EVOLUCIÓN TEÓRICA DE GESTIÓN DEL CONOCIMIENTO

THEORETICAL EVOLUTION OF KNOWLEDGE MANAGEMENT

EVOLUTION THÉORIQUE DE GESTION DES CONNAISSANCES

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Abstract

During the last few years knowledge management has been strengthen in those organizations interested in creating competitive advantage in the identification and correct application of the knowledge they generate. The study of knowledge management has been extended into the social, cultural, economic, administrative, and scientific areas resulting in numerous models that have been used in both public and private companies, which have provided useful empirical evidence to further advance its study. In this paper we review some of the many models that have emerged as more scholars research the topic and present some classifications proposed by these researchers. The body of theory about knowledge management is growing, thus we leave this study open to continue to inquire into this matter.

Keywords

Knowledge management, knowledge models, knowledge society

Resumen

En los últimos años la gestión del conocimiento ha venido tomando fuerza en aquellas organizaciones interesadas en crear ventajas competitivas alrededor de la identificación y correcta aplicación del conocimiento que generan. Es así como su estudio se ha extendido en las áreas sociales, culturales, económicas, administrativas y científicas dando lugar a numerosos modelos que a su vez han sido aplicados en empresas tanto públicas como privadas, las cuales han aportado evidencia empírica útil para seguir avanzando en su estudio. En el presente trabajo se hace una revisión de algunos de los muchos modelos que han aparecido en la medida que más estudiosos investigan sobre el tema y algunas clasificaciones propuestas por dichos investigadores. El cuerpo teórico alrededor de la gestión del conocimiento está en crecimiento, dejando por tanto la posibilidad de seguir indagando en su estudio.

Palabras Clave

Gestión del conocimiento, conocimiento, modelos, sociedad del conocimiento.

Résumé

Au cours des dernières années, la gestion des connaissances a été gagne en force dans ces organismes intéressés à créer des avantages concurrentiels autour de l'identification et l'application correcte de la connaissance qu'ils génèrent. Ainsi, l'étude a été étendue dans les domaines sociaux, culturels, économiques, administratives et scientifiques menant à de nombreux modèles

qui à leur tour ont été appliquées dans les deux entreprises publiques et privées, qui ont fourni des preuves empiriques utiles pour progresser dans son étude. Dans cet article, un examen de quelques-uns des nombreux modèles qui sont apparus comme la recherche plus de chercheurs sur le sujet et certaines classifications proposées par ces chercheurs est faite. Le corps théorique sur la gestion des connaissances est en croissance, laissant ainsi la possibilité de continuer à travailler dans son atelier

Mots-Clés

La gestion des connaissances, les connaissances, les modèles, la société de la connaissance

Introduction

One of the main challenges organizations face today is the search for competitive advantage from the identification and application of knowledge, this is why many of the strategies focus on the transition from technicality and the simple accumulation of financial capital to proper knowledge management within the organization. This leads to say that today the issue has become a matter of interest in management because of the relevance of its use in companies interested in competing in a globalized world in a knowledge society.

Currently organizations have realized that their advantages do not lie only on the location of their plants and the equipment they own, but beyond these in the knowledge they can build not only with their employees but also with their suppliers and their customers. This is because within a few decades ago companies understood that the physical and financial assets alone are not capable of generating sustainable advantages in time, instead the intangible assets are those that actually deliver real value to the organization.
The term knowledge management appears because of the urgent need to generate, absorb, transmit, and use knowledge in a knowledge society, which is a result of a society of information, and also is able to use information technology to take only what it can be valuable to the organization.

The concept of knowledge

Knowledge as a concept has been treated by many authors who from their disciplines find ways to understand, yet all converge on that knowledge is a

mixture of experiences both in individual and organizational form. Here we cite some authors that have addressed this issue.

One of the main authors who takes the concept of knowledge and has remained to this day is Polanyi (1966), who argues that we humans often find difficult to transfer knowledge from one another, within the organization there may be explicit knowledge which to be transferred needs the establishment of standards, procedures, and mathematical expressions, among others.

Canals (2000) cited in Cervantes (2007) that knowledge is the "set of expectations of an agent, the distribution of probabilities that he assigns to the possible events that can happen in your environment. That is, the vision one has of how things are and how they will behave". Serban and Luan (2002) state that combining the knowledge of information held by the individual with the organization's information causes a dynamic that generates a practical course of action to be followed by the company. Quintanilla (2003) also speaks of knowledge as a result of the development of each person's knowledge of information by the application of learning processes. Martínez (2004) states that " tacit knowledge is attained by each person individually, through experience, intuition, intelligence or technology absorption (know how heuristic). Explicit knowledge is that which is socialized throughout the organization and it is based on the collective experience of history and culture, and is found in the form of rules, regulations and manuals of the company. It is what I call organizational knowledge, the knowledge produced or own by the entire organization".

