

Strategic knowledge transfer and its implications for competitive advantage: an integrative conceptual framework

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Abstract

Purpose – The purpose of this article is to analyze the implications for competitive advantage deriving from strategic knowledge and knowledge transfer process.

Design/methodology/approach – One major issue in a knowledge-based (KBV) view consists of delimiting the source of competitive advantage, that is, knowledge versus knowledge management processes (acquisition, transfer, generation). Based on the KBV and knowledge management literature, the current paper considers the importance of both elements. Specifically, the paper focuses on strategic knowledge and knowledge transfer process.

Findings – The contributions of this paper are the proposal of strategic knowledge characteristics and the suggestion of a theoretical framework to study the internal transfer of strategic knowledge. The main conclusion is that the characteristics of knowledge that generate competitive advantage also create barriers for internal transfer. The research question addressed here is what firms must do to transfer strategic knowledge within the firm while limiting involuntary transfer.

Originality/value – In order to answer this question, this paper suggests a theoretical framework that focuses not only on the implications of knowledge of a strategic asset, but rather takes a much broader perspective, considering the transfer process as a whole and highlighting the role of the different elements of this process (source, receiver and context) in order to facilitate the efficient transfer of strategic knowledge.

Keywords Knowledge management, Knowledge transfer, Competitive advantage

Paper type Conceptual paper

Introduction

Knowledge management literature emphasizes the importance of knowledge as a valuable asset for firms. Although knowledge has been studied from several perspectives, this paper highlights two different views:

1. The importance of the competitive advantages deriving from the nature of knowledge itself.
2. The efficient management of knowledge as a way of creating core competencies in the firm.

The first perspective mainly focuses on the analysis of attributes that should provide the resources for generating a competitive advantage (Barney, 1986, 1991; Dierickx and Cool, 1989; Wernerfelt, 1984). The knowledge-based view considers knowledge as a firm's most important strategic resource (Grant, 1996a) since potential competitive advantages are derived from this asset.

The second perspective focuses on knowledge acquisition, transfer, and generation, and considers these activities as organizational capabilities (Grant, 1996a, b; Kogut and Zander, 1992, 1996; Nonaka, 1994; Spender, 1996; Teece *et al.*, 1997; Tsoukas, 1996). The common premise in these studies is that:

“The more systemic knowledge is, the fewer synergies there will be between this knowledge and the knowledge base of a competitor, and the more difficult involuntary knowledge transfer will be.”

Success does not necessarily go to the firms that know the most, but to the firms that can make the best use of what they know and know what is strategically most important to the firm (Bierly *et al.*, 2000, p. 596).

Hence, this perspective emphasizes the development of appropriate knowledge management, not only the advantages deriving from the nature of knowledge itself. Furthermore, knowledge acquires greater value when it forms part of a knowledge creation or transfer process. In this way, firms will achieve success if they create new knowledge, spread all over the firm and incorporate it into new technologies and products (Nonaka and Takeuchi, 1995).

Although the two above mentioned perspectives have been developed separately, in this paper we propose to analyze how the efficient transfer of strategic knowledge creates a competitive advantage. Taking the two perspectives jointly, we highlight that although knowledge is a potential source of competitive advantage, the mere possession of potentially valuable knowledge assets somewhere within an organization does not necessarily mean that other parts of the organization benefit from that knowledge (Szulanski, 2000). In order for knowledge to provide value for an organization and organizations do not develop a partial use of knowledge, then internal knowledge transfer must be considered as a crucial element of efficient management of strategic knowledge.

Building on the two above-mentioned perspectives, this paper proposes that the nature of knowledge has different implications for the knowledge transfer processes (internal and external transfer) and for competitive advantage. Knowledge that can easily be transferred within the firm is more likely to become accessible to competitors (Winter, 1987; Zander and Kogut, 1995), thus depriving it of its condition as a strategic asset. Therefore, the characteristics of knowledge, that hinder involuntary transfer outside the firm, will be a source of sustainable competitive advantage, and will confer it a strategic character, even though this may be an obstacle to internal transfer.

This paper is organized as follows. In the first part, we propose the main dimensions of transferred knowledge. Then, we identify the characteristics of knowledge as a potential source of sustainable competitive advantages. In the third part, we study the implications of knowledge as a strategic asset in the internal transfer process. Finally, we propose a theoretical framework for studying the internal transfer of strategic knowledge.

