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Knowledge management: A strategy to generate competitive advantage in organizations

Gestión del Conocimiento: Una Estrategia para Generar Ventajas Competitivas en las Organizaciones

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Abstract

The trend towards a society differentiated by an economic and social structure whose wealth generation system is based on knowledge marks the break with the so-called industrial society. Organizations operate in an environment of change and uncertainty and are forced to discover new ways of doing administrative management. Therefore, this article analyzes the role of knowledge in organizations and its management as a strategy for achieving competitive advantage. This work has a reflective nature and was built from the literature review available in academia. The results show that efficient administration of knowledge

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involves the combination of four factors: human capital, communication, technology, and innovation, and generates high levels of organizational growth, continuous improvement, competitive advantage, and survival in the market.

Keywords

Knowledge; knowledge management; organizations; competitive advantage; knowledge society.

Resumen

La tendencia hacia una sociedad diferenciada por una estructura económica y social cuyo sistema de generación de riqueza se basa en el conocimiento marca la ruptura con la denominada sociedad industrial. Las organizaciones operan en un entorno de cambio e incertidumbre y se ven obligadas a descubrir nuevas formas de hacer la gestión administrativa. Por ello, este artículo analiza el papel del conocimiento en las organizaciones y su gestión como estrategia para lograr una ventaja competitiva. Este trabajo tiene un carácter reflexivo y fue construido a partir de la revisión bibliográfica disponible en la academia. Los resultados muestran que la administración eficiente del conocimiento involucra la combinación de cuatro factores: capital humano, comunicación, tecnología e innovación, y genera altos niveles de crecimiento organizacional, mejora continua, ventaja competitiva y supervivencia en el mercado.

Palabras clave

Conocimiento; gestión del conocimiento; organizaciones; ventaja competitiva; sociedad del conocimiento.

Introduction

Theorists in the organizational literature agree that the emerging society is developing in an increasingly irregular economic, social, and political scenario dominated by globalization. The survival of organizations depends on their ability to control the market, leverage technology, satisfy customers, along with generate immediate responses, continuous improvement, and permanent innovation. Management needs prevail over technical needs and companies are forced to discover



new ways of administrative management (Murillo Vargas, 2009). This reality has positioned knowledge as a basic resource for the generation of wealth that, due to its employability and functionality, has a direct impact on the competitiveness of organizations (Pérez-Luño Robledo et al, 2009).

The growing interest in knowledge is justified for two reasons: first, it sustains a large part of the added value of organizations; second, it places barriers to transfer and imitation that give it strategic importance. Knowledge has only one substitute: knowledge (Ubeda García & Sabater Sampere, 1993). For Nonaka and Takeuchi (1999) knowledge is the "human and dynamic process of justifying personal beliefs in search of truth." According to this definition, knowledge depends on the context. Sanchez and Heene (1996) consider knowledge as a set of beliefs held by individuals or groups of individuals within the organization. Ruggles (1998) defines knowledge as a stock that accumulates and changes slowly, which can vary not only by the degree to which it can be used but also by the content of that knowledge that individuals or companies possess (Ordóñez de Pablos, 2001).

Knowledge arises when an entity perceives that its own experience and capacity have given it the possibility of interpreting the information it receives at a given moment. Thus, knowledge is an alternative for social development, as it originates different ways of analyzing reality and favors the achievement of objectives that, in an organization, translate into a competitive advantage (Ahumada Tello & Perusquia Velasco, 2016). However, to obtain competitiveness in the market using knowledge, organizations must manage this resource efficiently and develop methodological schemes aimed at creating, processing, and disseminating knowledge in the company depending on organizational objectives.

Knowledge management means carrying out a systematic and explicit set of activities, practices, programs, and policies, where the intangible assets of the organization are valued. It facilitates individual and organizational learning, as well as solves problems of adaptation, survival, and competition through processes that combine data processing with information technologies, communication tools, and the innovative capacity of human capital (CIDEC, s. f.).

