

ORGANIZATIONAL LEARNING THROUGH KNOWLEDGE ACQUISITIONS

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Abstract

Regardless of the increasing number of knowledge acquisitions, practice shows that most acquisitions fail to meet expectations. Better understanding of the micro processes of knowledge sharing would help understand why acquisitions fail and how to manage more successful acquisitions. This paper presents an organizational learning perspective on knowledge acquisitions and addresses two questions: 'which conditions and tools enable knowledge sharing in knowledge acquisitions' and 'how can organizations use their knowledge regarding these conditions and tools to manage the process of knowledge sharing.' After a literature review, a model is proposed that helps analyze organizational learning processes related to knowledge acquisitions.

Key words: knowledge acquisition, knowledge sharing, organizational learning

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1. INTRODUCTION

Knowledge acquisitions have become an increasingly important way for companies to gain access to new knowledge and capabilities. According to Huber (1991) knowledge acquisition is the process by which knowledge is obtained. Huber (1991) refers to this type of organizational learning through acquisition as 'grafting'. Grafting is a form of external learning or learning from others and relates to knowledge acquisition through access to new members. Or in the words of Huber: "*organizations frequently increase their store of knowledge by acquiring and grafting on new members who possess knowledge not previously available within the organization. Sometimes grafting-on of carriers of new knowledge is done on a large-scale basis, as in the case of the acquisition of a whole organization by another. For acquiring complex forms of information or knowledge, grafting is seen to be faster than (knowledge) acquisition through experience and more complete than (knowledge) acquisition through imitation*" (1991: 97). Not all corporate acquisitions are meant to support organizational learning through grafting. According to Haspeslagh & Jemison (1991) there are two fundamentally different ways of improving shareholder wealth with acquisitions which are value capture and value creation. On the one hand, value capture involves shifting value from previous shareholders to new shareholders which tends to be a one-time event. On the other hand, value creation is a long-term process that results from managerial action and interactions between the firms. The outcome of value creation is usually referred to as synergy which occurs when capabilities transferred between firms improve firm's competitive position and therefore also its performance. Particularly in knowledge intensive and high-tech industries, companies buy other, often smaller companies in order to gain new knowledge capabilities. Thus, it is especially in these industries that firms participate in a knowledge acquisition. The most cited and well-known firms that have a track record of buying for knowledge assets are companies such as Cisco, HP, Lucent, Nortel Networks, etc. These firms are in search of the type of acquisition's benefit which is referred to by Haspeslagh & Jemison (1991) as functional skill transfer. According to Haspeslagh & Jemison (1991) the common dominator among this type of acquisitions is that one firm improves its competitive position by learning from another through the transfer of functional skills. Transfer of such skills is not immediately or easy because it involves a process of teaching and learning. The more strategic the skills the more difficult this process of teaching and learning will be because strategic skills are not easy to imitate. Thus, '*strategic capabilities, especially skill-based ones, are difficult to imitate because they are embedded in the skills of a group of individuals and in the procedures and cultures of firms*' (ibid: 109). A great deal of such acquisition activity is occurring today in the computer software industry, in the biotech industry and in the pharmaceutical industry. The number of acquisitions has also risen because bigger companies buy internet-related companies as a way to enter this field of knowledge.

Regardless of the increasing number of acquisitions, practice shows that most acquisitions fail to meet expectations. As Haspeslagh & Jemison mention '*post-acquisition reality is often very different from what was expected, no matter how completely the pre-acquisition analysis has been done*' (ibid: 124). Apparently, acquiring a firm with valuable knowledge does not guarantee that the knowledge will be successfully transferred to or combined with the resources of the acquirer.

According to Jemison & Sitkin (1986) '*the acquisition process itself is a potentially important determinant of acquisition outcomes*' (cited in Haspeslagh & Jemison, 1991: 306). Moreover, given that many larger organizations make multiple acquisitions; high failure rates suggest that these organizations are not effectively learning from their past experiences and thus from the process that they have been through. It is therefore surprising to note that research into the micro processes of knowledge sharing through acquisition is strikingly limited. In the following, the literature will be reviewed in order to assess what is already known about knowledge sharing as a result of acquisition. The question of what modes of knowledge sharing are and should be used to enhance value creation through acquisition will be also addressed. Based on this analysis an organizational learning model will be presented which is believed to be useful for organizations that want to engage in knowledge acquisitions. The model incorporates pre-conditions and modes of learning through grafting and also acknowledges managerial intervention as an expression of past learning.

The purpose of this research is to contribute to a more detailed understanding of how knowledge is shared such that we can derive ideas about how to manage and learn from it. This would help organizations to learn which acquisitions to make (or not make) and how to make them.

2. KNOWLEDGE SHARING THROUGH ACQUISITIONS

In a very simplified manner one can state that acquisitions create value through knowledge sharing and that this knowledge sharing is influenced by the decision making process that takes place before the deal is closed. As mentioned earlier, in line with Haspeslagh & Jemison (1991), by value creation we mean that acquisitions create value when the competitive advantage of one firm is improved through the transfer of strategic capabilities. Typically, value creation is measured by an increase of patented products or increased Return On Investment (ROI) as an indicator of successful assimilation of external knowledge.

In this paper, the black box of knowledge sharing will be opened in order to analyze what conditions are necessary to improve knowledge sharing so that value is created. Although the focus is on knowledge sharing in the post-acquisition phase, first the pre-acquisition decision making process will be briefly discussed, as these decisions influence later knowledge sharing activities. By knowing how knowledge can be shared organizations could be able to use this insight in the pre-acquisition decision making process in order to be able to conduct a 'knowledge due diligence'. With knowledge due diligence reference is made to an audit which could act as a test to see if the acquiring firm and the acquired firm will be able to share their knowledge with each other within the acquisition in order to create value and if so under which conditions and with which tools.

Although many of the deals are believed to be lucrative to the companies involved, it does not necessarily follow that everyone in the organization is motivated to learn new knowledge or to teach their knowledge to others. Knowledge sharing in the post-acquisition phase is contingent upon the two partners - the target and the parent – being motivated to work together (Haspeslagh & Jemison, 1991). Without this intent, a deal can be closed but knowledge will not be shared. In the following sections four general pre-conditions for

knowledge sharing will be discussed which are believed to influence the actual process of knowledge sharing. This will be followed by a discussion of possible knowledge management tools to improve knowledge sharing.

2.1 Pre-acquisition decision making

During the early decision making stage before the deal is closed, organizations analyze the feasibility of the acquisition. This stage is also referred to as the stage of 'due diligence'. Haspeslagh & Jemison (1991) discuss four problems inherent in the acquisition decision making process that negatively influence the ability to develop a good justification for an acquisition: fragmented perspectives, increased momentum, ambiguous expectations, and multiple motives.

