Medical Ethics, 22(1), 1–13.
Davenport, T. H., & Prusak, L. (1998). Working knowledge: How organizations manage what they know. Harvard Business Press.
Davidson, C. N., & Savonick, D. (2017). Digital Humanities. The Oxford handbook of Interdisciplinarity, 159.
Davis, S. D., & Walton, T. B. (2004). Engineering knowledge. In Proceedings of the 42nd annual Southeast regional conference (pp. 406-407).
De Carvalho, T. M., Ponciano, E. S., & Bianchi, E. M. P. G. (2021). GESTÃO DO CONHECIMENTO EM EQUIPES DE TRABALHO: UM ESTUDO APLICADO EM EMPRESAS ASSOCIADAS AO NÚCLEO DE RELAÇÕES HUMANAS NA CIDADE DE ARAGUARI-MG. Revista Fatec Sebrae em debate-gestão, tecnologias e negócios, 8(14), 164-164.
De Godoy, M. F., & Ribas Filho, D. (2021). Facing the BANI world. International Journal of Nutrology, 14(2), 33-33.
De la Torre, R., & Berbegal-Mirabent, J. (2022). Knowledge-Intensive Organizations and Their Role in Promoting Sustainable Development. Administrative Sciences, 12(3), 100.
Di Vaio, A., et al. (2021). The role of digital innovation in knowledge management systems: A systematic literature review. Journal of business research, 123, 220-231.
Drucker, P. (1993). Post-Capitalist Society. HarperCollins.
Erceg, V., & Zoranović, T. (2022). Knowledge management and digital business transformation. Strategic Management-International Journal of Strategic Management and Decision Support Systems in Strategic Management, 27(2).
Ferrero, I., et al. (2020). Practical wisdom: A virtue for leaders. Bringing together Aquinas and Authentic Leadership. Business Ethics, 29(S1), 84–98.
Fowers, B. J., et al. (2021). Courage, Justice, and Practical Wisdom as Key Virtues in the Era of COVID-19. Frontiers in Psychology, 12.
Freire, P. de S., et al. (2021). Glossário: Governança Multinível do Conhecimento e da Aprendizagem e seus mecanismos de Universidade Corporativa em Rede e de Comunicação Dialógica. Editora CRV.
Frozza, T., de Lima, E. P., & da Costa, S. E. G. (2023). Knowledge Management and Blockchain Technology for Organizational Sustainability: Conceptual Model. Brazilian Journal of Operations & Production Management, 20(2), 1354-1354.
Gorman, G. G., & McCarthy, S. (2014). Business Development Support and Knowledge-Based Businesses. Journal of Intelligent Manufacturing.
Günther, H. F., & Cunha, C. J. C. de A. (2022). O SISTEMA DE LIDERANÇA NAS ORGANIZAÇÕES INTENSIVAS EM CONHECIMENTO. Perspectivas em Gestão & Conhecimento, João Pessoa, 12(número especial), 33-47.
Hall, J. G. (2012). Engineering knowledge engineering. Expert Systems, 29(5), 427-428.
Hess, C. (2007). Understanding knowledge as a commons.
Hosseini, M. R., Tahsildari, H., Hashim, M. T., & Tareq, M. A. (2014). The impact of people, process and technology on knowledge management. European Journal of business and Management, 6(28), 230-241.
IBGC - Instituto Brasileiro de Governança Corporativa. (2021). Disponível em: https://www.ibgc.org.br/quemsomos.
ISACA. (2012). COBIT 5: Governança e Gestão de TI da Organização. Rolling Meadows.
Kant, V., & Kerr, E. (2019). Taking stock of engineering epistemology: Multidisciplinary perspectives. Philosophy & Technology, 32, 685-726.
Kaźmierczak, D. (2017). Skills and Capabilities in the Knowledge Society [In] Ed. E. Smyrnova – Trybulska, E-Learning Vol.9 Effective Development of Teacher's Skills in the Area of ICT And E-Learning, Katowice – Cieszyn.