Therefore, due to its functionality and multiplicity of benefits, the purpose of this article is to analyze the notion of knowledge management in organizations as a strategy for achieving competitive advantage. We will study the theoretical references that support the concept of knowledge management and present the com-

bination of factors that guarantee the efficient use of knowledge, promote continuous improvement, and generate sustainable competitive growth for organizations, according to the literature review.

This work begins with a comprehensive theoretical framework that encompasses the main theories on knowledge management, along with associated concepts and the essential criteria for successful implementation. Next, the methodology section details the sources of information consulted during research, providing insights into its nature. Subsequently, the results derived from the literature study are presented, and, finally, the conclusions drawn from the analysis are outlined. The ultimate goal of this article is to encourage the academic and business community to approach organizational management from a perspective that makes use of knowledge as a catalyst for economic growth.

Theoretical Framework

Organizational Knowledge

The changing and unpredictable nature of the economy in recent decades has forced organizations to modify the execution of their operations and adjust their internal processes to the changes of a globalized society whose only permanent characteristic is uncertainty. The emergence of the post-industrial era contemplates a system of wealth generation based on knowledge (Martin, 2007). As opposed to the resources traditionally employed in organizations —land, labor, and capital—, knowledge is perceived in modern society as a driving tool for growth and development, capable of providing organizations with a sustainable competitive advantage in the long term. Davenport and Prusak (1998) define knowledge as a "fluid mixture of marked experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information" (Echeverri et al, 2018).

Organizational knowledge is the collective set of knowledge related to products, services, processes, markets, and customers, accumulated by the company in the development of its operations. It is created, processed, stored, and disseminated throughout the organization and, lastly, it is engrained in the product or service launched to the market. The creation of organizational knowledge is the key to the development of the continuous innovation process that allows organizations to remain in the market and compete with added value. Hence, the life cycle of a



company is subject to the intelligent management of knowledge (Rodríguez Gómez, 2006).

Modern society recognizes knowledge as a sustainable resource for success and economic growth that is distinguished from those conventionally used by its complex nature and its difficulty to be imitated, allowing organizations to obtain a unique and sustainable advantage over their competitors. However, knowledge alone is not a guarantee of competitive advantage; organizations must develop the ability to efficiently manage this knowledge, apply it to their processes, and develop intelligent systems and procedures aimed at controlling and multiplying it so that it is incorporated into all operations for the benefit of the company (Echeverri et al., 2018). If knowledge is used thus systematically for the achievement of organizational objectives, it can, indeed, enhance the generation of value in companies.

Theory of Organizational Knowledge Generation

The theory of organizational knowledge creation contemplates two dimensions of knowledge: ontological and epistemological, as shown in Figure 1.

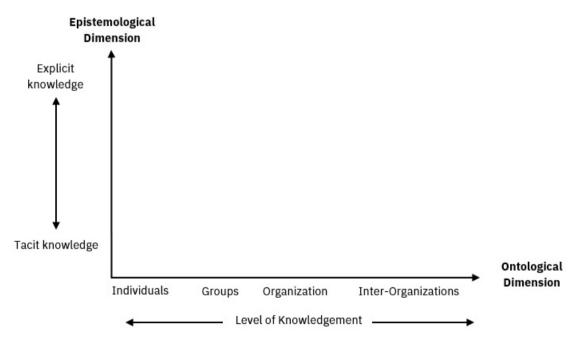


Figure 1. Dimensions of Knowledge Creation

Source: Pavés, 2000

The ontological dimension of knowledge considers the environment in which knowledge is involved.