Because so many specialists are involved, *fragmented perspectives* on the analysis and decision making severely limits a rich and in-depth overview of the feasibility of the possible acquisition. What Haspeslagh & Jemison (1991) also encountered in their detailed research on acquisitions is the consequence of *increased momentum*. Most of the time due diligence is characterized by faced-paced, hectic and frenetic activities. As a result, participants in the process do not allow for reflection time to think their actions through. They also found *ambiguous expectations* from both sides. In a way, parties implicitly agree not to discuss these ambiguities during the process of due diligence as this might jeopardize the successful completion of the deal. While this ambiguity helps to speed up the decision process, these unresolved issues often become major problems after the deal is closed. These issues range from operational conflicts to power struggles such as who will be the chairperson. Another major source of ambiguity that often leads to post acquisition problems and consequently impedes knowledge transfer is *multiple (conflicting) motives*. Any acquisition involves multiple stakeholders with differing priorities. In order to overcome possible hurdles, different views of the acquisition may be 'sold' to different parties. Of course, after the deal is closed these multiple motives become a source of disagreement, and often lead to an unwillingness to cooperate and therefore also to share knowledge. Thus, taking the problems regarding the decision making process before the acquisition into account could enable better knowledge sharing after the deal since different parties are aware of the consequences of the acquisition and their role in it. By using a knowledge due diligence the parties involved have to pay attention to the conditions and tools that foster knowledge transfer and therefore also see if these conditions and tools are available and supported by the acquiring and the acquired firm. Thus, it is important that both organizations pay attention that they pass the knowledge due diligence test. This attention to the conditions and tools that are needed for knowledge sharing is needed regardless of the existence of fragmented perspectives, increased momentum, ambiguous expectations, and multiple motives of the parties involved in the acquisition.

2.2 Pre-conditions for effective knowledge sharing

Based on an extensive literature review four general pre-conditions that influence knowledge sharing in the post-acquisition phase are discerned. This is done using literature on merger and acquisitions, organizational learning, strategic alliances, and technology

transfer. These four general pre-conditions for knowledge sharing are; degree of integration, degree of similarity of knowledge, degree of similarity of organizational setting, and degree of shared social capital.

2.2.1 Degree of integration

The extent to which the acquired company is integrated into the parent company is as much an 'art' as it is a science. The continuum ranges from complete assimilation to a completely autonomous approach. Although full integration may seem desirable at first, it often destroys the inherent properties of the acquired firm that allowed it to create knowledge in the first place. This relates to the difference between technological capabilities and dynamic capabilities (Teece, Pisano & Shuen, 1997) as well as the difference between human capital and social capital. This is because integration could lead to the destruction of the acquired firm's knowledge-based resources by e.g. employee turnover and disruption of routines (Ranft & Lord, 2002; cited in Graebner, 2004). Another problem is that tacit and socially complex knowledge is not easy to observe by outsiders (Graebner, 2004). Therefore, it could be the case that acquirers have poor information regarding where valuable knowledge resides in the acquired organization (Coff, 1999; Ranft & Lord, 2002; cited in Graebner, 2004). This could lead to buyers making ineffective decisions regarding the integration process (Graebner, 2004). Companies acquire whole entities instead of hiring one key person or the technology only. They do this because the knowledge lies in the dynamic capabilities and the social networks of the companies and not in a single technology nor in a single head (Teece et al. 1997). This is the purest instance of grafting of capabilities. According to Haspeslagh & Jemison *'the success of a particular acquisition depends on the managers' ability to reconcile the need for strategic interdependence between the two firms that is required to transfer strategic capabilities and the need for organizational autonomy of the acquired firm that is required to preserve the acquired strategic capabilities'* (1991: 15). Thus, the benefits of an acquisition depend on if and how the acquirer is able to integrate the acquired knowledge with its own. Haspeslagh & Jemison (1991) argue that two key dimensions: need for organizational autonomy and need for strategic interdependence, lead to the choice of one of the following generic integration approaches: 'preservation' (high autonomy, low interdependence), 'symbiosis' (high autonomy, high interdependence), 'absorption' (high interdependence, low autonomy), and 'holding' (low autonomy, low interdependence). According to Graebner (2004), the dilemma regarding the degree of integration vs. autonomy is especially relevant in technology acquisitions. Technology acquisitions are often motivated by the desire to obtain and transfer tacit and socially complex knowledge-based resources (Grant, 1996; Ranft & Lord, 2000, 2002; cited in Graebner 2004). Thus, technology acquisitions are primarily knowledge acquisitions. This paradoxical nature of grafting knowledge through acquisition is often discussed in popular press and also accepted among practitioners in the area of acquisition. Full integration seems to work in some companies while limited or no integration i.e. 'preservation' (Haspeslagh & Jemison, 1991) seems to work best in other companies. One explanation for these various strategies could be that organizations have idiosyncratic preferences which might be a result of past learning. However, Ranft & Lord mention that integration vs. autonomy shouldn't be viewed as an either/ or choice since their research suggests that some *'managers viewed autonomy in multidimensional terms, occurring at different levels and in different forms. If the acquired*

firm's valuable knowledge was viewed as more of an organization wide phenomenon, overall organizational autonomy was perceived as important. To the extent that valued knowledge resided within particular areas of the acquired firm, managers perceived autonomy for these specific parts of the firm as most important' (2002: 437). The more completely the acquired firm is integrated into the acquiring company the more effectively knowledge can be shared. However, too much integration too quickly will change the identity of the acquired company thus increasing the likelihood of employee attrition, taking valuable knowledge with them. Conversely, a more hands-off approach will hinder knowledge sharing, particularly in the domain of tacit knowledge which requires close cooperation and proximity. The closer the target is to the parent, the more easily the knowledge flows. This is especially important when the knowledge is highly ambiguous as discussed above. When taken together, these arguments suggest a curvilinear relationship between the degree of integration and the level of knowledge sharing. This leads to the following proposition:

Propositions 1: There is a curvilinear relationship between the degree of integration and the level of knowledge sharing, such that a moderate degree of integration accompanied with co-location will lead to higher levels of knowledge sharing between the acquiring firm and the acquired firm.

