

Knowledge management practices and the competitiveness imperative: a polymorphous analysis in the age of the knowledge economy

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Abstract:

This research paper examines knowledge management (KM) practices through a sector-based analysis, highlighting its decisive role in an economic landscape where knowledge is now the epicenter of value creation. This research work opens with a theoretical exploration of the concepts of knowledge economy and knowledge society, laying the conceptual foundations needed to understand the rise of KM as an essential strategic lever and imperative approach to ensuring competitiveness. Using a qualitative methodology and an approach based on content scraping and sectoral exploration, the article reveals that, despite notable variations across sectors, KM practices are converging towards a common goal of optimizing the strategic impact of knowledge to catalyze innovation, process efficiency and organizational resilience. This exploration also highlights the contextual adaptations of KM practices, highlighting how each sector adjusts its tools and practices to meet specific needs. In addition, it questions the current limits of these practices in light of the rapid pace of digital transformation. This research highlights the practical and strategic implications of these knowledge management practices, demonstrating that, in a globalized environment marked by uncertainty and versatility, the ability to capture, structure and capitalize on knowledge is a key driver of competitiveness. The conclusions call for greater adoption of disruptive technologies, such as artificial intelligence, cloud computing and big data, to increase the effectiveness of KM systems. In conclusion, the article stresses the urgent need for further research in this field to anticipate the challenges of an ever-changing economy, where knowledge management transcends the status of a strategic option to become a vital imperative for the competitiveness and prosperity of organizations.

Key words: Knowledge management, Knowledge economy, Knowledge society, Organizational competitiveness, Disruptive and emerging technologies.

JEL Classification: M19

Paper type: Empirical Research

1. Introduction

In a world where information is no longer simply raw data, but is asserting itself as an essential strategic resource, knowledge management is moving beyond its traditional role as a management tool. It has metamorphosed into a veritable linchpin on which the competitiveness and sustainability of companies in a knowledge-based economy now rests. This economy, which marks a radical break with conventional industrial models, places knowledge management at the heart of strategic concerns, redefining the dynamics of value creation. As Nonaka (1995) argues, knowledge is no longer simply a competitive advantage; it has become the very essence of survival in a dynamic, ever-changing environment where rapid innovation and R&D are the norm.

The transition from an industrial economy, where tangible capital dominated, to a society where knowledge has become the backbone, is not without profound adjustments. This structural shift requires careful thought, not only about the tools and processes needed to capture and structure this intangible capital, but also about how to harness it effectively to generate value. According to Grant (2001), a firm's ability to transform information into relevant, contextualized and applicable knowledge is what differentiates leaders from followers in a saturated market characterized by fierce competition.

This transformation is not simply technological or procedural; it is also cultural and managerial. Organizations are now called upon to reinvent the way they operate, in order to capitalize on the knowledge that has become their most valuable asset. As Davenport (1998) points out, knowledge management has gone from being a technical niche to a central function, integrated into every decision-making and operational process in modern companies. With this in mind, this article explores knowledge management practices across various sectors, analyzing how they respond to the challenges imposed by a rapidly changing knowledge society.

In this increasingly volatile, uncertain, complex and ambiguous context, knowledge management is becoming an inescapable organizational necessity for navigating and surviving in this ever-changing landscape. Today's challenges, exacerbated by accelerated digitalization, market globalization and growing demands for sustainable development, can only be met by integrating knowledge management at the heart of organizational strategy. As **Ivaldi et al (2022)** recently pointed out, companies that succeed in transforming data flows into strategic knowledge not only manage to survive, but thrive in this new economic order. Nevertheless, knowledge management is no longer limited to the simple capture and sharing of information; it is increasingly focused on the co-creation of knowledge, fostering a dynamic of collaboration and open innovation where traditional corporate boundaries are blurred in favor of collaborative networks.

This trend, highlighted by **Chesbrough (2019)**, emphasizes that innovation no longer takes place solely in-house, but also relies on external partner ecosystems, thus exploiting synergies between various players. What's more, the rise of emerging technologies, artificial intelligence and machine learning is radically reinventing the way firms collect, analyze and apply knowledge (**Perifanis and Kitsios 2023**). It becomes crucial not just to possess data, but to master the art of transforming this knowledge into actionable, beneficial insights that strengthen resilience and organizational agility. From this perspective, knowledge management is a catalyst for innovation, a strategic necessity and a vector of transformation that redefines the very contours of the contemporary organization. This journey through different sectors will reveal how, faced with a globalized and digitized economy, companies are reinventing their approaches to capturing, structuring and valorizing this intangible capital, responding to the challenges of a society where knowledge is not only an asset, but the very essence of competitiveness and survival.