Kendal, S. L., et al. (2003). A Brief Overview of HyM: A Methodology for the Development of Hybrid Intelligent Information Systems. In SEKE (pp. 322-326).
Kolhbcher, F., & Mukai, K. (2007). Japan's learning communities in Hewlett-Packard Consulting and Integration. The Learning Organization: The International Journal of Knowledge and Organizational Learning Management, 14(1), 8-20.
Kristjánsson, K. (2015). Phronesis as an ideal in professional medical ethics: some preliminary positionings and problematics. Theoretical Medicine and Bioethics, 36(5), 299–320.
Macedo, M., & Souza, M. (2023). Ambientes de inovação: das pré-incubadoras as cidades inteligentes. Novas Edições Acadêmicas.
Machado, M. C., & Ferreira, A. P. L. (2022). Revisão sistemática da literatura sobre ontologias para modelos de negócio e processos na pecuária de corte. Revista Brasileira de Computação Aplicada, 14(2), 75-84.
Massingham, P. (2019). An Aristotelian interpretation of practical wisdom: the case of retirees. Palgrave Communications, 5(1), 123.
Masson, G. (2022). Ontoepistemologia na produção de conhecimento no campo da Educação. Práxis Educativa, 17.
Mendenhall, M. E., & Oddou, G. (1986). The cognitive, psychological and social contexts of Japanese management. Asia Pacific Journal of Management, 4, 24-37.
Mertins, K., Heisig, P., & Vorbeck, J. (Eds.). (2003). Knowledge management: Concepts and best practices (2nd ed.). Berlin: Springer.
Munn, Z., et al. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC medical research methodology, 18, 1-7.
Muños, A., Bohórquez, M., & Díaz, G. (2022). Sociedad del conocimiento y sociedad de la información: dos paradigmas para un mismo referente epistemológico para el avance científico y tecnológico. Revista de Filosofia, 22, 332-345.

Müller, F. M., & Souza, M. V. (2020). The role of knowledge media in network education. International Journal for Innovation Education and Research, 8, 76-93.
Nadai, F., & Calado, L. (2006). Uma análise crítica do termo 'organizações intensivas em conhecimento'. Revista Gerpros da Unesp, São Paulo, 1(2), 1.
Nataliia, H., & Olena, M. (2023). The Key Administrative Competencies Of Managers Required For Company Development In The Bani World. ECONOMICS-INNOVATIVE AND ECONOMICS RESEARCH JOURNAL, 11(1), 289-305.
Nomura, T., & Arai, K. (2002). Knowledge Management Process Model to Develop Knowledge Strategies: How to design Knowledge Media Networks for Successful Knowledge Management. Proceedings of the IEEE Workshop on Knowledge Media Networking (KMN'02), [S.l.], 1-7.
Pacheco, R. C. S. (2007). Engenharia, Gestão e Mídia do Conhecimento - Aula 3/3. Available at: https://pt.slideshare.net/rpacheco/engenharia-gesto-e-mdia-do-conhecimento-aula-33.
Paula, A. P. P. D., & Paes, K. D. (2022). Fordism, post-fordism, and cyberfordism: the paths and detours of Industry 4.0. Cadernos EBAPE. BR, 19, 1047-1058.
Rossetti, A., et al. (2008). A organização baseada no conhecimento: novas estruturas, estratégias e redes de relacionamento. Ciência da Informação, 37, 61-72.
Russell, S. (2016). Artificial Intelligence: A Modern Approach. Pearson.
Saaty, T. L. (2004). Decision making — the Analytic Hierarchy and Network Processes (AHP/ANP). Journal of Systems Science and Systems Engineering, 13(1), 1–35.
Saaty, T. L. (2008). Decision making with the analytic hierarchy process. International Journal of Services Sciences, 1(1), 83.