2.2.2 Degree of similarity of Knowledge

In technology acquisitions the impact of acquisitions depends on the characteristics of the relationship between the knowledge of the firms involved (Lubatkin, 1983; Singh & Montgomery, 1987; Lane & Lubatkin, 1998; Cited in Ahuja & Katila, 2001). These characteristics contain the quantity and nature of knowledge elements that are acquired (Ahuja & Katila, 2001). The degree of similarity of knowledge, and thus similarity in quantity and nature of knowledge elements, between the acquiring and acquired company also influences knowledge sharing. In general it can be said that the greater the degree of similarity of knowledge and thus the degree of similarity in quantity and nature of knowledge elements, the easier knowledge will be shared. However, too much similarity makes one a less attractive candidate to be bought, because less organizational learning will occur through the acquisition and thus a positive impact would not be the result of the acquisition. Dissimilarity of knowledge implies a lack of absorptive capacity. Since, the parties involved differ too much from each other in order to be able to learn from one another. Therefore, the following general proposition regarding the degree of similarity of knowledge can be stated:

Proposition 2: There is a curvilinear relationship between the degree of similarity of knowledge and the level of knowledge sharing, such that a moderate degree of similarity of knowledge will lead to higher levels of knowledge sharing between the acquiring firm and the acquired firm.

In our literature review we found four areas in which similarity of knowledge between the target and the parent plays a role: similarity in knowledge bases, knowledge size, common ground and knowledge ambiguity.

A certain degree of overlap in knowledge bases between the acquired and acquiring company will facilitate learning (e.g. Hamel 1991, Nonaka 1994, Cohen & Levinthal 1991). Overlap will create receptivity the capacity, desire and opportunity of organizations to learn from their partners (Lyles & Stalk, 1996). The closer the new knowledge is to its own knowledge base, the easier it will be for the firm to identify, understand and use the new knowledge (Cohen & Levinthal, 1991). This notion of ‘Absorptive Capacity’ is widely acknowledged and appeals to many researchers and practitioners in the field of mergers and acquisitions (Lane & Lubatkin 1998; Mowery, Oxley & Silverman, 1996). The basic idea is “what can be learned is crucially affected by what is already known” (Powell, Koput & Smith-Doerr, 1996: 120). This breadth of knowledge is important for three stages: selection, collaboration and integration of external knowledge with the proprietary knowledge of the firm.

Literature on ‘absorptive capacity’ states that experience in related technical fields (in-house knowledge) and complementarities of assets positively affect a firm’s capability to assimilate new information from its alliance partners. Similarity between partners thus positively influences knowledge sharing. However, extreme similarity and dissimilarity are not fruitful but knowledge bases with moderate degrees of relatedness provide the *‘benefits of enhancing the variety of possible combinations that the firm can use, while maintaining the elements of commonality that facilitate interaction’* (Ahuja & Katila 2001: 201). This argument suggests a curvilinear relationship between the degree of similarity of knowledge bases and the level of knowledge sharing. This leads to the following proposition:

Proposition 2a: There is a curvilinear relationship between the degree of similarity of knowledge bases and the level of knowledge sharing, such that a moderate level of similarity of knowledge bases will lead to higher levels of knowledge sharing between the acquiring firm and the acquired firm.

The relative size of the knowledge base has been a topic of concern too. With relative size reference is made to the value and content of the knowledge of the firms involved (Ahuja & Katila, 2001). According to Ahuja & Katila (2001), the degree to which the acquirer is able to recognize, assimilate and apply the knowledge base of the acquired company varies with the relative size of the knowledge of the acquired and acquiring firm. Some authors have found a positive relationship between the relative size of the knowledge base and the success of the acquisition (Ahuja & Katila, 2001). The underlying rationale is that if the acquired firm’s knowledge base is small relative to the acquirer, the modifications required are likely to be minor. Likewise, if the acquired firm’s knowledge base is large relative to the acquiring firm, fairly major changes would have to be made in the acquiring firm, leading to a significant disruption of existing processes. These arguments lead to the following propositions:

Proposition 2b: The larger the relative size of the knowledge base of the acquired firm in comparison to the knowledge base of the acquiring firm, the more difficulty the acquiring firm and the acquired firm will have in knowledge sharing.

Rather than the degree of similarity of knowledge and its usefulness on search and learning stressed in absorptive capacity literature (Zahra & George, 2002; cited in Puranam: forthcoming), Puranam (forthcoming) argues that a form of shared knowledge -common

ground- could serve as coordinating mechanism to link activities between the acquiring and the acquired firm in order to avoid the use of formal coordination mechanisms which could lead to disruption of existing organizational routines and social capital. In contrast to structural integration, which enables coordination primarily through the use of formal mechanisms such as common authority, procedures and goals, common ground can give rise to tacit or informal coordination (Camerer & Knez, 1997; cited in Puranam: (forthcoming)). According to Puranam (forthcoming) *'with common ground, actions are aligned not because interacting individuals are mandated to take aligned actions through authority or procedures, but because they share sufficient knowledge to enable each to actively align their actions to each other. In this sense, informal coordination based on common ground can substitute for formal coordination driven by structural integration'* (13). Therefore, having a common ground can help coordinate interdependence between the acquired firm and the acquiring firm without the use of disruptive formal mechanisms. Much like absorptive capacity (Cohen & Levinthal, 1990; cited in Puranam: forthcoming), common ground helps acquiring firms to acquire nonoverlapping knowledge with the help of some degree of overlap in knowledge. Taken together, these arguments result in the following

Proposition 2c: The higher the degree of common ground, the higher the possibility for knowledge sharing between the acquiring firm and the acquired firm.

Many authors from various traditions have warned that knowledge cannot be transferred easily from one company to the other. Simonin (2001) argues that this difficulty in learning from others relates to the degree of knowledge ambiguity. Knowledge ambiguity refers to the underlying notion of knowledge transferability. A high degree of knowledge ambiguity means a lack of understanding of logical linkages between action and outcomes, inputs and outputs and causes and effects that are related to technological or process knowledge. Many authors have concentrated their research on dimensions of knowledge that foster or impede transferability. Simonin (2001) postulated that tacitness of knowledge, specificity of knowledge and complexity of knowledge will increase knowledge ambiguity and therefore will cause problems of knowledge sharing. His empirical study showed that this was only significantly true for degree of tacitness.

Transfer of technology knowledge after acquisition cannot rely on codified knowledge only. Often team-based implicit knowledge needs to be shared (Chakrabarti, 1990). Spender (1996) refers to this type of knowledge as "collective knowledge"; embedded knowledge in the form of social and institutional practices residing in tacit experiences of a collective, such as routines. Transfer of this type of knowledge is a slow process and is seldom affected by formal mechanisms such as reports and memoranda (Chakrabarti, 1990).