To carry out this research, the methodology adopted revolves around an approach combining theoretical and empirical analysis, in order to offer both a broad and in-depth perspective on knowledge management practices in different sectors. First, a literature review was undertaken. Then, a qualitative empirical analysis was carried out through case studies of representative companies from various sectors. These cases were selected on the basis of their pioneering role in integrating KM as a strategic lever, illustrating concrete practices that enable knowledge to be transformed into a competitive advantage. Data was collected using content scraping and sector exploration approach, based on company reports, scientific articles and interviews with KM experts. As pointed out by (Thonipara et al., 2023), this recent web-scraping method for data collection is promising in several research contexts. since it can be used to retrieve a variety of interesting data from the websites of the companies studied. This mixed approach, combining theory and practice, enabled us to draw relevant conclusions about KM issues in a globalized, technologically advanced context.

2. From the knowledge economy to the emergence of a new field

2.1. The knowledge-based economy

The concept of the knowledge-based economy has its origins in a long tradition of economic and social theories. The concept is rooted in a number of theories, from economist Machlup's (1962) theory of the knowledge industry, which laid the foundations for the knowledge economy by studying the place occupied by knowledge in the American economy, to the theory of post-industrialism, which states that knowledge is the source of invention and innovation, enabling the creation of added value and economies of scale. As well as in the ideas developed by Drucker (1969), who initiated debates on the knowledge society, and who considers that knowledge has become a vital economic resource forming the basis of economic growth. Despite the existence of an extensive body of literature on the knowledge-based economy, it remains fragmented and embryonic.

Until the mid-1990s, the knowledge economy was a vague concept. Some authors consider the concept to be a fashionable rhetorical term and a metaphor often used superficially and uncritically (Smith and Rupp, 2002). The most common definition is that developed in the OECD report entitled "Technology, Productivity and Job Creation," published in 1996. This definition presented the knowledge economy very broadly as a strong economy based directly on the production, distribution and use of knowledge and information.

Today, definitions of the knowledge economy have grown considerably richer and more diverse, reflecting the rapid evolution of modern economies and the increasing integration of knowledge in all sectors. These conceptualizations have gained in complexity, incorporating new elements such as digitalization, collaborative innovation and the importance of learning systems. Faced with this proliferation of interpretations, it has become essential to examine those that offer the most influential and relevant perspectives.

So, for the sake of clarity and relevance, we have chosen to group together the definitions we have deemed most striking and significant in a summary table 1. This approach is intended to provide a concise and accessible overview, while enabling a better understanding of the various dimensions of the knowledge economy.

Table 1: Key definitions of the knowledge economy.

Authors	Year	Definition
Machlup	1962	The knowledge economy is one in which the majority of production is based on industries linked to information and innovation.
Drucker	1969	The knowledge economy is one in which knowledge becomes the key resource, replacing traditional resources such as capital and manual labor. In his view, knowledge is today what capital and labor were for the industrial economy.
Castells	1996	It is a component of the networked society, where the ability to process and use information is at the heart of economic processes. The production of economic value is based primarily on the ability to generate, store, process and apply knowledge.
David & Foray	2002	The knowledge economy is based on the idea that knowledge is a non-rival good, meaning that it can be shared without being exhausted, and that it generates positive externalities for the economy as a whole. They stress the importance of diffusion and learning mechanisms in maintaining a competitive edge.
Stiglitz & Greenwald	2014	The knowledge economy is based not only on the acquisition of technical knowledge, but also on a society's ability to learn and disseminate this knowledge, in a continuous process of improvement and innovation.
Lundvall & Johnson	2016	It's a learning economy in which interactions between companies, research institutions and governments facilitate the creation and dissemination of new knowledge. They insist that continuous learning is fundamental to economic growth in this economy.

Source: Authors.

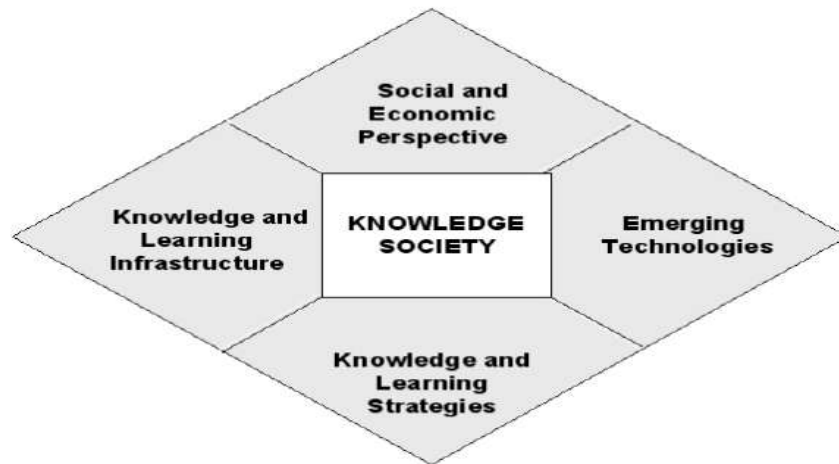
2.2. Knowledge as the vector of the new economy and knowledge society

A knowledge-based economy relies on the use of ideas rather than physical force, and on the mobilization of technological devices rather than the processing of raw materials or the exploitation of cheap labor. Today, knowledge is perceived, developed and applied in new ways. The growth of the knowledge economy in the knowledge society depends on the growth of communities that value knowledge and have a strong capacity to continually produce new knowledge. If we look at the genesis of the knowledge economy, we see that Drucker (1969) and Machlup (1984) are two great precursors of the knowledge economy. Indeed, these authors approached the knowledge economy from several angles, unlike the authors of the classical and neoclassical school, who approached knowledge in a peripheral and superficial manner (Foray, 2009).

