

# KNOWLEDGE BROKERS: A WINNING STRATEGY FOR IMPROVING TRANSFER AND USE OF KNOWLEDGE IN THE HEALTH FIELD

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*The role of knowledge brokers as intermediaries is widely recognized. However, less has been written on how these actors contribute to innovation through their ability to integrate knowledge. In this study, we propose an innovative theoretical approach to explore this dimension*

Field of Research: Strategic Management, Management Science

## 1- Introduction

The gap between production of scientific knowledge and its use in practice is a challenge for the health sector (Green, 2001, Pang and al., 2004). Of all the strategies proposed in scientific literature for increasing knowledge utilization (Landry et al., 2003; Lavis, 2006), knowledge brokering has gained increasing importance since last decade. This approach was often used to increase the transfer and use of knowledge by creating links between researchers, policy makers, managers and practitioners. This success was often associated with the role played by brokers as an intermediary between researchers and users, viewed as a means of improving the exchange of knowledge between the two communities (Sverrisson, 2001; Pawlowski

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and Robey, 2004). However, for many authors of management science, the role of broker goes beyond intermediation since it contributes to innovation by facilitating the integration of knowledge (Hargadon, 2003; Cillo, 2005; Howells, 2006). In this perspective, brokers are true innovators since they identify process and use the ideas developed in different industries or fields to the advantage of their organization (Cohen and Levinthal, 1990; Hargadon and Sutton, 1997). For Nooteboom et al., (2007), integration of knowledge by the broker is even more important when the knowledge used is acquired from the domains that use different languages and concepts. As has been highlighted, the integration of knowledge brokers is poorly documented. Moreover, current studies do not present any conceptual approach to understanding how the brokers integrate knowledge in to practice.

In this study, we present for the first time, the history of the role of brokers in literature. Secondly, we describe the main theoretical perspectives on the emergence of this new literature. Finally, we propose a novel theoretical approach for identifying the dimensions of integration of knowledge by the brokers. In doing so, our study will contribute towards the theoretical foundation of a promising strategy that can improve the transfer and use of knowledge in the health domain.

## **2- Literature Review**

- **History of the role of knowledge brokers**

The role of knowledge brokers as an intermediary between structural and social entities is not new (Hargadon, 2003; Lomas, 2007). This role had emerged in the late 1800s in the Germanic countries, where it helped to create informal networks of communication between universities and industries (Lomas, 2007). Over time, this role has diversified and has often been adapted to different contexts by brokers (Howells, 2006, Van Kammen et al., 2006). This diversity is illustrated, incidentally, by countless names associated with this role in the literature. It includes the following designations: link or connection officers (Jones, 2006); agents of change (Jones, 2006; Pratim, 2007); third community (CHSRF, 2004), intermediary (Cillo, 2005); knowledge brokers (Hargadon and Sutton 1997), Boundary-spanners (Huberman, 1994, Pawlowski and Robey, 2004), Gatekeepers (Cohen and Levinthal, 1990; Jones, 2006); Bridgers (Howells, 2006); Innomediaries (Mohabir et al. 2003); infomediaries (Cillo, 2005), etc.. It should be noted that these names further emphasize the involvement of brokers as intermediaries between various networks of actors.

However, recent developments show that the role of brokers goes beyond intermediation as they are required to identify, assimilate and integrate useful knowledge for their activities or those of their organization. Many authors agree that these actors play an important role in innovation (Cohen and Levinthal, 1990; Hargadon, 2003), and are also responsible for transfer of useful knowledge for decision-making (CHSRF, 2004, Lomas, 2007). According to Howells (2006), brokers promote innovation, firstly by facilitating the transfer of knowledge between individuals, organizations and industries. Secondly, by contributing more directly to

innovation in offering new solutions based on the combination of old and new ideas (Sowe et al., 2006; Pratin, 2007).

Note that the contribution of broker's innovation has been demonstrated in various sectors. For example, in the technology sector, brokers are seen as agents of change who have the capability to foster the adoption of new technologies and to support the decision making. They may be described as real negotiators, mentors with leadership and as having exceptional communication skills (Pratin, 2007:289). In the services sector, it is often brokerage organizations called "KIBS" (*Knowledge-intensive business services*), that help companies to innovate by acting as an intermediary between researchers and businesses.