Knowledge management models

Knowledge management is a powerful tool that should help managers of organizations to improve their measures for customer service and suppliers (Armistead, 1999). Authors like Tarí and Garcia (2009) argue that knowledge management "is the dynamic process of creation, storage, transfer, application and use of knowledge in order to improve performance in an organization." Alavi and Leidner (1999) define knowledge management as a process that takes into account the tacit and explicit knowledge of employees who bring it into their work to make it more productive. Alhama (2006) understands knowledge management as a capability for continuous improvement and innovation, not just as an optimal training plan.

Macias and Aguilera (2012) state that the term knowledge management "denotes the set of activities related to the generation, capture, dissemination

and application of knowledge relevant to organizational practices, while there is no consensus on the knowledge itself some authors consider it a resource that can be stored regardless of place and time, and others emphasize his social nature and context dependent ".

The following presents in more detail some of the well-known models of knowledge management:

- Growth model of knowledge Kogut and Zander (1992,1993,1996).The knowledge model of Kogut and Zander is organizational and operates under the scheme of the growth of knowledge within the company. To do so, the information possessed by the person is explored as well as the contribution this generates to the organization. The authors show the model in three stages, in 1992 for example, stand out as the first to highlight the strategic importance of knowledge within the company. Kogut and Zander 1993 show a more structured and empirical evidence approach, which make clear that knowledge is created and transferred within the company and after the transfer of knowledge takes place people generate a common understanding on various aspects of the organization. In 1996 extend their discussion to analyze the behavior of the individual within the organization, where the desire of the individual to belong to the community while retaining his personality is emphasized (Haslinda and Sarinah, 2009).

- Model of transfer and transformation of knowledge Hedlund (1994). This is the first work that simultaneously address the ontological and epistemological dimension of knowledge, seeks to explain how knowledge is created and disseminated, and transformed from the individual to a group of organizations. This model is oriented towards the transfer and transformation of knowledge.

- Knowledge creation model of Nonaka and Takeuchi (1995). It takes into account the dimensions designated by Hedlund (1994) and identifies four major stages such as: socialization, externalization, combination and internalization referring to the constant interaction between tacit knowledge to tacit, tacit to explicit, explicit to explicit and explicit to tacit respectively.

One of the well-recognized models of knowledge management is the benchmark proposed by Nonaka and Takeuchi (1999), where knowledge is divided into explicit and tacit. Explicit knowledge is known as that found in books, graphics, databases, etc., which is also called intellectual artifacts, while tacit knowledge is that which resides in the people and is accumulated by the understanding that each person has about something. Some years

later Nonaka (2007) explains knowledge as a spiral that occurs within organizations and should meet certain conditions.

- Learning Model Naver and Slater (1995). Model based on competitiveness and mediated by two contexts, cultural and structural. It refers to the cultural norms and beliefs of the organization in terms of innovative thinking and market orientation, referring to structural systematization and organization structure to achieve desired goals (Prieto, 2003).

- Model of Knowledge Management Consulting Arthur Andersen (1999). The need to accelerate the flow of information from an individual perspective to an organizational, where the former is responsible for the sharing of knowledge and for making it explicit and the second is responsible for creating the infrastructure of support so that the contribution of the individual perspective will be effective (Andersen, 1999).

- Model KMAT (Knowledge Management Assessment Tool) KMAT (1999). Consider the generation and development of organizational knowledge through a facilitator (Leadership, technology, culture, measurement and process) that will identify gaps in knowledge and help capture, take and transfer this knowledge, also uses a tool that has five basic aspects such as: leadership, technology, culture, measurement, and process (De Jager, 1999).

-Zack's model of knowledge management (1999). Recognizes that knowledge management is more than a fad and should be recognized within the organization as a key aspect in creating economic value and it should be acknowledged as a component of business strategy to make of it a competitive advantage for the company.

- Knowledge Management Model of Gold, Malhotra and Segars (2001).This model integrates the technological infrastructure with the cultural and the structural infrastructures of a company to acquire, convert, implement, and protect knowledge (Prieto, 2003).

