



**DEVELOPING COMPETENCES THROUGH
INTER-ORGANIZATIONAL KNOWLEDGE ACQUISITION**

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1 INTRODUCTION

1.1 Changes in the Corporate Global Business Environment

The globalization of the modern business world is providing companies with an abundance of new opportunities. Global markets are opening up and the use of technological innovations facilitates the increased flow of information (Bierly – Hämäläinen 1995, 217). In addition, new technological solutions such as the Internet offer increased potential through effective communication, new markets, and at best totally new business opportunities (see Porter 2001; Yip 1992). As a result, companies are able to develop their operational efficiencies and to find ways of reaching their customers around the world more easily and more innovatively.

However, not only do changes offer opportunities, they also bring about great challenges. In today's global business world, a company's business environment is no longer determined by its country's national borders. Firms are faced with intense competition from outside the home country, and also from outside their traditional industry structures. (Bender – Fish 2000, 125; Brannbäck et al. 2001, 4-8; Yip 1992.) Moreover, industry boundaries are also changing as companies traditionally associated with the biotechnology industry, for example, leverage their technological knowledge in new business areas such as food and agriculture (Brannbäck et al. 2001, 4-7; Powell et al. 1996, 123). As technological advances are changing industry structures, and this carries implications in terms of the amount of competition and the strategies used. There are further implications too, concerning the importance of the company's strategy, competitive advantage and long-term profitability. (Porter 2001, 66, 70-71; Prahalad 2000, 86; Oosthuizen 2000, 13-14; see Mintzberg 1987b.)

Furthermore, the economic advances in the developing economies and the increase in near- and offshoring, for example, are changing the nature of outsourcing practices and the basis for finding a competitive edge in high-technology industries. At the same time as customers are demanding more added value, the number of potential companies exploiting similar resources and technologies in order to provide value is rapidly increasing due to the globalization trend in the business world (Bender – Fish 2000, 128; Yip 1992).

The fierce competition, among other things, is producing significantly shorter technological life cycles, and this is forcing companies to innovate and, consequently, to learn at a faster rate (Bierly – Hämäläinen 1995, 217). They are not just facing a rise in the potential number of competitors, but their very way of doing business is being challenged by the changing business environment. It could be argued that competitive advantage is increasingly based on the knowledge of how to do it, i.e. know-how, rather than on having special access to resources, i.e. raw materials and markets, which are becoming globally more accessible (Lubit 2001, 164; Porter 1998b; Teece 1998, 55-57). Consequently, finding markets or raw materials to which competitors do not have access is becoming more difficult. Knowledge should therefore be considered a critical strategic resource (Hamel 1994; Prahalad – Hamel 1990; see e.g., Bender – Fish 2000, 125-128; Grant 1996). Even the acquisition of new special knowledge is no longer enough, and the company's competitive advantage will reside in the value and sustainability of its knowledge as well as in its ability to further develop it and to find new application possibilities for its developed competences (see Lubit 2001, 164). The development of knowledge and competences is therefore critical for the organization's long-term competitiveness. It has various options at its disposal, and these are discussed further in the following.

A company could develop new competences and knowledge either through its own experiences or through the experiences of other organizations (Bierly – Hämäläinen 1995; Hamel et al. 1989; see Choi – Lee 1997; Madhok – Tallman 1998, 328-329). *This research concentrates on the acquisition of knowledge through a cooperational partnership¹ formed by two independent companies.* This allows for the possibility of combining previously separate competences in order to create a completely new competence through the cooperative development of new knowledge (adapted from Doz – Hamel 1998, 4-5; Inkpen 2002, 269). Developing the company's knowledge base through another's experiences requires the acquisition of knowledge that may be embedded in the partner's products and organizational processes. Badaracco (1991, 109) refers to knowledge links, which could enable the company not only to combine its specialized knowledge with that of another organization in order to develop new knowledge, but also to help the other organization to build its knowledge base in a way that will benefit them both in the long term. Companies are dependent on the resources and competences of other firms (Pfeffer – Salancik 1978), and consequently partners and

¹ This research concentrates on privately-owned companies and thus the public sector is not discussed further. This distinction is made because there are considerable differences between the public and private sectors in terms of being able to develop relationships with partners.

customers² could be seen as essential sources of new knowledge and innovation (von Hippel 1988; Grant – Baden-Fuller 2004; Miles et al. 2000, 301; Inkpen 1998, 69-72; cf. Knudsen 2007, 133-134).

Yet, there are also challenges related to knowledge acquisition as the relationship between organizations may be based on a number of settings. The interacting parties may be competing rivals, cooperating partners in a joint venture, in an outsourcing relationship, or even subsidiaries within an MNC trying to gain access to specific resources. In recent years, companies have even started to outsource their R&D activities, which could be considered closely related to their core competences. Subsequently, the risk of having cheating partners and an increasing need for quick learning and innovation put pressure on the organizations and on their ability to learn, to trust their partners, and to manage relationships.

1.2 Relying on and Utilizing External Knowledge

Given the reasons for a company to initiate knowledge-development efforts, the environmental context is one of the most obvious motivators. If the competitive environment is too stable it provides very little inducement, while too turbulent an environment may provide mixed signals that are impossible to interpret, and it may become difficult to motivate and coordinate learning efforts. (Bierly – Hämäläinen 1995, 215; Hedberg 1981.) On the other hand, one basic reason why companies engage in inter-organizational cooperation lies in their perceived uncertainty of the future (Pfeffer – Salancik 1978; Sanchez – Heene 1997, 25). Thus, instability in the environment as well as a high level of specialization within the industry could be seen as important reasons for knowledge development (see Bierly – Hämäläinen 1995, 219; Choi – Lee 1997, 41).

Developing new competences through external knowledge acquisition is especially important when the number of technologies the company has to cope with is high, or a specific area of expertise is not familiar enough (or when resources are otherwise restricted). It is often possible to accelerate the product-development process through the acquisition of external knowledge, which complements the existing pool of knowledge. Moreover, a wider basis of knowledge contributors allows the division of the project risks and costs. (see e.g., Bierly – Hämäläinen 1995, 212-213, 217-218; Caloghirou et al. 2004, 30-3; Grant – Baden-Fuller 2004, 62-65; Cohen – Levinthal 1990, 128-129; Badaracco 1991, 63-76; see Brusoni et al. 2001, 598-599; Powell et al.

² Prahalad (2000) has argued that engaging customers is essential even in the consumer business.

1996, 117.) *Cooperation in competence development has become especially important in high-technology industries given that one single organization may not be able to possess all the required knowledge.*

In comparison to internal knowledge development, external knowledge acquisition requires management to consider four decisive questions (see Figure 1, adapted from Lanza 2005). The first of these concerns resource allocation, i.e. how much effort needs to be put into internal learning and knowledge acquisition (see Lanza 2005). Similarly, the allocation of resources to the development and exploitation of competences (i.e. R&D vs. manufacturing) has to be decided (see March 1991). Furthermore, when the company decides to develop knowledge in a specific way, it needs to allocate its resources accordingly to ensure that the process can be implemented. The second question is that of compatibility and complementarity, which also covers the uniqueness of the combined resources and how innovative and valuable combinations can be made as a result. Thirdly, management needs to assess the risk of opportunism within the relationship, and how this may affect the company's competitive advantage. Finally, there is a need to consider the future value of the developed knowledge as well as its compatibility with the development of the industrial context. (adapted from Lanza 2005; see von Krogh et al. 2001.)

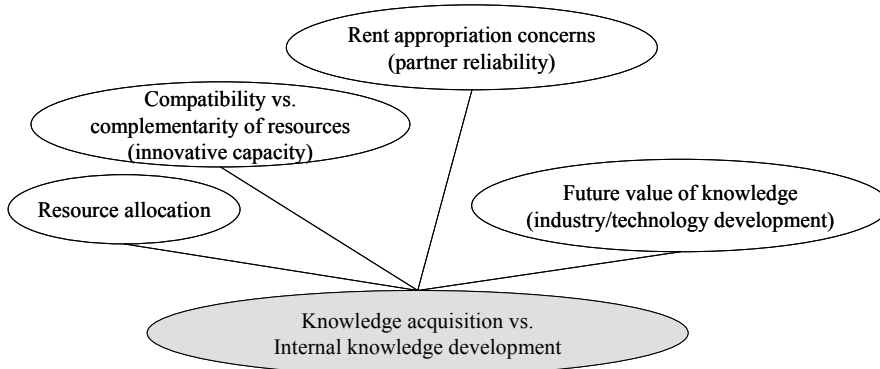


Figure 1: Finding a Balance between Internal Knowledge Development and Knowledge Acquisition

External knowledge could be considered particularly important in the development of companies' innovating abilities. There are major difficulties in relying on customers' opinions in the development of radical innovations. On the other hand, not understanding the importance of customer perceptions and the dynamics of the industry in the development of the whole product and its features may lead to a poorly designed product for an unprepared market. (see Moriarty – Kosnik 1989, 8-12; Knudsen 2007; Veryzer 1998; von Hippel

1988, 102-115; Almeida – Phene 2004.) Furthermore, unpredictable changes in customer needs and the development of the industry and industry standards are issues that make the product-development process highly uncertain. High uncertainty and rapid changes in the environment put time pressures on an organization to innovate and learn³. (see Moore 1999.) Thus, organizational learning could be considered a prerequisite in the development of a company's innovative abilities (Ng 2004). Partnerships may also become necessary for the development of the whole product and the dominant design, for example, which may be difficult to achieve based on the scope of one company's resources (see Utterback – Suárez 1993; Moore 1999; Grant – Baden-Fuller 2004, 62). Consequently, knowledge acquisition could be considered especially important in view of the variety of competences as well as the speed of innovation. Although internal development is often seen as highly critical in terms of competitive advantage, it could also be argued that external development adds an important dimension to organizational learning strategies.

Moreover, the importance of knowledge as a basis for competitive advantage is inherently dependent on the industrial and environmental context due to the differing dynamics in competition (see Teece 2000b). The most significant implications of knowledge development are probably evident in high-technology industries, which is why high-technology companies are of focal interest in this research. Earlier findings also suggest that more innovative companies and companies in emergent industries rely more often on strategic alliances (Eisenhardt – Schoonhoven 1996, 144-145). The role of knowledge in achieving competitive advantage seems to be more important in dynamic industries in which the changes are more rapid and the industrial structures are not clearly established (Teece 2000b). It has also been argued that a dynamic and rapidly evolving environment forces companies to learn more quickly and to question their underlying assumptions about their organizational knowledge to a greater extent than if they were to introduce a series of incremental adaptations (Lukas – Hult – Ferrel 1996, 234-235). *Thus, one could argue that the role of partnerships in the development of new knowledge and competences is especially important in industries characterized by change, high technology and innovation richness* (von Krogh

³ These challenges are especially important regarding radical innovations, which could be seen as new innovations (i.e. products or processes) that involve dramatic leaps in customer behavior or modifications in other products they rely on (see Moore 1999). In order to induce radical changes, companies must have a comprehensive understanding of the industry and the customer's business logic. More importantly, developing novel and radical innovations may require the development of totally new knowledge and the combination of previously separate knowledge and competences.

et al. 2001). On the other hand, the company must take great care not to lose its own source of competitive advantage in the process.

Thus, external knowledge development also presents great challenges to organizations, as they need to be able to integrate previously unfamiliar knowledge into their own knowledge base (Bierly – Hämäläinen 1995, 217-218; Child 2001b), despite the fact that they may have very different organizational cultures and working methods underlying their learning and understanding. On the other hand, they also need to be able to develop inter-organizational relationships that they can rely on without fearing their partner will exploit the sensitive knowledge revealed during the cooperation. Consequently, it could be said that competition in today's markets is presenting huge challenges to companies – especially those facing it on a global scale, or that are globally active.

These are the challenges that have inspired this research, and which will be comprehensively analyzed and discussed in this work. Thus, the aim is to give companies better means of analyzing and understanding knowledge acquisition, and to help them to find ways of acquiring knowledge and developing competences. Managers should then be better equipped to analyze their organization's relationships in order to cope within their competitive environment.

1.3 The Aim of the Research

Although research on business relationships and on knowledge sharing and acquisition has attracted a lot of attention during the past two decades, there is a need for further study in order to produce a comprehensive analysis of knowledge acquisition within a dyadic relationship (based on Argote et al. 2003, 580; Inkpen 2002, 267-2686, 276-277). There has also been broad interest in and acceptance of the resource-based or the so-called knowledge-based view of the firm (Peng 2001; Pitelis 2004; Rugman – Verbeke 2001, 770; Grant 1996), which posits that the basis of an organization's competitive advantage is dependent on the availability and acquisition of skills and knowledge (see Prahalad – Hamel 1990; Grant 1996). Given the importance of knowledge acquisition and the potential to exploit the acquired knowledge, efficient management of the relationship context is critical (see Das – Rahman 2001, 44; Hamel 1991). As the acquired knowledge may be related to the company's core competences, the coordination of the acquisition process and the management of the relationship is a complex task.

The aim of this research is to analyze and understand how and under what conditions a company can acquire knowledge from its partner in order to

develop its competences. The research problem is approached via the following sub-problems:

- How can knowledge be acquired from partners?
- How can a company's ability to acquire and assimilate knowledge be developed?
- How can supportive preconditions for inter-organizational knowledge acquisition be created?

The aim in the first sub-question is to gain understanding of the knowledge-acquisition and the inter-organizational learning processes. The learning process could be understood to include both the recognition and understanding of the acquired knowledge within its original context, as well as its integration into the new organizational setting. The second sub-question represents an attempt to make sense of the factors affecting inter-organizational compatibility and the organizations' abilities to learn and teach within the partnership. It also covers the organizational and the individual characteristics that may affect the knowledge-acquisition process. Finally, the third sub-question concerns the role of the environmental and relationship contexts, the aim being to analyze the set of factors that may influence relationship development and knowledge acquisition.

These sub-questions cover the three essential areas of the phenomenon under investigation. As the acquisition of knowledge is processual, there are three dynamic areas of research that need to be addressed in the framework: the context, the content and the process. This entails the environmental context (i.e. the relationship and the network), but also the process (i.e. the acquisition of knowledge) as well as its content and outcome (i.e. characteristics of knowledge and the basis of competence development) (see Pettigrew 1997, 339-340; Pettigrew 1992; also Möller – Wilson 1995). The phenomenon of inter-organizational knowledge acquisition is analyzed within real-life empirical settings. The empirical part of the research investigates the knowledge-acquisition process by means of a multiple case study that highlights the set of interrelated factors.

On the theoretical level, the purpose of the study is to develop a contingency framework of inter-organizational knowledge acquisition based on existing literature so as to allow analysis of (1) the relationship context and its management, and (2) the acquired knowledge and its characteristics as well as (3) the organizational characteristics and their effects on (4) the knowledge-acquisition process. The result will not be a solution that is applicable to every possible scenario, but the aim is to develop a framework for the analysis of the phenomenon and the factors influencing and being influenced by the knowledge acquisition. A contingency framework would offer an overall perspective on managerial behavior or adaptation to environmental

constraints, but the dimensions and elements of the context that affect the behavior would be left unspecified. Thus, it could be said that such a framework rejects the one-best-way solution⁴. (adapted from Pfeffer 1982, 148; Tarter – Hoy 1998.)

Knowledge is considered here to incorporate the two extremes of tacit and explicit knowledge (see Chapter 2.1.3), and no specific assumptions are made regarding the type of knowledge acquired⁵. *Knowledge acquisition is understood as a specific kind of dyadic inter-organizational learning process that has the specific aim of gaining access to a partner's knowledge & acquiring, assimilating and integrating it into the receiving organization's knowledge base*⁶. It is a conscious process of developing new knowledge through a partnership in order to exploit and develop it further internally and redeploy competences in the new organizational context. It may happen, for example, in a customer-supplier relationship in which the knowledge is acquired from the customer by the supplier in order to make sure that the supplier knows how to adapt and develop its products according to the customer-specific needs. It is a learning process, which helps the receiving partner to understand and integrate the knowledge with the help of the transferor organization. For the purposes of this research, organizational learning is regarded as the development of new knowledge and insights that enable (i.e. have the potential to influence behavior) improved actions through better understanding (Huber 1991, 89; Fiol – Lyles 1985, 803; c.f. Argyris 1993, 9; see von Krogh et al. 2001). The individual's psychological learning process is not addressed as such, but issues affecting the organizational learning potential and the dissemination process during knowledge acquisition are covered. Organizational learning is considered a result of individual learning (see Chapter 0), and a natural result of effective knowledge integration and dissemination to capable individuals.

The study is structured according to the same underlying logic as the research questions introduced above. First, the main theoretical background of

⁴ It could be argued that complex and dynamic situations cannot be analysed under the assumption of clear goals and complete information since the decision-making situation is rarely like that and therefore the situational contingencies need to be considered more holistically (adapted from Tarter – Hoy 1998, 213, 222-225).

⁵ In the partnership the acquired knowledge may be related to product design, marketing, or technology development, for example. However, technology transfer as such is not the focus of this research as it often focuses on the transfer of codified or macro-level technologies, whereas the interest of the researcher lies in the acquisition of tacit knowledge and its further development within a partnership. In the context of high-technology industries, the acquired knowledge may comprise both technologies and industry- or business-logic-related knowledge, for example.

⁶ On the subject of terminology, both inter-organizational knowledge acquisition and inter-organizational learning (see e.g. Hamel 1991) are used interchangeably in the study. Knowledge development in general is regarded as the organization's efforts to develop its knowledge resources (by means of resorting to both internal and external sources).

the knowledge-based view and organizational learning is reviewed in order to explain the views expressed in this study. The factors affecting learning abilities in companies are then discussed, and the role of the relationship context in inter-organizational knowledge acquisition is analyzed. The methodological choices are explained before the empirical part of the study is introduced. The research ends with a presentation of the results and a cross-analysis of the conducted case studies, and conclusions are drawn from the results. The positioning of the study and its essential contributions are discussed in more detail in the following.

1.4 The Positioning of the Research

The recent research literature has focused overwhelmingly on the importance of the knowledge-based view and its significance to the management of the company and its competitive advantage. This issue appears to be related to a number of research areas: international business, MNC management, strategic management, organizational learning, knowledge management, and relationship management in the development of knowledge and innovations.

1.4.1 Emerging Themes within the RBV and the KBV

The resource-based and the knowledge-based views have been widely applied in explaining the role and activities of the firm in developing competitive advantage (see Barney 1991; Wernerfelt 1984; Grant 1996; Spender 1996; Acedo et al. 2006)⁷. The difficulty in mapping a topic like knowledge or knowledge-management-related research stems from the fact that different studies may incorporate very different assumptions about the nature of knowledge (see Schultze – Stabell 2004; Chiva – Alegre 2005; Gherardi – Nicolini 2000, 329-330; Cook – Brown 2002). In general, the differentiation between approaches hinges on whether knowledge is something that can be possessed in isolation from the context of action, or whether it is something that is contextually and socially constructed (see Chapter 6 for more details) (e.g., Chiva and Alegre 2005, 51-58; Gherardi – Nicolini 2000, 329-330). The following rough classification (see Figure 2) is based on Argote et al. (2003, 573).

⁷ RBV=resource-based view; KBV=knowledge-based view

Knowledge management context

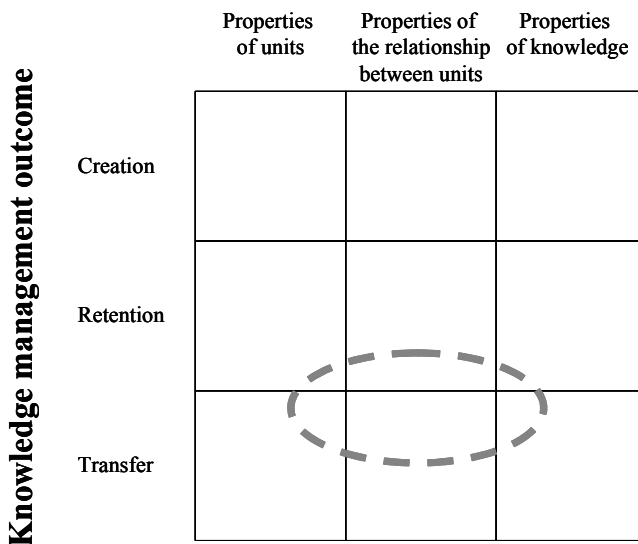


Figure 2: Organizing Research on Organizational Learning and Knowledge Management

According to Argote et al. (2003), knowledge-management-related research appears to be theoretically based on *the properties of units* (e.g., organizational, individual), the *properties of the relationship between the units* (e.g., level of communication, social ties, ownership structure) and the *properties of the knowledge itself* (e.g., level of tacitness, diffusion). These dimensions of analysis span the various learning processes discussed in the literature on organizational learning: *knowledge creation, retention and transfer*. The positioning of this research is illustrated with a red circle in Figure 2.