Dimensions of transferred knowledge

Several authors have studied the characteristics and kinds of knowledge, although they have analyzed this asset from different perspectives and levels of analysis (Nonaka, 1994; Reed and DeFillippi, 1990; Spender, 1996; Winter, 1987). Winter (1987) proposes taxonomic dimensions of knowledge assets according to how difficult it is to transfer: tacit and fully articulable knowledge, teachable and unteachable knowledge, articulated and unarticulated knowledge, observable and unobservable knowledge in use, the dimension of complexity and simplicity, and dependence on or independence of a system.

According to these dimensions, Winter (1987) points out that knowledge is more easily transferable when it is teachable, articulable, observable, simple and independent of a system. In addition, actions undertaken to facilitate voluntary transfer may well also facilitate involuntary transfer.



These dimensions have been used and increased in later empirical studies and a great number of researchers have analyzed the effect of the characteristics of knowledge in internal and external knowledge transfer. A summary of these contributions is presented in Tables I and II, for internal and external transfer, respectively. There are many similarities between both perspectives. Thus, the characteristics of knowledge studied for both kinds of process are very similar, although they may have different implications for the transfer process.

Building on this review, there are four characteristics of transferred knowledge, tacitness, complexity, specificity, and systemic nature (Bresman *et al.*, 1999; Hansen, 1999; Heiman and Nickerson, 2002; Inkpen and Dinur, 1998; Lord and Ranft, 2000; Ranft and Lord, 2000; Shenkar and Li, 1999; Simonin, 1999; Szulanski, 1996; Zander and Kogut, 1995), that may significantly influence the knowledge transfer process. These characteristics hinder the transfer process, generate causal ambiguity (Reed and DeFillippi, 1990), and create barriers to imitation.

Other so-called characteristics of knowledge have been studied, although we do not consider them to be precisely characteristics of knowledge. Winter (1987) and Zander and

Table I Studies on internal knowledge transfer

<i>Authors</i>	<i>Characteristics of knowledge</i>	<i>Outcome/effects</i>
Zander and Kogut (1995)	Codification Teachable Complex System dependence Observable	Degree of codification and how easily capabilities are taught have a significant influence on the speed of transfer
Szulanski (1996)	Causal ambiguity	Causal ambiguity of knowledge is a barrier for internal knowledge transfer
Hansen (1999)	Complex (tacit and systemic)	Strong inter-unit ties facilitate the transfer of systemic knowledge within R&D project team; by contrast, weak inter-unit ties encourage a project team to search for useful knowledge in other subunits
Ranft and Lord (2000)	Tacit Complex	The retention of employees is a way of holding individual knowledge and protect valuable kinds of knowledge, which are tacit and socially complex
Lord and Ranft (2000)	Tacit	Tacitness is a barrier for internal knowledge transfer between units in diversified firms

Table II Studies on external knowledge transfer

<i>Authors</i>	<i>Characteristics of knowledge</i>	<i>Outcome/effects</i>
Inkpen and Dinur (1998)	Tacit and explicit	A high degree of interactions between individuals is required in the transfer of tacit knowledge. There is a positive relationship between transfer of strategic knowledge and the development of strategic relationships between firms
Shenkar and Li (1999)	Tacit	The equity joint venture (EJV) is the vehicle of choice for firms seeking transfer of tacit knowledge
Simonin (1999)	Tacit Complex Specific	Tacitness emerges as the most significant determinant of knowledge transferability in international strategic alliances
Bresman <i>et al.</i> (1999)	Degree of articulation (tacit and explicit)	The articulability of knowledge is significantly associated with the transfer process. The transfer of technological know-how is facilitated by communication, visits and meetings
Heiman and Nickerson (2002)	Tacit Complex	Tacit and complex knowledge cause problems in knowledge transfer between collaborating firms. In order to overcome these problems, this work suggests managerial practices for improving communication and transparency between the parties involved

Kogut (1995) consider other characteristics of knowledge, such as codification, teachability and observability of knowledge. Although these characteristics influence internal transfer, they are not characteristics of knowledge. Firstly, codification requires the transformation of knowledge from tacit to explicit. Since tacit and explicit are two dimensions of knowledge, codification is therefore, a mechanism for facilitating knowledge transfer, but not a characteristic of knowledge. Secondly, the teachability of knowledge represents a characteristic of the receiver or the source of knowledge, since it depends on its absorptive capability. Finally, the observability of knowledge reflects the capability of competitors to identify strategic knowledge outside the firm and as such, is not a knowledge characteristic.