In general, it is argued that the higher the perceived knowledge ambiguity the lower the possibility for knowledge sharing. Here again a paradox is touched upon; the more knowledge can be expressed in words and thus codified, the less important it is for an organization to buy a whole organization as they can rely on alternatives, for example by buying the codified knowledge stored in manuals or patents. Mostly, companies acquire other companies because of the capabilities that are shared by the team and that are very difficult to express. These arguments lead to the following proposition:

Proposition 2d: The higher the degree of perceived knowledge ambiguity, the lower the possibility for knowledge sharing between the acquiring firm and the acquired firm.

2.2.3 Degree of shared social capital

Collaborations that result from acquisition vary in their level of social capital. With social capital, reference is made to that part of the intellectual capital of the firm that is generated by knowledge shared in networks of individuals, whereas the other part of intellectual capital: human capital refers to individual knowledge. It can be argued that collaborations high on shared social capital are best suited for knowledge transfer (Granovetter, 1985). Again the match should be balanced: very high degrees of social capital will make the acquisition inefficient because the existence of shared high levels of social capital already provides enough trust and continuity to learn from each other. Therefore, it could be the case that an acquisition does not add anything regarding learning from each other. In fact, the mere act of acquiring each other in communities very high on social capital might even be counterproductive since a disruption of the existing social capital could occur. On the other hand, collaborations that are very low on social capital will not provide enough trust, mutuality and continuity to stimulate knowledge sharing. When taken together, these arguments suggest a curvilinear relationship between the degree of shared social capital and the level of knowledge sharing. This leads to the following proposition:

Propositions 3: There is a curvilinear relationship between the degree of shared social capital and the level of knowledge sharing, such that a moderate degree of shared social capital will lead to higher levels of knowledge sharing between the acquiring firm and the acquired firm.

Socio-psychological factors such as trust, corporate commitment, motivation and social controls have been discussed in the literature on acquisitions (Lyles, 1988). Only sporadically is the concept of social capital used to refer to the enabling or hindering factors in organizational learning through acquisitions. Because the idea of social networks as the most suitable mode to share tacit knowledge is increasingly accepted, the literature on acquisitions will probably use the notion of social capital more frequently in the near future. Social capital has been classified by Nahapiet & Ghoshal (1998) into three dimensions: a *structural dimension*, relating to the network ties and configurations; a *cognitive dimension*, relating to shared codes, language and narratives; and a *relational dimension*, relating to trust, norms, obligations and identification.

If the acquisition is high on the structural dimension of social capital, this would mean that the target and parent company share informal networks and ties through which knowledge may easily flow. This leads to the following proposition:

Proposition 3a: The higher the degree of shared structural dimension of social capital, the more the possibility for knowledge sharing between the acquiring firm and the acquired firm.

The social capital's cognitive dimension may enable knowledge sharing in the sense that shared language, customs, and traditions can make communication between organizations less difficult. The "communicative capacity" of the partners is thus an important factor for the transparency of knowledge (Larsson, Bengtsson, Hendriksson, & Sparthk, 1998). This leads to the following proposition:

Proposition 3b: The higher the degree of shared cognitive dimension of social capital, the more the possibility for knowledge sharing between the acquiring firm and the acquired firm.

If an acquisition is high on the relational dimension of social capital, this would mean that the target and partner share norms and a sense of mutual trust and reciprocity. In contrast to the structural 'density' aspects of networks, the relational aspects are referred to by the concept of 'strength of strong or weak ties' (Granovetter, 1985). Strong ties are important for acquisitions because they ease the knowledge transfer after the deal is closed. Strong ties imply a high degree of trust, which makes the entire process flow more smoothly. It is generally accepted that mutual trust positively influences the possibility of knowledge sharing (e.g. Dodgson, 1993). Trust is needed to safeguard against opportunism (Szulanski, 1996). Trust between partners is needed not only because a large dimension of the knowledge that is to be shared is of a tacit nature. Trust is also needed because a lot of this knowledge is proprietary (Lyles & Stalk, 1996; Larsson et al., 1998; Dodgson, 1993). Acquisitions high on the relational dimension also share a sense of mutuality, meaning that people not only want to learn themselves, but also want to help others to learn. According to Haspeslagh & Jemison (1991) this willingness to share knowledge also depends on the size of the company and the differences in culture. For example, larger firms tend to be less willing to teach. Besides size, this aspect of organizational teaching in business relationships depends also on the arrogance of the firm and other power issues (Hakansson et al., 2001). The degree of mutual trust and the level of protectionism also influence knowledge sharing. When taken together, this leads to the following proposition:

Proposition 3c: The higher the degree of shared relational dimension of social capital, the more the possibility for knowledge sharing between the acquiring firm and the acquired firm.

In general, however, most acquisitions are not built on existing social structures, let alone structures that have a high degree of social capital. Because of the self-reinforcing and emergent nature of social capital (Cohen & Prusak, 2001), it is difficult to stimulate or invest in social capital as a re-active management tool. Implications for management point to more pro-active measures such as including a degree of shared social capital as a condition of the search process that precedes the actual acquisition. We will return to this in the conclusion section.

2.2.4 Degree of similarity of organizational setting

Firms with dissimilar knowledge may still be able to learn from each other if they are similar on other dimensions. Lane & Lubatkin (1998) for example argue that contextual features such as formalization, centralization and compensation practices can mediate and

improve knowledge transfer. Lane & Lubatkin (1998) also found a positive relationship between the similarity of organizational context such as governmental structure and the success of acquisition. The idea is that a certain degree of similarity must exist in terms of the two organizational settings, in order to share knowledge. These arguments lead to the following propositions:

Proposition 4a: A higher degree of contextual similarity between the acquiring firm and the acquired firm will lead to higher levels of knowledge sharing.

As Bjorkman, Stahl, & Vaara (2007) mention '*cultural differences can be beneficial because they may enhance the combination potential i.e. synergy potential of the acquisition, whereby, in combination, the two firms create more value than each could achieve alone. However, they can also create obstacles to reaping integration problems by exacerbating social integration problems and diminishing the acquired and acquiring firms' capacity to absorb capabilities from the other party*' (668). Taken Bjorkman et al. (ibid) argument into account one could say that some degree of similarity in organizational culture could be an important ingredient to successful knowledge sharing. Organizational culture involves the shared meaning, norms and values that have been collectively constructed over the years. It is highly implicit and very difficult to change. As a result, it is better to acquire companies that do not differ greatly in terms of culture. Of course, striving for similar organizational cultures is a mission impossible as by definition organizational cultures are unique. What is possible however is to strive for an understanding of each other's culture, and for this some similarity is needed (Haspeslagh & Jemison, 1991). Based on field practice, Buono & Bowditch (1989) argue that cultural differences are one of the main reasons why many acquisitions don't last. However, Ernst & Vitti (2000) argue that small cultural differences remain important to enhance performance. These arguments suggest a curvilinear relationship between the degree of similarity of culture and the level of knowledge sharing. This leads to the following proposition:

Proposition 4b: There is a curvilinear relationship between the degree of similarity in culture and the level of knowledge sharing, such that a moderate level of similarity in culture will lead to higher levels of knowledge sharing between the acquiring firm and the acquired firm.