The acquisition and transfer of knowledge has probably been studied most in terms of its specific characteristics (see e.g., Teece 2000a; Lubit 2001; Inkpen – Dinur 1998; Simonin 1999; Lam 1997; Szulanski 1996). In addition, studies on relationships have focused on the unit's properties or the companies' learning abilities, the role of social capital, and the development of a shared identity as a basis of understanding (see Kogut – Zander 1996; Cohen – Levinthal 1990; Nahapiet – Ghoshal 1998; Fiol 2001; Jansen et al. 2005; Lane – Lubatkin 1998; Lane et al. 2001; Child – Rodriguez 1996). More recently, there has been a stream of research on inter-organizational knowledge acquisition, the relation of the learning process to the relationship context, and the role of relationship management efforts (see e.g., Hamel 1991; Choi – Lee 1997; Cummings – Teng 2003; Johnson – Sohi 2003;

Simonin 2004; Muthusamy – White 2005). However, a frequent problem in some of the above-mentioned quantitative studies is that they concentrate on the effects of a few specific factors on the success of learning (c.f. Hamel 1991), and do not seem to provide a holistic understanding of the relationship context and the interplay between the factors. *Thus, it seems that investigation into the properties of the relationship is a more recent theme on the research agenda, thereby offering possibilities for further study* (Argote et al. 2003, 576-580; Easterby-Smith et al. 2004).

Furthermore, there is extensive discussion on knowledge creation and retention in the literature on organizational learning and knowledge management (see e.g., Nonaka – Takeuchi 1995; Hedberg 1981; Shrivastava 1983). There have also been a number of studies on the use of strategic alliances in knowledge acquisition more generally (Almeida et al. 2002; Inkpen 1998; Osland – Yaprak 1995; Grant – Baden-Fuller 2004), in which the principles behind utilizing alliances in knowledge development are discussed. In addition, there has been wide discussion on internal knowledge transfer within an organization or an MNC (Argote – Ingram 2000; Bou-Llusar – Segarra-Ciprés 2006; Gupta – Govindarajan 2000; Szulanski 1996; Goh 2002)⁸. The emphasis in these studies yet again is often on the characteristics of knowledge and the organization in the knowledge-acquisition process. There is also a stream of literature on knowledge protection (Norman 2001; Norman 2002; Baughn et al. 1997; Das – Rahman 2001) and the challenges involved in finding a suitable governance mode for the relationship or alliance (e.g., Contractor – Ra 2002; Mohr – Sengupta 2002; Das – Teng 2002a), but these studies also seem to lack holistic understanding of the interplay between the relationship dynamics and the knowledge-acquisition process. Thus, there is an apparent need for research that would capture the complexities and inter-relations within inter-organizational knowledge acquisition more comprehensively.

1.4.2 Emerging Themes in the Field of International Business

International business research could be characterized as the theoretical and empirical study of the international *behavior and management of the firm*. Furthermore, the Nordic school of IB research has been dominated by studies on the behavioral and inter-organizational perspectives. According to the so-called behavioral perspective on the management of firms, companies are

⁸ Adding to the complexity is the development of the dynamic capabilities view (see Teece 2000a; Teece et al. 1997; Acedo et al. 2006).

organizations characterized by bounded rationality, experiential learning, and dispersed structure in terms of resources, competences and influence. (Björkman – Forsgren 2000, 7-9; Weisfelder 2001, 27-28.) Thus, it could be said that the behavioral view takes a managerial perspective on how companies are coping with their business environment.

The main interest of Nordic IB scholars has been in the firm's internationalization process, which could be characterized as highly uncertain and complex. Consequently, this sets the emphasis on the company's bounded rationality and limited knowledge, and consequently on its ability to learn. (Björkman – Forsgren 2000, 7-8; Weisfelder 2001, 28, 31.) Knowledge and resources played an essential role in Nordic IB even before the more recent emergence of the KBV (Weisfelder 2001, 27-28), as part of the internationalization process. As companies gain more experience and knowledge about how to conduct their activities in international markets, they are able to improve their performance and make better investments (Johanson – Vahlne 1990; Welch – Luostarinen 1988, 50-51).

More recently, there has been an increasing number of dissertations on themes related to knowledge in international business emerging from Finnish universities (e.g., Mäkelä 2006; Li 2004; Kuivalainen 2003; Maula 1999; Kulkki 1996). Furthermore, knowledge-related study has become established as one of the key areas of research in international business, which is evident in the EIBA annual conference tracks:

- “Corporate R&D and Knowledge Transfer” in 2007⁹
- “R&D and knowledge management” in 2006
- “Managing knowledge” in 2005
- “Knowledge management, technology transfer, R&D and spillover effects in MNCs” in 2004
- “The MNC as a knowing organization” in 2003.

One could say that there has been a shift in IB research towards capturing the challenges of global firms and the dynamic nature of the interplay between strategy and the environment (see Peng 2001, 808). Moreover, business relationships and networks have had an essentially central position in the theories of the Nordic IB researchers (see e.g., Johanson – Mattson 1988; Johanson – Vahlne 1990). The role of various cooperational arrangements has been on the increase, especially since the 80s and 90s, due to the emergence of the globalization phenomenon, outsourcing, and the growing uncertainty in the corporate business environment (Weisfelder 2001, 29; see Parkhe 1996; Welch – Luostarinen 1988; Johanson – Mattson 1988).

⁹ The upcoming EIBA conference in December, 2007. Source: Call for paper and Panels (2007) <http://www.fsco.unict.it/eiba2007/call_for_paper.htm>, downloaded 8.2.2007.

The research on inter-organizational relationships (IORs) and (international) joint ventures ((I)JVs) has spread out in a number of directions¹⁰. As a result of this fragmentation, the interaction process in IORs has attracted somewhat less research attention, leaving managers with the problem of how to manage the activities within the 'black box'. (Parkhe 1996.) Parkhe (1996, 448-449) therefore emphasized the need for further understanding of the dynamic evolution of relationships and trust. Yet, the traditionally strong behavioral view has emerged within IOR studies as an essential area of research, especially among the IMP Group (see IMP Group 1982; About the IMP Group 2007). The main interest in IB research seems to have focused on how companies perceive partnerships as a source of new knowledge, what kind of knowledge is being pursued, and what the role of opportunism is. At the same time, there is limited interest in the interrelations between the learning process and the relationships dynamics. (Peng 2001, 812-813; see Glaister – Buckley 1996; Grant – Baden-Fuller 2004; Inkpen – Beamish 1997; Oxley – Sampson 2004; Shenkar – Li 1999; c.f. Hamel 1991; Phan – Peridis 2000, 209; Cummings – Teng 2003.) On the other hand, these issues lie at the core of the behavioral view, and the question of how to manage the development of the organization's core competences in inter-organizational relationships has been recognized as a crucial one (Björkman – Forsgren 2000, 17).

In addition, Buckley (2002, 370) also emphasizes the importance of the KBV as one of the key emerging challenges on the international business agenda. In recent years more IB research attention has been paid to intra-organizational knowledge creation and transfer within the MNC (see e.g., Gupta – Govindarajan 2000; Minbaeva et al. 2003; Björkman et al. 2004; Andersson 2003; Andersson et al. 2002; 2003). For example, aspects of embeddedness and the dynamic interplay between organizations and their power positions within the network of MNC subsidiaries are discussed in the literature (see e.g., Andersson et al. 2001; 2002), which seems to entail many of the problems associated with inter-organizational knowledge acquisition. *Yet, it could be argued that knowledge development in dyadic IORs has been partly overlooked in research so far in terms of the interrelations between relationship management and inter-organizational learning.*

In sum, it could be said that the role of knowledge and business relationships as the basis of corporate competitiveness has gained in emphasis in the research of international business. It could also be said that research on competitiveness as such needs to take into account the essentially international

¹⁰ Including: partner-selection issues and the role of partner characteristics; various motives for IORs; IOR/JV control- and-opportunism related issues as well as stability & performance issues

environment in which companies need to cope today. The aim here is to demonstrate that knowledge-related research and inter-organizational knowledge acquisition are of relevance in international business research. Furthermore, it is suggested that the KBV should be integrated into the development of a more thorough, behavioral and dynamic understanding of IOR management.

1.5 The Research Gap

So far, the vast field of IB research has incorporated many of the emerging ideas of the KBV (Peng 2001, 808-809). *However, there seems to be a gap in the field of international business, and especially in research combining the KBV and relationship management.* Consequently, there is an apparent need for further research in inter-organizational knowledge acquisition, and for an integrative framework (Inkpen 2002). These very needs were also emphasized in the opening panel discussion of the EIBA 2003 conference (Foss, panel discussion, 10.12.2003).

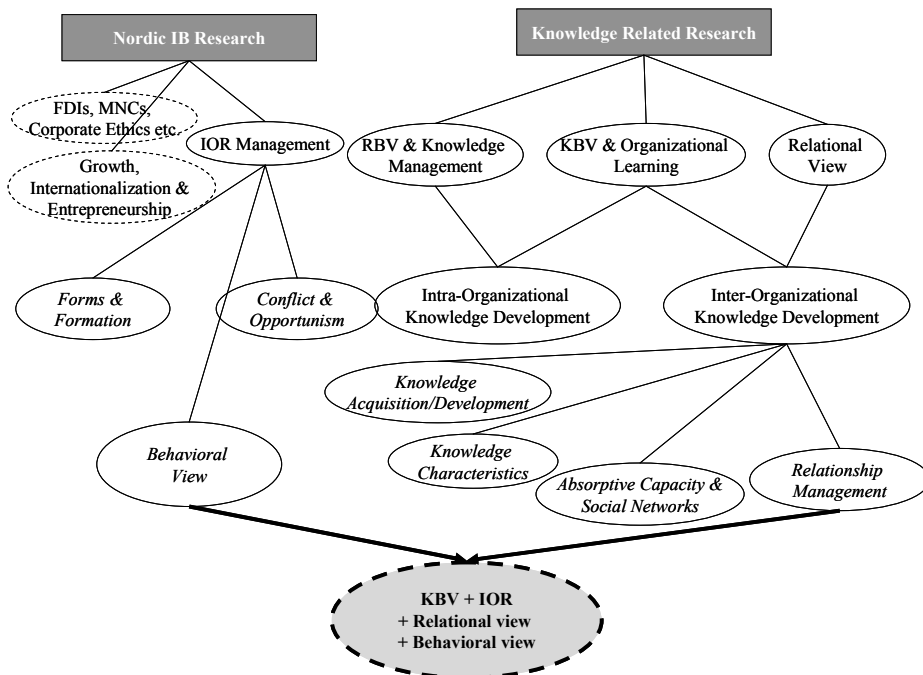


Figure 3: Finding a Research Gap

It could be argued that this study is essentially bringing organizational knowledge and learning literature closer together by highlighting the role of

knowledge acquisition as a social process. Furthermore, considering the way in which inter-organizational learning and relationship governance and management have been discussed in the literature, it has been argued that blending the different views with learning theory will provide a potentially more useful understanding of inter-organizational relationships (Barringer – Harrison 2000, 382). As Figure 3 (based on Argote et al. 2003; Peng 2001; Björkman – Forsgren 2000; Weisfelder 2001; Parkhe 1996; Acedo et al. 2006) illustrates, IB theories and research and the RBV/KBV approaches seem to have similar research gaps in their respective fields.

Knowledge-related research more generally seems to have developed along three main lines: the RBV, the KBV, and the relational view. Barney's contributions to the RBV (1991) and Wernerfelt's work (1984) could be highlighted; Kogut and Zander (1996; 1997) and Grant (1996) made important contributions to the KBV; and several authors represent the relational view (Dyer – Singh 1998; Dyer – Hatch 2006; Ireland et al. 2002; Selnes – Sallis 2003). Moreover, it should be noted here that these areas of research are very closely interrelated (see Acedo et al. 2006, 625-629). The difference between the RBV and the less positivist approaches within the KBV could be considered noteworthy, and thus are separated here, together with the relational view (Acedo et al. 2006, 633). In addition, internal versus external knowledge development is a distinction that is often made in the literature in the context of knowledge development, dissemination or acquisition (see Jasimuddin et al. 2005, 66-67). These distinctions were also considered to be a feasible way of classifying the stream of knowledge-related research here.

As discussed, there is extensive literature related to the three areas of inter-organizational knowledge development presented above involving the characteristics of knowledge, absorptive capacity & social capital, and the learning process. However, there is a more limited amount of literature regarding relationship management in the context of knowledge acquisition. The factors listed have been dealt with as inhibiting and enhancing as far as knowledge development or acquisition is concerned (see Jasimuddin et al. 2005, 68), but there is an apparent need for a comprehensive framework combining these issues into a concise representation. Similarly, a few main areas typify the existing stream of international business research, and there are a number of established and growing areas of interest apart from relationship management and strategic alliances, such as the organization's internationalization and growth, MNC management, and corporate ethics. However, these are not the focus of interest here (adapted from Peng 2001,

809; 815-816; Björkman – Forsgren 2000; Call for papers and panels¹¹). IB research related to FDIs and MNCs has also been closely related to knowledge research (Peng 2001, 809), but there is a clear need for combining the behavioral view of IOR management and the KBV in terms of understanding inter-organizational knowledge acquisition.

Consequently, there seems to be a need for research that would capture the complexities and interdependencies within the phenomenon more comprehensively:

- The development of a more behavioral and comprehensive framework of relationship management and relationship dynamics
- The development of a more comprehensive framework of inter-organizational knowledge development and learning.

It is clear that developments in the research and theories of IB and knowledge-related research share similar areas of concern, and this has had a mutual effect as both have applied similar approaches and theories (see Weisfelder 2001, 14, 31-32; Laudan 1977, 13-15). Initially, the concentration was on theories that had their origins in economics, and the main areas of research were the growth of the firm, PLC theory and transaction-costs theory, and their implications for business management and internationalization. Since then, there has been a shift towards behavioral perspectives, with a focus on managers' decision-making. Thus, this line of research is valuable in terms of managerial contributions. (see e.g., Törnroos 2004; Parkhe 1996.) Moreover, the emergence of the KBV approach in IB could be seen as an important development towards a better understanding of the nature of business and the role of heterogeneous resources. It could be argued that the convergence of the two fields of research will contribute strongly to our understanding of the management of the firm and of its partnerships – at the same time providing an avenue for future research (see Laudan 1977, 17-30; 108-109).

Thus, the research proposed here could make a specific contribution to the KBV and the relational view through the establishment of a more comprehensive framework for capturing the dynamics of relationship management in inter-organizational knowledge acquisition. At the same time, it will also contribute to IB research through furthering understanding of the basis of a company's competitiveness in an international business environment, and the emphasis on relationships, the management of the firm, and the behavioral perspective.

¹¹ Downloaded from the EIBA 2007 conference web site: Call for paper and Panels (2007) <http://www.fscpo.unict.it/eiba2007/call_for_paper.htm>, downloaded 8.2.2007.

2 STRATEGIC APPROACHES TO GLOBAL COMPETITIVE ADVANTAGE

The search for the ultimate solution to beating the competition has been going on for decades. The most recent literature has concentrated on the concept of competitive advantage, which derives from the company's ability to cope with the environmental opportunities and threats by exploiting its internal resources, and to profitably provide its customers with the best value on a sustainable basis (Porter 1985, 1-4; see Barney 1991, 99-100; 102; c.f. Penrose 1995). As the business environment has changed, new paradigms have emerged – one of the most recent ones is the resource-based view, which questions the focus on the external factors of the industry structure (Hunt – Derozier 2004, 10). The *resource-based view* of the company (RBV) was first introduced by Edith Penrose¹² in the late 1950's, and since the early and mid-1990's, together with the knowledge-based view, has attracted more research attention (Grant 1996, 110; Wernerfelt 1997; see Priem – Butler 2001; c.f. Barney 2001a). This brings us to the next section, in which the RBV and the KBV are discussed in more detail.

2.1 The Resource- and the Knowledge-based Views

2.1.1 Resources as the Most Important Source of Competitive Advantage

According to the RBV, the company is an administrative organization for the collection of its various resources, and its sole purpose is to produce goods and services by exploiting the resources it possesses. In fact, a firm is able to produce a number of products or services, for which demand exists, with the resources it possesses or is able to acquire. (Penrose 1995, 12-30.) It is also

¹² Penrose's "*The theory of the growth of the firm*" (1959) seems to be the most widely accepted as an introduction to the concept. However, it has been substantially developed (e.g., Barney 1991) to include discussion on the inimitability and immobility of resources, which were not the focus of Penrose's thinking (see Rugman – Verbek 2002).

possible to analyze the company as a portfolio of competences rather than as a product-market entity. From the company's point of view, resources and products are basically two sides of the same coin. (Wernerfelt 1997, 117; Dierickx – Cool 1989, 1504; Kogut – Zander 1993, 307.) In other words, the value and distinctiveness of products can be traced back directly to the distinctiveness of the resources (Conner 1991, 132; Conner – Prahalad 1996).

Consequently, it is the organization that will eventually decide on the goals it is going to pursue, i.e. for which challenges it and its resources are best suited. Thus, competitiveness and profitability arise from the company's superior systems, processes and structures due to which it is able to provide its customers with the best value in the form of lower prices or higher quality (Teece et al. 1997, 513; see Porter 1985, 11; 1998a, 40; Hamel 1994, 13-14; 18). The role of knowledge and competences as resources is considered critical in this research.

Moreover, one could make a distinction between a competence that yields sustainable¹³ competitive advantage and one that can only support the efficiency of activities (see Porter 1998a, 39-41; Porter 1985, 33-36; 48-50). *There are four characteristics a competence should have in order to yield competitive advantage, i.e. it should be valuable, rare, difficult to imitate, and organizationally exploitable (VRIO).* Value refers to the customers' appreciation of the resource and the organization's ability to respond to the environmental opportunities and threats. (Barney 1997, 145-160; Barney 1994, 4; Barney 1991, 105-112.) The rareness of the competence and the difficulty of imitating it (or its immobility) could be seen as the most fundamental characteristics of competitive advantage, as both are closely linked to the level of sustainability (see Foss – Knudsen 2000, 18). Rarity ensures that competitors cannot easily employ the same resources in order to imitate the developed strategy (Barney 1991, 106-107), and for the sake of sustainability resources must also be immobile¹⁴ (ibid, 107-111). Finally, a resource yielding competitive advantage needs to be organizationally diffused so that it can be exploited (Barney 1997, 145-160; Barney 1994, 4).

¹³ The sustainability of the advantage is considered here in terms of the resource's value rather than of time, as changes in customer preferences may lead to a redefinition of its source (see Barney 1991, 102-103), which is a challenge in dynamic environments (e.g., Fiol 2001, 691-693; Teece et al. 1997).

¹⁴ In terms of immobility, there are three reasons why knowledge is difficult to imitate: historical conditions, causal ambiguity and social complexity (Barney 1991, 107-111; Szulanski 1996, 37; c.f. Dierickx – Cool 1989, 1507-1509). Historical conditions refer to the company's ability to exploit its resources in a unique way as a result of events that have taken place in the past during the development of the resources and their interconnections. As far as causal ambiguity is concerned, these interconnections and their influence on the competitive advantage may not even be totally understood. Finally, social complexity could also complicate the resource-development process and makes it difficult to systematically imitate.

The resource-based view is based on the logic that resources and capabilities may be heterogeneously distributed among companies, and that differences in resources may remain fairly stable over time (Barney 1994, 3; 1991, 103-105), as some may be rare, or it may take several years to build them up from scratch (see Barney 2001a 644-646; Conner 1991, 123; Barney 1986). On the other hand, there are also resources that cannot be readily sold due to their social complexity (or tacitness), for example, and they are thus inelastic in supply (Barney 2001a, 644-645). The resource-based view was not meant to undermine the importance of industry effects: they are an essential variable, and in the end the value of the company's resources is determined by the industry (see McGahan – Porter 1997, 29-30). The focus in rapidly changing and dynamic industries should therefore be on how to cope with the change through constantly developing compatible resources, which in fact could also be perceived as a managerial resource, and thus could become a basis for competitive advantage (see Teece 1997).

At the same time, organizations are able to affect competitive outcomes and their competitive advantage by means of internal development work (see Teece et al. 1997, 528; Spender 1994, 38; Barney 1991, 116-117; c.f. Porter 1985, 3-11). The focus is not on the competitive environment, but on the human processes that take place inside the company (Nonaka et al. 2000, 2), as it is the company's internal competences that are the essential source of competitive advantage rather than a specific market position (c.f. Porter 1980).

Although the notion of opportunism is very important, the nature of the company and its ability to learn and integrate complementary knowledge in the RBV also goes beyond traditional opportunism-related transaction-cost considerations (see Nahapiet – Ghoshal 1998; Kogut – Zander 1996; Barringer – Harrison 2000; Conner – Prahalad 1996; c.f. Foss 1996a; 1996b). In comparison, transaction-cost explanations¹⁵ of the firm's market advantages in terms of knowledge development do not seem to capture the fact that knowledge acquisition does not merely cover the transportation of knowledge from one context to another: it also includes the further integration processes of that knowledge into the new context (see Almeida et al. 2002, 149). This is an essential point as it is related to the social context of the organization and its absorptive capacity, which essentially enhance its ability to acquire knowledge from its partners. This, in turn, derives from its ability to provide an identity, and through that facilitate and structure its communication, coordination and learning activities. (Kogut – Zander 1996, 503; see Kogut –

¹⁵ The basic argument in transaction-cost theory is that companies exist in order to minimize the sum of production costs and the costs of conducting exchanges between contractors (see Conner 1991, 131; Das – Teng 2000, 34, 36; Williamson 1986).