- Model of appropriation of knowledge. Davenport and Prusak (2001). In this model 6 modes of knowledge generation are proposed, they are: The acquisition, which refers to the internalization of external knowledge through testing. Rent, in which knowledge can be rented and are intended to temporarily possess the source of knowledge. The allocation of resources, where knowledge is generated from research centers or networks to obtain new knowledge. Fusion seeks the deliberate combination of individuals with different skills and abilities that can interact and generate solutions,

develop new items of culture or increase knowledge in organizations. The Adaptation refers to the constant innovation in products, technologies, social and economic changes that lead to the generation of knowledge. Networks, seek relationships between people, experts, communities and organizations and built them up to make them suitable for the flow of knowledge between them.

- Model of Powell (2001).Describe how data become intelligence as a result of the collaborative work of two activities which are the acquisition and application of knowledge.

- Model of knowledge management Bhatt (2001). Highlights the importance of social and technological subsystems in the management of knowledge which is understood as a process of creation, validation, presentation, distribution and application of knowledge. These are phases that allow building and maintaining competence in organizations.

-Badamshina and Baker's model (2002).This explicit knowledge refers to the organizational knowledge and basic guidelines. Knowledge is seen as a source of wealth. Also, Badamshina and Baker claim that the term knowledge management made its first appearance in a management conference in Europe and has gained significant strength from that time.

- Kerschberg Model of Knowledge Management. This model deals with the various aspects of conceptual models that support mostly the service sector with advanced information systems that assist in the implementation of a knowledge management system (Kerschberg and Weishar, 2002).

- Model Eustace (2003). Develops a taxonomy of assets held by an organization, according to four characteristics: latent abilities, intangibles skills, intangible assets, and tangible assets.

- Model Intellectus (CIC, 2003). Attempts to clarify the relationships between intangible organizational elements to facilitate their observation and analysis (CIC, 2003). (Good and Salmador, 2007).

- Management model proposed by Benavides and Quintana (2005) knowledge. Knowledge management enables an organization to develop and implement all kinds of knowledge required for problem solving and decision -making through four variables: Identification and measurement, generation, capture and storage, access and transfer.

- Model Holsapple and Jones (2004). It refers to the primary and secondary activities such as: Acquisition, Selection, Generation, Assimilation, Emission, Measurement, Control, Coordination, Interacting Leadership, and the generation of organizational value.

- Model of technological intelligence. Bio-management (2005). Seeks to reduce the risks in the strategic decision making process through three components: the implementation of tools, knowledge generation and formulation and implementation of strategies (Castellanos et al, 2005).

- Model of Knowledge Management Ruggles (1997). Associates knowledge management to a management process in which information is taken into account in some stages: identification, selecting, organizing, filtering, and presenting and using.

- The model of knowledge management Wiig (1999). Advice that in recent decades the way knowledge is conceived has evolved within organizations and establishes the need to understand the various forces involved in creating competitive advantage such as intellectual, social, and economic forces and states that such understanding should be continuously updated in order to remain competitive. In this model some necessary steps are proposed for effective knowledge management such as the identification of key knowledge, skills audit, documentation of knowledge, creation of knowledge base, knowledge distribution (Gonzales et al, 2004), (Dalkir, 2005), (Paniagua et al, 2007).

For Barragán (2002) although there are many models of knowledge management, some authors as MacCreedy MacAdam (1999) have achieved a first attempt to classify them, just as Rodriguez (2006) and Kakabadse et al (2003) developed important classification patterns to show clearer the meeting points among the main features of each model. These findings are presented in Table 1.

Table 1: Commonalities among knowledge management models

AUTHOR (YEAR)	**MODEL**	**CHARACTERISTICS**
MacAdam and MacCreedy (1999)	Categorical Models of knowledge	The main work of the models in this group is to present knowledge management on an essentially conceptual and theoretical approach.
	Models of intellectual capital	"Such models assume how intellectual capital can be separated as follow: human elements, customer, process and development."
	Socially constructed models	"Assume a definition and broader view of knowledge. These models are intrinsically linked to social processes and organizational learning. "
Rodríguez (2006)	Storage, access and transfer of knowledge	in these models usually the difference between knowledge, information and data is not noted; knowledge is considered as a separate entity from the people who generate it and use it.
	Sociocultural	These models promote changes in attitude, confidence, creativity and awareness of the value of knowledge among members of an organization.
	Technological	These models focus on the development and use of computer systems and technological tools.
Kakabadse et al (2003)	Philosophical knowledge management models	These models are related to epistemology or the constitution of knowledge itself .
	Cognitive models of knowledge management	This type of model is mainly used in knowledge-based organizations that take knowledge as the basic product for trade.
	Models of Network - Models of Knowledge Management	En este grupo de modelos se expresa la. In this group of models the concept of knowledge is expressed from the various actors involved in the process of knowledge socialization whom also influence the actions that are performed.
	Models of Community of Knowledge Management Practice	The basis of these models is built from a sociological and historical perspective. In practice, this type of model can be found and applied in industrial and professional activities.
	Knowledge Management Models of Quantity	These are models that integrate the operations at all levels of the organization and that in turn help in solving conflicting and paradoxical complex problems