Another need for similarity which is also related to culture is the need for similarity in Information systems and Networks. Problems resulting from systems incompatibility have often been reported in the literature (Ranft & Lord, 2000). But also electronic networks that support knowledge exchange should be compatible (Ranft & Lord, 2000). These arguments lead to the following proposition:

Proposition 4c: A higher degree of IS and/or Networks similarity between the acquiring firm and the acquired firm will lead to higher levels of knowledge sharing.

Most of the knowledge that is meant to be acquired, is however of a tacit nature. Electronic networks are less helpful as tools to support the transfer of tacit knowledge. For this purpose organizations rely on informal networks and ties. Making these personal networks compatible is perhaps even more important given the dominance of the tacit dimension of the knowledge to be shared (Nonaka 1994; Leonard & Sensiper, 1998). After having

discussed the nature of knowledge in more detail, the importance of these components of social capital will be mentioned.

2.3 Knowledge management tools

There is various knowledge management tools reported in the literature that affect knowledge sharing in the post-acquisition phase. These knowledge management tools affect knowledge sharing in the post acquisition phase through their interaction with the pre-conditions for knowledge sharing and their support in the knowledge sharing process. Two major areas of management intervention i.e. mutual communication and retention strategies and their related knowledge management tools will be discussed below.

2.3.1 Mutual communication

Knowledge sharing will be facilitated when attention is paid to the communication infrastructure that enables knowledge transfer. One could think of electronic networks such as email and Intranets which stimulate sharing of codified knowledge, and non-electronic networks, based on individual interactions, which stimulate the transfer of personalized knowledge. Electronic networks only convey explicit knowledge, whereas non-electronic interactions may also convey tacit knowledge. Given that in case of acquisitions, the knowledge that is meant to be shared is usually of a highly ambiguous nature, personal interactions are extremely important in the post-acquisition phase (Ranft, 1997).

Because individual knowledge and perspectives remain personal unless they are amplified and articulated through social interaction (Nonaka, 1994) organizations should stimulate the occurrence and need for such interactions. By creating the opportunity for knowledge connections, social interactions between the acquired and acquiring company provide the foundation for evolving communities of practice (Von Krogh, Roos & Slocum, 1994). Knowledge connections are formed through formal and informal relationships between individuals and groups and are driven by the belief that sharing tacit knowledge is best achieved through *'mutual adaptation among members with common knowledge and shared implicit coding schemes accumulated through group interactions'* (Lam 1997: 978). Examples of such knowledge connections are team buddy situations where a new employee is paired with the acquirer's personnel on a one to one basis. Knowledge connections can also be created through site visits and tours, and formal and informal meetings between parent and target organization. The literature on acquisitions is rather ambiguous about the benefits of job rotation and personnel transfers in the post-acquisition phase. While job rotation is a strategy that is often adopted in order to stimulate learning from new comers, research is unclear regarding its tangible benefits. Job rotation is often mentioned as a facilitating mechanism, because it is believed to ensure that resources and routines acquired in the acquisition are transferred back to the parent firm. However, it can have a negative effect when the rate of rotation is too high (Rivera, Dussauge and Mitchell, 2001). When time spent in contact with the partner is reduced because of high rotation rate, no learning will occur, especially when resources are tacit. Chakrabarti (1990) found that although many companies used job rotation as a way to improve linkages, the empirical test shows almost no significant correlation with performance.

From the organizational behavior school, the suggestion is made to stimulate mutual communication not only after the acquisition, but also ex ante in order to prepare the people involved. The idea is that through training sessions, visits, tours, etc. appreciation for each other's culture is created which will benefit knowledge sharing in the post-acquisition phase (Buono & Bowditch, 1989). Buono & Bowditch (1989) thereby argue for a more dominant role of Human Resource Development managers in bridging cultural differences. When taken together, these arguments lead to the following proposition:

Proposition 5: The creation of knowledge connections has a positive effect on knowledge transfer and this effect will be even more if these knowledge connections are created ex ante.

2.3.2 Retention strategies

Given that people and especially teams are the carriers of the knowledge that is meant to be shared, it is taken for granted that organizations should prevent the inevitable turnover of people that occurs after a deal is closed. Although most of the empirical data on the relation between turnover and performance show a negative correlation, the results are still mixed. Chakrabarti (1991) found a negative relation between turnover of senior technical people and performance. Based on extensive quantitative research Ranft & Lord (2000) found however that the turnover of top management has a less negative impact on performance than the turnover of middle management and R&D people. Retention strategies are thus needed as mechanisms to cope with this problem. A very well known retention strategy is the use of contractual 'earn outs', including options for employees tied to performance milestones. The question is whether these 'golden handcuffs' that create financial hostages, will indeed stimulate knowledge sharing. No clear empirical evidence has been found to support the notion that financial incentives benefit the flow of knowledge. Although in the field of global strategic alliances some evidence was found that financial incentives do not result in retention (Parkhe, 1993; Lyles, 1988). Other studies on acquisitions show that providing status (Ranft, 1997) or prestige (Chaudhuri & Tabrizi, 1999) seems to be more important retention strategies than financial incentives.

Clearly much more empirical research is needed on managing knowledge sharing in the post-acquisition phase. Up to now, the sporadic literature is very limited and even contradictory. However, taken the above mentioned arguments into account, the following proposition is stated:

Proposition 6: The use of retention strategies has a positive effect on knowledge sharing.

