

*Review*

# Common items in the companies' information flow from the organizational structure and management of ideas through the perspective of the global cognitive theory

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Companies have to adapt their structures to environmental continuous changes. In crisis time is important to identify and appreciate what people can bring to businesses (ideas, knowledge, innovation, etc.) in order to survive by creating competitive advantages and exploiting what the environment offers. In addition, Information and Communication Technologies (ICT) have a deep impact on organizations; ICT are often related to the emergence of new organizational forms, linking technological change and organizational change, which in turn affects people. In this paper we show the relation between information flows, organizational structure and ideas and knowledge management.

**Key words:** Ideas management, innovation, flexibility, knowledge, organizational structure, global cognitive theory, organizational capabilities, human capital, absorptive capacity.

## INTRODUCTION

### GLOBAL COGNITIVE THEORY

Global Cognitive Theory derives from General Theory of Conditional Evolution of Life (Molina, 1992; 2002). This theory analyzes topics as information systems, human cognitive processes and the psychology of knowledge regarding computers, neuroscience and brain philosophy in the modern culture. The brain is specialized in the treatment of information and common characteristics are intelligence and memory. Thus, a relation between the human brain and modern computers is based primarily on the storage and handling of huge amounts of information. Cognitive Theory has been applied to different fields of knowledge related to people and the company, highlighting the importance of individual cognitive abilities (García and García, 2008). Both theories establish a relationship between biological evolution of human being and the society. By using examples, these approaches

show that the demand from people is the result of their evolution and changing needs; demand is fitted with company's offer to satisfy those needs.

As we previously explained, the main similarity between a computer and the brain is that they have the same purpose: to save and manage a large amount of information. Thus, we can argue there is a willingness of people to create tools to facilitate their work and to do it as an internal natural way, that is, the brain's way of work (Figure 1).

In this scheme, both brain and computer support to plan, organize, manage and control information through a complex set of subsystems. Then, information can be used in the best and most productive way for making decisions.

Hence, we consider interesting to establish a relationship that includes the human part and the technological part of the company with three support points: brain

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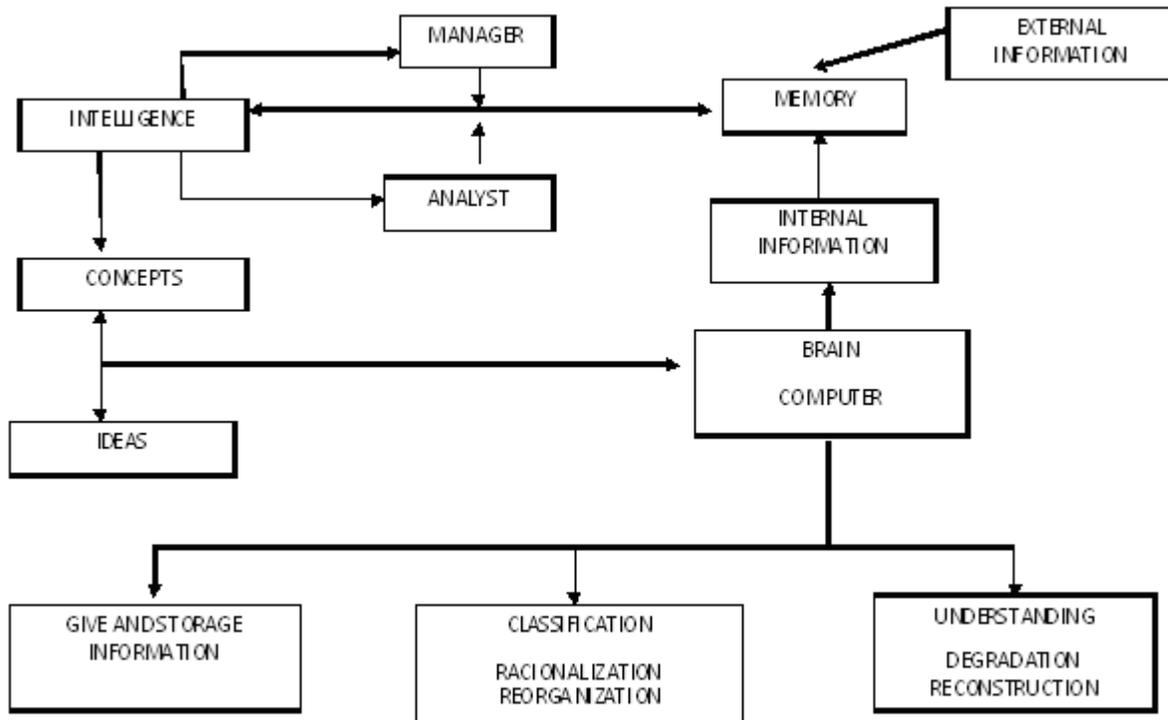


Figure 1. Brain-computer relation.