The rise of the knowledge economy in the knowledge society depends on the proliferation of knowledge-intensive communities. These communities are characterized by their strong capacity to produce and reproduce knowledge, within a framework of fruitful learning and exchange, while mobilizing technologies that have unleashed enormous potential for knowledge creation, capitalization and dissemination (Lindkvist, 2005). These knowledge-intensive communities now need more skilled people with knowledge in specific fields than ever before.

The new global economic order, which is rooted in knowledge, has meant that most members of society are feeling increasing pressure to learn continuously and acquire new knowledge, due to the growing complexity of professional tasks and the emergence of new jobs.

Figure 1: The backbone of the knowledge society.



Source : Lytras & Sicilia (2005).

This figure illustrates the knowledge society as a central element, supported by four essential pillars: social and economic perspective, emerging technologies, knowledge and learning strategies, and learning infrastructure. Together, these elements create a dynamic synergy, where each dimension interacts to form a solid foundation while adapting to constant transformations. Enabling and emerging technologies in turn stimulate innovation, while the learning infrastructure enables knowledge to be captured, disseminated and used at the heart of economic and social progress.

2.3. The genesis of a new concept

Convinced of the key role played by knowledge in society, and more specifically in business, particular interest was shown in knowledge management by managers. The aim was to move from an approach based on physical resources to one based on intangible intellectual resources. Furthermore, Ermine (2003) has emphasized that the importance of knowledge management in the smooth running of organizations is nothing new. Rather, it is its patrimonial, multidimensional and strategic dimension that is now coming to the fore.

Nevertheless, the concept of knowledge management was first used by Wiig at a 1986 conference endorsed by the United Nations International Labour Organization. This conference introduced the rudiments of the concept, which subsequently entered popular usage in knowledge management conferences that began to appear in books and scientific articles, gradually opening the door to use the term in the business world. Knowledge management has been around for many decades. The concept's roots are hidden in Wells' words from 1938 (quoted in Rayward, 1999), when Wells spoke of the "global brain" vision that interferes with the definition of knowledge management widely used today.

Knowledge management has evolved over the decades, with each author bringing a new perspective to its definition and application. Through a series of sometimes complex and interconnected ideas, we summarize here the key contributions that have shaped today's understanding of knowledge management.

Table 2: Evolution of KM definitions: a chronological overview.

Concepts	Authors	Explanation
Knowledge Management	Wiig (1993)	KM is the process of creating, using and managing knowledge to maximize efficiency and organizational value.
	Nonaka & Takeuchi (1995)	Knowledge management is a dynamic process of knowledge creation through the interaction of tacit and explicit knowledge, via mechanisms such as externalization and socialization.
	Davenport & Prusak (1998)	Knowledge management involves collecting, sharing and using knowledge to improve decision-making and organizational performance.
	Zack (1999)	Knowledge management is about identifying, storing and using organizational knowledge to fill gaps and stay competitive.
	Hlupic 2000	Knowledge management is a difficult concept to define, given the intangible nature of knowledge, the fact that it is applied to the field of management and the fact that the theme is still emerging.
	McElroya 2002	KM is a management science discipline that aims to improve the processing of organizational knowledge.
	Tiwana 2002	KM is about managing the organization to create business value and generate competitive advantage.

Source: Authors.

3. Knowledge management in different sectors: an illustrative analysis

In a knowledge-based economy, where information and knowledge are the main source of value, knowledge management has become a necessity for organizations. KM makes it possible not only to collect, structure, store and share knowledge within organizations, but also to transform it into strategic actions that promote innovation, efficiency and competitiveness (Grant, 2013). Each sector adapts its KM practices to meet its specific imperatives and issues, taking into account its challenges and opportunities.

The current global economic context, permeated by the new world economic order, marked by increasing digitalization, and accelerating innovation cycles, makes the KM function more crucial than ever. Companies must not only manage a growing volume of information, but also leverage this wealth to create new knowledge and develop distinctive skills (Dalkir, 2017). In this context, KM becomes a key differentiating factor, enabling companies to remain agile and responsive in the face of rapid market changes and disruptive, evolving technologies.

The integration of KM into organizational strategies is not limited to internal knowledge management. It also encompasses the way firms interact with their external stakeholders, including customers, suppliers, partners and society at large (Heisig, 2009). This translates into an enhanced ability to innovate, improve processes, respond to changing market needs, and anticipate future trends (Martelo-Landroguez and Cepeda-Carrión, 2016).