In concrete terms knowledge is created only by individuals. An organization cannot create knowledge without individuals. The organization supports individual creativity or provides the context for individuals to generate knowledge. Therefore, organizational knowledge generation should be understood as the process that 'organizationally' amplifies knowledge generated by individuals and crystallizes it as part of the organization's knowledge network. (Pávez, 2000)

The epistemological dimension of knowledge refers to the types of tacit and explicit knowledge that support the theory of organizational knowledge generation expounded by Ikujiro Nonaka and Hirotaka Takeuchi in the book *The knowledge-creating company* (*La empresa creadora de conocimiento*, 1999). According to the authors, tacit knowledge is the personal or social knowledge product of individuals' subjective constructions. It is based on experience and is difficult to explain or share by traditional means. For its transmission, metaphors, analogies, exemplifications, and movements based on observations or interaction processes are used (Martínez Vázquez, 2018). On the other hand, explicit knowledge comprises the knowledge that can be easily reflected, transmitted, and shared among the members of the organization employing formal language. It is the rational knowledge expressed in data, formulas, files, manuals, and specific actions (Rivas Tovar & Muro, 2013).

Table 1. Tacit Knowledge vs. Explicit Knowledge

Tacit Knowledge (Subjective)	Explicit Knowledge (Objective)
Knowledge of experiences (body)	Knowledge of reasoning (mind)
Simultaneous knowledge (here and now)	Sequential knowledge (there and then)
Analogous knowledge (practice)	Digital knowledge (theory)

Source: Pavés, 2000.

Knowledge Management

Knowledge management has been identified in the last decades as a key element for the generation of value in organizations. A first approach to the concept of



knowledge management defines it as the discipline responsible for the design and implementation of systems that identify, capture, process, and share the knowledge of an organization so that it can be converted into value for itself (Pérez-Montoro, 2016). For Gopal and Gagnon (1995) knowledge management comprises the identification of categories of knowledge needed to support the overall business strategy, assessment of the current state of the company's knowledge, and transformation of the knowledge base into a new version, free of gaps and lacunae (Ordóñez de Pablos, 2001).

The interaction between tacit and explicit forms of knowledge is the basis for understanding knowledge management processes and their role in organizations. Nonaka and Takeuchi (1999) identified a pattern of knowledge transfer behavior in organizations. They proposed a knowledge spiral that encompasses four distinct stages through which knowledge must pass to undergo transformation and exploitation. This process is evident in what is known as the SECI process (socialization, externalization, combination, and internalization).

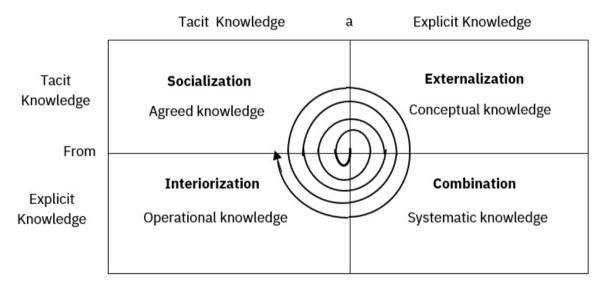


Figure 2. Modes of Knowledge Conversion

Source: Pavés, 2000

Socialization is the beginning of organizational knowledge creation. It refers to the conversion of one person's tacit knowledge to another person's tacit knowledge through personal interpretation, generation of trust, and mutual empathy (Blanco-Valbuena et al, 2018). Experience is the most nourishing source of tacit knowledge; consequently, the exchange of work experiences, skills acquired in practice,

teamwork, and joint training contribute to the development of technical skills that commonly involve observation and imitation, which propitiate the emergence of new knowledge (Hincapié Noreña, 2009). Socialization alone does not guarantee the creation of new knowledge, but it is the necessary starting point to generate valuable knowledge for the organization.

In the externalization stage, tacit knowledge becomes explicit knowledge. It consists of expressing subjective ideas and individual practices regarding a craft, in the form of clear concepts codified to be shared with the organization. In this phase, language becomes valuable not only for sharing new experiences but also for guiding the emergence of new notions (Blanco-Valbuena et al., 2018). It is also the most complex phase, insofar as it requires the individual to express his or her subjective judgments in the form of objective concepts.