2.4 Research model

Taken together, the above mentioned propositions result in the following research model which is depicted below:

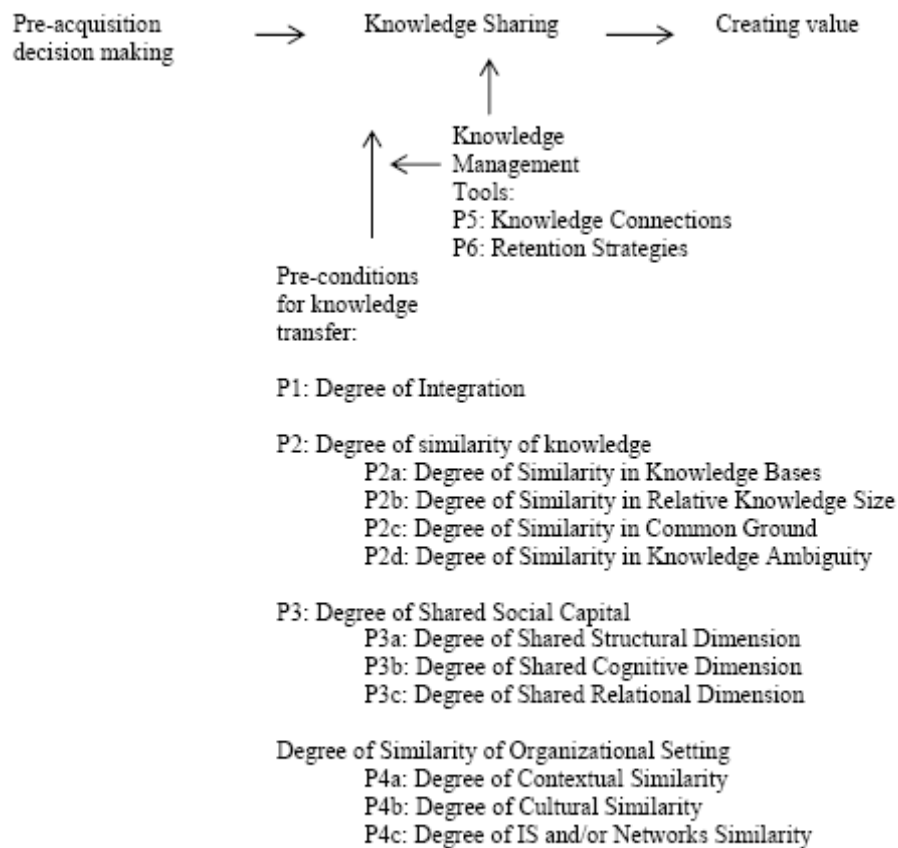


Figure 1. Research model

3. ADAPTIVE LEARNING THROUGH KNOWLEDGE ACQUISITIONS

There are two reasons why research on knowledge sharing through knowledge acquisition would benefit from an organizational learning perspective. First, as noted earlier, the acquisition of a company for the purpose of grafting technologies should be studied as a process of organizational learning. Secondly, as many companies are becoming frequent buyers, learning not only takes place during the process of knowledge sharing but also as a process of knowledge re-use.

In other words, companies learn from others in order to incorporate external knowledge and learn from themselves by incorporating past experience into their future strategy and management of acquisitions. The occurrence of the latter type of learning seems to differ among organizations. As Haspeslagh & Jemison (1991) mention, some companies seem to learn from their acquisitions experiences faster than others. Below we will discuss the two aspects of learning in more detail with the help of a learning model of knowledge acquisitions as shown in figure 2 which is an extended model of the research model mentioned above.

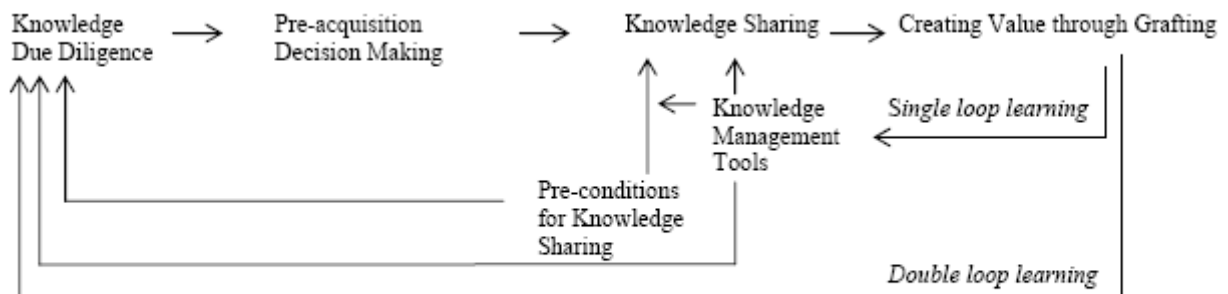


Figure 2. A learning model of knowledge acquisitions

3.1 Learning from others

Research on acquisitions can be divided into various schools. Combining these various schools provides more useful insight into the concept of knowledge acquisitions. More specifically, combining an organizational behavior perspective with a process perspective yields greater insight into the strategic aspects of acquisitions. This paper takes a step in that direction. The assumption is that individuals and groups, through the process of knowledge sharing, have a strategic impact. By perceiving knowledge sharing in the post-acquisition phase as a process of learning through grafting, the assumption is made that through knowledge sharing, individuals have an impact on the process of acquisition and as a result, affect the outcome. This organizational learning approach and the influence of human aspects are even further supported by the introduction of the concept of social capital as an important pre-condition for knowledge sharing and its influence on value creation.

Thus, the process of learning through grafting seems to be not only “a potentially important determinant of acquisition outcomes” (Jemison & Sitkin, 1986), but of strategic importance. Therefore, learning from experiences of grafting actions of organizations could enable better knowledge acquisition strategies and management. Increasingly, research is being conducted on how the process of knowledge sharing affects final outcomes. These researchers believe that, as a result of impediments to learning, many acquisitions fail. Although, much more research is needed to support this argument literature in strategic alliances other than acquisitions have already pointed to the strategic impact of knowledge transfer by knowledge sharing individuals (Inkpen, 1998; Kogut & Zander, 1996; Larsen et al 1998).

3.2 Learning from the past

For many companies, acquiring a company is not a single unique event. In fact large companies particularly in the high tech area have a track record of buying more than one firm a year. To them, these interventions could be a product of organizational learning from the past through feedback information.

There are various authors who have proposed such a systems dynamics approach to organizational learning (Argyris & Schon, 1978; March & Olsen, 1976; Senge, 1991; Bateson, 1973). Argyris & Schon (1978), following Bateson (1973) have introduced two ways in which organizations learn from feedback information: single loop learning and double loop learning. Single loop learning happens when an organization reacts to information regarding the results of organizational actions, by adjusting its future actions. In general, organizations tend to do reasonably well as single loop learners (Argyris & Schon, 1978). Double loop learning occurs when organizations react to feedback signals by reflecting first on the governing variables such as the hidden norms and values that trigger the actions. Organizations in general are not very good in double loop learning (Argyris & Schon, 1978). As discussed below, it is believed that this also applies to learning from past acquisitions, although more research is needed to support this impression. While single loop learning happens through adapting actions to experiences with previous acquisitions, double loop learning happens when previous experiences are taken into account in the decision making prior to the deal.