In summary, building on a developed review of studies of internal and external knowledge transfer, transferred knowledge may be characterized according to four dimensions: the dimension of tacitness and explicitness, degree of complexity, degree of specificity, and systemic nature. In addition, each dimension has two limits and between them there is a continuum of types of knowledge. Hence, we distinguish four pairs of extremes (see Figure 1): tacit/explicit, complex/simple, specific/non-specific, and systemic/autonomous. A position towards the left end is an indicator that the knowledge may be difficult to transfer, whereas a position towards the right is indicative of ease of transfer.

Characteristics of transferred knowledge and competitive advantage

Several authors have highlighted the importance of knowledge as an intangible asset. Spender (1996) and Teece (1998) explain the importance of intangible assets on the basis of obtaining competitive advantages, that is, intangible assets as the main basis of competitive differentiation in many sectors. However, we consider that a distinction must be made between strategic and non-strategic knowledge.

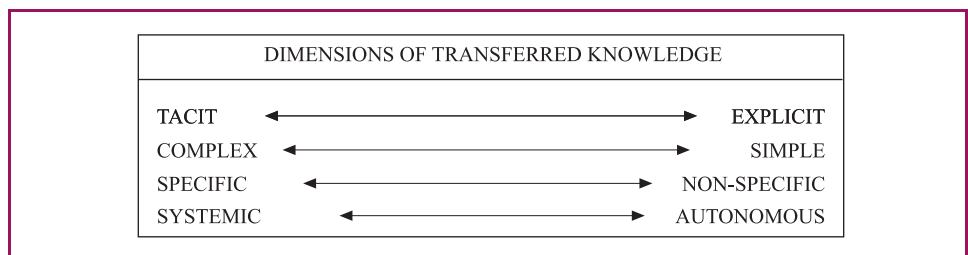
One research perspective in knowledge management has focused on identifying the characteristics of strategic knowledge, that is, knowledge that has important implications for obtaining competitive advantages. This perspective considers strategic assets to be a set of resources and capabilities that are difficult to commercialize and imitate; they are scarce, appropriable and specialized. Four conditions have been identified in the resource-based view that provides assets with a strategic character: imperfect mobility, difficulty of imitation, difficulty of substitution, and durability (Amit and Schoemaker, 1993; Barney, 1991; Dierickx and Cool, 1989; Grant, 1991; Peteraf, 1993).

Therefore, one major issue consists of delimiting the characteristics of transferred knowledge as a strategic asset. In other words, strategic knowledge must fulfill the conditions of imperfect mobility, difficulty of imitation, difficulty of substitution and durability. In order to resolve this question, we analyze the implications of the dimensions of transferred knowledge for competitive advantage.

Tacit and explicit knowledge

One dimension of knowledge is represented by the distinction between tacit and explicit knowledge (Polanyi, 1966). Tacit knowledge has a personal component, which makes it hard to formalize and communicate (Hill and Ende, 1994; Nonaka, 1991). By contrast, explicit

Figure 1 Dimensions of transferred knowledge



knowledge can be transmitted in formal and systematic language, making it easier to communicate and share than tacit knowledge (Nonaka, 1991).

The implications of tacit knowledge for competitive advantage have been analyzed in depth in the knowledge management literature. This has occurred for two specific reasons (Ambrosini and Bowman, 2001):

1. It is claimed that tacit knowledge is difficult to imitate, to substitute, to transfer and it is rare; that is, tacit knowledge represents a strategic asset for the firm.
2. It is hard to measure, because of its intangible nature.

In addition, Stenmark (2001) observes that tacit knowledge is difficult for organizations to exploit for several reasons:

- it is hard to express in words;
- as we are able to use our tacit knowledge without thinking, we do not need to document it; efforts to express it do not have direct benefits at individual level; and
- there is a potential risk of losing power by making it explicit, for example, lack of proper reward mechanism on individual level may effectively hinder the sharing of ideas despite potential organizational benefits.