Combination is the conversion of knowledge from explicit to explicit. It is the synthesis of explicit knowledge from different sources into a knowledge system. It represents the type of knowledge conversion most used by organizations and refers to information exchanges that take place in different environments and formats (Hincapié Noreña, 2009). Activities such as meetings, conversations of different kinds, and the exchange of documents provide an environment in which knowledge is combined.

Internalization consists of the conversion of explicit knowledge into tacit knowledge. This stage is characterized by the assimilation of explicit knowledge shared in the organization. When new knowledge is disseminated in a company, those who receive it begin to use this information to expand, extend and reformulate their tacit knowledge. The internalization phase ends one cycle of the knowledge spiral and at the same time initiates another one at a higher level, turning knowledge management into a permanent execution process that demands full organizational effort for its continuous reproduction. The results of intelligent knowledge management and, consequently, the development of an increasingly mature knowledge spiral are observed in the form of innovation and the organization's survival in the market (Nonaka & Takeuchi, 1999).

Knowledge management is defined as the company's capacity to create new knowledge, disseminate it in the organization, and incorporate it into products, services, and systems (Nonaka & Takeuchi, 1999). It is a strategy to increase organizational competitiveness in globalized and changing markets. As a systematic



process, knowledge management must be analyzed taking into account the elements that make it possible. According to Baker et.al (1997), adequate knowledge management that generates added value is the result of the interaction between information, skills, experience, and personal capabilities and, consequently, it has to do with the capture, transfer, use, and evaluation of the application of knowledge in the dynamics of organizations. On the other hand, Gonzalez et al (2004) identify six aspects to be taken into account in knowledge management: knowledge identification, knowledge transmission, means and technology, decision-making, organizational culture, and competence (Briceño Moreno & Bernal Torres, 2010).

Knowledge of the Society

In the last years of the 20th century, modern society was defined as an "information society", "learning society" and "knowledge society", which allude to a concept of society whose raw material for development is knowledge. These terms imply a rupture with the previous stage, called industrial society (Morelos Gómez & Nuñez Bottini, 2016). Additionally, ideas such as human capital, intellectual capital, intangible assets, smart economy, continuous learning, knowledge economy, and knowledge management have gained importance in academic and business language (Martín, 2007). This context indicates that a new source of power has emerged and it is information.

The notion of knowledge society originated in 1960, after analyzing the transformations produced in modern society and with the establishment of the concept of post-industrial society. The sociologist Peter F. Drucker predicted the trend towards a society differentiated by an economic and social structure in which knowledge has replaced work as the most important source of productivity and growth (Krüger, 2006).

The environment in which the so-called knowledge society develops is identified by accelerated technological and scientific innovation, speed in the flow of information, fixity in ideas and qualified human resources, and permanent training (Mora, 2004). It is an economy where productivity and power are associated with the creation, processing, and dissemination of information rather than raw materials. It is a 100% informed society, in which technology creates a communication network that enables permanent interconnection. Processes in the knowledge society are flexible, dynamic, and functional and adjust to changes in the environment (Marcelo, 2001).

Organizational Innovation

Efficient knowledge management practices favor the emergence and consolidation of organizational creativity, the starting point of the innovation process that allows organizations to continuously reinvent themselves and remain in the market (Morelos- Gómez et al, 2021; Echeverri et al., 2018).

Innovation is a systematized sequence of activities aimed at obtaining temporary or absolute competitive advantage (Valencia De Lara et al, 2018). It contains a high potential for long-term economic growth. Organizations that bet on innovation seek to add it to their operations as a systematic process that can be managed, measured, and controlled, so they need to strive to develop and strengthen the skills and capabilities of human resources that enable that end (García Osorio et al, 2015).