(person), computer (ICT), and company (organization) (Santandreu et al., 2009). Nowadays, we take into account other studies that show the importance of thinking from other perspectives as the organizational approach (Gandarillas and Briñol, 2010) and the importance of psychology at work both for individuals and organizations (Rodríguez-Carvajal et al., 2010).

This work is about the scope of knowledge management and its relationship with innovative activities of the company from the Global Cognitive Theory perspective. Specifically, we analyze the main features in the way of managing organizational knowledge (ideas) and identify the relationship that behaviors have with respect to innovative thinking. In next sections we define involved concepts and show the relation between information flows, organizational structure and ideas and knowledge management.

### DIMENSIONS: ORGANIZATIONAL STRUCTURE AND IDEAS MANAGEMENT SYSTEM

After conducting a literature review, we aim to bridge the gap that exists regarding the relationship between corporate organizational structure and ideas management, so that the creation of a new model would allow companies to be more effective, efficient and competitive. There are not many works which relate these concepts. Researchers have not taken into account neither jointly

analyzed the contribution that human capital and its management do to the development of organizational capabilities or, in other words, how the competencies of employees (knowledge, skills and abilities) and human resource management practices are related to certain organizational capabilities (Barney and Wright, 1998; Pfeffer, 1994, Carmona et al., 2000; De Saa and García, 2000). Neither the impact of innovation tools and its management in the overall performance has usually been studied (some examples can be seen in Albaladejo et al. (2009) and Libaers et al. (2009).

Companies can be analyzed from various and multiple dimensions. Our paper focuses on two of these dimensions and their interaction, taking into account the contribution of both to improve distinctive capabilities. One dimension is the organizational structure of the company and the other is the ideas management system. The organizational structure can be defined as the way for ordering the whole set of relationships in a company (jobs, tasks, authority and decisions flow) through an appropriate level of communication and coordination among all members (Strategor, 1988). Therefore, any change that occurs in the company should result in a change of structure.

On the other hand, if we are looking for adaptation, organizational capabilities drive business agility and are justified by their important contribution to the performance and competitiveness. Organizational agility is defined as an organizational capability that allows companies to be

infinitely adaptable and innovative without having to change (Dyer and Shafer, 1999). Therefore, flexibility and innovation are two of the different dynamic capabilities companies have or should have. They affect business agility enabling them to obtain better results and even develop a sustainable competitive advantage (Damanpour, 1991; Li and Atuahene-Gima, 2001; Lepak et al., 2003).

Companies must have the ability to adapt to new situations without these changes entail heavy penalties of time, cost, effort or performance (Upton, 1994), which is known as flexibility. Flexibility is associated with human capital (Canós, 2003; Canós et al., 2003) and the orientation adopted by certain practices of human resource management in terms of job design and selection, training and development, performance evaluation and reward policies (Canós and Liern, 2003).

The distribution of knowledge in the organization is a central criterion in the organizational design (Ricart and Rosanas, 1996). Knowledge resides primarily in people and, given bounded rationality, it is not possible to concentrate all the relevant knowledge for decision making in a single person (Tsoukas, 1996). Information and knowledge are relevant in the decision making process, so that when making the assignment of decision making responsibilities between the members of an organization is necessary to consider the nature of the significant information, where and how it is produced, and the cost of transferring. Knowledge management allows analyzing, organizing and implementing in a business context the information in order to convert it into knowledge (Morey et al., 2000). Then, decision making and corporate management become easier.

In this line, authors such as Van den Bosch et al. (1999), argue that the scope, flexibility and efficiency of knowledge assimilation depends on the company's organizational structure (functional, divisional or matrix). Others consider a flexible organizational structure as a strategic factor in the field of knowledge management (Mas and Martínez, 2008). However, very few studies specify how this organizational structure affects the subsequent exploitation of knowledge. Then, our interest is in determining what type of organizational structure has a company that best exploit knowledge, by following the concept of organizational agility, and if managers have design a ideas management system.