Zander 1993; Madhok – Tallman 1998) Thus, a company would appear to have the advantage of making unique combinations of inputs in order to create new products, and thus competitiveness arises not only from transaction costs and opportunism avoidance (Conner 1991, 140-143; Conner – Prahalad 1996; Das – Teng 2000, 34; Madhok – Tallman 1998; Kogut – Zander 1996; see Heiman – Nickerson 2002, 109-111; c.f. Mahoney 2001, 653-655; c.f. Foss 1996a; 1996b, 521-522). The RBV concentrates on value maximization within the partnership through the pooling and utilization of valuable resources, rather than on cost minimization (Das – Teng 2000), and thus offers a more solid basis for analyzing knowledge development.

Furthermore, it is acknowledged that organizational management is able to affect the eventual outcomes of the competition in that it can prepare the company for future events by developing the right set of competences for the targeted industries on a long-term basis (see Teece et al. 1997, 528-529; Priem – Butler 2001, 22-23; Hunt – Derozier 2004, 15). One should also consider that the company is able to affect its competitive environment through the development of competences that are not available within the industry.

Finally, on the subject of the source of difficult-to-imitate and rare resources, one could say that they are most easily found within the company, since no other company has access to this knowledge (see Barney 1986). On the other hand, this also means that potential opportunism should not be overlooked in the context of learning and knowledge sharing in inter-organizational relationships (see Foss 1996a, 471-474; 1996b, 521-522). This is an essential addition as complementary resources are also obtainable from outside the company. Thus, besides the rents yielded from the focal company's own resources, the firm may be able to attain rents that are based on a unique combination of acquired and shared resources that otherwise would not be available to either of the companies involved. The development of relationships in which tacit knowledge can be acquired and combined may require considerable investments and time, however. (Madhok – Tallman 1998; Dyer – Singh 1998; Dyer – Hatch 2006.) The use of inter-organizational relationships in knowledge development is at the core of this research, and will be further elaborated. The knowledge-based view is discussed in more detail next, as this forms the basis for the argumentation in the research.

2.1.2 The Knowledge-Based View of the Company

Whereas the resource-based view concentrates on resources in general, the so-called knowledge-based (KBV) view posits that knowledge is strategically the single most important resource of a company (Grant 1996, 110; see Vargo

– Lusch 2004; Kogut – Zander 1996; Conner – Prahalad 1996). This could be seen as a logical development in that the focus is on knowledge that is rare, valuable and difficult to imitate, and which is developed internally and thus not available in the factor markets as information or resources (Spender 1994, 39; see Barney 1994, 4).

In terms of resources, exceptionally good access to raw materials or markets is rarely a source of competitive advantage for companies nowadays. In today's business world it is believed that the best way to create sustainable competitive advantage is to develop organizational knowledge that is valuable and difficult for outsiders to imitate. (Lubit 2001, 164; Hamel 1994, 18; Prahalad – Hamel 1990, 81-82; Boisot 1998.) Knowledge has many of the characteristics that make it difficult to copy – it is often socially complex and intangible (Barney 2001a, 647-648), and one cannot copy something that one cannot see, explore or analyze, and that one consequently cannot understand in its full context. Thus knowledge, and especially tacit knowledge, has the specific potential to yield competitive advantage as it is inherently difficult for outsiders to copy, but can be shared within an identity (Lubit 2001, 164-166).

In order to gain competitive advantage a firm needs to develop knowledge and core competences that are rare, valuable and organizationally usable, but difficult for outsiders to imitate, and which are at the same time the basic characteristics of know-how and tacit knowledge (see Teece 2000b, 35; Barney 1994, 4-9). Creating competitive advantage thus comes down very much to the company's ability to foster and develop tacit knowledge (see Lubit 2001, 164-166; Hamel 1991, 83). It is not readily obtainable from the market, and needs to be at least partly developed internally (Teece 2000b, 36), and subsequently it becomes organizationally embedded and exploitable.

According to the KBV, the company is not a pure contractual construct, but rather a social community in which resources and expertise are transformed and developed into value-producing competences¹⁶ (see Kogut – Zander 1997, 307; Grant 1996, 110). The role of the firm in the creation of sustainable competitive advantage is strongly related to its organizational identity (its social community). This identity lessens the risk of opportunistic behavior among individuals, and creates an effective environment for communication and learning. (see Kogut – Zander 1996 502-503, 510; Foss – Foss 1998, 8.)

Teece et al. (e.g., 1997) put forward a further proposition by introducing the dynamic capabilities¹⁷ approach, which could be argued to lie very close to the

¹⁶ To be more precise, it is not the resources that determine the company's competitiveness, but the services they provide for the production of products and services (Penrose 1995, 25). In the end, it is the customers' perceived value that determines the competitiveness of the use of resources.

¹⁷ The rapid changes within a company's environment require it to develop capabilities that can be renewed accordingly (Teece et al. 1997, 515; Barney et al. 2001, 630-631; see Spender 1996, 53).

original idea of the KBV. In a sense, dynamic capabilities are specific kinds of capabilities that are critical in a constantly changing industry structure, but in a stable industry they may no longer provide a competitive edge (Barney et al. 2001, 630-632). Therefore, the value of a company's resources and the sustainability of its competitive advantage need to be assessed in terms of its industrial context. Revolutionary ideas may be possible even in stable and slowly evolving industries, and could form the basis for the successful breakaway from existing boundaries and competition to totally new markets (see Hamel 2000). In terms of relationships, customers and suppliers constitute an important source of future market knowledge to be used in strategy development (see Walter 2003, 721-722). On the other hand, if it is possible to gain such knowledge through partners, how can one be sure that the competitors will not use their relationships in a similar manner? According to this logic, relationships are a source of competitive advantage only if they are rare and difficult to imitate (Barney 1997, 300; Dyer – Singh 1998, 672-673). Thus, it is clear that the uniqueness of the knowledge in this case is also dependent on the companies' mutual trust and willingness to develop the relationship in order to support continuous learning (see Ireland et al. 2002, 439; Bierly – Hämäläinen 1995, 216; Gulati et al. 2000).

Consequently, a company is able to develop new knowledge either internally or through knowledge acquisition from external sources by allocating the necessary resources (see Sanchez – Heene 1997, 41; Sanchez – Heene 1996, 17; see Spender 1996, 52-53). The resource- and knowledge-based views provide the essential logic for determining competitive advantage, and including the dynamic aspect of knowledge development provides a basis for the development of a corporate strategy¹⁸ (Barney 2001a, 49-50; see Bowman – Ambrosini 2003, 292-293; Spender 1996, 52-54). The concept of competence is analyzed more carefully in the following section before the discussion moves on to considering knowledge-development strategies.

2.1.3 Knowledge & Competences as Part of the Organizational Knowledge Base

As knowledge assets are fixed in the minds of individuals, companies provide the resource allocation structure that will enable knowledge to be developed into core competences (Teece 2000a, 12-31). According to Teece (ibid. 24),

¹⁸ In the context of the knowledge-based approach, strategy could be described as a constantly evolving and emergent (as well as shared) plan that results in a consistent and observable pattern of activities (Mintzberg 1987a, 12-17).

core competences are clusters of know-how assets. Competences reflect skills, experiences and distinctive ways of doing things, which are strongly bound to the specific organizational and competitive context of the organization and the specific competence (Prahalad – Hamel 1990, 82; Teece 2000a, 24). *Consequently, competences could be seen as a bundle of knowledge and technologies rather than as one discrete skill*¹⁹ (Hamel 1994, 11; 28). They could, for example, be discrete organizational processes that are fundamental for the running of business in terms of the company's overall strategy, such as quality management, or more generally deployed affecting the emphasis in product design, innovations, quality, and sales and marketing (see Teece 2000a, 24; Drejer 2000, 209). For example, a competence could be the ability to develop easy-to-use user interfaces for mobile phones – knowing how to technically implement it but at the same time using the experiences of previous development projects and customer feedback in order to make it easy-to-use and adaptable to different user-specific needs. It could also be the ability to develop customer-specific technological solutions with the help of accumulated experience and knowledge of the customer's business processes.

It should be noted that the concepts of information, know-how and explicit vs. tacit knowledge are often defined in the literature in very different ways (c.f. e.g., Kogut – Zander 1997; Lubit 2001). Thus, the concept of knowledge²⁰ is the point of departure, and can be categorized as *explicit knowledge* that can be codified, and *tacit knowledge*,²¹ which is experience-based, partly unconscious and contextual, and cannot be easily codified or communicated. (based on Polanyi 1966; Bollinger – Smith 2001; Davenport – Prusak 1998; Styhre 2004, 183; Lahti – Beyerlein 2000.)

There does not seem to be any easy way of defining knowledge. It has been regarded as information in action (see Grayson – O'dell 1998), or “justified true belief” (see Nonaka – Takeuchi 1995, 58). *It could thus be described as justified true beliefs about the causal relationships among phenomena* (adapted from Sanchez – Heene – Thomas 1996, 9; Nonaka – Takeuchi 1995, 58), *and it is collective in nature* (Tsoukas 1996; Tsoukas – Vladimirou 2001,

¹⁹ For comparison: Sanchez et al. refer to a skill as “a special form of capability... a rather specific capability useful in a specialized situation or related to the use of a specialized asset” (1997, 7), and Hamel refers to a competence as “a bundle of of constituent skills and technologies rather than a single, discrete skill or technology” (1994, 11). A capability, on the other hand, can be referred to as a purely intangible resource, and is thus often considered to be something different than a competence (c.f. e.g., Sanchez et al. 1996, 7; Hamel 1994, 11).

²⁰ The concepts used in this research could be categorized as *data* (discrete objective facts about events), *information* (relevant, analyzed and meaningful data in an organized form), and *knowledge* (understanding, which is developed through the combination and analysis of information, insight and experience) (adapted from Bollinger – Smith 2001, 9).

²¹ Tacit knowledge has been divided into mental models, rules of thumb and routines, intuition, ways of approaching problems, and know-how (adapted from Lubit 2001, 166; see Grayson – O'dell 1998).

978-979; Weick 1979). It has been described as socially and contextually constructed within a context-specific social background enabling individuals to relate to each other more easily (Tsoukas – Vladimirou 2001, 978-981; Weick 1979; Tsoukas 1996, 17). It has also been argued that the focus in knowledge and in knowing is not in the head of the individual but in practice, i.e. an individual's understanding is implicit in the activity in which he or she engages (Cook – Brown 2002, 387; Tsoukas 1996, 16; Polanyi 1966, 7-10): being able to do something (knowing as in riding a bicycle) requires interaction between knowledge (the ability to ride a bicycle) and activity (being in motion on one) (Cook – Brown 2002, 388). Nevertheless, it could be also argued that we may possess explicit and tacit knowledge about how to do something even if we are not engaging in the activity at the time (see Cook – Brown 2002, 384). Explicit and tacit knowledge should be seen as two opposite extremes on a continuum and not as distinct phenomena (Tsoukas 1996, 14; see Styhre 2004, 183). Thus, tacit knowledge is regarded here as something that may be possessed by individuals but is highly difficult to transmit directly to another person without a shared basis of understanding (see Cook – Brown 2002, and Chapter 3.2.3).

Competences on the other hand, are not dependent on a single individual, but rather represent the collective learning in the organization, which could be considered to include a wider bundle of knowledge (Prahalad – Hamel 1990, 82; Teece 2000a, 24). It could thus be said that core competences consist of bundles of largely tacit knowledge about how to efficiently perform and coordinate processes essential to the value proposition of the company (adapted from Boisot 1998, 182; Prahalad – Hamel 1990, 81-82; Hamel 1994, 12-13; Doz 1997, 55).

For the purposes of this research, the development of competences is defined as the development of bundles of valuable organizational knowledge²² consisting of (1) information components, (2) explicit and tacit knowledge, and (3) organizational processes and technologies enabling the company to efficiently coordinate and implement processes that are essential to its value proposition (see Figure 4) (adapted from Hamel 1994, 11-13; Drejer 2000, 208-209; Doz 1997, 55). Thus, competences are developed as knowledge becomes integrated with the available and often proprietary information, and the existing processes and technologies within the organization²³.

²² The knowledge base refers here to all the knowledge within the company and in the minds of the individuals that can be utilized in its activities.

²³ Four further types of core competences have been identified: *market-access competences* –related to delivering a service or product to the market, e.g. brand development, logistics and marketing; *integrity-related competences* –related to the efficiency, reliability and flexibility of the company's activities, e.g. quality and cycle-time; *functionality-related competences* –related to the company's ability to develop and implement unique service and product functionality; *dynamic competences* –

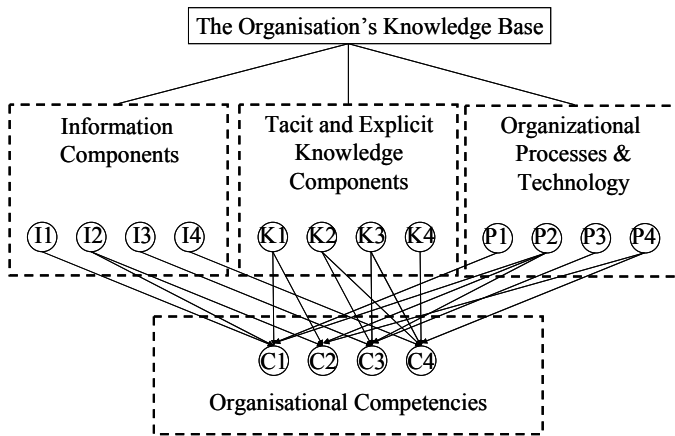


Figure 4: The Relation between the Organization's Knowledge Base and Organizational Competences

Competences are developed as a result of an organizational learning process through which new technologies and processes can be applied and developed (see Drejer 2000, 210). Thus, the development of competences could ultimately be seen as a result of the integration and dissemination of the acquired knowledge within the receiving organization (see Hamel 1994, 28; Lubit 2001, 167-168). The main focus in this study is on knowledge development through knowledge acquisition in inter-organizational relationships, which is analyzed in the following in terms of knowledge acquisition schemes.

2.2 Schemes for Knowledge Acquisition

As discussed, a company may try to develop new (core) competences and knowledge either through its own experiences or through the experiences of other organizations (Kogut – Zander 1997, 308; Eisenhardt – Schoonhoven 1996, 136; see Helleloid – Simonin 1994, 218-222; Inkpen 1998, 72). The challenge with knowledge acquisition is to build up new knowledge and competences by acquiring knowledge from external sources and integrating it into the organization's existing knowledge base. Moreover, one could either seek knowledge that is similar to the company's current capabilities, or one could look for something to complement the organization's knowledge base

which enable the company to understand the industry structures and to sense changes within the focal environment, and thus to develop new strategies and deploy organizational resources accordingly (see Hamel 1994, 16; Teece 2000a, 26; Teece et al. 1997, 515-516; Chiesa – Manzini 1996, 196-203).

(Shenkar – Li 1999, 136). *Thus, it is important to consider how acquired knowledge can be integrated in the development of competitive advantage. In this regard it is possible to develop organizational competences in two fundamentally different ways (see Figure 5).*

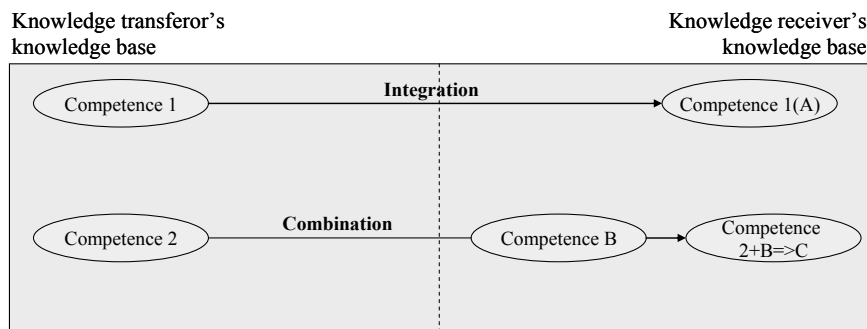


Figure 5: Knowledge-acquisition Schemes

Firstly, it may be possible to develop competences through the simple integration of the acquired competence as such, i.e. by integrating the new one into the organization's knowledge base. In this case the original competence will not change radically, but is integrated into the new context (Competence 1(A)). Secondly, it may be possible to combine previously separated competences (Competences 2 & B) in order to create a completely new one (Competence C), such as by developing new knowledge in cooperation with other members of the value chain. This is often a very effective way of cooperating when companies are focusing on a very narrow line of expertise, and as a result have difficulties in exploiting business opportunities on their own. (adapted from Doz – Hamel 1998, 4-5.) Moreover, it may be possible to develop the integrated or combined knowledge further into a distinctively new competence in the new organizational context. This would allow the knowledge (previously available in the markets) to be modified into a competence that is distinctly different from those of the competitors.

It could be argued that, given the highly contextual and tacit nature of knowledge, simple integration will be very difficult. Therefore, the concentration in this study is on the acquisition and integration of knowledge, as well as on the further development of competences. The knowledge-acquisition process is discussed in more detail in Chapter 3, which provides a basis on which to analyze the literature on the relationship context, the partners' ability to acquire and exchange knowledge, and other factors that affect the learning process.

3 DEVELOPING COMPETENCES THROUGH KNOWLEDGE ACQUISITION

Before analyzing the process of knowledge acquisition I will briefly review the conceptual background of theories of organizational learning. The difficulty in studying organizational learning lies partly in the fact that the number of theories and conceptual frameworks has risen overwhelmingly in recent decades (see Argyris 1993; Fiol – Lyles 1985; Senge 1990; Schein 1993; Shrivastava 1983; Huber 1991; Kolb 1984). However, it is important to understand that the present research context is not as straightforward as the process of learning within an independent organization, and it is necessary to make some adaptations to the basic learning paradigms in order to develop a framework for inter-organizational knowledge acquisition. The reason for this lies in the fact that the interest in this research is in the learning processes that take place in a relationship between two independent companies – i.e. two independent organizations and identities with varying needs and goals. It thus promotes a more holistic view of the relationship context, the network environment affecting the organizations, the content of the acquired knowledge, and the acquisition process. Previously recognized paradigms are therefore used as a platform for the development of a process model for inter-organizational knowledge acquisition.

3.1 Conceptual Considerations of Organizational Learning

3.1.1 How Do Organizations Learn?

Terms such as organizational learning, the learning organization, knowledge creation, transfer, and even knowledge acquisition have attracted a vast amount of attention in recent decades (see von Krogh et al. 2001). Different classifications of the characteristics of a learning organization have emerged, all of which represent a specific effort to understand the process better. It soon became apparent that the challenge lies very much in the variety of definitions. The mere definition of organizational learning has provoked a number of arguments, the most central one being whether the definition covers adaptive

activities or whether learning is supposed to be something more (Fiol – Lyles 1985, 805-806; see Senge 1990; Kolb 1984, 20-27, 40-42; Shrivastava 1983).

Organizational learning could be understood as a process of improving actions through better knowledge and understanding (i.e. learning will result in a positive outcome compared to the situation beforehand, which is a logical presumption for rational individuals) (Fiol – Lyles 1985, 803; Johnson – Sohi 2003, 758). *On the most basic level, however, it could be considered the development of new knowledge and/or insights that have the potential to influence behavior* (Huber 1991, 89; Fiol – Lyles 1985; c.f. Argyris 1993, 9; Inkpen – Crossan 1995, 599). This more pluralistic approach is adopted here, although knowledge that does not affect behavior could be considered very difficult to analyze. Nevertheless, some learned ideas and insights may not be instantly usable due to circumstances in the business environment, for example, or because of the strategic choices made before the window of opportunity opened. Furthermore, there may be a considerable time lag between the learning process and the time of the knowledge exploitation. *Thus, it is not assumed in this research that knowledge has an instant effect on behavior.* On the other hand, learning is also considered different from purely adaptive activities (see Fiol – Lyles 1985, 805-806). This is a fundamental issue in terms of the further potential of knowledge development, and is further discussed in the context of the organizational learning process.

The interest in inter-organizational learning in this research concerns the processual phenomenon and the factors affecting the ease and level of learning. These factors are considered with particular regard to the context of learning, to ways of enhancing the absorption of new knowledge within the context of knowledge acquisition, and to how these issues relate to the characteristics of knowledge. Furthermore, it is essential to understand where the actual process of organizational learning takes place. It is not, in fact, carried out by the organization, it is rather that the individuals act as agents for learning (Argyris 1993, 8; Senge 1990, 139; Fiol – Lyles 1985, 804; Kim 2004, 37; 41). Thus, organizations learn based on the learning efforts of the individuals in them (Hedberg 1981; Wang – Ahmed 2003). A company may have documented knowledge or standardized procedures, but it does not literally have a mind: it is a manifestation of the minds of the individuals it comprises (Tsoukas – Vladimirou 2001, 979; Nonaka – Takeuchi 1995, 59; Bogenrieder – Nooteboom 2002, 1).