Degree of complexity

Literature in knowledge management offers a variety of definitions in relation to complexity of knowledge, although there are two different conceptions: technical and social aspects of complexity. As a common denominator of both aspects, we highlight the definition provided by McEvily and Chakravarthy (2002, p. 289):

Complexity is derived from dimensions that increase the difficulty of comprehending how a system functions or produces some outcome.

On the other hand, other authors refer to specific aspects of complexity. For example, Rogers (1983) defines complexity as the degree to which innovation is perceived as hard to understand and to use. Winter (1987) refers to the number of elements in a system and the degree of interactions between them. Zander and Kogut (1995, p. 79) describe complexity as a specific aspect, and they point out that this concept "picks up the inherent variations in combining different kinds of competencies". However, other authors provide a broader definition of complexity, such as Simonin (1999, p. 600) who defines it as:

The number of interdependent routines, individuals, technologies, and resources linked to a particular knowledge or asset.

Moreover, the complexity of assets has different implications for competitive advantage, deriving from how firms combine their resources and abilities, and these combinations may be a source of causal ambiguity and create barriers to imitation (Reed and DeFillippi, 1990). Thus, highly tacit and socially complex knowledge is a valuable competitive resource because it is harder for other firms to imitate (Barney, 1991).

Degree of specificity

A specific asset has different implications if we analyze it from different theoretical perspectives. The resource-based view holds that asset specificity is a source of causal ambiguity. Causal ambiguity refers to the difficulty for competitors to understand how a firm creates a competitive advantage (Barney, 1991). This lack of understanding causes difficulty in imitation, and, for this reason, causal ambiguity is a characteristic of strategic resources (Amit and Schoemaker, 1993; Barney, 1986, 1991; Peteraf, 1993). Although causal ambiguity does not guarantee that a firm is able to maintain a competitive advantage, it at least creates barriers to imitation.

Systemic and independent nature of knowledge

The systemic or dependent dimension is related to the dependence relationships that knowledge has with other systems of knowledge; for instance, when working teams made up

“The difficulty of expressing, codifying and transmitting tacit knowledge makes it easier for a firm to protect than explicit knowledge.”

of workers from different functional areas take part in developing new products. On the other hand, independent or autonomous knowledge is related to the possibility that the knowledge itself is useful. Winter (1987, p. 173) gives two illustrative examples of the systemic and autonomous dimension:

A single module in a microcomputer qualifies intuitively as an element of a system and a pocket calculator is useful standing alone.

In addition, some studies of knowledge transfer between firms argue that the more systemic knowledge is incorporated in an innovation, the more difficult it is to share it with other firms, because of coordination problems (Chesbrough and Teece, 1996; Gopalakrishnan and Bierly, 2001). Therefore, the more systemic knowledge is, the fewer synergies there will be between this knowledge and the knowledge base of competitor firms, and the more difficult involuntary knowledge transfer will be.

In summary, the tacit, complex, specific and systemic character of knowledge represents a combination of characteristics that make knowledge a strategic asset; that is, these characteristics make knowledge a potential source of competitive advantages. Therefore, strategic knowledge will retain a higher level of the above characteristics.

P1. The more tacit, complex, specific and systemic the knowledge, the easier it is for a firm to generate a sustainable competitive advantage.

Implications for internal transfer process deriving from strategic knowledge

Knowledge transfer refers to the exchange of knowledge between units within a firm (internal transfer) or between different firms (external transfer). We distinguish different kinds of internal transfer, such as between departments or units of multinational corporations (MNCs), and external transfer, such as, strategic alliances, joint ventures, acquisitions, and so on. In addition, knowledge transfer includes different applications depending on the characteristics of transferred knowledge. Thus, for instance, several authors analyze the transfer of technology and product innovations (Ghoshal and Bartlett, 1988; Kogut and Zander, 1992, 1993; Zander and Kogut, 1995), whereas, other authors have focused on the transfer of organizational practices (Darr *et al.*, 1995; Kostova, 1999; Szulanski, 1996). In any case, the objective of knowledge transfer is to facilitate the flows of knowledge within the firm or between collaborating firms.

Other classifications of knowledge transfer distinguish between voluntary and involuntary knowledge transfer (Winter, 1987). Voluntary transfer is carried out through the will of the units involved in the transfer. By contrast, involuntary transfer is not carried out through the will of the source unit, and this situation leads to process imitation.

Regardless of the type of knowledge transfer, we analyze the implications for the transfer process deriving from the characteristics of strategic knowledge.