Thus, this research work examines how different sectors, such as technology, healthcare, finance and industry, use KM to achieve these goals. Each sector illustrates unique KM practices, tailored to its specific needs, while contributing to a broader, interconnected knowledge society. The concrete examples and theories mobilized in this article show how KM

supports not only organizational performance and competitiveness, but also value creation in an increasingly knowledge-based global economy.

3.1 Technology sector :

The technology sector is a benchmark model for knowledge management, due to the need for constant innovation in a rapidly changing market. Companies such as Google, IBM, Microsoft and Apple have implemented sophisticated knowledge management approaches to capture, share and exploit internal knowledge, essential for maintaining competitiveness in a knowledge economy. What's more, the technology sector is characterized by the intensity of its innovation cycles and the complexity of its digital ecosystems, making effective knowledge management imperative. This explains why these firms are more frequently studied, including in this article, as they offer fertile ground for observing advanced and adaptive actions in action, illustrating this sector's ability to constantly reinvent itself.

- Google

Google's knowledge management strategy is based on three main pillars: dynamic, skilled and committed human capital, modern and structured infrastructure, and strategic relationships. Thanks to a culture of continuous learning, the company encourages its employees to constantly develop their skills through training programs and innovative projects. The integration of AI technologies, such as chatbots and intelligent search tools, enables fluid information management. What's more, collaborative tools like Google Drive facilitate real-time transfer, guaranteeing efficient knowledge management. In fact, Google encourages innovation and knowledge transfer through initiatives such as "Tech Talks," where employees share their ideas and projects. These sessions not only disseminate knowledge, but also refine it by comparing it with other perspectives and contexts within the company. Google's "Tech Talks" program embodies this approach, fostering an environment where knowledge is continuously and effectively exchanged.

- IBM

This world leader in technology is considered to be one of the first companies to adopt a KM approach, back in the 90s. IBM has deployed a knowledge management approach based on collaboration and the reuse of knowledge perceived as intellectual assets. Thanks to tools such as "Knowledge View" for sharing intellectual capital and "BluePages", which were used to locate experts within the organization, IBM facilitates rapid access to its own knowledge. The "ThinkPlace" platform also enabled employees to submit innovative ideas, while collaborative workspaces such as "TeamRooms" encourage the exchange of information and best practices in real time, and the collective management of projects. These initiatives have enabled IBM to increase productivity, boost competitiveness and improve results.

These platforms developed by IBM are a practical embodiment of online communities of practice, a concept developed by Wenger and Lave (1991) where employees worldwide can collaborate, share ideas and solve problems together. These communities are an example of how companies can leverage technology to support creativity, bring ideas to fruition, and improve productivity on a global scale.

- Microsoft

Microsoft, for its part, uses its internal "SharePoint" platform to centralize and disseminate knowledge, facilitating collaboration between different teams and enabling efficient management of complex, cross-functional projects. Microsoft harnesses the power of collaborative tools to organize and share knowledge seamlessly. With well-defined governance, it ensures that every employee can easily find the knowledge they need, while encouraging a culture of sharing through platforms such as "Teams" and "SharePoint". Support for these users

is crucial too, overcoming resistance to change by training users to exploit the tools effectively. All this allows knowledge to evolve organically within the organization, with optimized accessibility via solutions like “Microsoft Search” and “Viva Topics”.

- Apple

Apple, known for its product innovation, operates internal knowledge management systems that enable R&D teams to share technological advances in real time, fostering a culture of continuous innovation.

According to Azam and al, (2016), the firm adopts a knowledge management strategy that is both sophisticated and integrated, structured in four phases:

- **The infrastructure assessment phase:** where the firm analyzes its existing ecosystem to align the KM approach with its pre-established innovation objectives.
- **The KM system design and development phase:** with the implementation of an architecture based on massive data warehouses and expert systems such as “Siri”, while carrying out a knowledge audit to identify strategic assets in each department.
- **Deployment phase:** Apple uses a results-driven approach, managing change and creating a reward culture to encourage knowledge transfer and innovation.
- **The evaluation phase:** measures the impact of these actions on the company's performance, ensuring that the protection of sensitive and critical information is maintained, which is essential in an environment where the loss of knowledge could compromise its competitive advantage.

The use of tools such as the corporate intranet, “Teradata” data warehouses, and expert systems facilitate rapid access to knowledge and promote fluid, successful collaboration between teams. This rigorous management of knowledge, whether tacit or explicit, ensures Apple's continuous innovation, while maintaining a delicate balance between internal openness among employees and confidentiality vis-à-vis the external environment.

Knowledge management practices in the technology sector are intimately linked to the knowledge economy, as they enable the transformation of individuals' ideas and expertise into collective innovation and wealth, which is essential for maintaining a sustainable competitive advantage. Moreover, knowledge transfer strengthens business resilience by fostering a culture of collaboration and adaptability in the face of changing market challenges (El Adraoui et al., 2024). In an economy where knowledge is the main source of value, the ability to effectively capture, share and exploit internal knowledge enables companies to stay at the forefront of innovation.