In the health sector, the role of knowledge brokers in the transfer of knowledge is widely recognized by researchers (Lyons et al., 2006; Lomas, 2007) and policymakers (CHSRF, 2003, Van Kammen et al., 2006). In Australia, for example, brokerage practices have been introduced with the establishment of new units for coordinating and monitoring in the intensive care unit (*Intensive Care Coordination and Monitoring Unit - ICCMU*). These units have knowledge brokers for promoting knowledge transfer in the intensive care network and ultimately improve the effectiveness of their services (Rolls et al., 2008). In Canada, knowledge brokers are seen as a means of promoting a culture of decision-making based on evidence including links that may develop between researchers and policy makers (CHSRF, 2003, Lomas, 2007). Since 2002, knowledge brokering has been recognized as one of the priority areas of intervention by the Canadian Health Services Research Foundation (CHSRF) and is promoted by them as a promising strategy for improving the transfer and use of knowledge by policy makers and managers in health services. Finally, if the role of brokers in the association between different actors in the health network is to be questioned, it would be appropriate to consider the level of the integration of knowledge brokers (Hargadon, 2002). We will, in this case, make an attempt to understand how brokers identify, assimilate and exploit knowledge. This dimension is crucial for innovation in Health services.

- **The theoretical fields associated with the emergence of the role of knowledge brokers**

In this section we briefly present the major explanatory theories that promoted the perspective of knowledge brokers. This theoretical synthesis will help us to better understand the strategic role of these actors in the process of transfer and use of knowledge. Two theoretical fields may be associated with the emergence of the role of brokers as actors facilitating the transfer of knowledge and innovation. The first field covers the theories of structural networks with two main avenues: the theory of strong and weak ties and structural holes theory. The second field relates to theories of knowledge transfer, particularly the theory of social interaction.

## **1 - Theories of structural networks**

### **• The theory of strong and weak ties**

The theory of strong and weak ties highlighted the impact of intermediate links in the flow of information between individuals (Granovetter, 1983; Hargadon, 2003). For Granovetter (1983), the father of this theory, strong links are those between relatives, parents, friends, etc. In contrast, weak ties refer to distanced relations that bind us to neighbours, colleagues, etc. According to Granovetter (1983), these two types of links influence the flow of information between individuals in different manner. He further stresses that strong ties tend to be redundant and are therefore less rich in information while, the weak ties can build bridges between communities of actors which would otherwise not be connected. These links are often privileged channels for strategic information. In this perspective, the role of knowledge brokers as intermediary agents is to provide access to relationship networks that benefit the advent of new knowledge by intensifying and diversifying the links between various domains and industries.

### **• The theory of structural holes**

The structural holes theory as presented by Burt (1992), is based on the idea that individuals and organizations will seek to exploit the discontinuities that characterize the weak ties. It is this discontinuity that Burt calls structural holes. According to him, effective exploitation of structural holes by knowledge brokers will enable them to access strategic information and avoid the redundancy that characterizes the internal networks: "... Rooted in the social network perspective, knowledge brokering describes activities that allow knowledge transfers by creating ties across knowledge clusters internal and external to the organization. Partly because intra-group knowledge is redundant, organizational members rely on social networks of production..." (Burt 2000) cited by Pratim (2007). Mohanbir et al. (2003), went further by emphasizing that structural holes can be filled by the 'innomédiaires' (ie intermediary innovators) that connect, recombine and disseminate the ideas of different pools of knowledge that otherwise would not be connected. Referring to Burt (1992), these authors say: "...Innomediaries help companies fill structural holes in the market-gaps between companies and customers that can only be bridged by knowledge brokers: entities that connect, recombine and disseminate otherwise disconnected pools of ideas..." (Burt, 1992, cited by Mohanbir et al, 2003: 78).

## **2 - The theories of knowledge transfer**

The literature on knowledge transfer presents several explanatory theories for analyzing the transfer and use of knowledge (Huberman, 1994, Landry et al., 2003; Amara et al., 2004). We will present as part of this study, the theory that is most directly associated with the emergence of the role of knowledge brokers.

- **The theory of social interaction**

This theoretical path emphasizes on the frequency of interaction between producers and knowledge users (Huberman, 1991). For defenders of this approach, knowledge transfer is improved by bringing the two communities together (i.e. researchers and users). This union satisfies effective communication needs of researchers as well as better utilisation of research results by users. According to Huberman (1991), this transfer is even more important when those involved in knowledge transfer, use a different language and different patterns of interpretation. He further argues that in such cases, knowledge brokers can facilitate transfer by identifying, synthesizing and adapting knowledge for the potential users.

