

Interorganizational Knowledge Management *Gestión del conocimiento interorganizacional*

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Abstract: This article focus on knowledge management in the interorganizational network scope, since there is a lot of knowledge involved in the interorganizational relationships which can be managed in order to maximize the collective competences. The aim of this research is to conceptualize and discuss knowledge management in the context of the interorganizational networks. For this a literature review was made to identify studies related to this theme. The results of the research show that interorganizational network can provide an adequate context for analysis of knowledge management but there are challenges with regard to the collaborative work that limit the gains in collective processes of knowledge management.

Key words: knowledge management, interorganizational networks, collaborative learning.

Resumen: Este artículo se centra en la gestión del conocimiento en el ámbito de la red entre organizaciones, ya que hay una gran cantidad de conocimientos implicados en las relaciones inter-organizacionales que se pueden gestionar con el fin de aprovechar al máximo las competencias colectivas. El objetivo de este trabajo es conceptualizar y discutir la gestión del conocimiento en el contexto de las redes inter-organizacionales. Para esta revisión de la literatura se ha realizado un conjunto de estudios relacionados con este tema. Los resultados de la investigación muestran que la red inter-organizacional puede proporcionar un buen lugar para la gestión del conocimiento, pero hay retos en relación con la labor de colaboración que limitan las ganancias en los procesos colectivos de gestión del conocimiento.

Palabras clave: gestión del conocimiento, las redes entre organizaciones, el aprendizaje colaborativo.

I. Introduction

The accelerated process of outsourcing in companies, formerly integrated in a vertical position, has been creating growing extensions in supply chains and networks which demand advanced inter-organizational management systems. One good example of this effectiveness is the knowledge management.

The concept of knowledge management encompasses the creation of values from the management of intangible actives of organizations through creational processes, sharing and knowledge utilization (SVEIBY, 1998).

Towards the consolidation of an economy based on growing intangible actives such as knowledge and the management of organizational network structures, the main objective of this article is to discuss the knowledge management in an interorganizational network scenario such as: industrial agglomerates (clusters) constituted by small and medium enterprises

and on other side in supply chain management concept.

It is observed that the interorganizational management of knowledge is a theme relatively unexplored with a lack of specific studies on sharing and collective learning (GUO, GUO, 2010; GANZERT, MARTINELLI, 2009; ASPROTH, 2007; LARSSON et al., 1998). The relevance of this theme is signaled by the rapid increase in publications on the subject, mostly based on empirical studies on the difficulties faced by organizations to learn through interactions (KNIGHT, 2002). The construct «networking learning» is in the validation phase, and refers to learning by a group of companies which runs as a new organizational dimension.

Carlsson (2001) suggests that on the contexts of knowledge management the networks should be inserted and this will have implications for research on it and its practice. Although, theory and empirical studies support this suggestion the knowledge mana-

gement in interorganizational networks has not been explored to its fullest yet.

In the interorganizational network scenario, Cunha (2007) states that theoretical and empirical knowledge are not enough to explain the merging of companies such as clusters, productive agglomerates and company networks as well as their potential to produce profits generated by mutual actions. The author points out that the lack of researches in this area can hinder future competitiveness in regional areas, implying the loss of opportunities created by the new economical, technological and organizational model which values local competencies.

Other important reasons that justify the study of organizational networks are numbered as follows: (1) the emergency of new modalities of competition such as the ones that have been developed in Italian districts (CASAROTTO, PIRES, 2001), in China (CASAROTTO, CUNHA, 2008; SAXENIAN, 2006) and in the Silicon Valley (SAXENIAN, 2006); (2) the resurgence of information and communication technologies (ICTs) which enables improved relationship opportunities among companies (CHI, HOLSAPPLE, 2005); (3) and the consolidation of the network analyses as an academic discipline not only restricted to some sociologic group but expanded to a broad interdisciplinary context of organizational studies (CUNHA, 2007; CASAROTTO, PIRES, 2001).

This article is divided into six sections: first, theme, objective and justifications are presented. The description of the methodological procedures is presented in the second section. The knowledge of economy, the configuration and concepts of interorganizational network procedures are presented in the third section. The fourth section consists of the presentation about the amplification of interorganizational knowledge management. Final considerations and suggestions for future researches are shown in the fifth section. The references found in this article are listed in the sixth section.

2. Methodological Procedure

This is an academic research based on a bibliographic method as its main technical procedure. The academic research is an activity performed in universities and has a pedagogical character once its main objective is to elicit the search for intellectual research in professors, graduation and post-graduation students.