3.2. Healthcare sector :

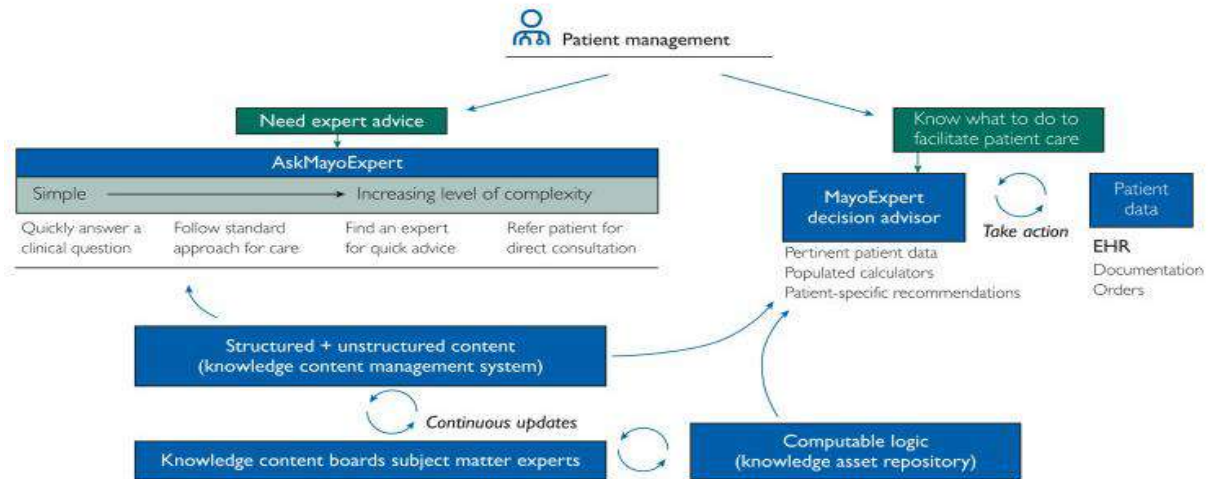
In the healthcare sector, knowledge management is crucial to improving the quality of medical services, reducing medical errors, and accelerating research. Renowned institutions such as the Mayo Clinic and the Cleveland Clinic have implemented sophisticated KM systems that centralize patient data and share knowledge about treatment protocols based on the latest research. These systems enable clinicians to access the latest knowledge quickly and easily, ensuring informed clinical decisions and appropriate, quality care.

- Mayo Clinic

At Mayo Clinic, clinicians use these systems to consult the latest care protocols, thereby improving the quality of patient care. Mayo Clinic's KM strategy is based on a sophisticated combination of technological tools and collaborative processes, helping to improve the quality of care and stimulate medical research and innovation. “The Mayo Clinic Platform” is at the heart of this approach, facilitating the secure sharing of data between physician researchers, practitioners and experts while centralizing healthcare data. Using this platform, Mayo Clinic

promotes advanced analytics for precision and predictive medicine, providing rapid access to relevant, well-structured knowledge of patient diagnosis and treatment. Let's now continue with an exploration of the other flagship tools used as part of Mayo Clinic's knowledge management strategy.

Figure 2: The underlying structure of Mayo Clinic's KM system.



Source: Nishimura & al., (2023).

This figure shows how this company integrates KM to optimize patient care. Through the “AskMayoExpert” platform, clinicians can quickly access answers to their questions or consult experts for complex cases. This collaboration is reinforced by the “MayoExpert Decision Advisor”, which generates specific medical recommendations based on data from the patient's medical file. Another key element of this KM approach is the integration of transnational data management systems, which transform research discoveries into applicable clinical practices, ensuring that knowledge and medical innovation are translated into concrete, effective care. What's more, consultation and data management tools are used to effectively disseminate best practices across the firm. Interdisciplinary collaboration plays a crucial role in connecting experts from different fields. This interdisciplinary mutual support maximizes the use of tacit and explicit knowledge, ensuring continuous innovation in clinical scientific research and patient care. This knowledge management strategy not only maintains a high quality of care, but also improves patient outcomes, satisfaction and well-being, while enhancing medical innovation.

- Cleveland Clinic

At the Cleveland Clinic, KM is used to disseminate clinical trial results and best practices throughout the facility, standardizing care and reducing margins of error and variation between treatments administered. This is particularly valuable in a knowledge-based economy, where access to accurate, up-to-date information is vital for effective clinical decision-making.

In the same vein, Cleveland Clinic is adopting a knowledge management strategy that revolves around technology integration, data centralization and the establishment of a collaborative culture. Using the “Palantir Foundry” platform, massive volumes of clinical data are centralized and organized, facilitating in-depth analysis to improve personalized treatments via presentation tools, automated data pipelines, and artificial intelligence capabilities. Clinical data management systems structure this knowledge, ensuring rapid access to best medical practices. Cleveland Clinic also relies on interdisciplinary collaboration, reinforced by in-house continuous training initiatives to keep staff skills up to date. Its web-based system also provides

secure access to data management resources, supporting all clinical and decision-making processes.