In the current processes of organizational innovation, the workers begin to occupy a more important position in the company: instead of developing routine and automated tasks, they contribute their skills, analysis capacity, strategy design, and interpretation of information to increase profitability and organizational efficiency (Minolli, 2017.). Likewise, the use of technologies is maximized, information becomes a tool of power, teamwork is promoted, the concern for adding value to products and services increases, and competition becomes increasingly aggressive among companies.

From another perspective, innovation involves a set of activities carried out in a given period and place that lead to the successful introduction of an idea in the market in the form of new or improved products, services, processes, or management and organizational techniques (Ruiz González y Mandado, 1989).

Human Resources in Knowledge Management

Implementing knowledge management practices in organizations necessarily implies transformations in the organizational culture aimed at generating and controlling knowledge in favor of the company. These changes occur only in the minds of the people who make up the organization. The generation, treatment, and dissemination of knowledge in companies require the active participation of individuals (Nonaka & Takeuchi, 1999). To create knowledge and add it to all its operations, top management should seek to place special emphasis on the members that make up the organization.



Companies oriented to achieve competitive advantage in the market through efficient knowledge management direct their efforts to enhance the skills of their employees through continuous training processes (Minolli, 2017). Training provides the possibility of increasing and perfecting the knowledge necessary for the correct functioning of the organization, which must guarantee the conditions for a continuous learning dynamic: on-the-job training, experiments, simulations, and teamwork (Hernández Silva & Martí Lahera, 2006). As a result of these activities, individuals continuously absorb information and assimilate it in the form of knowledge in the functions they perform in the organization. The knowledge generated is incorporated into the behavioral routines of the workers and finally becomes standardized work procedures and processes that have a favorable impact on the organization (Martín, 2007).

Information and experience are sources of knowledge management. The constant interaction with the trade, allows workers to distinguish simple ways of performing the same task that can result in improvements to a process, product, or service and finally translate into innovation. It is precisely this subjective appreciation of work that companies must exploit and promote for continuous improvement. In other words, the worker-occupation relationship can be the key to organizational growth, competitive advantage, and success of an organization (Pávez, 2000).

Methodology

This article adopts a reflective approach, building on material about knowledge management and its pivotal role in modern society, from a comprehensive review of literature available in academic databases such as EbscoHost, Science Direct, and Scopus. For this analysis, 317 relevant articles were selected by employing the keywords "knowledge management", "competitive advantage" and "strategy", within the time frame of 2010-2020 (refer to Figure 3). The final selection comprised academic publications, research papers, scientific articles, books, and academic reports about knowledge in organizations (see Figure 4). The analysis included theories and reflections on related topics: its administration and usefulness to generate competitive advantage, organizational innovation, the characteristics of the post-industrial society, and the use of information technologies in the business context. Our findings support the notion that knowledge management catalyzes innovation, creating a competitive advantage for organizations, and contributing to societal development in the modern era.

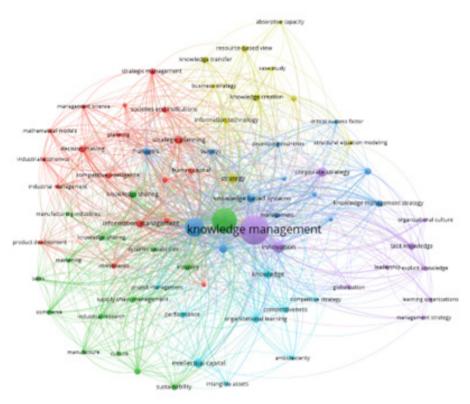


Figure 3. Keyword Correlation Map Source:

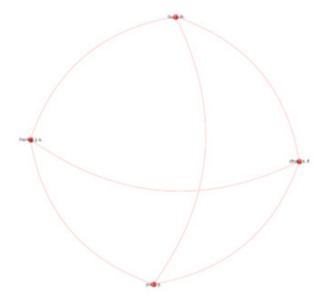


Figure 4. Correlation Map of Authors Related to Knowledge Management Source:



Results

Modern society develops in an environment of globalization, technological progress, open markets, numerous competitors, communication networks, information flow, and constant transformations. Consequently, companies make extensive attempts to efficiently meet the needs of the changing market by resorting to intangible assets in the operational bases and a new system of wealth generation whose main productive resource is knowledge. The authors consulted agree that successful companies use knowledge to achieve their objectives and remain in the market as long as they generate new knowledge, disseminate it widely in the organization, and incorporate it promptly into new products or services available to the public (Burch, 2006).