Due to its theoretical content, the technical procedure used in this research is based on the bibliographic research. This line of research is characterized by the utilization of selected current publications: books, periodic, articles and materials gathered from Internet make part of this type of research.

The first step consisted of the search for indexed scientific articles on databases. After gathering the theoretical material, the problem was fixed and the conceptual basis was developed. Following the conceptual analyses, final considerations were exposed in an attempt to extend the academic knowledge regarding the theme presented in this article.

3. The Knowledge of Economy and Interorganizational Networks

Factors related to sustainable environmental, economical and social development, demographic changes, economy globalization, technological advancements, production customization and the knowledge itself have been promoting changes from an industrial society into a knowledge society (NAISBITT, ABURDENE, 1991).

It is believed that the industrial era has come to its end. And the knowledge era can endanger the competitiveness of the companies that refuse facing the new challenges and competitive standards.

Alike the industrial economy, which valued vertical integration, the knowledge economy stimulates the formation of interorganizational alliances and managerial arrangements built inside the networks.

In this regard, Catells (2003), Balestrin and Verschoore (2008), Cunha (2007) and Porter (1998) point out that the competitiveness can dislocate from a unidirectional, individual and endogen process of firms to an open, multidirectional, collaborative and network process.

According to Cunha (2003) there is a wide configuration of cooperation networks among companies and that these companies usually are presented in industrial agglomerations providing better qualification of the structures and groups or agglomerates modus operandi of the companies.

Britto (2002) presents conceptual contribution stating that company networks can be referred as organized groups of productive unities partially separated that operate producing growing profits which

can be attributed to significant externalities of technical, pecuniary and technological nature, similarly to economies of scales, they present a lower costs which reflects the presence of the effects related to important demands for externalities.

In general, it can be inferred that the network of companies are members of productive agglomeration and of other modalities of merging of companies (CUNHA, 2007). A synthesis of the concepts used to identify and qualify interorganizational alliance modalities are presented below. It is also observed that the multiplicity of concepts involving interorganizational alliances hinders a clear comprehension of the agglomeration phenomenon of companies. This may lead to problems when its main purpose would be the fixing of active policies of foment and the clear understanding of the phenomenon of agglomeration in real world.

The objectives of networking falls back on the organization and maintenance of effective collaboration

among stakeholders, striving for access to ideas, technology and information sharing, experience and knowledge, being able to be understood the process of organizing and maintaining collaborations among different organizations, based on trust between the agents. Typically, a network is not organized in a vertical format, but rather around horizontal collaborative processes that enable the sharing of resources, information and skills, so as to achieve the following benefits: cost sharing, risk reduction, development of core competencies, access to new knowledge resources and greater flexibility (Savage, 1990).

Regarding the evaluation of the advantages to be gained from networks, Cunha (2007) cites the following benefits: reduction costs resulting from external scales gains or increasing revenues derived from decreasing subsidiary costs, the best way of facing and coping with uncertainties inherent to competition and advancement of new technologies, the dynamic impact resulting from the information movement flow, and learning obtained by interactivity.

Table I

Company networks, manufacturer agglomeration and SCM: specificities of the concepts

SPECIFICATION	CHARACTERISTICS AND ADVANTAGES
Industrial agglomerations	Geographic proximity, productive specialization and improvement of static and dynamic competitive advantages.
Italian Industrial Districts	Local business relationships and the strong synergy among all the actors are part of Italian Industrial Districts. Governmental structure, small and medium enterprises as well as work division are included in this classification.
Local Production Systems	The emphasis transcends the economical objectives once they are directed to the sustainable development in a local-regional space, in other words, there is more solidarity.
Innovation Systems	Dynamism is the main approach of innovation systems. The knowledge exchange, with the objective of generating innovation in the inner parts of the agglomerate, emphasizes the learning through the interaction and partnership of business companies with research and university centers.
General Company Networks	The mechanisms of articulation among partner companies and the profits generated by the integration process are highlighted by company networks. There is a strong influence of the types of relationships and the fluxes established under the light of interdependency among the actors.
Flexible Networks	Business relationships are stables and cooperatives. The main objective is to execute the project companies share together. There is a reduction of the uncertainties with respect to the market behavior. The necessity of formal organizations of governance is mandatory.
Production System	Temporality and business relationships are clearly established. Deliberations involving foment of activities with high technology and the existence of socio-cognitive requirements is previously established. The presence of the Estate is demanding and always due to deliberated and non-spontaneous actions, as most examples in industrial agglomerations.
Supply Chain Management (GCS/SCM)	The concept of supply chain management encompasses the integration of several business processes and enterprises which range from original suppliers of inputs and services to final customers. This type of management allows advantages for consumers with regards to product offers, services and information.