In line with this reflection, Davenport and Prusak (1998) have emphasized that knowledge sharing is crucial not only for improving organizational efficiency, but also for generating innovations in treatment. The effective implementation of KM in these establishments demonstrates how these theories translate into concrete practices that save lives, contribute to longer life expectancy and support the knowledge economy.

3.3. The financial sector :

In a financial sector marked by versatility and unpredictability, where data analysis and risk management are paramount, knowledge management plays a crucial role in improving decision-making. Financial institutions have implemented sophisticated KM systems to centralize and share critical financial market information. These systems enable financial analysts and traders to react quickly to market fluctuations, facilitating more effective investment decisions.

- Goldman Sachs

Goldman Sachs uses KM platforms such as “Marquee” and “Legend” to share real-time data on market fluctuations, enabling rapid decision-making. These systems centralize information, giving analysts instant access to specify, relevant data to optimize investment strategies. In this sense, Goldman Sachs adopts a strategy based on the integration of advanced technologies and the capitalization of in-house expertise and intellectual wealth to support its financial and asset management activities. The investment bank uses data management systems to centralize and analyze knowledge across its various branches, thereby enhancing decision-making and developing customized solutions for its customers. Predictive models and analytics tools are integrated into processes to automate certain tasks while improving risk management. Goldman Sachs also encourages and values continuous learning and employee training through internal knowledge-sharing platforms, facilitating access to resources and experts within the company. This collaborative approach, combined with rigorous data management, enables the organization to stay up-to-date and maintain a competitive edge in the global financial market. For example, Goldman Sachs uses knowledge management tools such as “Marquee”, which provides access to research publications and investment recommendations in real time, enhancing transparency, accuracy and efficiency in customer interactions. This structured approach enables Goldman Sachs to fully exploit in-house knowledge while adapting its strategies to the changing needs of the global financial markets.

- JPMorgan Chase

JP Morgan Chase adopts a knowledge management strategy focused on integrating emerging technologies, digital transformation and artificial intelligence to improve its internal processes and offer innovative solutions to its customers. The company uses internal learning management systems that enable its employees to develop their skills by accessing continuous training resources and key knowledge through dedicated platforms. With the aim of optimizing risk management, by enabling their traders to adjust quickly to global financial market conditions.

With this in mind, JP Morgan is also leveraging artificial intelligence to optimize risk management, automate complex tasks and improve decision-making through predictive financial analysis. At the same time, the firm is implementing a KM strategy based on global knowledge transfer, facilitated by collaborative tools and cloud technologies (Jade, Infinite AI, MongoDB, and many other solutions). This enables teams to collaborate effectively while guaranteeing rapid and secure access to critical knowledge. Their commitment to continuous

innovation is reflected in their digital transformation, which aims to integrate innovative generative AI solutions and advanced data analytics to anticipate customer needs and stay at the forefront of the financial sector.

In terms of theoretical insights, Liebowitz (2003) points out that knowledge management is essential for maintaining competitiveness in a field or industry where information is a key resource. In practice, the KM strategies implemented by these financial institutions demonstrate how rapid access to cutting-edge knowledge can improve the efficiency and accuracy of financial decisions, leading to considerable gains, thereby supporting competitiveness in a knowledge-based economy.

3.4. Industry: knowledge management and continuous improvement

In the industrial sector, KM is an essential strategic tool for improving production processes, managing supply chains and fostering innovation.

- Toyota

This company has integrated knowledge management at the heart of its Toyota production system, a production model that collects and transfers operational knowledge as part of a continuous improvement process. This system encourages employees to contribute actively by sharing their ideas to improve production processes. The integration of KM into Toyota's practices, notably through methods such as "Lean Manufacturing" and "Kaizen", enables the company to maintain its leadership in operational efficiency. According to Liker (2004), knowledge management is fundamental to supporting this culture of continuous improvement, demonstrating the direct link between knowledge management and organizational performance in the industrial sector.

At managerial level, Toyota's KM strategy is based on a multifaceted approach, combining tacit and explicit knowledge to ensure effective transmission of practices across its global plants. As mentioned above, Toyota relies on the Toyota production system, which incorporates concepts such as "Kanban" and "Just-in-Time", to maintain a continuous flow and adapt to demand. To transfer this knowledge, Toyota sends new recruits to running plants, where they learn directly on the job alongside experienced senior staff. This immersive training model based on "Learning by doing" effectively captures and disseminates tacit knowledge, often transmitted through experience and personal interaction in quality circles where employees analyze problems and propose solutions.

In a similar vein, this Japanese firm clearly documents every task on its production lines, providing explicit knowledge in the form of clear procedure manuals for each stage of the process. This accessible documentation helps maintain high levels of quality and performance. Toyota also innovates by adopting crowdsourcing for the generation of new ideas, as with its "Ideas for Good" initiative, which engages the public in solving technological and environmental challenges. These initiatives, combined with the optimization of global manufacturing and distribution processes, make Toyota a model of efficiency in knowledge management, while fostering a culture of innovation and continuous improvement.