AUTHOR (YEAR)	MODEL	CHARACTERISTICS
Barragan (2002)	Conceptual Theoretical and Philosophical Models of knowledge Management	These models are described and analyzed from a conceptual and theoretical approach.
	Models of Cognitive and intellectual capital of knowledge management	These models and their application are aimed for industries and organizations that are based on the use of knowledge to create value.
	Models of social networks and knowledge management work	These models attempt to explain how knowledge is acquired, transferred, exchanged and generated based on social processes and organizational learning.
	Scientific and Technological knowledge Management Models	These include models aimed for managing technological innovation and its purpose is to promote research and development. All the other models are those that make use of ICT.
	Holistic models of knowledge management	Models that cannot be classified within the first four because they differ in some features.

Source: Compiled from Barragán (2002).

Some studies in Colombia

The main applications of knowledge management in the world have come from academia and within organizations whether public or private. Concerning its application to collect empirical evidence in Colombia there have been some studies that will be stated below. For example, in regard to Educational Institutions we have the study done by Calderón (2001) who makes his application at the National University of Colombia and proposes a model for improvement in the area of technology. In the same way, González (2009) studies the processes of knowledge management in the research groups of the Pedagogical and Technological University of Colombia. Also, in 2009 Solis makes a proposal on the design of a model of Knowledge Management in the subsector of plastic polymers for laboratory SENA. In addition, Núñez

(2012) applied an instrument that examines four dimensions of knowledge management and proposes an improvement plan for management.

As for the empirical evidence found in different organizations we have some studies such as Bernal (2005) who performed a study in which characterizes and makes a proposal to improve knowledge management from the application of an instrument in the entities of the central level of the district of Bogotá, also Cervantes (2007) studies the creation of conditions for implementing knowledge management in metalwork companies, also Mejía (2009) generalizes a model of knowledge management dedicated to the recreation of companies. Meanwhile, Finch (2009) analyzes the processes of knowledge management in centers for the development of agricultural technology in Colombia.

Marulanda and López (2013) conducted a study in eight Colombian cities to small and medium enterprises where an instrument was tested on 323 organizations in order to analyze the practices, the processes, the use of information, and the application of communication technologies, as well as the skills and the organizational features used to manage knowledge. The result is that in some companies has been a progress in the development of skills of knowledge management, but knowledge management is not implemented as a company policy and they have not advanced in the use of practices especially regarding technological tools useful for this process. Finally, it draws attention to the need to further develop management skills.

Conclusions

Knowledge management is an organizational decision which must be taken into account critical factors in the view of Cervantes (2007) would be a strong organizational culture, an incentive system, the use of information technologies, and the commitment of management, which well applied may lead to the success of the company. Besides, knowledge management becomes a key aspect for the integration of an organization as it seeks to find intangible results from intangibles as a result of value-added attributed to the shared interests of people who have united in the pursuit of common objectives (Perozo, 2004).

It is important to continue the study of knowledge management not only at the academia but directly to the organizational level, in order to collect enough empirical evidence to help validate the various models that have emerged, particularly for companies that understand that knowledge is

the best intangible asset that can help create competitive advantage in a knowledge society.

For Muñoz and others (2003), knowledge management must have an integrated vision for three actions: create, share, and use. There is a growing need for models to help achieve maximum profitability. However, the use of these models should be accompanied by tools, systems of information, and especially organizational structures that accept the challenge that implies to change the company's culture for one in favor of the interest of all the stakeholders.

Finally, this paper is expected to invite students of knowledge management to continue to work on the subject, and above all, to find empirical evidence within organizations. It is imperative that human talent departments know and understand what the organization needs in regards to knowledge management skills in order to plan actions and make real use of knowledge management as a competitive strategy which has been missing in most of the companies and only a small percentage of them have understood the advantages of its implementation.

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