Source: Adapted from Cunha (2003).

The emergence of networks of firms leads to the formation of a new list of specific assets, which is included among the «know-how in chain» - a particular form of learning and «knowing how» that goes beyond internal requirements (Britto, 2004). So this backdrop and with the aim of understanding the knowledge management in the context of interorganizational networks, the following section is a brief overview of works on this subject.

4. The enlargement of Interorganizational Knowledge

Knowledge is a broad and abstract notion that has defined epistemological debate in western philosophy since the classical Greek era. In the past few years, however, there has been a growing interest in treating knowledge as a significant organizational resource (ALAVI; LEIDNER, 2001). It happens because the basic economic resource in the post-industrial information economy is knowledge, so the ability to manage it is becoming increasingly more crucial. According to Dalkir (2005), we may define knowledge management as a deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure in order to add value through reuse and innovation. This coordination is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning.

Nowadays companies have been facing a new scenario where knowledge acquisition must not be protected anymore. The share of current strategies to obtain competitive advantages can be developed in a fast and synergetic way by the union of organizational forces aiming at the construction of collective knowledge (DAVENPORT, PRUSAK, 1998; LARSSON et al., 1998; NONAKA, 2000; CASTELLS, 2003). With this regard it is necessary to act in a cooperative way due to the fact that ideas can cause more impact when shared widely (DAVENPORT, PRUSAK, 1998; LARSSON et al, 1998; CASTELLS, 2003; NONAKA, TAKEUCHI, 1997). Thus, the knowledge management has been associated to the possibilities of an open access to an interorganizational level.

Powell et al. (1996) demonstrated in a study in the biotechnology industry that the network of firms was the locus of innovation. Dyer and Nobeoka (2000) showed that Toyota's ability to effectively create and manage knowledge sharing networks at least in part

explains the relative productivity advantages enjoyed by Toyota and its suppliers. These, as well as other (e.g., Miles et al. 2000; Boisot 1998; Inkpen and Dinur, 2012), studies demonstrate the importance of networks and that they can be effective in all of the knowledge processes (from knowledge creation to knowledge application and use).

Thus, an interorganizational network can provide an adequate context for a positive relationship between the actors and the environment (BALESTRIN; VARGAS; FAYARD, 2005). Cunha (2007), Balestrin e Verschoore (2008), Asproth (2007) and others highlight that interorganizational networks, in their interrelated contexts, promote a favorable environment to the knowledge sharing and collaborative learning, enabling the network to create mechanisms to maintain and reuse the knowledge acquainted by the individuals who belong to it.

The creation of new knowledge through the sharing of information among companies was presented by Nonaka and Takeuchi (1997) when an ontological dimension of knowledge was underlined. Due to this dimension, knowledge grows from an individual overview through a dynamic interaction (socialization of knowledge) to an organizational level finally reaching an interorganizational stage.

Carlsson (2001) details the conceptualization of knowledge management: knowledge management in network contexts. According to the author a strategic knowledge management (SKM) framework is a process involving: 1) strategic vision, 2) knowledge vision and key knowledge identification, 3) design, 4) knowledge protection, 5) implementation, and 6) usage. Carlsson (2001) highlights that the conceptualization and the framework are based on extensions of the resource and knowledge-based view of the firm, and it can support organizations in strategically managing knowledge and knowledge processes to gain and sustain competitive advantage.

Easterby-Smith et al. (2008) point out that while such knowledge is normally developed within the firm, it is important that firms acquire the ability to learn from others in order to meet the increasing pace of competition. The transfer of knowledge defined here as an event through which one organization learns from the experience of another, has thus become an important research field within the broader domain of organizational learning and knowledge management.

According to Knight (2002) the process of learning can be divided into five levels of development: indi-

vidual, group level, organizational, dyadic and in an interorganizational network level. The first level encompasses the individual as a learning agent in a organizational context; in the second level, the group of individuals act as learning agents in a organizational context; the third level of organization is related to the evaluation of cognitive structures and behavioral standards of the organization; the fourth interorganizational level involves organizational learning in a context of group or paired organizations with a business relationship based on cooperation; the fifth level of network called network learning refers to the process of learning by a group of organizations as a group. If, through their interaction, a group of firms change the group's behavior or cognitive structures, then it is the group of organizations that is the 'learner', not just the individual organizations within the group. In such a case, the network can be said to have learnt.