To manage knowledge is to execute a set of activities aimed at employing knowledge in the process of generating value in organizations: it consists of creating, codifying, transferring, and applying knowledge in all the functions comprised in an organization (Echeverri et al., 2018). Knowledge management contemplates the implementation of information and communication technologies, the recognition and qualification of collaborators, and continuous improvement processes. The analysis of the literature used for the preparation of this paper revealed that efficiently managing knowledge in organizations to achieve competitive advantage involves the combination of four factors: human capital, communication, technology, and innovation.

The first variable necessary to successfully apply knowledge management in organizations is human talent. Workers, in the performance of their functions, generate for companies an intangible resource from the previous knowledge they possess and that acquired in the work environment. Management efforts should be aimed at transferring this knowledge to the organization's operations (Rubio Arriaga et al, 2018). Knowledge management is responsible for collecting the skills and knowledge of workers to make them last in the organization even after the specific workers leave the company.

Human resource is a determinant to achieve successful knowledge management processes because individuals are the holders of knowledge in organizations, they structure their ideas and reproduce them in the form of reports, databases, statistics, and documents. Without people, organizations would not have any knowledge to manage (Gonzalez, 2009). For this reason, managers must take care of,

strengthen and qualify their human resources to place their capabilities in favor of organizational growth.

To strengthen the capabilities of human resources, organizations must implement learning processes that involve training programs, working groups, meetings, and discussions that encourage the exchange of ideas. Compensation strategies for employees' work also augment knowledge; they include reward systems for the evaluation and recognition of their competencies, which boosts motivation. People must perceive that their functions are transcendental for the achievement of organizational objectives; they must know that their contribution to the company lies in their ability to analyze and interpret information and not in the development of routine and automatic tasks (Minolli, 2017). In that regard, attracting and retaining personnel will lead the organization to survive in the face of competition.

The second factor affecting knowledge management in organizations is communication. Its role in this process lies in the transmission of knowledge and the transformation of concepts into products or services (Martín, 2007). Corporate communication is the basic process to achieve the cultural evolution that permits organizations to consolidate a culture of innovation based on knowledge.

In today's society, the quest to be informed is a common concern. Thanks to technology, globalization, computer networks, and the media, the world is interconnected and information spreads with immediacy. Optimizing and incorporating the flow of information inside and outside the organization is intrinsic to knowledge management. Organizations must leverage the context of the globalized society for their growth: establish flexible communication channels with customers, suppliers, and workers; capitalize environmental information for their benefit; analyze the changes in the forms and levels of consumption; and above all, establish a constant feedback process to nourish their knowledge management practices, enhancing their efficiency and gaining a competitive edge over rivals (Giner de la Fuente, 2004).

Technology is the third necessary factor for the efficient development of knowledge management processes in organizations. As a process, it combines intellectual knowledge and the physical environment to transform inputs into products or services (Osorio, 2003). It is no secret that the last two decades have generated an accelerated development of technology that has revolutionized the economic, political, and social environments, which has extended to the business environment



(Ortiz Bojacá & Zacarías, 2016). For this reason, nowadays the competitiveness of organizations depends to a large extent on the use of technological tools.

New technologies must transform the work environment: they shouldn't be conceived so much as a means for the execution of tasks but as a factor inherent to the organization, a new language, and a new source of experimentation (Menchén Bellón, 2009). Applying technology in the processes for the generation and treatment of knowledge provides organizations with agility in operations, reduction of error margins, closeness to the accuracy of results, and permanent interrelation between all the areas that make up the company. All these conditions favor knowledge management processes, allow the generation of value in companies, and generate competitive advantage.