Learning from past acquisitions by adjusting knowledge management tools to foster knowledge sharing can be seen as an act of single loop learning. The organization learns by adjusting action strategies but leaves governing variables untouched (Argyris & Schon, 1978). Single loop learning happens through ex-post interventions: knowledge management tools to improve knowledge sharing. This concerns interventions to improve knowledge sharing *after* the deal is made.

Learning from past experiences can also be supported by codifying the lessons learned and storing them in manuals, knowledge databases etc. This strategy represents one of the most traditional knowledge management tools. Experience with knowledge management in organizations indicates however that codifying past experience in order to support knowledge re-use has its problems. For example, people have difficulty contributing to a re-use policy, for several reasons: their knowledge cannot easily be

expressed in words, they do not benefit from it, they do not spend time reflecting on past experiences, an unwillingness to use knowledge of others, or just because these past experiences do not fit the present situation (Huysman & De Wit, 2002). These experiences might imply that codifying past experience is not a viable option or that other media should be used, such as for example videos.

Double loop learning sets in when companies already think about and create favorable conditions for knowledge sharing before the deal is closed. Double loop learning happens through ex-ante interventions, by including knowledge audits in due diligence. This concerns interventions to improve knowledge sharing *before* the deal is made.

Rivera et al. (2001) proposes the introduction of an interface or organizational structure in charge of dealing with gathering experiences from previous collaborations in order to support subsequent collaborations. Such an interface can be centralized: just one structure or team supervising the operation, or decentralized: no central structure, each collaboration supervised and managed independently. Centralization can both facilitate and hinder learning. Facilitate as it can build on past experience, hinder as there is a danger for path-dependency in the identification process. It would therefore be more efficient when the centralized interface captures the diversity of the group of employees as to recognize and understand the target-knowledge.

During the due diligence stage the feasibility of the deal is assessed and analyzed. One would suggest that during this stage attention is given to questions like what and whose knowledge needs to be shared and how should this knowledge be shared. Most often, these “knowledge audits” do not occur or occur sporadically or superficially. With knowledge audits reference is made to strategies or mechanisms that can be used to improve the selection of potentially successful targets. Knowledge audits are meant to reflect on the question “how can we more accurately identify the most critical knowledge to be shared before the deal is closed?” The pre-conditions for effective knowledge sharing along with successful knowledge management tools to support them, as discussed in chapter 2 of this paper, could be the focus of these knowledge audits in the form of a knowledge due diligence. For example, the acquirer should analyze the various degrees of similarities with the target, such as the degree of similar knowledge base, similar size, similar culture, information systems etc. (Mowery et al, 1996) in order to see if and how knowledge can be shared.

An interesting question for further research would be if and in what way the notion of social capital can help to analyze and assess the viability of possible future acquisitions. The likelihood of knowledge sharing and collaboration increases as firms with strong ties develop norms and sanctions and clarify expectations and obligations (Leenders & Gabbay, 1999). Because of mutual understanding and trust, open exchange and interaction is promoted. The less skeptical firms are about each other’s intentions and actions, the more likely they will exchange knowledge. As interactions and collaborations increase, firms develop similarity of views which enable them to exchange richer and complex information and therefore share tacit knowledge which is as mentioned earlier the type of knowledge that plays an important role in knowledge acquisitions. In the following chapter it will be explained how the future research that is connected to this literature review will be conducted in order to gain more understanding regarding knowledge sharing within knowledge acquisitions.

4. CONCLUDING REMARKS

The literature on the post-acquisition knowledge sharing process is surprisingly sparse given the increasing number of acquisitions and that results often do not match expectations. In fact, by reviewing the literature on the topic of knowledge sharing through knowledge acquisitions, it is found that the literature is very limited; there are contradictory findings, observations and assumptions. Clearly, there is a need for systematic research on knowledge sharing through knowledge acquisition. Although this present paper has not satisfied this need, it has set a foundation for the empirical research that will be conducted by synthesizing the literature in the area, pointing to contradictions and synergies.

Specifically, it is proposed that the relationship between successful knowledge sharing after an acquisition and its pre-conditions: degree of similarity, knowledge ambiguity, social capital and integration, is for a great part curvilinear. This is an interesting topic for research as it differs from prior literature findings and might help to explain the relationship between knowledge sharing and acquisition outcomes. Most researchers have assumed a monotonic relationship, or have come to contradictory conclusions based on these monotonic relationships. Because of these contradictions in prior literature, it is believed that the suggestion of curvilinearity is worth exploring further.

Contradictory and superficial findings in the literature could also be a result of the idiosyncratic nature of the topic discussed. It maybe that knowledge acquisitions are inherently too situation-specific as to provide a general causal explanation. Therefore, it is clear that this research will be conducted in an area that should be treated carefully with respect for organizational idiosyncrasies. Understanding the nature of knowledge sharing process only by using quantitative research is not enough since it is important to understand the micro processes of knowledge sharing that are embedded in this process. Therefore, qualitative ethnographic research could be a good step forward, in order understand the process of knowledge sharing within knowledge acquisitions. The way companies acquire other companies and how the knowledge sharing between the two companies is supported depends to a large extent on the uniqueness of the particular situation. What works well in one organization will not necessarily work in another organization. This also has implications for the way organizations can intervene in the process of knowledge sharing. Since merely increasing communication and trying to retain people is not enough, the suggestion is that organizations should use the lessons learned from their own past experience, to improve future knowledge sharing. Clearly, the value of the model introduced in this paper and based on this organizational learning perspective needs to be validated by empirical research.

REFERENCES

- Ahuja G., & Katila, R. 2001. Technological acquisitions and the innovation performance of acquiring firms: a longitudinal study. *Strategic Management Journal*, vol. 22, pp. 197-220.
- Argyris, C., & Schon, D. 1978. *Organizational learning: A theory of action perspective*. Reading MA: Addison Westley.
- Bateson, S. 1973. *Steps to an ecology of mind*. Frogmore: Paladin.
- Bjorkman, I., Stahl, G. K., & Vaara, E. 2007. Cultural differences and capability transfer in cross-border acquisitions: the mediating roles of capability complementarity, absorptive capacity, and social integration. *Journal of International Business Studies*, vol. 38, pp. 658–672.
- Buono, A. & Bowditch, J. L. 1989. *The human side of merger and acquisitions*. Jossey-Bass, San Francisco, CA.
- Chakrabarti, A. K. 1990. Organizational factors in post-acquisition performance. *IEEE Transactions on Engineering Management*, vol. 37 no. 4.
- Chaudhuri, S. & Tabrizi, B. 1999. Capturing the real value in high-tech acquisitions. *Harvard Business Review*, September-October.