However, it would be incorrect to say that organizational learning is merely the sum of the activities of individuals. An organization may learn without any particular individual, but it cannot learn independent of all individuals. (see Cook – Yanow 1995; Kim 2004, 37; Tsoukas– Vladimirou 2001, 979.) The minds of individuals are where tacit knowledge is absorbed. Furthermore, the

organization (or the relationship context) creates the context for the learning process, and highlights specific features affecting the learning process through coordinating and directing the efforts of the individuals (Argyris 1993, 8; Senge 1990; Kogut – Zander 1996).

On the other hand, it could be argued that organizational learning is also something more than the sum of the individuals' knowledge (see Fiol – Lyles 1985, 804; Kogut – Zander 1996). What individuals learn is not unrelated to the organizational context. Individuals cannot be disconnected from the organizational context, which reflects the level of social identity. The aims, shared mental models and reward schemes of the company, and the prior related knowledge, essentially affect and direct individuals' learning efforts (Kim 2004, 41; Cohen – Levinthal 1990; Kogut – Zander 1996). Yet, it could be argued that tacit knowledge, which is largely unconscious, could not exist without the individuals who hold it. If you take individuals away from the organization, only the documented knowledge is left behind. Thus, one could analyze the learning process in terms of how knowledge becomes embedded in the individuals' minds and thereafter in the organization's processes.

3.1.2 Basic Processes of Organizational Learning

Perhaps the most widely recognized model of organizational learning is the one presented by Argyris (1993), which refers (pp 8-9) to single-loop and double-loop learning (see Figure 6), also known as adaptive and generative learning (Senge 1990, 8-26; Slater – Narver 1995, 63-64; see Fiol – Lyles 1985, 807-808). It is essential to recognize the difference between these two learning styles because these two processes require very different contexts in order to be effective in terms of leading to better outcomes.

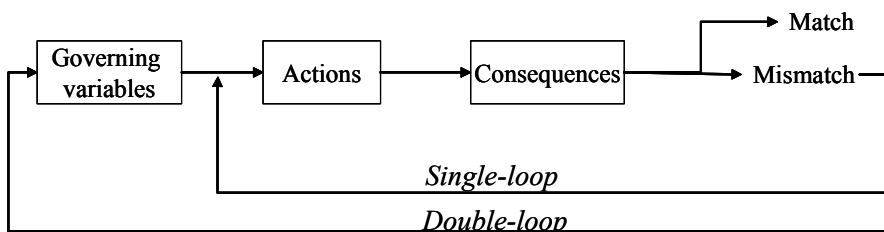


Figure 6: Single-loop and Double-loop Learning

The need for learning arises from a mismatch between the intentions and the actual outcomes of the organization's activities. The company will strive to correct this mismatch until it is converted into a match. (Argyris 1993, 8-9.)

Single-loop learning takes place when the correction does not entail questioning or altering the underlying values or activity patterns of the organization. The result of the mismatch is then a mere adaptive activity to make sure that the actual outcome matches the intended one. Double-loop learning, on the other hand, takes place when the correction involves first examining and questioning the governing variables and underlying assumptions of the activities, and only after that making the necessary changes. (Argyris 1993, 8-9; Senge 1990, 57-73.)

The governing variables and underlying assumptions represent the set of structures that guide and drive individuals' activities (Argyris 1993, 9). The structures could be seen as mental models that are more or less unconscious and deeply embedded in their minds. The essential difficulty with double-loop learning arises from the interrelations between the governing variables and the subsequent activities. Thus, the aim of questioning the current governing structures is to obtain a picture of the whole system of dynamic interrelations so that we can understand the true consequences of our actions. (Senge 1990, 6-9, 67-73.) With single-loop learning the governing variables and the operational structures will remain as they were, and similar problems may therefore also arise in the future, while as a result of double-loop learning the structures are questioned and modified, although the ultimate effects of this change on the system may not be readily analyzable. (Senge 1990, 68-89, 71-73; Slater – Narver 1995, 64.)

It could be argued that single-loop learning is efficient since it does not require the organization to ponder upon its governing structures every time some set of actions is changed. However, at least some double-loop learning is required in order to ensure the company's long-term development, to enhance its innovation abilities²⁴, and to enable it to cope with the changes within its competitive environment. (Fiol – Lyles 1985, 811; Senge 1990, 71-73.)

3.1.3 Prevailing Learning Paradigms

From broader perspective of learning frameworks, organizational learning has been widely addressed in the literature despite the lack of a commonly accepted understanding of the notion (see e.g., Fiol – Lyles 1985; Hedberg 1981; Argyris 1993; Shrivastava 1983). Although different views prevail,

²⁴ The ability to innovate has traditionally (and, it could be added, falsely considering the prevailing understanding of radical innovations, for example) been equated with the ability to solve problems in order to develop continuous and incremental improvements. Although they are important in terms of organizational efficiency, being able to develop new knowledge requires the more profound questioning of underlying assumptions. (Wang – Ahmed 2002; 2003.)

there are some common and general guidelines covering the way companies develop their knowledge base.

There are two dominant views on how companies perceive and understand their environment and develop new knowledge. According to the first of these, learning takes place simply through experience and observation – *this adaptive learning is henceforth referred to as behavioral learning*. Secondly, there is *cognitive learning, which is characterized as the active process of questioning the theories-in-use and the causal relations of the environmental context* as part of a continuous sense-making process. (Shrivastava 1983, 9-16; Weick 1979, 130-134; Fiol – Lyles 1985, 805-806; see Slater – Narver 1995; Argyris 1993; see Kolb 1984, 26-28; Cyert – March 1963.) The aim in such sense making is not just to interpret what has happened but also to understand the structure and causality of events (Weick 1979, 175-177; c.f. Kolb 1984, 26, 30-31). As this learning process is based on the changing of the underlying rules and causal maps, it could be considered a more cognitive process than that of adaptive or behavioral change (Fiol – Lyles 1985, 808; c.f. Cyert – March 1963, 171). Besides, the level of resulting changes in behavior is an essential dimension of learning. Behavioral learning usually results in adaptive changes, but cognitive learning does not necessarily show immediately, and will rather result in a fundamental change in the frame of reference (Fiol – Lyles 1985, 808-809; Shrivastava 1983).

Behavioral learning is very closely related to the acquisition and dissemination of information in day-to-day operations, and the aim is to solve incurred problems by adjusting activities. This may involve a process of experiencing and conceptualizing the environment, and of active experimentation based on these reflective activities. Yet, it does not require a thorough understanding of the context. Tacit knowledge, on the other hand, is more challenging, as it is not codified and cannot necessarily even be communicated self-evidently. Consequently, cognitive learning occurs when the organization begins to question and alter the underlying assumptions about its competences, current causal maps as well as beliefs and values – resulting in more consistent processual change. (see Argyris 1993; Hedberg 1981; Senge 1990; Slater – Narver 1995, 63-64; Fiol – Lyles 1985, 807-808.)

One could say that cognitive learning is about the individual's ability to think. Thus, the knowledge being acquired and the underlying mental models are questioned and processed in order to fit the new organizational context. Understanding and learning are directly related to the context at hand, and not to any abstract structures, and this is an essential aspect of knowing as a form of justification (Kogut – Zander 1996; Cook – Brown 2002, 387-388). One could argue that knowledge without a context cannot include all knowledge about the embeddedness of the competence. Companies try to understand the

environment in the light of the causal maps that have been constructed based on previous activities and the resulting environmental changes, as well as on an understanding of the underlying causal relationships, i.e. self-reflection and experiential analysis (Hedberg 1981; Shrivastava 1983; Weick 1979; see Kolb 1984, 41-43, 52). The need to learn may lead to anxiety within the organization as it implies the need for changes in current beliefs and the organizational identity, but on the other hand, a certain amount of crisis may be an asset as far as learning is concerned (Hamel 1991, 97; Schein 1993).

Companies continuously enact the environment by selecting parts of it for closer analysis and by acting on the results of changes and the subsequent uncertainty. Enactment then produces the raw material for sense making, which could be seen as an organization-specific way of perceiving and understanding the environment and developing a suitable response. (Weick 1979, 130.) It is here that knowledge is applied into action through the process of knowing, which is referred to as the use of knowledge within a situated²⁵ and social context (Cook – Brown 2002, 382-383).

Organizations learn and develop new maps of causal relationships based on the effects of their actions on the environment (Hedberg 1981, 5; Weick 1979, 170-177; see Kolb 1984, 41-42). It could be argued that this understanding of causal relationships, and the enactment with the environment also facilitate the development of new insights²⁶. This is closely related to and partly enabled by the development of new causal maps, which should provide the relevance through close interaction with the environment. It has been argued that interaction within groups could allow for more creativity provided that individuals are able to communicate and process the knowledge, and relate it properly to a relevant situation (Paulus – Yang 2000).

It could be said that understanding the environment enables the organization to see how things could be improved. This is not to undermine the importance of prior knowledge and experience, since the cumulative nature of knowledge means that a certain level of prior knowledge has to be acquired if the issues developed further are to be understood (Cohen – Levinthal 1990; Cook – Brown 2002, 388). Furthermore, previous experiences and existing causal maps act as basis on which individuals could develop understanding and reflect on the suitability of the existing knowledge (adapted from Elkjaer 2004). In further recognition of the role of experience one could say that change takes place in relation to something that existed before, and thus previous experiences are relevant even in the case of cognitive learning.

²⁵ For more on situated learning of communities of practice (see Lave – Wenger 1991, 32-39; c.f. Weick 1979).

²⁶ Creativity could be considered along two dimensions: (a) the novelty and originality and (b) the relevance and meaningfulness of the idea (Oldham Cummings 1996; Im – Workman 2004).

These differences in levels of learning are also recognized in the present context of developing an understanding of the knowledge-acquisition process. Learning is highly contextual, which makes inter-organizational learning particularly challenging. Accordingly, it seems that knowledge cannot be managed in the traditional sense of being controlled, and that the management and coordination of its acquisition is a more viable approach (see von Krogh et al. 2000, 30-31; Bollinger – Smith 2001; Styhre 2003; Birkinshaw 2001, 34-36). The aim, then, is to create an enabling environment to foster the relationship context and the individuals' learning efforts and shared identity. There is thus also a need to understand the contextuality of knowledge and learning in the context of inter-organizational knowledge acquisition.

3.2 Inter-Organizational Knowledge Acquisition Models

The inter-organizational learning process is described here in terms of knowledge acquisition, which creates a basis for the development of competences. There are several models available, but they all seem to revolve around a similar pattern of activities. Therefore, a combination of a few that are often referred to in the literature is presented for use in the analysis of knowledge acquisition and learning processes (see Table 1).

Table 1: An Overview of the Process Models Presented in the Literature

Literature source	Phases of a knowledge acquisition process					
	Acquisition	Transfer	Creation / Modification	Utilization	Reflection	-
Morey 2001	Acquisition	Transfer	Creation / Modification	Utilization	Reflection	-
Helleloid – Simonin 1994	Acquisition	-	Processing	Storage	-	Retrieval
Gilbert – Cordey-Hayes 1996	Acquisition	Communication	-	Application	Assimilation	-
Inkpen – Crossan 1995	-	-	Interpreting	Integrating	Institutionalizing	-
Johnson – Sohi 2003	-	Dissemination	Shared interpretation	-	-	-
Richter – Vettel 1995	Perception	-	Internalization / Transfer	Abstraction	-	-

Huber suggests that the basic processes of learning are divisible into four stages: knowledge acquisition, information distribution, information interpretation and organizational memory (1991, 90). Similarly, Johnson & Sohi argue that the essential learning activities include the dissemination and joint interpretation of the information (2003, 758-760). As a third example, Helleloid and Simonin divide the stages into acquisition, processing, storage

and retrieval (1994, 217). Although slightly differing in the number and content of the learning stages, the basic features are very similar. The applied combination is reviewed in more detail below.

3.2.1 The Process of Knowledge Acquisition

The process of knowledge acquisition covers not only the transportation of knowledge but also the learning process of the organization, which means the process during which the knowledge becomes integrated into its new organizational environment (adapted from Helleloid – Simonin 1994, 217; Morey 2001, 324-327; Gilbert – Cordey-Hayes 1996, 309; Richter – Vettel 1995, 39-40). It also covers the essential question of organizational embeddedness as a means of promoting competitive advantage. Thus, the development of new competences could be considered an essential part of knowledge acquisition.

One should consider not only the transportation of knowledge from one organization to the other, but also its interpretation within the new context. If the new knowledge is to be exploited, it needs to be disseminated throughout the relevant parts of the organization. (e.g., Hamel et al. 1989, 139; Gilbert – Cordey-Hayes 1996, 309; Nonaka – Takeuchi 1995, 61-73; Helleloid – Simonin 1994, 217-218; Huber 1991, 90.)

The following integrated model describing the process of knowledge acquisition serves the purposes of this research. The process is divided into five closely dependent phases (see Figure 7) (adapted from Helleloid – Simonin 1994, 217; Morey 2001, 324-327; Gilbert – Cordey-Hayes 1996, 309; Richter – Vettel 1995, 39-40; Szulanski 2000, 12-16).

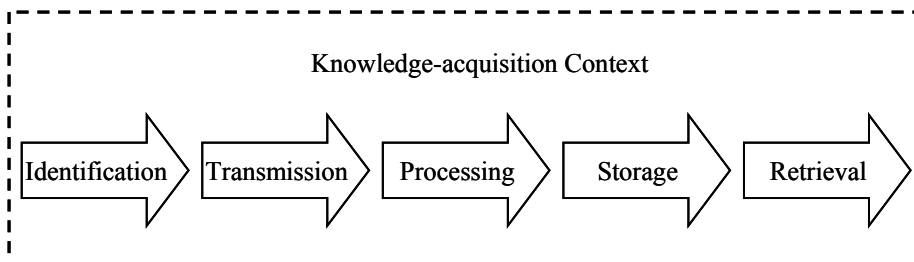


Figure 7: The Process of Knowledge Acquisition

During the identification phase the receiver of new knowledge strives to recognize on some level the specific competence or type of knowledge to be acquired (Morey 2001, 325; Szulanski 2000, 13). The identification of a knowledge-acquisition opportunity is also, at least to some extent, an uncertain

activity as the compatibility or complementarity of the new knowledge can only be fully understood afterwards (Szulanski 2000, 14). Nevertheless, companies may be able to add complementary and specialized knowledge to their existing knowledge base through inter-organizational learning, and may thus be able to develop competences that neither of the parties could have acquired on their own (Helleloid – Simonin 1994, 222).

During the *transmission phase* the knowledge becomes transferred from one organization to the other and the essence of the competence is communicated between the companies (Morey 2001, 325; Szulanski 2000, 14). Codified information is easily communicated, but the successful acquisition of tacit knowledge is not possible without gaining understanding of the tacit know-how component (c.f. Morey 2001, 325). Thus, it is essential to note that the transmission and processing phases are often going on somewhat simultaneously. Tacit knowledge in particular is mostly communicated and understood during the processing phase as it requires a deep analysis of its embeddedness: it is very difficult to acquire it completely unless the assumptions and contextual factors the competence is built on are known.

As the essence of the competence is communicated between the companies, it needs to be processed for later development and exploitation (Morey 2001, 325). *This third, processing phase is very strongly dependent on the people involved, and it represents the actual learning of individuals* (Teece 2000a, 18). In essence it involves understanding the competence and its embeddedness in its original organizational context, which means analyzing the underlying culture-bound values and assumptions about the exploitation of knowledge in its existing business environment. It also involves understanding the knowledge and its exploitation possibilities in its new organizational context. (Baughn et al. 1997, 107-108; Richter – Vettel 1996, 40; Almeida et al. 2002, 147.)

Understanding the underlying assumptions is especially important in terms of acquisition success when the partners come from different fields of business, and it can be made more difficult in cases of partner protectiveness or unwillingness to comply (adapted from Simonin 2004, 420-422). In fact, understanding and learning as such could be considered directly related to the context (and the relation between the knowledge and the environment), and not to any abstract structures (see Kogut – Zander 1996, 510; Shariq 1999, 245): knowledge without a context cannot include all the essential tacit knowledge about the competence. The processing phase could be interpreted as the phase of the learning process in which the tacit knowledge and the underlying assumptions about the competence and its organizational embeddedness are understood (see Nonaka – Takeuchi 1995, 62-64).

Given its comprehension and integration of the knowledge (see Figure 8), the company will be able to modify the knowledge and create new competences (adapted from Helleloid – Simonin 1994, 217; Morey 2001, 324-327; Gilbert – Cordey-Hayes 1996, 309; Richter – Vettel 1995, 39-40), and thus to develop new application possibilities for the acquired knowledge (Morey 2001, 326; see Argyris 1993). In a sense, one could say that the acquired knowledge becomes internalized by the receiving organization, is subsequently blended in with its existing causal maps and knowledge base, and developed further in order to obtain an optimal fit to the specific context (Szulanski 2000, 16; c.f. Nonaka – Takeuchi 1995, 69-70).

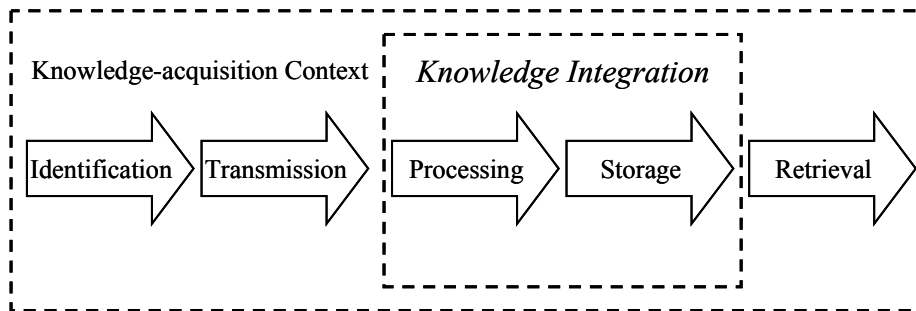


Figure 8: Integration in the Process of Knowledge Acquisition

If the acquired knowledge is to be retrieved and exploited later on, it needs to be integrated – i.e. processed and stored. The fact that it is acquired through inter-organizational cooperation also has implications concerning the later stages of the learning process. *The last two stages – storage and retrieval – are also strongly interrelated, but are essentially bound to the characteristics of knowledge.* Once knowledge has been processed it needs to be stored, which represents one of the key concerns regarding the development of competences based on the acquired knowledge. (Helleloid – Simonin 1994, 224-226.) It is a question of people’s ability to understand and integrate the knowledge into the organization’s knowledge base, and to disseminate it throughout the relevant parts of the organization so as to exploit it in the development of competences (Almeida et al. 2002, 148; see Cohen – Levinthal 1990; Helleloid – Simonin 1994, 225). The way new knowledge can be exploited is dependent on how well it is disseminated to the relevant units, and also on the utilized storage methods (individuals’ memory, technological solutions, products etc.) (Huber 1991, 105). This can be done by educating people, but integration through utilization has a major role in questioning and sensemaking (Morey 2001, 326; Gilbert – Cordey-Hayes 1996, 304, 309). Through exploitation, the company will also need to develop new application

possibilities for the acquired knowledge, and the integration process will also most likely include at least partial re-creation of the competence (see von Krogh et al. 2000; Morey 2001, 326).

Applying new knowledge is an important way of revealing the essence of its tacitness (Grant 1996, 111; Szulanski 2000, 15). Subsequently, as the acquired knowledge becomes diffused, it also becomes integrated into the organization's operational processes and products. Utilization of the new competence is also essential for the creation of new insights and the further development of expertise. (see Morey 2001, 326.) This enables the receiving organization to adapt the acquired knowledge to its new organizational context as application problems are solved (Szulanski 2000, 15). Another major issue related to the storage of knowledge concerns its diffusion within the organization: relevant people need to be aware of it and of how to retrieve it (Helleloid – Simonin 1994, 225-226; Inkpen – Dinur 1998). It is not only during the transmission and processing, but also during the integration of knowledge that its characteristics emerge as essential problems. These issues are discussed further in the next subchapter.

3.2.2 Knowledge Integration as a Learning Process

The processing and the storage phase closely resemble the traditional learning process, which is thus included in the knowledge-acquisition process. Knowledge integration could be considered highly critical since it incorporates the core processes involved in the learning and the development of competences.

The two looping integration processes are categorized in Figure 9 as Integration 1 and Integration 2, during which new knowledge is integrated into the organizational knowledge base. During the processing phase the essential part of the learning is the understanding of the knowledge and its context (Integration 1). New knowledge is analyzed (in terms of the original context and the future exploitation possibilities) and challenged, and the old knowledge is questioned (Slater – Narver 1995). Unlearning (Integration 2) is a process in which individuals try to unlearn in order to replace the previously validated knowledge that gave rise to organizational processes and mental models (Hedberg 1981; Martin de Holan – Phillips 2004, 1606-1608; 1611; Sinkula 2002; see Weick 1979). This may allow for the organization to create new mental maps (Hedberg 1981; see Leonard-Barton 1992). As a result, the new knowledge can be taken into use and developed into more coherent competences in order to fit the organizational context better.