To summarise, the theories presented here have highlighted the role of brokers in the development of beneficial networks for knowledge transfer and the occurrence of innovations in organizations; the latter however do not explain how the brokers integrate knowledge. This dimension should be explored to identify particular skills that require brokers to be able to abundantly benefit from the pool of knowledge to which they are regularly exposed.

### **3- Knowledge absorption capacity: a theoretical approach to analyze the relevant dimension of the integration of knowledge among brokers**

The theory of absorptive capacity as outlined in the work of Cohen and Levinthal (1990) throws new light on the dynamics of the use of knowledge acquired from external sources. In this context it stresses on the role of individuals working in organizational interfaces. For these authors, individuals benefit from a strategic position allowing easier access to external knowledge and therefore, must develop good skills to be able to properly enjoy all the opportunities available to them for innovation. The theoretical framework to be presented in this study builds on recent theoretical developments on the concept of absorptive capacity (Cohen and Levinthal 1990, Zahra and George, 2002; Todorova and Durisin, 2007) (see Figure 1). Let us now take a look at the dimensions of this concept in case of knowledge brokers:

- Identification of relevant information (or the value of knowledge)

Through his position in the network, the broker is constantly trying to capture opportunity in his immediate environment, capable of introducing a promising new innovation (Cohen and Levinthal, 1990; Hargadon and Sutton, 1997). The identification of the value of knowledge by brokers is a strategic step as it allows selecting pertinent information (Todorova and Durisin, 2007). In this regard, Adams (1980), Ancona and Caldwell (1998) note: "Boundary-spanner serve as both filters and facilitators information transmittal between the organisation and its environment" cited by (Pawlowski and Robey, 2004:648). Inspired by the language of scouts, Wenger (1998) cited by (Pratim, 2007), described the broker as a "scout" who engages in the identification of all the information relevant for his activities or those of

his organization: "...Fulfilling the role of scouts in seeking and transforming data into information requires that information agents possess certain attributes. First, given the growing heterogeneity of data sources that information agents need to scan, filter, and transform, information agents need to be highly modular (Wenger 1998). Second, information agents need to be able to standardize information to restructure extracted data as per organizational specifications..."

- Acquisition of knowledge by brokers

The acquisition of knowledge refers to the ability of brokers to identify and acquire knowledge that is relevant to the said activities or those of the organization (Zahra and George, 2002). For Hargadon and Sutton (1997), acquisition of knowledge by brokers allows supplying the organisation with solutions or ideas for future applications. In this study, we focus on the capacity of acquiring knowledge through brokers. This capacity is influenced by the knowledge base and prior investments of knowledge brokers (Zahra and George, 2002; Daghfous, 2004).

- Knowledge assimilation by the brokers

For Zahra and George (2002): "...knowledge assimilation refers to the organizational routines and processes that enables analyzing, interpreting and understanding knowledge from an external source of knowledge..". The assimilation of knowledge by the broker allows translating, clarifying and interpreting information from other disciplines and domains. According to Pawlowski and Robey (2004): "...translation allows the bridging of perspectives by reframing, explaining and clarifying information in the context of organizational practices..." Following the same idea Pratim (2007) notes: "...Knowledge agents thus play a crucial role by communicating, translating, and interpreting perspectives within and between multiple information repositories and knowledge sources within the organization..."

- Transformation of knowledge brokers

For Hargadon and Sutton (1997), brokers primarily innovate through transformation and combination of knowledge: "... KBs innovate by combining in new ways existing technologies that originated in various industries. Hence, they absorb knowledge from other companies...". These same authors point out that solutions are rarely reached when problems arise and the relevant knowledge rarely comes in easily usable format, "...Valuable solutions seldom arrive at the same time as the problems they solve, they seldom arrive to the people working on those problems, and they seldom arrive in forms that are readily recognizable or easily adaptable..." (Hargadon and Sutton, 1997: 717). In this perspective, the broker may effectively contribute to innovation by synthesizing and adapting knowledge for the concerned users.

- Exploitation of knowledge brokers

The exploitation of knowledge helps to extend existing skills or to create new knowledge by combining the transformed knowledge's (Zahra and George, 2002; Fosfuri and Tribo, 2006). For Gianmario et al. (2006: 788): "... KBs innovate by combining in new ways existing technologies that originated in various industries. Hence, they absorb knowledge from other companies....". Finally, exploitation of knowledge by knowledge brokers may give rise to creative ideas and other promising innovations (Pratim, 2007).