Cohen, D. and Prusak, L. 2001. *In Good Company: How social capital makes organizations work*. Boston, MA: Harvard Business School Press.

Cohen, W. M. & Levinthal, D. A. 1991. Absorptive Capacity: a new perspective on learning and innovation. *Administrative Science Quarterly*, vol. 35, pp. 128 -152.

Dodgson, M. 1993. Learning, trust and technological collaboration. *Human Relations*, vol. 46 no.1, pp. 77 – 95.

Ernst, H. & Vitt, J. 2000. The influence of corporate acquisitions on the behaviour of key inventors. *R&D Management*, vol. 30 no.2, pp. 105-120.

Graebner, M. E. 2004. Momentum and serendipity: how acquired leaders create value in the integration of technology firms. *Strategic Management Journal*, vol. 25, pp. 751-777.

Granovetter, M. S. 1985. Economic action and social structure: the problem of embeddedness. *American Journal of Sociology*, vol. 91, pp. 481-510.

Hamel, G. 1991. Competition for competence and interpartner learning within international strategic alliances. *Strategic Management Journal*, vol. 12, pp. 83-103.

Hakansson, H., Huysman, M. H. & Von Raesfeld Meijer, A. 2001. Inter-organizational interaction and organizational teaching. Hakansson, H. & J. Johanson (Eds.). *Business Network Learning*. Oxford: Elsevier Science Publications: pp. 17-32.

Haspeslagh, P. C. & Jemison, D. B. 1991. *Managing acquisitions*. New York: Free Press.

Huber, G. P. 1991. Organizational learning: the contributing processes and the literatures.

Organization Science, vol. 2 no.1, pp. 88-115.

Huysman, M. H. & De Wit, D. 2002. *Knowledge sharing in practice*. Kluwer Academics,

Boston.

Inkpen, A. C. 1998. Learning and knowledge acquisition through international strategic

alliances. *Academy of management Executive*, vol. 12 no. 4.

Jemison, D. B. & S. B. Sitkin. 1986. Corporate acquisitions: a process perspective.

Academy of Management Review, vol. 11, pp. 145-163.

Kitching, J. 1967. Why do mergers miscarry. *Harvard Business Review*, November–

December, pp. 84–101.

Kogut, B. & Zander, U. 1996. What firms do? Coordination, identity and learning.

Organization Science, vol. 7 no. 5, pp. 502-518.

Lam, A. 1997. Embedded firms, embedded knowledge: problems of collaboratin and

knowledge transfer in global cooperative ventures. *Organization studies*, vol. 18 no.6, pp.

973-996.

Lane, L & Lubatkin, M. 1998. Relative absorptive capacity and interorganizational learning. *Strategic Management Journal*, vol. 19, pp. 461-477.

Larsson, R. L, Bengtsson, L., Hendriksson, K. & Sparfks J. 1998. The interorganizational learning dilemma: collective knowledge development in strategic alliances. *Organization Science*, vol. 9 no. 3, pp. 285-305.

Leenders, R. Th. A. J. & S. M. Gabbay. 1999. *Corporate Social Capital and Liability*. Boston: Kluwer Academic Publishers.

Leonard, D. 1995. *Wellsprings of Knowledge*. Cambridge, MA: Harvard University Press.

Leonard, D. & Sensiper, S. 1998. The role of tacit knowledge in group innovations. *California Management Review*, Spring, vol. 40 no. 3.

Lyles, M. A. 1988. Learning among joint venture sophisticated firms. *Management International Review*, vol. 28, pp. 85-98

Lyles, M. A. & Stalk, J. E. 1996. Knowledge acquisition from foreign parents in international joint ventures. *Journal of International Business Studies*, vol. 27 no.5, pp. 877 – 903.

March, J. G. & Olsen, J. P. 1976. *Ambiguity and choice in organizations*. Bergen, Norway: Universitetsforlaget.

Mowery, D. C., Oxley, J. E. & Silverman, B. S. 1996. Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal*, Winter, pp. 77-91.

Nahapiet, J. & Ghoshal, S. 1998. Social capital, intellectual capital and the organizational advantage. *Academy of Management Review*, vol. 23 no.2, pp. 242 – 266.

Nahavandi, A & Malekzadeh, A. R. 1988. Acculturation in mergers and acquisitions. *Academy of Management Review*, vol. 13, pp. 79 – 90.

Nonaka, I. 1994. A dynamic theory of organizational knowledge creation. *Organization Science*, vol. 5, pp. 14-37.

Nelson, R. & Winter, S. 1982. *An evolutionary theory of economic change*. Cambridge MA: Harvard University Press.

Parkhe, A. 1993, “Messy” research, methodological predispositions, and theory development in international joint ventures. *Academy of Management Journal*, vol. 18 no. 2, pp. 227-268.

Powell, W. W., Koput, K. W. & Smith-Doerr, L. 1996. Interorganizational collaboration and the locus of innovation: networks of learning in biotechnology. *Administrative Science Quarterly*, vol. 41, pp. 116-145.

Puranam, P., Singh, H. & Chaudhuri, S. Integrating acquired capabilities: when structural integration is (un) necessary. *Organization Science*, Forthcoming.

Ranft, A. 1997. *Preserving and transferring knowledge-based resources during post-acquisition implementation*. PhD thesis, University of North Carolina.

Ranft, A. L. & Lord, M. D. 2000. Acquiring new knowledge: the role of retaining human capital in acquisitions of high-tech firms. *Journal of High Technology Management Research*, vol. 11 no. 2, pp. 295-319.

Ranft, A. L. & Lord, M. D. 2002. Acquiring new technologies and capabilities: a grounded model of acquisition implementation. *Organization Science*, July–August, vol. 13 no. 4, pp. 420–441.

Rivera, M., Dussauge, P. & Mitchell, W. 2001. Coordination, creation, and protection: micro-mechanisms for learning from an alliance. *Working Paper University of Michigan Business School*.

Senge, P. 1991. *The fifth discipline: the art and practice of the learning organization*. Random House London.

Spender, J. C. 1996. Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, vol. 17 no. 2, pp. 45-62.

Szulanski, G. 1996. Exploring internal stickiness: impediments to the transfer of best practices within the organization. *Strategic Management Journal*, vol. 17, pp. 27 – 44.

Teece, D. J., Pisano, G. & Shuen, A. 1997. Dynamic capabilities of and strategic management, *Strategic Management Journal*, vol. 18 no. 7, pp. 509-533.

Von Krogh, G., Roos J. & Slocum, K. 1994. An essay on corporate epistemology. *Strategic Management Journal*, vol. 15, pp. 53 -71.