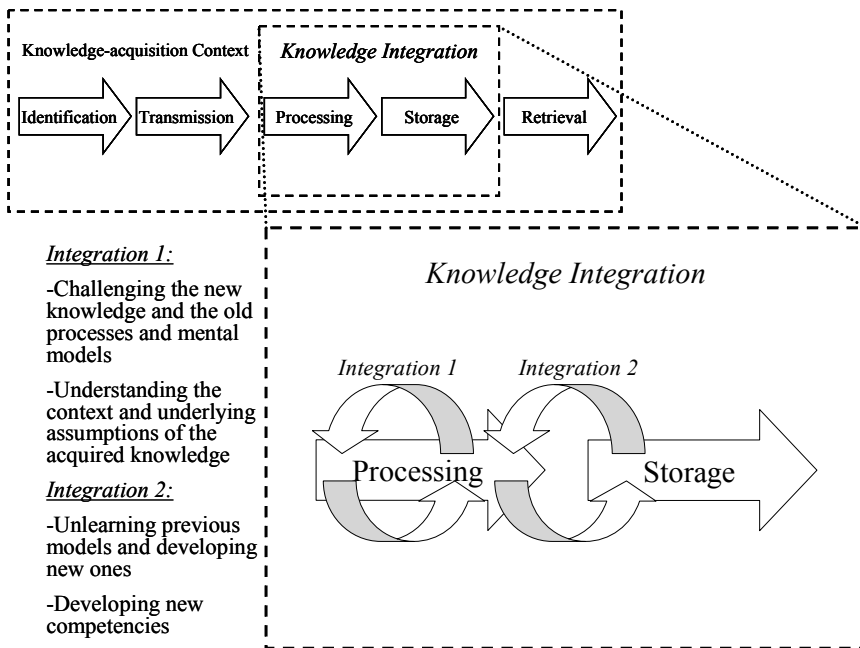


Figure 9: The Learning Process in Inter-Organizational Knowledge Acquisition

The essential issue is that the acquired tacit knowledge is strongly embedded in the original context – i.e. the processes, values and organizational environment to which the competence is related: the underlying assumptions must be understood (Argyris 1993, 8-9; Cummings – Teng 2003, 57-58). Acquiring tacit knowledge is challenging as it may not necessarily even be communicable in a self-evident manner; thus it requires double-loop learning. This may occur when the organization begins to question and change the underlying assumptions about its competences. (see Argyris 1993, 8-9; Cook – Brown 2002, 393-394; Senge 1990, 71-73; Slater – Narver 1995, 63-64; Fiol – Lyles 1985, 807-808.)

However, changing existing processes may not always be easy as they are the result of previous efforts and have been integrated into the organizational culture (Schein 1993). Developing causal maps is useful because new models do not need to be constantly developed, and this supports stability and the organizational culture and identity. However, the organization needs to be flexible in the sense that mental models can be replaced and questioned, otherwise new ones will never be discovered in the struggle to cope with a changing environment. (Weick 1979, 215-218.) People seem to be reluctant to change their ways even if there may be good grounds for doing things differently. Furthermore, in order to be able to take the new knowledge into use it is necessary to unlearn existing and traditionally comfortable causal

maps (Schein 1993; Sinkula 2002). However, the context in which the previous knowledge has been validated changes constantly, and thus in order to cope with their environment, companies need to readjust their knowledge accordingly (Hedberg 1981; see Weick 1979).

Thus, the acquired knowledge is closely questioned and processed in order to fit the new organizational context. Contextuality of learning is essential in the sense that in order to acquire knowledge the partner must be able to understand the original context in which the underlying assumptions have developed (Cook – Brown 2002, 393-394; Cummings – Teng 2003, 57-58). In fact, understanding and learning as such can, and perhaps even should, be seen as directly related to the context at hand, and not to any abstract structures (see Kogut – Zander 1996, 510; Shariq 1999, 245). One could argue that knowledge without an understanding of the context in which it is applied cannot include all the essential tacit knowledge (or “knowing”) of the competence. As the recipient organization is able to integrate and store the essential parts of the knowledge and know-how, it will also be able to develop it further in order to use it within its own organizational context (see Morey 2001, 326). It may then be possible to integrate the acquired knowledge into the organization’s operational processes and products.

Thus, the processing and integration of tacit knowledge could be considered an essentially social process, which is strongly dependent on the relatedness of the organizations and their ability to develop a shared understanding. As sense making is social in nature, it is likely that building a shared identity will help in the development of a shared basis for understanding, i.e. sense making and learning (Weick 1995, 38-39; 74-75; see Cook – Brown 2002, 393). As discussed, it is possible to build a shared identity to facilitate such a process within a partnership.

3.2.3 From Inter-Organizational Learning to Cooperative Sense Making

In the light of the above, it is proposed that the external partner may help in the learning process on two levels: (1) in the development of new knowledge through knowledge acquisition, and (2) in the development of new knowledge through cooperative sense making and mutual learning. *These two levels of integrating and developing new knowledge through a mutual knowing process are essentially complementary* (adapted from Orlikowski 2002; Cook – Brown 2002, 387-389; 392-393; Polanyi 1966, 30-31; c.f. Gherardi – Nicolini 2000).

Firstly, the partners can try to understand each other’s previous experiences and how they have led the processes to evolve as they have. As the transferor can show and explain its current processes (i.e. how knowledge is used as part

of action), the receiver may be able not only to acquire this knowledge but also to place it in its current context (i.e. how it is represented in knowing) based on the receiver's previous experience. Consequently, this interactive learning process can generate new knowledge and insights. (Cook – Brown 2002, 393-394; see Cummings – Teng 2003, 57-58; Lane – Lubatkin 1998, 463; Weick 1979, 175; see Polanyi 1966, 30-31.) This process is not about understanding the partner's mind as such, but is more about understanding the situations/events within the context in which the partner's understanding has developed.

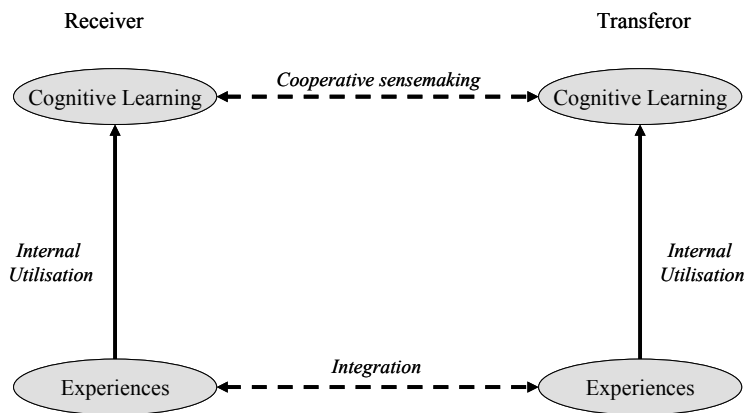


Figure 10: Organizations' Cognitive Interaction in Inter-organizational Learning

Secondly, as part of knowledge integration the partners may jointly enact and make sense of the environment and consequently develop a sense of shared understanding, and as a result develop the acquired knowledge further. This can be done by both organizations based on their own (now partly integrated) causal maps. However, as they both have differing sense-making bases, the end result could be considered interactive. (Weick 1979, 175; Weick 1995, 24-25; 135-139; see Cook – Brown 2002 387-388; 393-395.) These cognitive and social processes constitute the means that essentially affect the company's innovative ability, as they represent opportunities for creative reframing. Moreover, acquiring knowledge from external sources could be argued to stress the importance of questioning the underlying assumptions of the acquired knowledge because it is not based on the familiar frame of reference (see Phan – Peridis 2000, 211).

Figure 10 depicts the two dimensions along which the external partner can affect the development of new knowledge in inter-organizational learning, and the subsequent innovative capacity of the receiving organization. A company is able to acquire knowledge in a cooperational setting through the processing

and integration of the existing knowledge of the partner. Furthermore, the integration of the knowledge may also include at least partial re-creation through *sense making and the application of the acquired knowledge* (see Cook – Brown 2002; Weick 1979; Szulanski 2000, 20; Tsoukas 1996, 16).

The knowledge may also flow partially from the receiver to the transferor in that its integration into its new organizational context requires close interaction. This exchange of knowledge bases is partial and requires the development of a shared identity (Orlikowski 2002). The developed causal maps of the environment during integration may subsequently affect the parties' enactment and learning activities. During the relationship they may also make sense of the environment simultaneously, which could allow the receiver to gain valuable insights into how the knowledge could be exploited.

These could also be seen as a way of developing competitive advantage based on the acquired knowledge because the learning process may appear highly ambiguous to companies outside the partnership (see Dyer – Singh 1998). It has been also argued that sense making could be supported by formalization (contracts, rules and procedures) in terms of focusing attention, forcing articulation, and instigating and maintaining interaction, for example. This might allow partners in inter-organizational relationships to reach a more congruent understanding of the acquired knowledge. (Vlaar et al. 2006, 1619.)

It should nevertheless be noted that the dimensions only represent interaction between learning activities. As organizations gain knowledge through understanding their partner's embedded capabilities, the receiver may be able make sense of the acquired knowledge based on its own newly developed mental models (see Weick 1979, 175; 1995, 13; Orlikowski 2002). These models, as well as the sense making, could be developed partly in cooperation with the transferor given its wider experience gained within its specific context – thus allowing easier understanding of knowledge that is based on a different set of underlying assumptions. As discussed, the interaction between the parties may result not only in the exchange of knowledge but also in the further development of that knowledge and the related insights, thereby fostering an increase of innovative abilities²⁷ (Cook – Brown 2002). It is therefore evident that the source of new knowledge lies not only in the combining of the knowledge bases, but also in the learning process that results in knowledge integration.

However, the development of competences through knowledge acquisition requires a thorough understanding of the essence of a competence. As discussed, the concepts of knowledge and competence are not the same, but

²⁷ Innovation requires coming up with creative (i.e. novel and relevant) ideas and insight, which on the other hand requires learning (Ng 2004; Oldham – Cummings 1996; Im – Workman 2004).

the development of new knowledge could be considered a prerequisite for the development of new competences (Drejer 2000). The further development of knowledge is analyzed in more detail in the following section.

3.3 Dissemination of the Acquired Knowledge and Development of Competences

The next essential question concerns how well the receiving company is able to utilize the acquired knowledge. This could be argued to be a question of the company's ability to integrate the acquired knowledge into the existing knowledge base in order to disseminate it further and to develop new competences (Hamel 1994, 28; Lubit 2001, 167-168). It could be argued that as knowledge takes root within the organization, it is likely to have a unique history and a complex social context that makes it may well be possible to use it to develop rare and difficult-to-imitate competences.

As competences are tacit and organizationally embedded, the knowledge constituting the competence can very rarely be simply set into a new context (see Lam 1997, 975-976; Argote – Ingram 2000). This would be feasible only if the original and the new organizational contexts (also assuming the similarity of individuals' cultures and learning abilities) were identical, and if it were possible to perfectly communicate and understand their essence and tacitness.

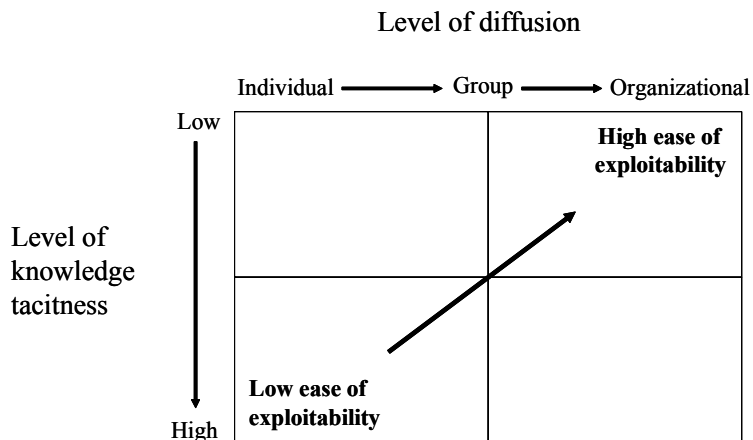


Figure 11: The Dissemination of Acquired Knowledge

Thus, in order for the organization to acquire tacit knowledge and for the acquired knowledge to be exploited, it needs to be processed and integrated into the organizational knowledge base and further disseminated within the

receiving organization (see Chapter 2.1.3). One or two individuals with a specific competence may not be able to make a big impact, but once the knowledge is diffused on a team-based or intra-organizational level (see Figure 11) it can be used to create value and competitive advantage. (see Alajoutsijärvi – Tikkanen 2000, 10-11; c.f. Inkpen – Dinur 1998, 457.) In addition, the acquired knowledge needs to be integrated into the organization's processes and technologies in order to form coherent competences.

As discussed, knowledge needs to be transferable within the organization in order for it to be exploitable and to provide a basis for competitive advantage. On the other hand, the dissemination and further development of competences may conflict as the amount of tacit knowledge increases (Doz 1997, 56). The level of knowledge dissemination can be assessed according to the unit of analysis within the organization, i.e. whether the knowledge is on the individual, team, inter-team or organizational level (Lam 1997, 977; Alajoutsijärvi – Tikkanen 2000; Inkpen – Dinur 1998, 457). The acquired knowledge will be more or less objective and consciously available or collective, which implies easier exploitation (Inkpen – Dinur 1998, 464).

The process of disseminating knowledge efficiently within the organization takes various forms, widely differing in complexity and depending very much on the nature and evolution of the competence (Doz 1997, 63). The dissemination of highly codified information is often quite easily effected, since it can be written down – on the company's Intranet or in written reports, for example. On the other hand, tacit and complex know-how is often very difficult to disseminate efficiently and reliably, as it requires close interaction between individuals. (Boisot 1998, 52; Doz 1997, 62; Inkpen – Dinur 1998.) As already discussed, the tacit characteristics of knowledge make it difficult to communicate, but it is valuable to companies if the acquisition process is successful. Thus, the development of organizational competence on the basis of acquired knowledge is a major challenge (adapted from Almeida et al. 2002, 148, 159). Whatever means of exploitation are used, it is essentially related to the embeddedness of the knowledge (see Lam 1997, 975-976). Thus, the process is dependent not only on the transmission channels (see e.g., Gupta – Govindarajan 2000), but also on the receiver's ability to understand and apply the disseminated knowledge. In this the company's internal learning process follows the same main phases of the knowledge-acquisition process described earlier, although the application and development of the new knowledge combinations now take place within the same organizational context (see Almeida et al. 2002, 149; Kogut – Zander 1996). Still, in the process of questioning their existing causal maps and identity as part of the learning process, management needs to provide the organization with learning

intent and psychological safety (see Weick 1979; Child – Rodrigues 2003, 544-545).

The transformation of knowledge into competences depends on the organization's ability to integrate the new knowledge into its existing knowledge base and processes. At the same time this will mean its further development and application to suit the organization's needs. *An essential issue in this regard is the diffusion of knowledge within the company, which creates the basis for the organization-wide exploitation of the developed competences.* (Baughn et al. 1997, 107-108; Almeida et al. 2002, 159.) According to previous research findings, the integration of knowledge is even more important for its efficient exploitation than its transmission (see Almeida et al. 2002, 156). It has also been argued that true expertise can be developed through learning by doing, as only then one can take the new context fully into consideration (Swap et al. 2001, 97).

Thus, integration into the new organizational context will most likely include at least partial re-creation of the competence: only when it is tailored to fit the organizational context can it be embedded (and thus provide most value). (von Krogh et al. 2000, 220-221.) As knowledge is developed within the company it can be used to create rare and difficult to imitate (core) competences. *Thus, although it was originally acquired from outside the organizational boundaries, it can be used to create sustainable competitive advantage through internally developed competences.* The more practical ways of disseminating and supporting the dissemination of knowledge are discussed in more detail in Chapter 4.4.2.

4 ELEMENTS IN THE KNOWLEDGE-ACQUISITION PROCESS

Factors related to both knowledge and the organizations involved affect the knowledge-acquisition process (e.g., Simonin 1999; 2004; Cohen – Levinthal 1990; Lane – Lubatkin 1998). The characteristics of knowledge and the companies abilities to exchange it are therefore discussed below as elements affecting the inter-organizational learning process.

4.1 Characteristics of Knowledge

Competences are often considered from a functional perspective, i.e. why they are important and how they enable the company to provide its customers with superior value (Drejer 2000, 207). However, in the context of this research this perspective does not capture the whole essence of the acquisition of knowledge in a business relationship, and the focus is therefore on its structural characteristics, i.e. what it is like and how it is constructed (see Drejer 2000, 207; Chapter 2.1.3).

Although different forms of organizational governance have been used in order to facilitate the sharing of knowledge and expertise, it seems that the biggest problems companies encounter are related to the specific nature and characteristics of knowledge and its embeddedness in its organizational context (Simonin 2004; Lam 1997, 974). The following analysis and discussion concentrate on its most essential and partly inter-dependent characteristics: *tacitness, complexity, partner specificity and diffusion* (adapted from Simonin 1999, 466-467; Eriksson – Hohenthal 2001, 95-96; Teece 2000a, 13-19; Boisot 1998, 42-55).

4.1.1 Tacitness and Contextuality

Tacit knowledge is knowledge that is difficult to articulate in a meaningful and complete way from one individual to another, and it is a major contributor to knowledge ambiguity and consequently inimitability (Teece 2000a, 13; Kogut – Zander 1996, 6; Simonin 1999, 481-482; 2004, 418-419, 421; Reed – DeFillippi 1990, 94-96; Szulanski 1996). It is strongly related to the notion

that we know more than we can actually tell (Polanyi 1966, 4-5). Tacitness is a basic characteristic of know-how, which could be described as the accumulation of non-codified skills. Tacit knowledge thus consists of search rules, heuristics that identify the problem and the elements comprising the solution (Polanyi 1966, 23-24; see Kogut – Zander 1997, 312-313). Moreover, tacitness is an essential element in the acquisition of knowledge: it has been argued to be one of the most important factors affecting the difficulty of knowledge acquisition due to its embeddedness in the specific context (Brandt Husman 2001, 9; Simonin 1999, 469, 479-482; Simonin 2004, 416-419, 421; Szulanski 1996, 36; Almeida et al. 2002, 158). The more tacit the knowledge is, the more difficult both organizations involved are likely to find it to understand its essence.

Tacitness also has clear implications concerning the value of knowledge and the possibilities of gaining competitive advantage through a specific competence. In order for the knowledge to be a basis for competitive advantage it should be fairly easily transferable within the organization. However, at the same time, if knowledge is to provide the company with competitive advantage, it should be relatively difficult to imitate outside of its relevant context. (see Lubit 2001, 165-166; Zander – Kogut 1995.) It will be very difficult for outsiders unfamiliar with the organizational background to understand the dynamics between the organizational and environmental contexts and the organization's competences. Tacit knowledge is also related to the acquired explicit knowledge which is often difficult to interpret and utilize in a meaningful manner without it (Shariq 1999, 245).

Furthermore, tacit knowledge is typically embodied, and it is close to impossible to acquire it through a simple process of transmission in a standardized way, as with information components. The problem is that a company cannot exchange, duplicate or acquire something that it does not fully understand. (Szulanski 1996, 36; Teece 2000a, 16-18.) Furthermore, tacitness also makes it difficult for the receiver to further develop the knowledge in its new context as it affects the ease of further dissemination (see Inkpen – Dinur 1998; see Szulanski 1996). It is worth noting that the level of tacitness²⁸ is not a matter of being tacit or not, and it should rather be considered along a continuum (Tsoukas 1996, 14; see Styhre 2004, 183; see Lahti – Beyerlein 2000; see Schultze – Stabell 2004, 561-563). It thus follows that the acquisition of tacit knowledge is likely to be difficult (Eriksson – Hohenthal 2001, 95-96).

One way of enhancing the possibilities of acquiring tacit knowledge is to make it more explicit by codifying it in a more comprehensible form (see

²⁸ This also applies to the other knowledge characteristics discussed.

(Nonaka – Takeuchi 1995). However, this codification can never be comprehensive because some of the experience-based knowledge will inevitably be missed, and it could alter the true nature and content of the acquired knowledge and put its inimitability at risk. (Lubit 2001, 167-170; c.f. Cook – Brown 2002; see Almeida et al. 2002, 158; c.f. Herschel et al. 2001.) Therefore, one could argue that tacit knowledge cannot be simply acquired from outside of its specific context and instantly taken into use: it needs to be understood and processed, and then diffused into its new organizational context in order to be exploited. It seems self-evident that this requires strong efforts from both of the parties involved.

4.1.2 Complexity

Complexity refers to the number of interdependent routines, individuals, and technologies linked to a particular form of knowledge. The problems it raises may be very similar to those discussed in the context of tacitness, but the two characteristics differ. With complexity it is more a question of the difficulty of integration and the development of a common understanding, as several distinctive areas of technology and expertise are brought together to form a competence. (Simonin 1999, 470, 483; Zander – Kogut 1995, 82; see Hansen 1999.) In this case, the problem is concerned not so much with embeddedness or the difficulty of understanding how things work, but is more to do with the complexity of the linkages between the skills and the technologies.

However, just like tacitness, complexity may affect the ease of the knowledge acquisition. Given that a complex competence incorporates an abundance of different kinds of knowledge, its acquisition would require an understanding of the environmental context and the intertwined areas of expertise embedded in it. (Simonin 1999, 470.) In praxis this could make the linkages within a specific value chain to the operative systems very confusing, or then the activities performed within the company may relate strongly to the activities carried out in the value chains of its suppliers or customers. As the knowledge becomes more complex it will involve different areas of expertise and technologies, and will thus require a wider basis of expertise among the people involved in the acquisition process (see Cohen – Levinthal 1990). This is consequently related to the amount of education needed for someone to be able to understand the relevance of complex information (Eriksson – Hohenthal 2001, 97), or then more people from different operative units need to become involved in the process.