#### **4- Determinants of absorptive capacity of knowledge brokers**

- **The cognitive ability**

Several studies show that an individual's ability to appropriately utilise knowledge sources is limited by their cognitive structures (Cohen and Levinthal, 1990, Todorova and Durisin, 2007). These cognitive structures are strongly influenced by previous investments by individuals ( Zahra and George, 2002; Jones, 2006). Note that the knowledge base of individuals is often measured by their level of study or their previous training. Based on the above mentioned, we make the following hypothesis:

**Hypothesis 1:** better the knowledge base of knowledge brokers better will be their ability to absorb knowledge.

- **Social capital**

The role of intermediation is essentially based on the social network of knowledge brokers. They can develop and maintain relationships with individuals, groups, organizations and industries (Hargadon and Suttton, 1997, Hargadon, 2003). For Hargadon (2003), it is the constant stream of problems and solutions combined with exchange of individuals that can create new opportunities, learn from others and develop their own skills. A wide relations network or a network of contacts will effectively enable the brokers to diversify their knowledge sources and access a wider pool of ideas which they can use to initiate innovations or solve current problems. The influence of social capital on absorptive capacity has been widely documented (Yli-Renko et al. 2001; Vinding, 2006). Although most of these authors further mention the importance of social capital held by organization, more and more authors emphasize the contribution of individuals to the development of networks (Szulanski , 2000; Vinding, 2006). In the case of brokers, the discovery of new networks is essential for renewal of ideas (Hargadon, 2003, Gianmario, 2006). In parallel, brokers are supposed to maintain and strengthen links with actors whom they deem essential for development in the domain of activity. For many authors, social capital has more impact when individuals maintain ties (Szulanski, 1996, 2000, Hansen, 2002).

**Hypothesis 2:** more the knowledge brokers posses a wider range of social capital, more the absorptive capacity is improved.

**Hypothesis 3:** more the knowledge brokers develop their social capital; more the absorption capacity is improved.

- **Experience**

Many authors stress on the importance of the experience on the absorptive capacity (Zahra and George, 2002; Kim and Inkpen, 2005). However, this aspect has been little explored in the empirical plan and existing studies, showing conflicting results regarding the impact of this variable on the process of absorption (Lane et al., 2006). Given these findings, it would be wise to empirically explore the impact of this variable on the absorptive capacity of knowledge brokers.

**Hypothesis 4:** more the knowledge brokers have a good experience in their sphere of activity; more the absorptive capacity is improved.

- **Knowledge Sources**

External sources of knowledge are essential for innovation (Cohen and Levinthal, 1990; Hargadon and Sutton, 1997). In this perspective, the exposure of brokers to a large pool of knowledge will enable them to maximize the opportunities for acquiring new knowledge. Thus, they will be better able to judge the value of specific knowledge for their field of activity (CHSRF, 2003). If this literature puts forward, external sources of knowledge, it also does not overlook the importance of internal sources of knowledge for the absorption process, including their importance in the redistribution of knowledge within the organization (Veugelers, 1997; García-Morales and al., 2007). Finally, the influence of knowledge sources has been measured by various operational measures. Such measures have often been adapted to the context of implementation studies. These measures focus on participation in research communities (Deeds, 2001), the scanning of knowledge (Tu and al., 2005) and alliances and collaborations (Caloghirou and al., 2004), etc.

**Hypothesis 5:** more the brokers' use a variety of external sources of knowledge, greater will be the improvement in their absorption capacity.

**Hypothesis 6:** More the brokers' use the internal sources of knowledge, greater will be the improvement in their absorption capacity.

- **Social integration mechanisms (SIM'S)**

The capacity of knowledge absorption is enhanced in the presence of social integration mechanisms (SIM'S) which facilitate knowledge sharing (Zahra and George, 2002; Gianmario et al., 2006). The conceptual work of Zahra and George (2002) present the SIM'S as a factor facilitating the passage of the potential absorptive capacity (PACAP) to the realized absorptive capacity (RACAP). According Todorava and Durisin (2007), the SIM'S have a much wider scope than that assumed by Zahra and George (2002), and affect the whole process of absorption (Todorova and Durisin, 2007:781). We believe that this debate raises a crucial issue, that of the contribution of endogenous capacities of the organization in the absorption process.