## **INFORMATION FLOWS AND ORGANIZATIONAL STRUCTURE**

Considering the above explanation about the concept of conditional evolution of life and its application to the company, we find its adaptation since its inception and evolution, through competitive advantages, in order to become independent or free from market restrictions. Knowledge is a key factor in achieving competitive

advantage (Nonaka, 1994; Grant, 1996; Bueno Campos, 1998). The correct use of ICT is one of the main tools for this. ICT are a set of techniques, processes and devices that integrate advanced functionality for storage, processing and data transmission (García and García, 2008). Its development has overcome, at least partially, the fact that information is located in different people in the company, making it immediately available on line and at relatively low cost. Also, ICT affect the way people work in companies (jobs, communication and coordination). When people need new skills and competencies because of changes, ICT have a role in the emergence of new organizational forms.

ICT are often considered as flexible and as a dynamic element. Additionally, not only enhance the flexibility of the company but, conversely, non-bureaucratic behavior also seems to favor much of its implementation (Benjamin and Blunt, 1992), facilitating information flows.

The integration of ICT in business has been reflected in two major areas: 1) In external organization model, with the emergence of the network company; 2) In internal organization model, where vertical bureaucracies have become horizontal companies (Benjamin and Levinson, 1993; García et al., 1997).

In both internal and external areas, objectives include the effectiveness of the organization as the result of a balance between needs of information and the ability to use it (Rastrollo and Castillo, 2004). Thus, we can find integrated jobs in models of competencies management that use an intranet as a vehicle for knowledge management and as a tool for operational management support for an effective decision making (Valdes-Conca et al., 2008). Nowadays, there are knowledge embedded in systems, procedures or routines (Nelson, 1991) and, in essence, do not belong to anyone. In this context, ICT applications such as information systems within and between organizations also help in creating organizational knowledge.

Some authors focus the debate on new structures and the relationship between the creation of intangible assets and the structural design, where the key concept for organizations is the information, so that the structure should focus on facilitating the collection, processing and effective use of information to improve performance (Galbraith, 1993). As noted, information and knowledge belong to the people that transform them in skills and competencies (Nonaka and Takeuchi, 1995) from which ideas arise; these ideas can lead to innovations that improve competitiveness and productivity. These ideas should be forwarded to the company for evaluation, as shown in Figure 2.

Other researchers conclude that these types of tools (among which is the e-learning) consider that the culture of an organization can be crucial to companies, including SME, allowing sharing and creating knowledge. These authors propose a continuation of their studies to know the status of integration of e-learning in knowledge