Implications for internal knowledge transfer deriving from tacit knowledge

The difficulty of expressing, codifying and transmitting tacit knowledge makes it easier for a firm to protect than explicit knowledge. This phenomenon gives rise to a discussion about the advisability of maintaining tacit knowledge or transforming it into explicit forms, through a codification process, to facilitate transfer.

On the one hand, several studies argue that tacit knowledge can be taught without it being transformed into explicit forms since it can be shared through observation, imitation and practice (Nonaka, 1991). Thus, tacit knowledge can be transferred internally without being explicit, and it can be difficult for competitor firms to imitate. Lubit (2001) points out different solutions for transmitting tacit knowledge without transforming it into explicit forms:

- offering workers the opportunity to observe experts working through problems is a way of learning tacit knowledge;
- working in groups is another way of sharing tacit knowledge (a team offers an opportunity to observe how others conceptualize situations, approach problems, and generate and evaluate solutions);
- writing and studying “learning stories” about critical events in a company; and
- developing and propagating routines.

On the other hand, Schulz and Jobe (2001) argue that efficient transmission of tacit knowledge requires its codification into explicit forms. Before codifying tacit knowledge, firms should reflect on several aspects of this process. Codification processes have advantages for firms in the form of the organizational knowledge flows they facilitate (Schulz, 2001; Schulz and Jobe, 2001; Szulanski, 1996; Zander and Kogut, 1995). These flows are important for transmitting know-how within the firm, facilitating the coordination of work and the exploitation of economies of scale. In addition, market globalization demands an incremental exchange of knowledge between geographically dispersed sub-units and this phenomenon encourages investment in codification processes.

In spite of these advantages, the codification process implies certain disadvantages deriving from the possibility of facilitating the involuntary transfer of strategic know-how to competitors and creating and maintaining codification infrastructures. If the codification process entails considerable costs, firms should renounce the codification process in favor of maintaining maintain tacit knowledge. Thus, several authors have emphasized the tacitness of knowledge as a facilitator of internal transmission. Nonaka and Takeuchi (1995), for instance, highlight the importance of tacit knowledge in the creation of organizational knowledge. In addition, the involuntary transfer of strategic knowledge to competitors can create important disincentives for codification (Kogut and Zander, 1996; Winter, 1987; Zander and Kogut, 1995).

In summary, the dilemma arises that codified knowledge, which can easily be transferred and replicated within the firm, is more likely to be easily imitated by competitors (Zander and Kogut, 1995). Therefore, firms should encourage internal transfer of knowledge and develop mechanisms to inhibit involuntary transfer outside the firm.

P2. The more tacit the knowledge, the harder it is for a firm to transfer strategic knowledge internally.

Implications for internal knowledge transfer deriving from the complexity of knowledge

Technical and social complexity of knowledge represents a barrier to imitation (Dierickx and Cool, 1989; MacMillan *et al.*, 1985; Reed and DeFillippi, 1990; Simonin, 1999; Winter, 1987). Complexity of technological knowledge creates barriers to imitation due to the fact that the knowledge will be more difficult to reconstruct and, therefore, expert work will be necessary, which will increase the acquisition costs of technological knowledge.

Social complexity is also an obstacle for managing knowledge because relationships can easily be disturbed, for instance when key individuals leave the firm (Leonard-Barton, 1995; Nelson and Winter, 1982). The retention of employees is a way of holding individual knowledge and protecting valuable kinds of socially complex knowledge.

The importance of the complexity of knowledge promotes that many firm acquisitions were motivated for obtaining technological knowledge and strategic capabilities. Along these lines, Ranft and Lord (2000) point out that 40 percent of the key knowledge acquired resides in the technical skills of the employees and another 32 percent of the knowledge in the social context of the organization. Subsequently, empirical studies have confirmed these results

(McEvily and Chakravarthy, 2002; Simonin, 1999; Zander and Kogut, 1995). Therefore, the technical and social complexity of knowledge makes its involuntary transfer difficult and may be a barrier for its internal transfer.

- P3. The more complex the knowledge, the harder it is for a firm to transfer strategic knowledge internally.

Implications for internal knowledge transfer deriving from the specificity of knowledge

In order to analyze the implications for internal transfer deriving from specific knowledge, we consider that specialized knowledge is a kind of specific knowledge.