By endogenous capabilities we mean all the resources that the organization will apply to facilitate the process of individual absorption (i.e. evaluation of knowledge acquisition, assimilation, etc.). In our review, only the study of Jansen et al. (2005) explored the impact of this dimension at the organizational level. Based on the work of Van Den Bosch et al. (1999), Jansen et al. (2005), the SIM'S was made operational in the following manner: the ability of coordination, the system capacity and socialization capacity of the firm. Depending on their perspective, these capabilities reflect the degree of formalization of new knowledge (i.e. their integration into the formal procedures, etc.). They also indicate the extent of the mechanisms of exchange and sharing of knowledge. The results of this study show that the social integration mechanisms positively influence all dimensions of absorptive capacity even if they do not have the same effect on each dimension.

**Hypothesis 7:** mechanisms of social integration have a positive influence on the absorptive capacity of knowledge brokers

- **Organizational culture favouring change**

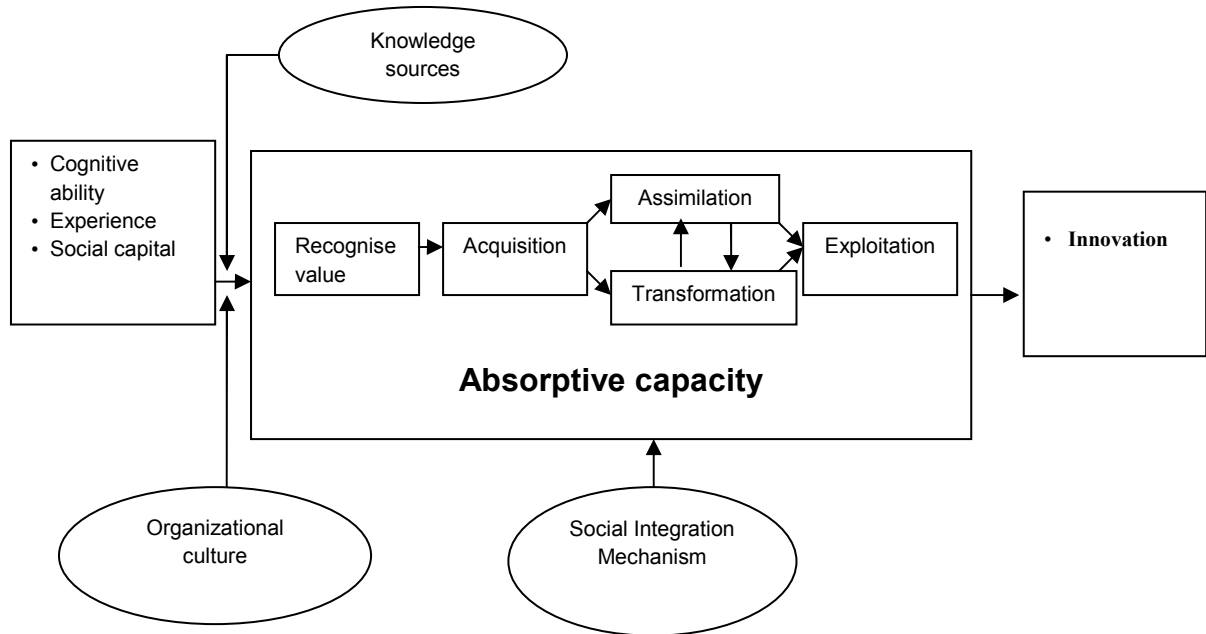
More and more authors are emphasizing on the influence of organisational culture on absorptive capacity (Hargadon, 1998; Harrington and Guimaraes, 2005; Caccia-Bava et al., 2006). An organizational culture conducive to innovation is necessarily reflected in the measures that the organization will make available to its members to facilitate the sharing and integration of knowledge (Harrington and Guimaraes, 2005). According Hargadon (1998), on being encouraged by the organization, knowledge brokers seize every opportunity to learn and develop their skills.

**Hypothesis 8:** organizational culture conducive to change will have a positive influence on the absorptive capacity of knowledge brokers.

## **Conclusion**

The theoretical approach of absorptive capacity proposed under this study has the advantage of addressing the integration of knowledge in terms of dynamic capacity of individuals and particularly those who work at organizational boundaries. Such an approach will help us to identify the skills that are required for brokers to contribute effectively to innovation.

**Figure I:** Theoretical framework of the absorptive capacity of knowledge brokers



Adapted from Cohen et Levinthal (1990), Zahra and George (2002), Todorova and Durisin (2007)

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