The fourth necessary factor for the successful application of knowledge management in organizations is innovation. Peter Drucker defines it as a tool to exploit change and create value-generating resources for the company and society. Other definitions refer to innovation as the successful implementation of a new or significantly improved product or process (Auletta & Ojeda, 2014). There is sufficiently robust empirical evidence showing a stable and lasting relationship between investment in innovation and productivity growth. Its objective is, therefore, to generate an advantage over the competition and achieve permanence in the market.

Innovation refers to the incorporation of an idea into products, services, or techniques. This is the result of applying a set of processes that necessarily involve the management and transformation of knowledge. In other words, innovation is the primary result of knowledge management practices in organizations. Companies that leverage knowledge as a strategy for growth should always aim to produce innovative solutions to customer needs. Innovation is the correct adjustment between a felt need and the technical possibility of satisfying it (Ruiz González & Mandado, 1989).

The results of this article indicate that efficient knowledge management allows organizations to achieve a competitive advantage in the market. The action of managing this knowledge must necessarily involve the optimal combination of four factors: human resources as a fundamental piece for the creation of knowledge; communication as a tool to consolidate the organizational culture directed to the use of knowledge; the use of technological solutions to print functionality in the processes; and innovation as a creative response to the needs of consumers. Thus,

organizations need to study and understand the position of knowledge in the business environment to develop knowledge management practices that promote the proliferation of new and useful ideas that, when implemented in operations, guarantee survival and the achievement of sustainable competitive advantages over time (Echeverri et al., 2018).

Conclusions

Through the elaboration of this article, we have recognized the importance of knowledge management in constructing competitive advantages for organizations. Properly managed knowledge in a company promotes innovation, sets guidelines for continuous improvement processes, and contributes to obtaining a superior position over the competition. As a resource, knowledge has been present in the reality of societies since their birth. However, nowadays there is a growing interest in using it as a competitive strategy for organizations and an engine for the development of nations.

Knowledge has gained importance in the business environment and has triggered a substantive change in the management and design of organizations. The importance of knowledge lies in its capacity to generate added value for organizations, favor the consolidation of an innovative and efficient business structure, and develop a competitive advantage. It is the only asset that grows as it is shared and its constant use does not generate wear and tear; nevertheless, if it is not shared it can disappear. Knowledge alone does not generate a competitive advantage for organizations; it must be codified, optimized, disseminated, and fed back so that it can fulfill its differentiating function. For this reason, knowledge management emerges as a discipline whose objective is to manage knowledge within an organization so that it can be used for its benefit.

Four factors were identified as necessary to efficiently develop knowledge management processes in an organization: human resources, as the bearer of knowledge, actively participate in knowledge practices; communication, which favors the effective transmission of ideas, the correct flow of information, and the establishment of organizational culture; technology, which offers organizations agility and functionality in their processes; and innovation, which marks the starting point for differentiation in the market and competitive growth.



Knowledge management in a company is directly related to the development of new products, process improvement, continuous innovation, resource utilization, and productivity increase. It represents the following benefits to the organizations that apply it: high levels of organizational growth, improvements in communication, identification of workers as part of the company and not as mere executors of functions, ease in problem-solving, organizational effectiveness, increase in market share by the organization, increase in economic benefits, maintenance of competitive advantage and stability in the market.

The results of this article will serve as a reference for academics and business managers to develop strategies aimed at exploiting knowledge in organizations and taking advantage of it for their benefit. Likewise, this paper will contribute to giving human resources the position they deserve in organizations, using technological solutions in organizational processes, implementing strategies to strengthen communication, to promote innovation, and, finally, to develop and maintain an organizational culture based on the use of knowledge to generate competitiveness in the market.

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