Demsetz (1991) argues that efficiency in acquiring knowledge requires specialized individuals in specific areas of knowledge. By contrast, the application of knowledge to produce goods and services requires the bringing together of different areas of specialized knowledge. Thus, the integration of individuals' specialized knowledge to perform a productive task requires an organizational capability, known as knowledge integration (Grant, 1996b).

Therefore, an important element in knowledge integration is the level of common knowledge among individuals, since this level determines the degree of specialized knowledge. In addition, the development of mechanisms for integrating specialized knowledge enables an increase in the level of common knowledge between individuals (Grant, 1996a). Integration mechanisms such as organizational culture, shared behavioral norms, routines or rules, economize on communication and knowledge transfer.

In summary, specialized knowledge reduces the synergies between this kind of knowledge and the receiving unit's knowledge base, and it makes the internal transfer of knowledge more difficult. For this reason, firms should develop integration mechanisms such as share behavioral norms, routines or rules.

- P4. The more specific the knowledge, the harder it is for a firm to transfer strategic knowledge internally.

Implications for internal knowledge transfer deriving from systemic knowledge

Systemic and autonomous nature of knowledge represents another dimension of knowledge. Several authors have analyzed the implications for knowledge transfer deriving from the systemic character of knowledge (Bhagat *et al.*, 2002; Hansen, 1999; Winter, 1987; Zander and Kogut, 1995).

Hansen (1999) finds that the transfer of knowledge depends on the intensity of the relationship between the source and receiver units of knowledge. Findings show that strong inter-unit ties facilitate the transfer of systemic knowledge. By contrast, weak inter-unit ties encourage a project team to search for useful knowledge in other subunits.

The transfer of systemic knowledge is therefore a complex task for firms and requires proper means of communication. This situation is similar to the transfer of systemic knowledge between firms. Thus, Chesbrough and Teece (1996) argue that firms involved in the transfer of systemic knowledge must accomplish the difficult task of coordination. Dissimilar cultural contexts between firms also make the transfer of systemic knowledge difficult (Bhagat *et al.*, 2002).

- P5. The more systemic the knowledge, the harder it is for a firm to transfer strategic knowledge internally.

“ Firms should encourage internal transfer of knowledge and develop mechanisms to inhibit involuntary transfer outside the firm.”

In summary, strategic knowledge is difficult to imitate and substitute, but also creates many obstacles to transferring knowledge within the firm. Firms must therefore develop the appropriate transfer mechanisms such as coordination, communication and affinity between units.

Discussion

In this paper, we have examined the implications of knowledge characteristics on the generation of competitive advantages and on the knowledge transfer processes. The main conclusion is that the characteristics of knowledge that generate competitive advantages also create barriers for internal transfer. The research question addressed here is what firms must do to transfer strategic knowledge within the firm while limiting involuntary knowledge transfer. We suggest at least two alternatives. The first consists of transforming the knowledge; that is, making knowledge more explicit and simpler, and developing common languages. This transformation makes the voluntary transfer of knowledge easier, but it also makes the involuntary transfer of knowledge outside the firm easier. In order to avoid involuntary transfer, knowledge protection mechanisms must be introduced, which involves economic and social costs. Thus, Liebeskind (1996) argues that firms are able to protect knowledge from imitation, but that protection mechanisms involve different kinds of cost, such as: costs of investment in creating and maintaining protection infrastructures, organization costs, and loss of communication due to the protection of knowledge from transfers within the firm. Making knowledge more explicit and easier may be complex and expensive because it involves the firm developing knowledge transformation processes and protection mechanisms.

Working on a similar concept to Szulanski's (1996) knowledge transfer process, a second alternative is to consider that internal knowledge transfer is mainly driven by communication processes. Krone *et al.* (1987) review communication theories and observe that the basic components of communication are message, channel, sender, receiver, encoding/decoding, and feedback. Several authors have based their research on this framework, in order to study knowledge transfer and analyze the implications of each element for the success of this process. Hence, knowledge transfer may depend on the characteristics of the knowledge transferred (Bresman *et al.*, 1999; Hansen, 1999; Heiman and Nickerson, 2002; Inkpen and Dinur, 1998; Lord and Ranft, 2000; Ranft and Lord, 2000; Shenkar and Li, 1999; Simonin, 1999), the nature of the receiving unit (Ahuja and Katila, 2001; Gupta and Govindarajan, 2000; Lane and Lubatkin, 1998; Minbaeva *et al.*, 2003; Van den Bosch *et al.*, 1999; Zahra and George, 2002), the nature of the source unit (Gupta and Govindarajan, 2000; Steensma and Lyles, 2000; Wang *et al.*, 2001), and the nature of the organizational context (Foss and Pedersen, 2002; Hansen, 1999; Lord and Ranft, 2000; Minbaeva *et al.*, 2003; Syed-Ikhsan and Rowland, 2004; Zárraga and García-Falcón, 2003).