Finally, it should be noted that various studies have reported that complexity is not an especially significant factor affecting the ease of

knowledge acquisition. Still, it has been found to correlate positively with tacitness and organizational distance, for example, all of which make the learning environment especially challenging to the organizations involved. (Simonin 1999, 479-483; c.f. Hansen 1999.) Thus, complexity is regarded here as one of the main knowledge characteristics affecting the acquisition process.

4.1.3 Value and Partner Specificity

The value of knowledge is by no means an easy characteristic to analyze. The problems are related on the one hand to the fact that the same piece of knowledge may be valuable to someone, but considerably less valuable to someone else. On the other hand, value is also closely related to the level of diffusion in different contexts. (see Boisot 1998, 72-89.) For example, knowledge may produce more value within an organization the more it can be diffused in different markets and subsidiaries. However, if knowledge is diffused outside of organizational borders it may become obsolete if it gets into the hands of competitors, for example. Exchanging knowledge may lessen the value of the transferor's whole knowledge base if the receiver should use the gained knowledge against its partner (see Brandt Husman 2001, 5). On the other hand, sharing knowledge with a reliable customer/partner may mean that it can be significantly further developed, and therefore increased in value. In the final analysis, it could be argued that value derives from the external environment of the organization, as it is dependent on the structure of the markets and the willingness of the customers to buy the related product or service (Priem – Butler 2001, 29).

The notions of value and specificity are discussed together here, as they are closely interrelated. One could think of the notion of specificity in the context of the receiver's possibilities of exploiting the acquired knowledge in other relationships, thus it could also be considered a potential source of ambiguity (Simonin 1999, 467-470; Doz 1997, 57). The higher the particularity of the competence, the less value the capability carries outside of the specific relationship (Alajoutsijärvi – Tikkanen 2000, 9). In this sense, the value of the knowledge to the receiver may be in the usefulness of the competences outside the specific relationship in a broader field of exploitation opportunities, while at the same time the value for the transferor is in the partner's high level of problem-solving capacity in a specific context (Doz 1997, 65). In terms of the company's competitive advantage this may mean that the efficient deployment of such a competence within the organization is very difficult or costly. Furthermore, the more closely the knowledge is linked to the specific environment and task, the more tacit it is likely to be: thus, tacitness and

specificity could be considered closely related (Brandt Husman 2001, 10). However, specificity of knowledge may also be a very valuable quality as far as the transferor is concerned: the value of a competence is evident in the fact that it is strongly protected against imitation. Therefore, the specificity of the acquired knowledge could also be considered a restriction to its use outside the organization, which will naturally have implications in terms of the ease of acquisition. (Simonin 1999, 470; see Nielsen 2005, 1199; Norman 2001.)

In conclusion, it appears that the specificity and value of knowledge affect the acquisition process more indirectly than the other characteristics: they are, in fact, more directly related to the relationship context and to the fear of possible opportunism. However, if the organizations do not have the required level of trust between them, the learning process may also be affected because they cannot communicate as openly as is necessary for the sharing of tacit and complex knowledge to be effective.

4.1.4 Level of Diffusion

Finally, diffusion as a knowledge characteristic concerns the organizational structure of the knowledge, i.e. how widely it is disseminated and utilized within the transferor's organization (see Lam 1997, 977). In this sense, it is related more to the number of possible knowledge sources the receiver has available. This level can be assessed according to the unit of analysis within the organization, i.e. whether the knowledge is regarded as individual, team-level, inter-team-level or organizational (Lam 1997, 977; Alajoutsijärvi – Tikkanen 2000). Extensive knowledge diffusion within the transferor's organization could be argued to be important given the ease of knowledge acquisition, the level of which is arguably affected by the existence and nature of the transmission channels (c.f. Gupta – Govindarajan 2000).

The way in which knowledge is structured within the organization is closely related to the way in which the company is organized and coordinated. Very strict concentration on individual development and specialization may lead to an emphasis on specialized knowledge, which is diffused in a very limited manner. On the other hand, a focus on job rotation may lead to more extensive diffusion of knowledge. (Lam 1997, 977-978.) Consequently, there are also clear implications concerning the ways in which knowledge can be acquired from partners. During this process, extensively diffused knowledge within the transferor's organization may facilitate broad interaction between the different levels of the receiver's organization, and consequently enable efficient knowledge acquisition. Further diffusion could promote more varied ways of organizing cooperative learning efforts and a more comprehensive basis for

developing the openness of communication (c.f. Gupta – Govindarajan 2000, 478-479). In that case the receiver would have access to more people who are knowledgeable about the issues – and consequently views from different parts of the transferor’s organization could be made available.

As the above discussion has shown, there are several characteristics of knowledge that affect its acquisition, and the management of the relationship. The organizations’ abilities to facilitate the acquisition process are discussed more specifically in the next section: including the organizations’ ability acquisition abilities and the organizational characteristics that affect the degree of difficulty the knowledge characteristics bring to the acquisition process.

4.2 Learning Ability in Terms of Absorptive Capacity

The concept of absorptive capacity, as referred to by Cohen and Levinthal (1990), has been widely recognized as an important facilitator of inter-organizational learning²⁹. They define it as the company’s ability to “*recognize the value of new, external information, assimilate it, and apply it to commercial ends*” (Cohen – Levinthal 1990, 128). However, it could be argued that, given the context of knowledge acquisition, they overemphasize the importance of the receiving company’s characteristics and the role of previous knowledge (see also Mowery et al. 2002), as far as individuals’ cognitive abilities are concerned (Lane – Lubatkin 1998).

Consequently, the effects of the relationship context are somewhat underestimated which undermines the transferor’s ability to cooperate and support the process. One should therefore be aware that all this is not totally up to the receiver, and that the process needs to be supported by the transferor’s characteristics and activities in order to ensure a balance among the basic elements of learning. There is thus good reason to consider the concept more comprehensively on the dyadic level (Lane – Lubatkin 1998, 473; Mowery et al. 2002; Dyer – Singh 1998, 665). Furthermore, it should be regarded not as a partner-specific issue, but as something on which the parties concerned can have an effect (see Dyer – Singh 1998, 665-666). Absorptive capacity is thus a problematic concept since it has been vividly and widely used and carries certain presumptions (see Lane et al. 2006).

It could be argued that if absorptive capacity is used as a measure of a company’s ability to learn and apply new knowledge, it needs to be related to

²⁹ Absorptive capacity has been recognized as a determinant of learning in a number of publications although its definition seems to vary from case to case (see e.g., Hamel 1991; Johnson – Sohi 2003; see Lane et al. 2006).

a number of factors besides prior related knowledge. The individuals' ability to interact and communicate in particular is often regarded as a significant factor in knowledge acquisition (Dyer – Singh 1998, 665; Cummings – Teng 2003), but it is often discarded in empirical analysis (e.g., Cohen – Levinthal 1990; Mowery et al. 2002) concerning absorptive capacity. Figure 12 introduces the essential determinants of absorptive capacity as discussed in the literature (based on Lane – Lubatkin 1998; Hamel 1991; Minbaeva et al. 2003; Cohen – Levinthal 1990; Lane et al. 2001).

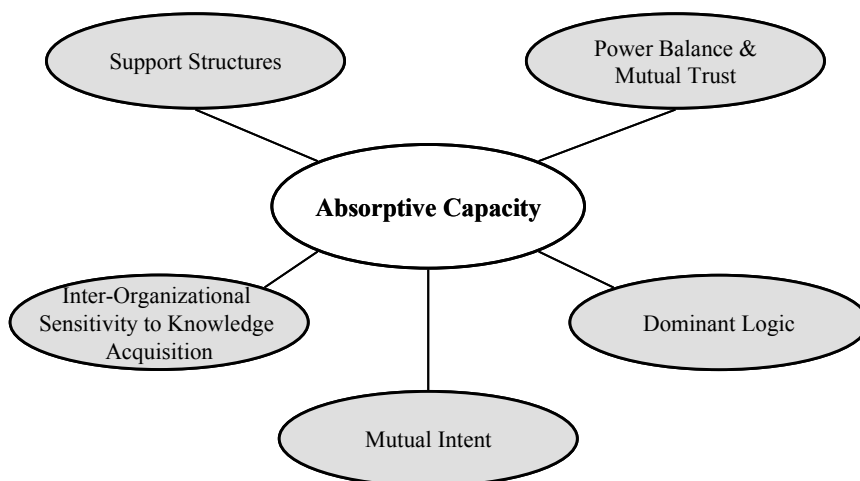


Figure 12: Determinants of Absorptive Capacity in Inter-Organizational Knowledge Acquisition

A basic pre-determinant of inter-organizational learning is *the mutual trust* between the parties that is needed to ensure transparency and also underlines the importance of *support structures*, which can be adapted according to the relationship goals (Minbaeva et al. 2003; Goh 2002; Lane et al. 2001). The *mutual intent* to learn reflects the receiving company's desire to gain new knowledge based on the mutual motivation of the partners to facilitate the knowledge flow (Johnson – Sohi 2003; von Krogh et al. 2001; Nahapiet – Ghoshal 1998; Lyles – Salk 2007). In addition, the fit of the companies' *dominant (strategic) logic*³⁰ affects the receiver's ability to capitalize on the acquired knowledge, which is largely dependent on the ability to understand

³⁰ Dominant logic was originally introduced by Prahalad and Bettis (1986) as a determinant of the management's ability to conceptualize the business and to perform in differing industrial contexts through implementing a coordinated deployment of the firm's resources. For the purposes of this study, it is considered critical in terms of understanding how business is conducted within a specific industry (see Lane et al. 2001, 1144; Sanchez et al. 1996, 11; c.f. Prahalad – Bettis 1986, 490).

its value within its new context, and to utilize it in order to achieve their strategic goals (adapted from Lane – Lubatkin 1998; Lane et al. 2001; see Sanchez et al. 1996, 11). Thus, it could be argued that the role of dominant logic is also relevant for finding a suitable partner and for the significance of opportunism within the relationship.

Finally, *inter-organizational sensitivity to knowledge acquisition* determines the receiver’s cognitive ability to identify, understand and acquire valuable knowledge (adapted from Hamel 1991; Lane – Lubatkin 1998). The trust and support structures represent the structural determinants, whereas the ISK and dominant logic represent the cognitive determinants of successful knowledge acquisition and integration (Lane et al. 2001). Thus, if we are fully to understand the factors affecting and constituting the company’s ability to learn we should consider it more comprehensively as a dyadic-level concept that can be affected by the partners involved.

4.3 A Typology of Inter-Organizational Sensitivity to Knowledge Acquisition

The new concept of inter-organizational sensitivity to knowledge acquisition (ISK) is introduced here in order to highlight the essential variables inherent in inter-organizational knowledge acquisition. A typology (see Figure 13) based on a review of the literature on the antecedents of ISK are depicted in the following (see Cohen – Levinthal 1990; Hamel 1991; Kogut – Zander 1997; Bierly – Hämäläinen 1995).

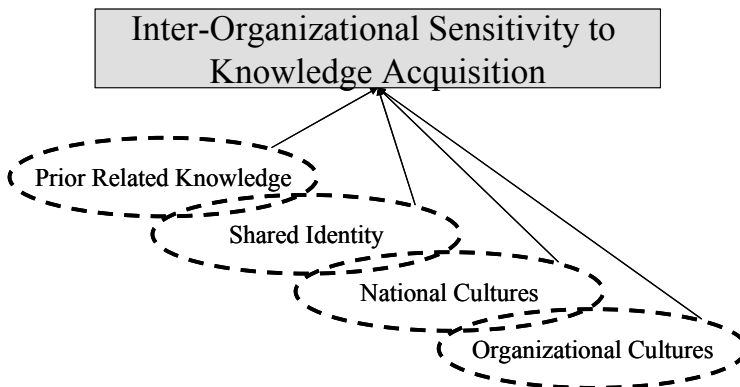


Figure 13: A Typology of Inter-Organizational Sensitivity to Knowledge Acquisition

Internal knowledge creation has a clear advantage over learning from external sources in terms of the learning process, as the firm represents a social entity with shared values and understanding (Kogut – Zander 1997). However, a strong shared identity and trust, as well as extensive social linkages, may offer partnerships many of the benefits of internal development processes, and thus could be considered fundamental in developing mutual understanding (Almeida et al. 2002, 149-150; Eisenhardt – Schoonhoven 1996, 146-147; Child 2001b, 676; Nahapiet – Ghoshal 1998; see Badaracco 1991, 129-145; Dyer – Singh 1998).

In the inter-organizational context, this constitutes the basis on which organizations develop an understanding of the underlying mechanisms and assumptions in knowledge acquisition, and subsequently facilitate its interpretation through the development of shared worldviews and mental models (Hedberg 1981; Nahapiet – Ghoshal 1998; Kogut – Zander 1996). The notion of a shared identity is very much organization- and context-specific, and is based on the interactions and past experiences of the individuals³¹.

Thus, and perhaps even more importantly, it is the abilities of the individuals and the organization as well as a supportive organizational culture that affect the company's ability to absorb new knowledge and to turn it into new competences (Cohen – Levinthal 1990, 128-138; Bierly – Hämäläinen 1995; Goh 2002, 25-27). Since organizations learn through the learning of the individuals within it, its receptivity could be considered a product of their ability to understand the acquired knowledge. The knowledge characteristics also affect what is required of the individuals. Finally, the organization's prior knowledge base is another important variable affecting the ability of the receiver to understand (Cohen – Levinthal 1990, 130-132). Each of the variables is discussed in more detail below.

4.3.1 Prior Related Knowledge

The organization's learning capacity is essentially a product of the cognitive abilities of the individuals concerned. One of the most widely recognized aspects of inter-organizational learning is the importance of prior related knowledge to the organization's absorptive capacity (Cohen – Levinthal 1990). Similarity in prior expertise crucially affects the company's ability to learn from external sources as it facilitates a common understanding of the

³¹ Thus, for example, laying off large numbers of people may lead to the need to restructure the organization and its shared identity as the formerly stable situation is shattered. It may also affect the company's ISK as the transactive memory and shared identity may have to be at least partially rebuilt.

basic pros and cons of the knowledge and the potential for applying it more easily. As a result of their prior experiences, individuals will have developed schemas and mental maps for handling similar situations and problems, and are subsequently better able to absorb even highly complex and tacit knowledge. (Cohen – Levinthal 1990; see Weick 1979.)

In order to integrate new knowledge a company needs to be able to identify knowledge entities that can be acquired, and if the knowledge gap between the companies is too great, learning may become impossible (e.g., Hamel 1991, 96-97). In particular, if the knowledge is highly tacit and complex, the ability to absorb new knowledge will have a crucial effect on the possible success or failure to integrate it efficiently (see Cohen – Levinthal 1990, 131-135). Therefore, the people involved in the learning process should possess a diverse range of competences so that essential issues can be dealt with. In terms of professional characteristics, they should: (a) have similar prior knowledge and expertise so that they can understand each other, and the potential for knowledge acquisition and the exploitation possibilities, and (b) have diverse backgrounds and a wide understanding of related competences so that they can understand the available knowledge in its complexity and tacitness (Cohen – Levinthal 1990; Helleloid – Simonin 1994).

Prior experience of similar situations and problems leads to a multiplicity of interpretive schemes that can be utilized in new projects. However, it is not the knowledge from previous situations per se that counts, but rather the experience – and the consequent ability to interpret and adapt to similar situations based on previous learning (see Cohen – Levinthal 1990; c.f. Gelbuda et al. 2003). In a sense, the line between learning and problem solving is very narrow. This seems to reflect the essence of double-loop learning, which enables understanding of the experience and its relation to the context. Similarly, external learning is essential in the sense that external knowledge sources are not limited by the individuals' cognitive maps, the organization's mental maps, or the procedures used in knowledge creation (adapted from Sinkula 2002; Huber 1991; Leonard-Barton 1992). Thus, one could argue that some differences (complementarity) (see Lanza 2005; Shenkar – Li 1999) need to exist in order for learning to be beneficial, but if they are too big they may devastate the companies' learning efforts.

4.3.2 Shared Identity

A company as a hierarchy is different from a market transaction in the sense that coordination, communication and learning (i.e. the essence of the acquisition process) are situated not only physically within the organizational

structure but also mentally within its identity. *This so-called shared identity not only lowers the cost of communication and the fear of opportunism, but also sets certain tacit rules, linguistic norms, and values promoting the efficient coordination of activities and learning.* (Kogut – Zander 1996, see Granovetter 1985, 494-495.) If these organizational bases for perceiving and interpreting the environment are very different, it will create challenges in terms of knowledge acquisition. A shared identity may help in terms of understanding the underlying mechanisms of knowledge acquisition and may subsequently facilitate the interpretation of knowledge. (Nahapiet – Ghoshal 1998; Child – Rodrigues 2003; Child 2001b; see Kogut – Zander 1996.) *The notion of shared identity is discussed in the following in terms of the ease with which interacting individuals find (a) a shared social identity, (b) a shared national identity and (c) a shared professional identity* (see Child – Rodrigues 2003). A shared identity is at its highest when there is a basis for strong identification on all of the three dimensions (based on Child – Rodrigues 2003), and at its lowest when none of the criteria is met.

A strong social identity within the separate organizations may cause the individuals to distance themselves from differing identities and to oppose the views of learning thus promoted (Child – Rodrigues 1996; Child – Rodrigues 2003, 536). In order to efficiently communicate the essence of tacit knowledge in a business relationship the parties concerned need to be able to trust and relate to each other in the search for mutual understanding (Kogut – Zander 1996; Child – Rodrigues 2003). They can do this by developing a shared social identity (*ibid.*), which could result from the cognitive and social relatedness (identification, norms and trust) between the individuals involved in the partnership. At the same time, this is also bound to the structural dimension of the organization, i.e. the network ties and configuration. (adapted from Nahapiet – Ghoshal 1998.) All this may enable individuals to find a common identification based on the distinctiveness and prestige of the group sharing their values and trust, as well as on the shared perceptions of outsiders (Asforth – Mael 1989). Thus, it is important to note that a shared identity also represents a coordinative element of the relationship context as it facilitates the development of mutual trust (Blomqvist 2002, 232).

There are two further identification bases that could be considered important in the context of inter-organizational cooperation – shared national and professional identities (Child – Rodrigues 1996; 2003). A shared professional identity is related to the development of a shared understanding based on similarities in professional background, or familiarity with a specific environmental context (e.g., a common technological or industrial environment) (Child – Rodrigues 2003; see Fiol 1991, 200; Kogut – Zander 1996, 513; Bogenrieder – Nooteboom 2002, 14). People with a specific type

of education and working background may often have similar ways of thinking (Kim – King 2004). Furthermore, it has been noted that a strong professional identity may lead to weaker identification with the organization (Alvesson 2000). Closely related to this is the prior experience of dealing with similar learning situations, which may be characteristic of a specific profession.

Similarities and differences in national identities could also affect the development of a shared identity, and subsequently the development of a shared interpretation for the acquisition of tacit knowledge (Lei et al. 1997, 217; see Lane et al. 2001). Culture as a shared system of values and assumptions could be argued to affect the way people make sense of their environment and experiences (Biljsma-Frankema 2001, 194; Schein 1985, 6). This challenge will assume even more significance as organizations broaden their international activities globally (Child – Rodrigues 2003). Thus, nationally based values and shared identification play an essential role in developing a mutual basis for interpretation and trust.

Furthermore, the development of a shared identity is important in inter-organizational cooperation given the potential anxiety arising from the questioning of the usefulness of identification with one's original organization (Child – Rodrigues 2003). In order to acquire socially constructed knowledge, individuals need a shared identity as a basis for interpretation. Its role is therefore especially important when the knowledge contains tacit components, which are closely related to assumptions about the company's values and processes and thus require double-loop learning (see Child – Rodrigues 2003). Furthermore, their identity affects how the people concerned perceive the relationship and the decision-making within it, thus essentially affecting the knowledge acquisition (see Wiig 2003; Simonin 1999).

A shared identity also determines the basis of the common language and concepts used in everyday interaction within the learning group (Fiol 1991, 197; Kogut – Zander 1996, 506, 509). A common language helps in the development of social relations, shared interpretations, and the ability to communicate and learn, subsequently facilitating the acquisition of tacit knowledge (Fiol 1991, 197-198; Kogut – Zander 1997; Nahapiet – Ghoshal 1998). It is worth considering in terms of the native language used in the partnership, although the use of professional jargon may also hinder the development of a mutual understanding between cross-functional teams, for example.

On the other hand, it is not just a question of inter-organizational structure and having linkages between specific individuals: the individuals need to be able to communicate and share their understanding (see Newell et al. 2004). Previous research results indicate that a more dense set of network linkages

may offer more opportunities for developing close interaction and a shared identity, as well as trust (see Karamanos 2003), and that a high level of interaction allows for the more efficient acquisition of tacit knowledge (von Krogh et al. 2000, 9). Thus, it could be argued that close interaction is an essential component of creating a shared identity within the learning community.