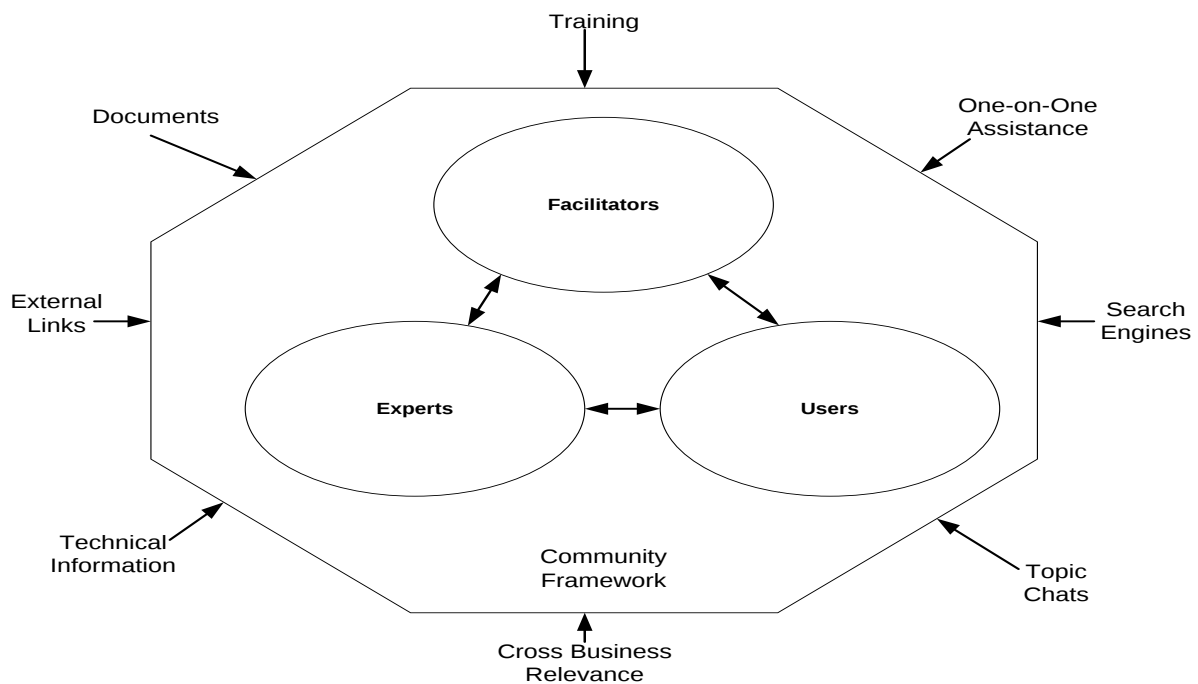
- General Electric

Other companies, such as General Electric, have also adopted knowledge management systems to standardize processes across their global production units. The company uses these systems to share best practices and technical innovations between its different production sites, thus optimizing production on a global scale. This approach enables GE to remain competitive by integrating local innovations into a global framework of organizational learning.

The company implements rigorous technology transfer processes, enabling it to capture knowledge from its numerous research units and disseminate it effectively throughout the organization. It also uses a number of technological tools to centralize and disseminate

knowledge. “GE Learning Central”, for example, is a digital platform that enables employees to transfer their expertise and access cutting-edge training courses. In addition, General Electric operates centralized databases that facilitate the management of patents, innovations and research projects, offering instant access to best practices and key knowledge across the company. The company also values interdisciplinary collaboration, exploiting continuous learning management tools to encourage its employees to develop their technical and managerial skills and actively participate in innovation. This model of knowledge management, combined with technology transfer programs, has enabled General Electric to stay at the forefront of technological developments and maximize effectiveness and efficiency in its global operations.

Figure 3: The General Electric Knowledge sharing model.



Source: McCarthy & Aronson (2004).

This figure illustrates the functioning of the knowledge management system at General Electric, where facilitators play a central role in connecting experts and users in a collaborative, self-help framework. The diagram also identifies tools such as search engines and technical documents, and training reinforces these links and exchanges. The aim is to ensure cross-site relevance by making knowledge accessible and useful throughout the company.

- Siemens

Siemens takes a comprehensive approach to its knowledge management strategy, aimed at fostering global collaboration, innovation and efficiency across its multiple business areas. One of the pillars of this strategy is “ShareNet”, a knowledge management system introduced in 1999 to facilitate information transfer and learning across the various Siemens sites worldwide. The system offers a centralized database, search engine and chat rooms, enabling employees to share knowledge and contact experts for further details. This system has transformed the way employees work, particularly in product marketing, where it has helped to win major new contracts, generating millions of dollars in additional revenue every year thanks to the implementation of this KM system.