Saiti, A., & Stefou, T. (2020). Hierarchical organizational structure and leadership. In Oxford Research Encyclopedia of Education.
Santos, F. M. R., & Sousa, R. P. L. (2010). O conhecimento no campo de Engenharia e Gestão do Conhecimento. Perspectivas em Ciência da Informação, 15, 259-281.
Sarkis, J.; Hervani, A. A. Reverse Logistics and Social Sustainability. Corporate Social Responsibility and Environmental Management Corp. Soc. Responsib. Environ. Mgmt., [s. l.], v. 17, p. 337–354, 2010.
Saurin, T. A., & Carim Júnior, G. C. (2011). Evaluation and improvement of a method for assessing HSMS from the resilience engineering perspective: A case study of an electricity distributor. Safety Science, 49(2), 355–368.
Schallmo, D., Williams, C. A., & Boardman, L. (2017). Digital transformation of business models — Best practice, enablers, and roadmap. International Journal of Innovation Management, 21(08), 1740014. http://dx.doi.org/10.1142/s136391961740014x.
Schmid, B., & Stanoevska-Slabe, K. (1998). Knowledge media: An innovative concept and technology for knowledge management in the information age. In Beyond Convergence, 12th Biennal International Telecommunications Society Conference.
Schreiber, G. (2000). Knowledge engineering and management: the CommonKADS methodology. MIT press.
Shaba, E. et al. (2023). Adopting an Ecosystem Approach to Digitalization-driven Organizational Change? Actionable Knowledge from a Collaborative Project. Systemic Practice and Action Research, 1-20.
Sousa, Richard Perassi Luiz de. Mídia do conhecimento [recurso eletrônico]: ideias sobre mediação e autonomia/ Richard Perassi Luiz de Sousa. – 1.ed. – Dados eletrônicos. Florianópolis: SIGMO/UFSC,2019. 111p.: ils.
Stehr, N. (2015). Knowledge Society, History of.
Strozzi, F., et al. (2017). Literature review on the 'Smart Factory' concept using bibliometric tools. International Journal of Production Research, 55(22), 6572–6591.
Studer, R., Benjamins, V. R., & Fensel, D. (1998). Knowledge engineering: Principles and methods. Data & knowledge engineering, 25(1-2), 161-197.
Swartwood, J. (2020). Can we measure practical wisdom? Journal of Moral Education, 49(1), 71–97.
TCU, Tribunal de Contas da União. (2014). Referencial básico.
TCU. (2020). Referencial básico de governança aplicável a organizações públicas e outros entes jurisdicionados ao TCU (3a ed.). Brasília.
Vieira, T. O. (2020). O contributo da gestão de documentos na gestão do conhecimento nas organizações: uma abordagem exploratória. Em Questão, 327-350.
Wang, W. Y. C., Pauleen, D., & Taskin, N. (2022). Enterprise systems, emerging technologies, and the data-driven knowledge organisation. Knowledge Management Research & Practice, 20(1), 1-13.
Wiig, K. M. (1999). Knowledge Management: An Emerging Discipline Rooted in a Long History. Disponível em http://www.krii.com/downloads/km_emerg_discipl.pdf. Acesso em 03 de setembro de 2023.
Woodward, J. B., Shaw, M. L. G., & Gaines, B. R. (2006). The cognitive basis of knowledge engineering. In Contemporary Knowledge Engineering and Cognition: First Joint Workshop Kaiserslautern, Germany, February 21–22, 1991 Proceedings (pp. 194-221). Springer Berlin Heidelberg.
Woods, D. (2006). Essential Characteristics of Resilience. In Hollnagel, E., Woods, D. D., & Leveson, N. (Eds.), Resilience engineering: concepts and precepts. Aldershot, England; Burlington, VT: Ashgate.
Zieba, M. (2021). Understanding knowledge-intensive business services. Cham: Springer International Publishing.