A shared identity also affects the way people perceive each other as members of a group, and thus the way in which self-interest and trust are perceived and sought (Kogut – Zander 1996, 506). The essence of identity is often discussed in terms of internal cohesion and the diminished need for control and coordination (Nahapiet – Ghoshal 1998; Kogut – Zander 1996; Asforth – Mael 1989). Furthermore, the development of inter-personal trust is related to the individuals' abilities to develop a shared means of communication and understanding (adapted from Politis 2003). However, it could be argued that a shared identity is related not only to the social context and the companies' ability and willingness to change their processes and values, but also to the relationship context and the aims of the partners. This kind of trust may also help companies to understand each other better, as it requires more transparency and interaction than trust based on enforced agreements and contracts (Child 2001a; Nahapiet – Ghoshal 1998).

Given that the partners in an inter-organizational relationship may not have been interacting and communicating with each other before, there will be a cognitive distance between them. In order to communicate the essence of their tacit knowledge they need to trust and relate to each other, and to understand one another. This can be achieved if the people involved have developed a sense of shared identity within the group. (Bogenrieder – Nooteboom 2002, 3; Kogut – Zander 1996, 503, 506; see Penrose 1995, 18.) Consequently, a strong shared identity may be of benefit in terms of acquiring knowledge through partnerships. Furthermore, previous experience with other organizations and their social worlds can be seen to help individuals to develop a shared identity within new relationships (Gelbuda et al. 2003; Child 2001b, 669).

4.3.3 Developing a Shared Mindset

In a sense, a shared identity and prior related knowledge could be considered prerequisites for the partners' learning abilities. A low level of either of these variables will affect the individuals' ability to develop a shared understanding and the acquisition of knowledge. Without a shared social identity people will have difficulties in finding the right means of interacting. On the other hand, without a shared background in terms of technology or knowledge people will

have difficulties in understanding the essentials of the acquired knowledge and its underlying assumptions. It could thus be argued that there are two especially important sets of case-dependent factors that affect the parties' abilities to develop a shared mindset.

		Level of shared identity	
		High	Low
Relatedness of prior knowledge	High	High	Medium
	Low	Medium	Low

Figure 14: The Organizations' Ability to Develop a Shared Mindset

As Figure 14 shows, the essential variables are the relatedness of the prior knowledge bases and the level of shared identity. When both of these are high, the probability that the knowledge will become successfully acquired is greatest as the partners can establish a basis for social interaction and understanding as well as the efficient communication of knowledge.

Moreover, it seems that, given the specific nature of the acquired knowledge, the physical structures and the level of interaction may not always be the most important issues for management to resolve: it is more likely to be the tacitness of the knowledge and its embeddedness in the organizational context that create the strongest barriers to learning. These barriers include the individuals' willingness and ability to communicate with each other, and can be overcome by developing a shared identity. Consequently, it has been argued that similar knowledge-processing systems in the companies seem to facilitate interaction (Lane – Lubatkin 1998, 464-465; see Cohen Levinthal 1990), and subsequently learning. These similarities may facilitate communication, and also allow the establishment of a shared identity with less effort in terms of communication and knowledge acquisition. Thus, it is not just a question of physical similarities in the development of the cooperational social context. (see Kogut – Zander 1996.) The firm is a social community and the acquisition process takes place within the social context of two separate organizations. Thus, it is necessary to create an environment in which both parties feel confident about the sharing of valuable knowledge. Furthermore,

the more specific the aim of the relationship is, and the more different the people involved are, the more important the development of a shared identity will be (see Asforth – Mael 1989).

From the network perspective it is essential to understand the nature of inter-organisational knowledge acquisition and the companies' learning abilities. *Being actively involved in similar kinds of partnerships may be helpful in terms of building an alliance capability that supports the organization's ability to manage its partnerships* (Draulans et al. 2003, 156-161; Simonin 2002, 240-244; Blomqvist – Levy 2006, 44; Anand – Khanna 2000; see Dyer – Hatch 2006; Powell et al. 1996, 120-122; 136-138). Moreover, cooperating with more partners may help in the development of a shared identity and ISK as the company gains experience in similar situations (see Child 2001b, 669). This could be further highlighted, as prior experience in business relationships seems to support the acquisition of tacit knowledge (Simonin 1999, 474, 480). Thus, it may be that just as trust develops iteratively, alliance capabilities can also be developed through experience. However, a company's ability to acquire and assimilate knowledge is strongly relationship-specific due to the tacit and complex nature of its social processes (see Dyer – Singh 1998). Yet, experience may help in developing new capacities in other relationships, as prior experience in business relationships and in inter-organizational learning have been found to support knowledge acquisition (Cummings – Teng 2003; Simonin 1999, 484-485).

At best, together with the relationship-specific investments and developed interaction, the set of tacit and difficult to imitate social ties and a shared identity as a basis for interpretation could even be developed into an asset that creates competitive advantage (Child 2001b; Dyer – Singh 1998; Dyer – Hatch 2006; Fiol 1991; Fiol 2001). Other relationships may benefit from some of the results of the partnership, but it would be very difficult to copy the absorptive capacity of the partners and their shared social identity and capability in order to develop a shared understanding. Thus, developing competitive advantage through partnerships could be further based on the relationship-specific investments and the subsequent combining of complimentary knowledge sources at less cost than the competition incurs. (see Dyer – Singh 1998; Fiol 2001.)

This further stresses the fact that developing a shared identity is more than building network connections with other individuals. A shared identity may create a shared understanding of concepts, which in turn would produce a more stable and encouraging basis for inter-organizational learning as well as relationship development. Consequently, it could be considered essential both in helping managers to resolve and avoid conflicts and in developing a shared

basis for interpretation and trust, which is essential if companies are to communicate the essence of their tacit, embedded knowledge.

4.3.4 The Role of National and Organizational Cultures

In terms of the ease of interacting and communicating as well as of building up mutual trust, it is not only the development of a shared identity but also organizational and national cultures that affect knowledge acquisition (Simonin 1999, 472-473, 484; Lyles – Salk 2007, 12, 15-16; see Child 2001a, 279). It is very difficult to clearly differentiate between the effects of a shared identity and cultural issues, as they are essentially intertwined. *As a shared identity was considered above in terms of shared recognition and interpretation, the role of national and organizational cultures is now considered more generally through the cultural implications on individuals' perceptions and attitudes towards learning, change, and management.*

The difficulties in managing within a mix of cultures arise from the fact that people are often unwilling to adapt to change and to different ways of organizing and managing (Child – Rodrigues 1996; Biljsma-Frankema 1997, 138-139). As far as knowledge acquisition is concerned, one should recognize the importance of language and how it creates obstacles to effective communication about the partner's knowledge, and to the development of trust and a shared identity (see Simonin 1999; Barner-Rasmussen – Björkman 2003).

It has been argued that differences in national cultures are related to the characteristics of the acquired knowledge and the way they can be supported by the cultural characteristics³². For example, collectivism appears to offer more support for tacit-knowledge acquisition than individualism since people are more used to interacting and working in groups. (see Bhagat et al. 2002, 209-210; Lucas 2006, 263; Wagner 1995.) Differences between companies in terms of power dependencies may result in one controlling the other, and a sense of superiority may lead to a lack of learning motivation and willingness to compromise (Lucas 2006, 265-266; Inkpen 1996). Differences in uncertainty avoidance, on the other hand, may lead to differences in the way in which companies perceive change and search for new ideas (Lucas 2006, 267-268). Finally, differences in masculinity/femininity may lead to a situation in which one company is looking after its own interests and exploiting the other (Lucas 2006, 269-270). Consequently, it could be argued that possible

³² Hofstede (2001) described cultural characteristics as: collectivism-individualism, power dependence, uncertainty avoidance, and masculinity-femininity.

differences in the organizational cultural background compromise the effectiveness of the knowledge-acquisition efforts (Bhagat et al. 2002, 217; Lucas 2006, 271).

Differences in organizational culture may have serious implications for inter-organizational knowledge acquisition in two respects: they may limit the cooperation and interaction (a) in terms of how beliefs and values affect the way people behave and interact with others, and (b) in terms of the way people perceive cooperation as a way of operating, and how they encourage learning (Simonin 1999, 472-473; Osland – Yaprak 1995, 56-57; Campbell 1985, 271; Child 2001a, 279; Child – Heavens 2001).

These differences may give rise to serious challenges concerning the relationship as a learning environment. A learning culture is usually realized in an atmosphere of continuous development and evolution, and on a level of autonomy that supports individuals' development efforts (Englehardt – Simmons 2002; Child – Heavens 2001; Pedler et al. 1989, 3-4). A learning environment also supports learning and knowledge sharing between individuals on different levels of the organization (Englehardt – Simmons 2002, 43; see Garvin 1993). The willingness to learn can be fostered in an organization that is willing to question its practices in the search for more efficient ways of operating (Child 2001b; Leonard-Barton 1992). Furthermore, the organization will also need to unlearn current practices in order to fully adopt new procedures from its partners (Hamel 1991; Cohen – Levinthal 1990; see Pedler et al. 1989, 4). It could also be argued that management's role is essential in encouraging and coordinating the organization's learning efforts according to its knowledge-development strategies (Hutt et al. 2000; Child – Heavens 2001). Inherent in this managerial decision-making should be support for open communication within relationships and the use of reward schemes that encourage learning (Bresman et al. 1999; Gupta – Govindarajan 2000; Dyer – Singh 1998).

Similarly, a tradition and willingness to cooperate with other companies and the subsequent penetrability and ease of making adaptations and investments affect the company's abilities to learn from relationships (Bogenrieder – Nooteboom 2002; Child 2001b; Dyer – Singh 1998). The organizational culture can be considered to affect the development of a shared identity, especially in how it encourages working in cooperational relationships and perceives outsiders (see Schein 1985, 50).

Secondly, the company's willingness to learn can be argued to be essentially bound to its organizational structure. One of the key elements in inter-organizational learning is the level of open communication and information sharing (Lennox – King 2004). Furthermore, one might expect that companies with a learning intent will try to develop management practices

and relationship structures that support their learning efforts, and will further help in the development of a shared identity. Thus, these factors are clearly closely interrelated and may consequently affect the nature of the learning environment. On the other hand, it has been claimed that the significance of cultural differences in close cooperation diminishes as the relationship matures (Simonin 1999, 484-485; Lyles – Salk 2007, 12, 15), which could be seen as a result of the companies' ability adapt to differing cultural backgrounds.

4.4 Situational Factors Affecting Knowledge Acquisition and Dissemination

The organization's ability to acquire knowledge seems to be related to several situational factors as well as to its ability to learn (Dyer – Singh 1998, 665, 668; Lane – Lubatkin 1998, 461-462). According to previous research results, the following issues at least affect partner-specific learning ability on the organizational level: similarity in organizational size and structure on the operational level (lower management formalization) and the extent to which the partners have developed mutual interaction routines to facilitate interaction (Dyer – Singh 1998, 665; Lane – Lubatkin 1998, 464, 471-472; Cohen – Levinthal 1990, 135-136). These are therefore analyzed next in terms of their ability to facilitate the coordination of the learning process and the interaction between the individuals involved (see Jansen et al. 2005, 1009).

4.4.1 The Effects of the Organizational Characteristics

As the relationship is constructed on the interaction of two independent companies, the organizational characteristics may also affect the acquisition process (see Campbell 1985, 268). An element of similarity may facilitate the companies' ability to understand the underlying assumptions and experiences embedded in their partner's knowledge base. The essential organization-level factors analyzed here include size and structure (Campbell 1985, 271).

The company size is relevant in terms of the availability of resources to invest in the relationship (Greve 2005, 1029) and the potential power dependencies between the partners (Campbell 1985, 271). According to previous research results, it is also worth considering how the role of similarity in organizational structure and decision-making processes, as well as in reward systems may support organizational learning (see Lane – Lubatkin 1998, 465, 471; Cummings – Teng 2003; Simonin 1999). Organizational characteristics are considered relevant here to the extent that

similarity would facilitate understanding of the partner's organizational context, whereas dissimilarity would suggest the need for more interaction and communication in the search for a common contextual understanding. There is a potential trade-off between knowledge compatibility and complementarity: the more similarity there is, the easier the learning process is likely to be, and at the same time the benefits of the acquisition may diminish (Håkansson – Lundgren 1995, 311; see Levin – Cross 2004, 1478).

In more general terms, the company size and structure are also of relevance in terms of variables such as size, familiarity, and preferred interaction style (Campbell 1985, 268-272). Its structure affects the organization's relationships in several ways – in the short term it creates a framework for the interaction process (IMP Group 1982, 12). Furthermore, the organizational characteristics create the basis on which the knowledge-acquisition process is built. For example, large differences in company size may lead to a lack of fluency in communication or to difficulties in the development of a truly cooperational relationship due to power issues.

It has been argued that the organizational structures and organizing principles have significant effects on the way in which interaction and the processing of new knowledge proceeds within the relationship (Lam 1997). The organizational structure is influential, especially in terms of enabling or hindering interaction between people through various cross-functional or cross-organizational interfaces and participation in decision-making, and thus affects people's chances of gaining access to new knowledge (adapted from Jansen et al. 2005). For example, a flexible structure and job rotation, as well as extensive interaction between groups and teams in different parts of the organization, often give the opportunity to develop broader skills (Lam 1997, 977), thereby enhancing the dissemination of new knowledge between work groups in the receiver's organization.

Furthermore, there may be essential differences between companies in terms of how actively they promote learning which is closely related to organizational culture as discussed earlier. Cooperating with a company with very different ideas about learning and inducing change may lead to difficulties in knowledge acquisition. With regard to overcoming these difficulties, there are certain mechanisms that may facilitate the knowledge-acquisition process. These are reviewed in the following section.

4.4.2 Mechanisms for Facilitating Knowledge Acquisition & Dissemination

Alongside the mutual intent to learn and the actual support structures are different ways of facilitating the individuals' interaction and the development of a shared understanding of the acquired knowledge. These "*working methods*" are closely related to unraveling the contextuality and causal ambiguity of the acquired knowledge.

Tacit knowledge in particular is largely bound to the transferor's organizational context, the individuals involved, and the developed processes, and the key to acquiring this knowledge lies in understanding these issues and their interrelations. It has been suggested that the use of stories or case descriptions could enable the sharing of partly tacit knowledge as the knowledge is presented in a contextual manner (see Lubit 2001; Swap et al. 2001, 106-111; Kleemola 2004; c.f. Herschel et al. 2001). At the other extreme, it may be necessary to mobilize people from the receiver's and the transferor's organization in order to develop a shared understanding (adapted from Argote – Ingram 2000). Moving people between organizational contexts would be one solution concerning knowledge transmission since they possess the tacit knowledge, but even then integration into the new organizational context is challenging (Argote – Ingram 2000, 164).

Furthermore, there are different tactics for facilitating social interaction and communication between people that can be utilized in the development of a common understanding and in knowledge integration: grouping people so as to promote efficient learning, utilizing knowledge activists, and mentoring (von Krogh 2000, 14, 147-148; Swap et al. 2001, 98-100; Englehardt – Simmons 2002, 41; Kogut Zander 1996, 510). These are all important facilitators as they may ease the development of a shared identity and common concepts, which play an integral role in inter-organizational learning. Consequently, individual knowledge is shared, questioned, and integrated into the knowledge bases of others.

Knowledge activists can be used as catalysts in knowledge integration. Their coordinative role is often such that they try to leverage knowledge and knowledge-acquisition intentions across the organization, and they often serve as a link between the knowledge-acquisition efforts and the company's strategic goals. (von Krogh 2000, 148-149.) Developing and standardizing processes and routines related to the utilization of knowledge may also serve as a method of dissemination (see Grant 1996, 114-115).

Mentors are experts who could help in the identification & processing phases of knowledge acquisition. They have experience in the area of expertise and they have developed schemes for handling problematic situations. They

promote learning processes that comprise active learning efforts or observation of the mentor at work (see Swap et al. 2001, 98-100.) In a sense, their tasks could be described as helping others to find an insight into the fundamental questions underlying the organizational context and the essence of the tacit knowledge. It should nevertheless be noted that the size of the knowledge gap between the mentor and the novice must not be overly big as that could hinder communication and the development of a shared understanding. (Brandt Husman 2001, 13; Swap et al. 2001, 102; 108.) This process supports learning-by-doing, in that expertise can only be developed through personal application and experience (Bender – Fish 2000, 126-127).

Communities of practice as a very specific kind of social network may also prove to be useful in knowledge diffusion in the sense that the participants have a similar interest in a specific issue (Lubit 2001; Lave – Wenger 1991). Communities of practice are groups of people with specific expertise or interest in a similar issue, and can be used as a basis for enhancing interaction and social learning. Thus, they could be used in the dissemination of knowledge and in aligning organization-wide learning and change processes. They may also serve as a basis for identification, and for developing social networks and aligning the organization-wide efforts. (adapted from Wenger 2004.)

Finally, it is also possible to utilize technological (ICT) solutions³³ to which people around the organization have access. However, there are conflicting views and results on the effects of computer-mediated communication and knowledge dissemination (see Song et al. 2007; Davenport – Prusak 1998; von Krogh et al. 2000; Dougherty 1999, 262; Birkinshaw 2001). The problem is that the use of ICT solutions requires tacit knowledge to be made at least partly more explicit, which may damage its true value (Lubit 2001, 167-170; von Krogh et al. 2000; see Almeida et al. 2002, 158). The interpretation and applicability of knowledge, and especially of tacit knowledge, may differ from one context to another compared to the original aim. As a result, its storing and dissemination by technological means may be difficult as it may become distorted during the encoding process. (Garavelli et al. 2002, 271-272.)

Nevertheless, ICT solutions could also be used as a way of supporting knowledge acquisition and dissemination (Song et al. 2007; Garavelli et al. 2002). However, the level of support is especially dependent on the level of media richness, the spontaneity of the encounters, and the ability to overcome time and space constraints (Song et al. 2007, 61-63). Media richness, on the

³³ For example, shared FAQs, best-practices databases, case databases, knowledge mapping, WWW, Lotus Notes, multimedia solutions, and video conferencing are tools that help people to find information and knowledgeable people (Davenport – Prusak 1998; Bollinger – Smith 2001).

other hand, reflects the potential of feedback mechanisms (for the avoidance of misunderstandings), multiple cues (e.g., verbal vs. nonverbal, images), language variability (e.g., the use of broader concepts vs. symbols), and the personal/contextual focus (i.e. for the shared frame of reference), of which multi-media and interactive ICT solutions are particularly supportive (see Daft et al. 1987, 358-359; Daft – Huber 1987, 13-16, 24). Spontaneity of communication is further supported by real-time communication solutions (VoIP or chatting), for example. The IT-based storing and dissemination of organizational knowledge has its advantages also in terms of the amounts and accuracy of information that can be stored (Huber 1991; Daft – Huber 1987, 22). Finally, ICT solutions can also support knowledge dissemination as they provide a (cost-efficient) way of communicating with others within the organization (See Binney 2001, 39; Daft – Huber 1987, 22). In the end, knowledge acquisition is a learning process, which mostly constitutes interaction between the individuals involved as well as with the environmental context to which the knowledge is related (Shariq 1999, 245; Garavelli et al. 2002, 270-271; Birkinshaw 2001, 36).

4.5 A Synthesis of the Elements in the Knowledge–acquisition Process

Consequently, it could be said that the ease of knowledge acquisition is closely related to the knowledge characteristics, and also to the partners' abilities to acquire and assimilate new knowledge. The learning process, in the end, depends on the individuals' communication, sense making and learning efforts & abilities, and given the characteristics of knowledge, there is a need to emphasize the role of individuals' interaction in its processing and integration (see Doz 1997, 55; Richter – Vettel 1995, 38). In addition, a match between the organizational characteristics may facilitate in the learning process.

As the aim of the company in the acquisition process is to gain understanding of highly tacit and contextual knowledge, the individuals concerned need to develop a basis of shared understanding. This can be achieved through developing ISK within the relationship, which could be seen as a measure of the organizations' ability to understand and assimilate the acquired knowledge. Moreover, one should note that the receiving company's ability to acquire and assimilate knowledge from an external source is not only dependent on its own learning ability, but the inter-organizational learning process is affected by the transferor's ability to communicate the exchanged knowledge and find a mutual understanding with the receiver. The learning efforts may be further facilitated through the application of specific working &

interaction methods or ICT solutions. The aim in these methods can be to facilitate either the interaction and knowledge exchange between individuals or the creation of a shared identity.

The working methods used within a specific partnership are therefore naturally dependent on the type and the characteristics of the acquired knowledge as well as on how the relationship context allows opportunities for their utilization. Similarly, as the ISK is a dyadic-level concept it is dependent also on the transferor's willingness to engage in the knowledge flow. The relationship context and its implications are discussed in more detail in the next chapter.