Siemens has also set up “Communities of Practice”, virtual groups whose mission is to create, refine and transfer knowledge specific to their areas of expertise. These groups play a central

role in disseminating best practices within the company and managing specialized knowledge. In addition, the “Top+” program, launched to boost productivity and innovation, is another essential tool, integrating internal assessment processes, knowledge sharing and benchmarking to stimulate growth. Not forgetting the company's massive investment in training, skills development and employee support, with over 100 internal ambassadors dedicated to the adoption of “ShareNet”, in addition to a system of incentives to encourage employees to contribute to the system and transfer their knowledge.

With these tools reinforced by a strong culture of engagement and sharing, and a reward system for knowledge contributions, Siemens has not only improved its knowledge management capabilities, but has also demonstrated tangible results in terms of sales growth and increased shareholder value, showing that this KM strategy pays for itself many times over every year.

In a knowledge-based economy, where efficiency, innovation and the quest for excellence are crucial, KM is becoming indispensable for organizations. The practices discussed show that innovation is not just about adopting new technologies, but also about effectively managing existing knowledge, and ensuring that employees are willing and ready to succeed in this endeavor and meet the demands of the knowledge economy. KM thus enables companies to adapt rapidly to market changes, guaranteeing continuous learning and improvement, and increased operational efficiency.

4. Discussion and strategic and organizational implications in the knowledge age

The analysis carried out throughout this research work reveals implications for organizations evolving in an economy where knowledge has become the main source of value. In a knowledge-based society, where information circulates rapidly and innovation is the catalyst for competitiveness, KM has become an indispensable strategic lever. This metamorphosis is having a major impact on the way companies structure their knowledge, adopt new technologies, and reinvent their organizational culture.

- Reconfiguring organizational practices

In the knowledge economy, companies must adapt their practices to integrate knowledge management at the heart of their day-to-day activities. Knowledge management must be seen not just as a support function or a set of trendy gadgets, but as a genuine cross-functional strategy that underpins all organizational activities. This implies a redefinition of roles, a reassessment of technological infrastructures, and a cultural transformation that values continuous learning and the sharing of expertise.

- Innovation strategies in a knowledge-based society

The knowledge economy demands a new approach to innovation, where the ability to create, capitalize on, transfer and use knowledge becomes the key to success. Companies need to develop knowledge management strategies that not only support continuous innovation, but propel it forward. This underlines the importance of flexible organizational structures, capable of capturing informal knowledge and converting it into tangible innovations.

- New dimensions in KM research

This research also opens up new perspectives on the adaptability of knowledge management in rapidly changing markets. The integration of advanced technological solutions, such as artificial intelligence and massive data management systems, into KM practices is a promising avenue for enhancing organizational effectiveness. These new research perspectives are crucial to understanding how firms can not only adapt, but also anticipate the rapid and often unpredictable mutations of the global economy.

- Competitiveness and resilience in a knowledge-based society

This research highlights the fact that in a knowledge-based society, where knowledge and its transfer are the mainstay, the competitiveness of companies increasingly depends on their ability to manage, capitalize on and effectively transfer their knowledge. Companies that master these skills are better equipped to stand out in an environment characterized by uncertainty and rapid change. In other words, in an economy where knowledge is the ultimate resource, knowledge management becomes not only a competitive advantage, but a necessity for survival. The implications of this analysis are multidimensional, affecting organizational practices, management strategies and future research directions. Knowledge management, once a theoretical concept, is now a practical imperative that directly influences the competitiveness and resilience of companies in a constantly changing world.

5. Conclusion:

By way of summary, this analysis demonstrates that KM has evolved to become a fundamental pillar of competitiveness in an economy where knowledge is the main driver of value generation. In a knowledge-based society, where information and knowledge circulate at lightning speed, an organization's ability to capture, organize and exploit these intangible resources is now crucial to its success. Although knowledge management practices vary from one sector to another, they share a common objective: to maximize the strategic impact of knowledge to support productivity, innovation, operational efficiency and adaptability.

The knowledge economy, with its emphasis on the valorization of intangible resources, requires a profound transformation of organizational strategies. Companies must not only invest in robust KM infrastructure, but also cultivate an organizational culture where knowledge sharing and continuous learning are encouraged. This cultural transformation is essential to ensure that knowledge does not remain isolated in silos, but is actively and effectively transferred and leveraged to solve complex problems, drive innovation and R&D.

In a globalized market marked by versatility and unpredictability, effective knowledge management is what distinguishes leaders from followers. What's more, uncertainty is the only certainty, and knowledge management is the most powerful tool companies have at their disposal for coping with change. This implies that the organizations that succeed in converting their knowledge capital into a sustainable competitive advantage will be the ones able to prevail in the decades to come.

In conclusion, knowledge management is no longer just a support function; it has become an essential element of organizational strategy. Mastering this art will enable companies to become not only more competitive, but also more resilient in the face of future challenges. In a world of knowledge, knowledge management is essential to survival and success. The importance of continuing to explore and develop innovative approaches to KM is highlighted in this conclusion, in order to meet the demands of an ever-changing economy and ensure that organizations thrive in an increasingly uncertain world.

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