The interorganizational learning can be seen as a collective acquisition of knowledge among a group of organizations, and it has its origin in a process of sharing of knowledge revealing itself as a new strategy to the development of capacities which can minimize the exposition of companies to the uncertainties imposed by the environment. It is qualified as a representative dimension of the success reached by organizations (VALENTE; PEDROZO; BEGINS, 2008).

The collaborative action directed to collective learning is not just about searching external knowledge to individual companies through relationship networking, but above all, on knowing how to develop it by partnerships. Thus, social, institutional knowledge and knowledge of the network itself are collectively build and new knowledge is learnt jointly in the group (LARSSON et al. 1998; ASPROTH, 2007).

Larsson et al. (1998) suggest that the way to manage the collective learning process plays a central role in the success and failure in interorganizational relations. They point out that understanding of interorganizational learning primarily focuses on how the individual organization can be a good partner» or try to win the internal "race to learn» among the partners. The interorganizational learning dilemma is that (1) being a good partner invites exploitation by partners attempting to maximize their individual appropriation of the joint learning, and (2) such opportunistic learning strategies undercut the collective knowledge development in the interorganizational context (LARSSON et al. 1998). The authors develop a framework for understanding the dilemma through consideration of trade-offs between how

collective learning is developed in interorganizational context and how the joint learning outcomes are divided among the partners. They create a typology of five different learning strategies based on how receptive as well as how transparent an organization is in relation to its partners. The strategies are: collaboration (highly receptive and highly transparent); competition (highly receptive and nontransparent); compromise (moderately receptive and transparent); accommodation (nonreceptive and highly transparent); and avoidance (neither receptive nor transparent). For Larsson et al. (1998), interorganizational learning outcomes are proposed to be the interactive results of the respective partners' type of adopted learning strategy.

Larsson et al. (1998) regard that interorganizational learning is likely to be hindered by lack of either motivation or ability to absorb and communicate knowledge between the partner organizations. The dynamics of power, opportunism, suspicion, and asymmetric learning strategies can constitute processual barriers to collective knowledge development. In contrast, prior related interaction between the partners, high learning stakes, trust, and long-term orientation are likely to empower the collective learning process.

Problems related to knowledge management, more specifically the issues related to knowledge sharing and collaborative learning are found in the scope of inter-organizational networks. In this sense, Cunha et al. (2008) point out two «myopias» by managers of organizations that are part of interorganizational networks. According to the authors, the first factor of «myopia» comes from the fact that the administration of network organizations is not inherent to the conceptions of the managers. According to Ramswamy and Prahalad (2004), collaboration is not an easy or natural task for most of the managers, which shows the difficulty of seeking a collaborative vision. The difficulties related to collaboration in the interorganizational context evidence problems related to knowledge sharing and collaborative learning (ASPROTH, 2007).

Interorganization context can bring many gains and competitive advantages to the participating companies, both in explicit and implicit scopes. The main explicit gains are linked to the achievement of economic advantages. Regarding the implicit character, the advantages are the reduction of uncertainty, synergy and complementarity between the companies involved and formation of experts (CUNHA, 2007; CASAROTTO, PIRES, 2001). In this sense, Cunha et al.

(2008) state that the second factor of «myopia» is due to a limited perception in which the implicit factors are not easily perceived by the manager.

5. Conclusions

This article presents the concepts of knowledge management in interorganizational networks for the academic community. It is relevant because to succeed, knowledge management initiative must have a robust theoretical foundation (DALKIR, 2005). So the theorizations lined in this article aim at contributing to an extended approach of knowledge management under a broad and a network point of view.

It is considered that knowledge is a basic economic resource in the 'new economy' and a strategic source for competitive advantage development. In this sense we believe that is important and necessary to create external relationships and informational and technological flows in the interorganization concept.

The theoretic debate presented in this article highlights the fulfillment of its main objective. In the discussion of the results involving the theme knowledge management in the context of interorganizational networks it can be seen that these networks may be presented as prosperous environment for the development of a collaborative learning process and for the practice of knowledge management.

Many authors emphasize that the theoretical state of art and the empirical researches in this field are not sufficient developed.

We suggest that future researches should emphasize the development of theoretical models, especially encompassing the description of influences and roles of different levels of actors, individual, groups and organizations of knowledge creation and appropriation in network(s) such as: industrial agglomerates (clusters) constituted by small and medium enterprises and, on other side, in the supply chain management concept.

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