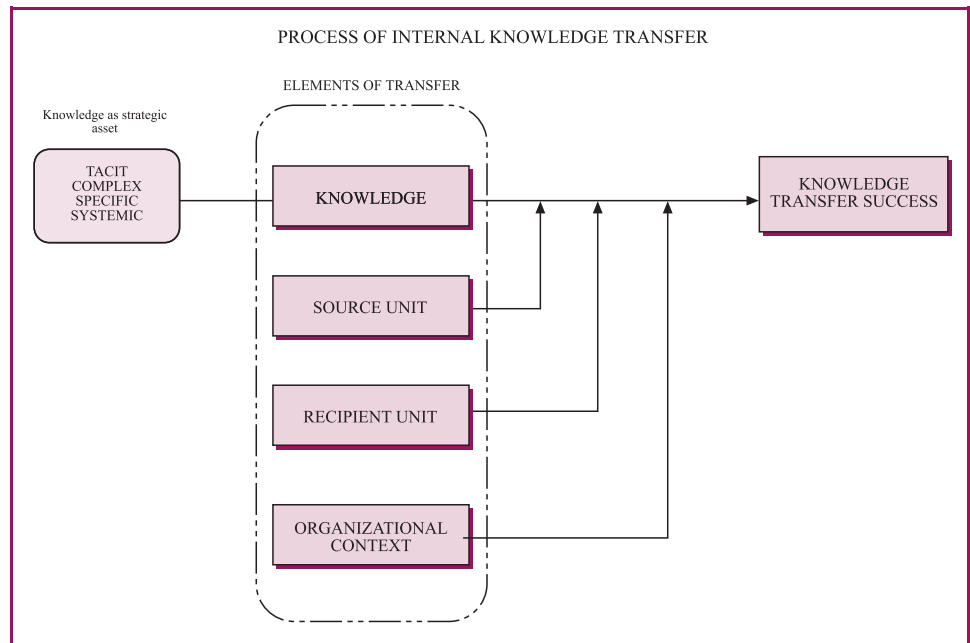
To conceive the knowledge transfer as a process we focus not only on the implications of knowledge as strategic asset, but rather take a much broader perspective, considering the transfer process as a whole and analyzing how the different elements of this process (source, receiver and context) can be managed to facilitate the efficient transfer of strategic knowledge (see Figure 2). This alternative provides a way of developing appropriate means of transfer and protecting strategic knowledge without investing different resources in fostering knowledge transfer within firm and hindering knowledge transfer outside the firm.

Conclusion

The internal knowledge transfer may have different implications for competitiveness of firms, depending on the characteristics of transferred knowledge. Thus, strategic knowledge may generate competitive advantages deriving from the nature of the knowledge itself. However, when knowledge is part of the transfer process, we consider the implications of the other elements in order to explain competitive advantages deriving from the internal transfer of strategic knowledge.

The effect of strategic knowledge transfer varies depending upon the competitiveness of a specific business sector. Particularly, this effect is more pronounced for knowledge intensive

Figure 2 Proposed framework for Internal transfer of strategic knowledge



industries like electronics, communications, biotechnology or computer, because this kind of firms employ technological knowledge intensively in the development of their innovations.

In summary, we consider that the source of competitive advantages depends on the transfer process and the transferred knowledge, because strategic knowledge is a necessary, but not a sufficient condition. In addition, the analysis of the proposed theoretical framework (see Figure 2) will help us to delimit the process characteristics, which are necessary to the success of internal transfer of strategic knowledge. Future research must be conducted in order to develop more deeply the proposed framework of internal knowledge transfer that will allow to explain how this process is developed in different kinds of firms, such as in MNCs, in acquisitions and even, between firms.

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