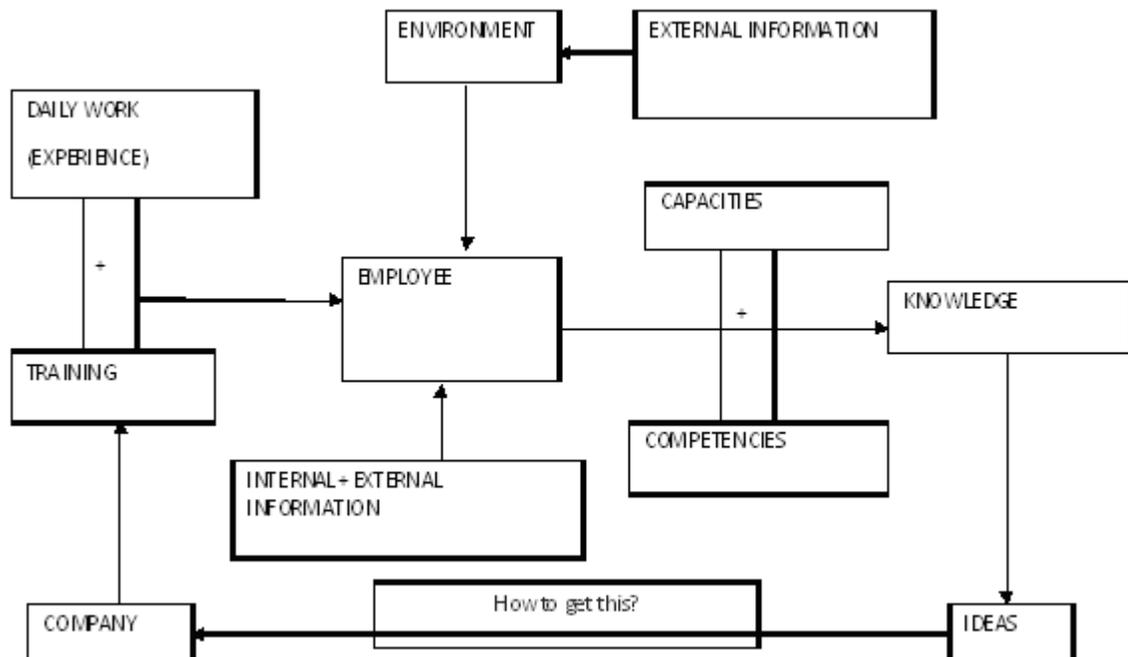


Figure 2. The value of ideas.

management strategy (Martínez, 2009).

Companies should make information flow, analyze, manage, and distribute it to people who need it on time and in an appropriate format to be transformed into knowledge that will serve for decision making and idea generation. This requires a change in the mechanism of coordination of activities, going from direct supervision to the normalization of results. It can be argued that the debate about the degree of efficient centralization is enhanced by studying the organizational impact of ICT (Malone, 1997; Wilson, 1999).

## IDEAS MANAGEMENT AND ORGANIZATIONAL STRUCTURE

Some authors relativize the influence of technology in the organization (Chakravarthy and Gargiulo, 1998) and consider that ICT are a tool to solve organizational problems but do not hold a role in the choice of the organizational form.

In terms of Mintzberg (1984), network structures would be an equivalent in foreign relations to adhocracies, more frequent and effective in complex and dynamic environments. The creation of these networks responds to cost reduction but also strategic interests, being an organizational support used by managers or entrepreneurs to position their companies at a higher competitive level (Jarillo, 1988).

Although the environment fosters the creation of various types of virtual organizations by developing short-

term strategic alliances between companies linked by electronic means (Chesbrough and Teece, 1996), inter-organizational networks are not an emerging model in the information society (Desreumeaux, 1996), although they can be considered as characteristic organizational forms of the new economy.

This does not mean that a network structure has to be adopted for all the companies. The use of ICT provides intermodality in conducting commercial transactions and complementarity in business models (OCDE, 1998), that is, they can be adapted to the needs of different companies in different contexts. Then, it is not necessary to be linked with the adoption of virtual or network structures (Rastrollo, 2000). Today, this more and more virtual adaptation to the changing environment is necessary for survival; business history shows that survival companies are those adapted to the environment.

About interactions, Chesbrough and Teece (1996) propose a conceptual framework to assess the advantages and disadvantages of hierarchical and virtual structures, considering that both forms of organization are two opposite poles of a continuous. The determination of which of the structural types will be optimal for a given firm depends on the risk that partner can take, a risk that increases with the virtual organization, and the degree of control over information and communication needed by the company, considering a more effective control in a hierarchical structure.

On the other hand, Lopez-Puello et al. (2008) conclude that the creation of knowledge presents sectorial differences. Its use and application to products, processes

and organizations depends solely on the company, which has major implications for the innovation management and value creation. In the era of globalization and information society, companies must also be able to generate and capture useful knowledge to use and get their own innovations, basing on them their competitive advantages. This is the reason for our interest in the study of an integrated model for ideas management and organizational structure.

## CONCLUSIONS

In this paper we show the relation between information flows, organizational structure and ideas and knowledge management. We start by suggesting that the evolution of humankind to make improvements in order to become independent or free from the environment constraints has led to the creation, adaptation and evolution of different needs that are satisfied by companies through the production of goods or services.

In this context, we introduce Global Cognitive Theory that establishes a relationship between computers (ICT in general) and the human brain. From people we can get ideas; from ideas, we have knowledge; from knowledge, we can identify innovations to improve the performance of the company.

Thus, it is important to include the company's organizational structure as a framework of these relations (coordination between information flows in generating ideas). We emphasize the use of ICT as enabling tools for resources management to adapt the company to the environment. To sum up, this paper analyzes the main features in the way of managing organizational knowledge. For this, we identify the relationship between behaviors and innovative thinking, and whether these processes are related or have management similarities to the human brain, regarding to information flows.

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