5 ORGANIZING THE BUSINESS RELATIONSHIP FOR KNOWLEDGE ACQUISITION

Inter-organizational knowledge acquisition may be very challenging for organizations, as the receiving organization needs to be able to integrate previously unfamiliar knowledge into its own knowledge base. External knowledge acquisition may require more time for the learning process, because there may be more internal barriers to overcome, which will make the integration of the knowledge more complicated. (see e.g., Bierly – Hämäläinen 1995, 217-218; Hamel 1991, 91.) On the other hand, companies also need to be able to develop relationships that allow them to rely on their partner not to exploit the competitively sensitive knowledge revealed during the cooperation (see Barney – Ouchi 1986; Das – Rahman 2001).

5.1 Determinants of Learning through Knowledge Acquisition

The literature on knowledge acquisition emphasizes three basic determinants of effective learning: the intent to learn, the transparency of the target company, and the receptivity of the receiving company (or ISK) (see Hamel 1991, 87; Johnson – Sohi 2003, 757-760; Dyer – Singh 1998). *These elements thus include the intent, possibility and ability to learn from an external source.* This research also covers these issues: they are each taken closer to the context in which they can be seen to affect the acquisition process. The ability in companies to acquire knowledge was discussed earlier, and the focus now turns to the mutual propensity and intent of the partners.

In order to take this discussion further, one needs to consider the relationship between the parties and the support structures that have been developed to facilitate effective interaction and goal achievement (Hamel 1991, 87). Partner companies also need to develop a mutual intent to participate in and support the process (see Wilson – Möller 1995, 60; Ford et al. 1998, 386-387; Hamel 1991) which could be seen as a question of awareness of the potential benefits. Before the companies engage in the acquisition process they need to be aware of the possibilities of knowledge acquisition and the potential of mutual benefits (von Krogh et al. 2001, 425; see Ford et al. 1998, 385). The role of intent is also significant in terms of both

the learning efforts required within the specific relationship and the further development and exploitation of the knowledge after its integration (see Hamel 1991, 90-93).

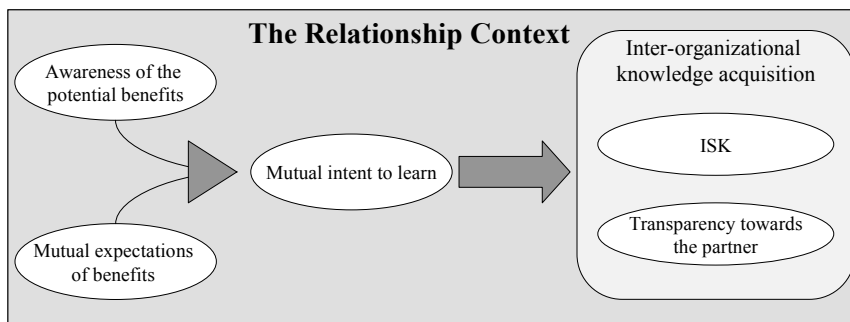


Figure 15: The Role of Mutual Learning Intent in Inter-Organizational Learning

Creating mutual expectations of the potential benefits of knowledge acquisition should support cooperation in the learning efforts. Learning intent also seems to be crucial in obtaining support for the deployment of resources and the fostering of a learning atmosphere within the organization (Simonin 2004, 418-419). Thus, mutual intent could be considered closely related to transparency and the willingness to develop ISK within the relationship (see Figure 15). On the other hand, establishing a learning intent may also engender knowledge protection by the partners if they fear opportunism (Norman 2002; Mohr – Sengupta 2002).

Furthermore, goal-oriented learning is essential in order to achieve successful results of the knowledge-acquisition process (von Krogh et al. 2001, 425-426; Hamel et al. 1989, 138; Simonin 2004, 419). Learning has been found to be less likely to take place if the intent is not clearly stated – thus it has been said that it occurs by design rather than by default (Hamel 1991; Simonin 2004). Moreover, learning intent is a prerequisite in terms of finding and acquiring new knowledge as it forms the basis of individual motivation (Hamel 1991, 90-93; Johnson – Sohi 2003, 759-764; Simonin 2004, 417-419; Lyles – Salk 2007, 16).

Therefore, it could be argued that a basic starting point for knowledge acquisition is the establishment of mutual learning intent. It ensures the setting of clear aims for the cooperation, and supports the development of mutual commitment (see Ford et al. 1998, 387). However, as said, it also reflects management support for the individuals' learning efforts: learning is dependent not only on the receiver but also on the transferor's motivation and willingness to teach. The preconditions for developing cooperation and

knowledge acquisition are discussed more thoroughly in the following sections.

5.2 Organizing Cooperation for Knowledge Acquisition

There are several issues to be taken into account in the acquisition of knowledge from a partner. The first of these concerns the characteristics of knowledge (see Chapter 4.1) and their implications regarding the ease of acquisition (see Chapter 4.3). Secondly, there are challenges involved in the management of the relationship in that it supports knowledge acquisition but limits potential opportunistic behavior. (see Brandt Husman 2001, 2; Teece 2000a, 29; Hamel 1991, 86-87; Lam 1997, 974.) In a sense, the difficulties and challenges of governing add to the costs³⁴ of knowledge acquisition and, eventually, of the inter-organizational learning efforts (see Brandt Husman 2001, 2). Thus, the way of organizing the cooperation and managing the relationship are important areas of decision-making (Teece 2000a, 29; Hamel 1991, 86-87; Lam 1997, 974).

5.2.1 Governance of the Cooperation as a Means of Coordinating Opportunism-related Risk

The suitability of the governance mode is closely related to the notion of opportunism and transaction costs (see Williamson 1986, 174, 177). There are two basically different ways of organizing knowledge exchange, one relying on pure market mechanisms and the other on a hierarchical firm structure. There are also several intermediate solutions, including different kinds of cooperational arrangements and strategic alliances. (Williamson 1986, 102; see Buckley – Casson 1976, 33, 38; Powell 1990, 300.) Here, contractual partnerships were set as the target of the research.

As the value of the acquired knowledge increases, so does the risk associated with opportunistic behavior (Helleloid – Simonin 1994, 221-222). *This fear of opportunism is manifest in at least two ways.* Firstly, it may be difficult to make sure that the partner is actually capable of providing the company with what it really needs: it may be trying to cheat and in this way

³⁴ The transaction costs relate to the ambiguity involved in the transaction, which is a function of uncertainty (caused by opportunism and the complexity of the situation), exchange frequency, and the degree of transaction-specific investments (Williamson 1986, 105; Campbell 1985, 269-270; c.f. Conner – Prahalad 1996; Foss 1996b; Ford 1998, 18-23).

gain opportunistically out of the relationship. (Das – Rahman 2001, 46-48.) As an example, the fundamental difficulty and uncertainty related to buying knowledge from the markets is illustrated in Arrow's paradox (1962), which states that it is difficult to value the worth of knowledge until it is known, but once known there is little incentive to buy it (Arrow 1962, 615; see Buckley – Casson 1976, 39). This asymmetric information and uncertainty between parties is one of the main reasons why the risk of opportunism is an essential consideration in the area of competence development (Barney – Ouchi 1986, 19). Secondly, the partner may be trying merely to gain access to the other company's competences in order to exploit them for its own benefit (Das – Rahman 2001, 46; Arrow 1962, 615). The receiving party may try to end the cooperation as soon as it has fulfilled its knowledge needs, and no longer has any incentive to carry on with the relationship. Even worse, it may try to pursue the emerging opportunities on its own, or use the acquired knowledge against the original partner later on. (Helleloid – Simonin 1994, 222; Das – Rahman 2001, 46.) However, this kind of behavior will, at least in the long run, most likely give a bad reputation to the exploiting partners, and opportunism may thus eventually backfire (Helleloid – Simonin 1994, 222; Barney – Ouchi 1986, 24-25). Given these risks, the role of opportunism is significant in the context of knowledge acquisition.

Consideration has to be given to minimizing the risk of opportunism on the one hand, and to enhancing the flow of information and knowledge on the other. Inter-organizational relationships offer more efficient communication and coordination for tacit-knowledge acquisition than pure market mechanisms (Choi – Lee 1997, 44; Williamson 1986, 178-179; see Kogut – Zander 1996), and within a cooperational relationship the different problematics of adaptation, potential opportunism and the inter-organizational learning process can be taken into account (see Williamson 1986, 102; see Eccles 1981, 336, 340; Powell 1990). The rest of the chapter focuses on these challenges of relationship management in a knowledge-acquisition context.

5.2.2 Knowledge Protection in Partnerships

It is not only the governance form that should be taken into account in minimizing the risk of opportunism, and of particular importance are the following preventive considerations during the establishment and running of the cooperation (Das – Rahman 2001, 51-56; Norman 2001, 51-54):

- Contractual specifications may be used when potential opportunistic behavior is clearly foreseeable. By specifying the terms of cooperation beforehand, it is possible to overcome these problems.

- Mutual hostages may be used to minimize the risks so that the partners stand to lose investments, for example in the case of opportunism. In a sense, sharing knowledge about each other's competences already represents a certain kind of hostage taking.
- Staffing policies are important, since the knowledge is transmitted through interaction between individuals. Clear guidelines and education are essential, as is the selection of individuals for the relationship.
- Process-related matters are closely related to staffing policies and include the use of gatekeepers, the implementation of decision-making policies and the carrying out of certain activities independently of the partner.

Contractual specifications and mutual hostages could be regarded as tools for designing the cooperational structure together with the partner with a view to producing clear guidelines and creating trust (see Anderson – Weitz 1992, 20). On the other hand, this could be connected more to the ways in which the individual organizations ensure the required level of knowledge protection. Contracts³⁵ may minimize the willingness to behave opportunistically in situations in which the circumstances and their development are well known (Das – Rahman 2001; Contractor – Ra 2002). *However, in the context of inter-organizational knowledge acquisition it is very difficult to develop meticulous governing contracts, as the process of exchange is highly social and processual* (see Badaracco 1991, 98-99; Choi – Lee 1997, 49). Moreover, as the tacitness and value of the knowledge increase, so do the needs for interaction and communication, as well as for security regarding the partner's trustworthiness (see Contractor – Ra 2002). As the aim is to acquire valuable knowledge, companies may be forced to find other ways of ensuring mutual trust, such as through the creation of mutual hostages.

On the level of staffing policies and human resources, managers are often in a special position. They need to understand the reasons behind and the goals of the cooperation, and also the importance of knowledge being exchanged, as they are often the ones who exchange much of the critical knowledge, or at least give the orders for it to be done. (Norman 2001, 52.) In fact, it is very often the staffing policies, together with clear contractual specifications, that are the most effective in terms of protecting knowledge assets (*ibid.*, 55-56). There are also different operational mechanisms that can be used during the cooperation: including budgeting, reporting structures, and participatory decision-making. Budgeting, for example, not only allows the parties to

³⁵ In general, a contract should state the current intentions of the parties in terms of (Ring 2002, 148): (a) what they will provide each other, (b) how they will manage the functions, and (c) under what circumstances the partnership will be dissolved.

monitor the use of money for the cooperation, but also sets clear monetary goals. (Das – Rahman 2001, 56-61.) It is also a concrete way of jointly assessing the current developments and the coming events.

Finally, it could be debated whether it is a question of knowledge protection through the prevention of its acquisition, or of making sure that the partner does not use the acquired knowledge opportunistically (Kogut – Zander 1996, Conner – Prahalad 1996; Foss 1996b, 520). Keeping secrets may be detrimental to the original purpose of the relationship, and cooperation cannot be built solely on constraints. Neither can trust be built solely on social linkages: it may require a more concrete base as their weight in terms of economic constraints may prove to be too low (c.f. Baughn et al. 1997, 115). Mutual hostages are especially important for the prevention of opportunism (i.e. the stability of the exchange process) and the subsequent lowering of the costs of negotiating and conflict resolution (Zaheer et al. 1998; Das – Rahman 2001; Wathne – Heide 2000). Mutual hostages in this context could be investments in customer-specific assets and resources or support structures, other related projects (affected by potential opportunism), or adaptations to organizational procedures (see Young-Ybarra – Wiersema 1999, 441-442, 452; Das – Rahman 2001, 54). The effect of these investments lies in the fact that in the event of opportunism the relationship is terminated, and consequently the investments are lost at least to the extent that they cannot be exploited in other relationships (Das – Rahman 2001, 54). These mechanisms may nevertheless cover only some parts of the knowledge that could potentially be exchanged (Baughn et al. 1997, 109-110).

The relationship should therefore be based on the kind of self-enforcing incentives that give the companies a mutual willingness and desire to cooperate, which basically means lower transaction costs and a higher propensity to share knowledge (Dyer – Singh 1998, 666, 670; see Brandt Husman 2001, 20-21; Blomqvist 2002, 162-163). *The creation of supportive preconditions for inter-organizational knowledge acquisition needs the development of a relationship that allows for openness and close communication. Moreover, in the end, knowledge can be successfully acquired only if both partners have the incentive to act transparently.* Besides preventing opportunism, a closer relationship also encourages the parties to work together in order to get the best mutual benefit from the cooperation.

5.3 Network Implications of Competence Development

Companies are essentially linked to a network of actors, activities, and resources (Ford 1998, 42-44; Håkansson – Snehota 1995; Anderson et al.

1994). Thus, it is impossible to study inter-organizational knowledge acquisition without analyzing the essential aspects of a business relationship and the environmental context in which it exists (see Möller – Wilson 1995, 23; Alajoutsijärvi et al. 1999, 4-5). As the development of the relationship is dynamic, changes in it or its focal network will also be reflected in the need for and success of knowledge acquisition (adapted from Bierly – Hämäläinen 1995, 215; Baughn et al. 1997, 114).

Thus, knowledge acquisition is interlinked, not only to the relationship context and the present state of the focal network, but also in terms of the past and future of both. For example, fierce competition and competitors' investments in the development of new technologies encourage companies to use their partners in knowledge development. (Bierly – Hämäläinen 1995, 215-216.) Furthermore, relationships are also important in the sense that knowledge and competences often play a decisive role in the choice of partnerships the company wishes or is able to join (Håkansson – Snehota 1995, 36-39). For the purposes of this research, the environment of the dyad is considered to be twofold: *the focal network, and the wider macro environment* in which the network is embedded. The focal network consists of actors with whom the parties forming the dyad have linkages, such as competitors, customers and other partners. (adapted from Anderson et al. 1994; Alajoutsijärvi et al. 1999, 6-9.)

In the end, it depends on the context whether the primary or the secondary functions have more significance in terms of the effects of the relationship on the company's business (Anderson et al. 1994, 2-4)³⁶. As a result of these effects, the company will establish a network identity, which will determine its position and power within the relevant network context (Anderson et al. 1994, 3-4; Easton 1992, 19-21). Its network identity expresses its perceived attractiveness as a partner in terms of its unique set of connected relationships and links to other companies' activities and resources (Anderson et al. 1994, 3-4). The companies' relative sizes, their relative familiarity, and their network identities all affect the power dependency in the relationship, among other things, and consequently the way in which the relationship is structured and developed (Gulati et al. 2000; IMP Group 1982, 11-12). Power dependencies and the level of trust and commitment between the partners may also affect the scope of cooperation, and subsequently the knowledge-acquisition process.

³⁶ Primary function here means the positive and negative effects a relationship has on the organizations involved in the dyadic interaction, while secondary function means the indirect positive and negative effects it has on the other relationships in which the organizations are involved. The secondary functions derive from the connections of the dyad to other business relationships. (Anderson et al. 1994, 2-3.)

It thus follows that the network ties facilitate partnering, whereas the company's reputation and strategic position within the network essentially affect its capacity for cooperative knowledge development. Its embeddedness within its network may further affect its trustworthiness and ability to develop mutual understanding. (Gulati et al. 2000; Karamanos 2003.)

The analysis presented here could also be applied in the context of knowledge acquisition within a dyadic business relationship. As a company has interdependent connections with its relationships and its network, it could be argued that its competences are essentially bound to the network. It is not only its organizational characteristics, but also its network context that affect its ability to develop its competences (Håkansson – Havila – Pedersen 1999, 444-445). For example, research on the importance of the network position in intra-organizational networks has shown that a central position has an effect on the innovativeness of the company (Tsai 2001, 1000-1003). A relationship will provide opportunities in terms of developing new knowledge within the specific relationship, or possibly through the partner's other relationships. It may also be possible for the company to develop new knowledge by combining it with the resources embedded in its other relationships. (Anderson et al. 1994, 6-8.)

The importance of the network context is evidenced in the results of previous studies, the conclusion being that the more connections between relationships there are in the network, the more likely it is that the company will be able to learn from its business relationship (Håkansson et al. 1999, 450), and the development of organizational competences takes place largely within various business relationships – suppliers, customers and other partners (Håkansson – Snehota 1995, 14-15). Furthermore, companies may view their set of partnerships as a portfolio of knowledge sources, which further reflects its strategic network position (George et al. 2001; Gulati et al. 2000). However, it should be noted that the organization's ability to learn in a relationship is dependent not only on its network connections or network identity, but also on its ability to absorb new knowledge from other organizations (Tsai 2001, 1000-1003), which in turn could be considered highly relationship-specific.

Finally, besides providing companies with access to new resources, a large number of connections within the network may also make it difficult for them to work with certain actors on account of their developed network identity (see Gulati et al. 2000). Certain relationships may make close relationships with the partner's competitors unsuitable. Consequently, a dyadic relationship should be assessed in terms not only of its outcomes, but also of its effects on the company's network identity.

5.4 Relationship Management in Knowledge Acquisition

Although there are several difficulties regarding knowledge acquisition through business relationships, the partners may be able to develop a relationship context that is transparent and supportive. The following discussion focuses more closely on relationship management and the development of trust.

5.4.1 The Relationship Context

As companies learn to work together they begin to find new ways of learning and developing joint activities through mutual adaptation. This can happen if they see that they will benefit more from the relationship in the long-term by modifying their resources and processes in order to form a better fit (Möller – Wilson 1995, 27; Anderson – Weitz 1992; Ford 1998, 26-27; Dyer – Singh 1998). These relationship-specific investments lead to higher interdependence and raise the termination costs (Möller – Wilson 1995, 42; see IMP Group 1982; Campbell 1985, 269-270). On the other hand, they are often perceived as a sign of commitment, and as a result positively affect the perceived trust and commitment between the partners (Anderson – Weitz 1992).

In the end, the relationship context could be seen to evolve as a result of interaction between the individuals, and the companies' willingness to adapt their operations (Möller – Wilson 1995; IMP Group 1982; Ring – Van de Ven 1994, 96-98; Doz 1996, 65). In a knowledge-acquisition context, adaptations could include the development of new interaction methods or using a set of specifically skilled people in order to enhance the process. Social exchange is also an essential element in creating mutual trust between individuals (see e.g., Håkansson 1989, 123; Blomqvist 2002, 232; Granovetter 1985, 490-491). The process of knowledge acquisition is dynamic, and it is part of a continuous learning process (Gilbert – Cordey-Hayes 1996, 303), and closely related to the development of the relationship context. In order to make it possible to acquire highly tacit knowledge the companies need to adjust to each other's activities, and to build mutual trust and mutual learning intent.

Given the importance of opportunism in a knowledge-acquisition context, it is essential to understand the role of the relationship context and the factors affecting it (see Figure 16). The atmosphere in the dyadic relationship has a strong effect on the development of the relationship (IMP Group 1982, 14), and the areas of relationship management are:

- Power-dependencies between the companies (see Pfeffer – Salancik 1978; Campbell 1985; Möller – Wilson 1995, 44; Hallén et al. 1991)

- The trust and commitment of the companies (see Zucker 1986; IMP Group 1982, 14; Möller – Wilson 1995, 43-44; Parkhe 1998a; 1998b; Halinen 1994, 322)
- The mutual intent and expectations of the companies (see IMP Group 1982, 14; Hamel 1991)
- Previous outcomes of the relationship (see Möller – Wilson 1995; Ford et al. 1986, 383; IMP Group 1982, 17)
- The development of support structures (see Möller – Wilson 1995; Ford 1998; Goh 2002; Hamel 1991; Johnson – Sohi 2003; Cummings – Teng 2003).

Companies develop either a close or a more distant relationship depending on the advantages and disadvantages involved. Often, closer commitment and interaction will pave the way for adapting to each other's activities, although at the same time the control and coordination of the relationship will consume more resources. (IMP Group 1982, 14-15; Dwyer et al. 1987, 12; Ford 1998, 27; Ford et al. 1986, 387.) This is especially critical if the partner seems to be in a more powerful position and if the partner's goals and expectations seem unclear. On the other hand, this is what relationship management is all about: understanding the background of the relationship context, and developing it with the help of different adaptive and coordinative measures.

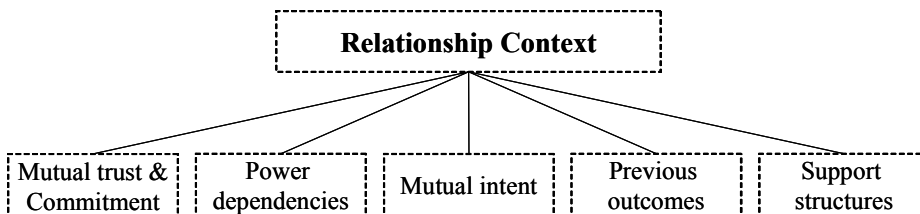


Figure 16: Factors Affecting the Relationship Context

One important question regarding the relationship context is the level of dependency within the relationship. Dependency is significant in terms of access to and the development of resources due to its effect on competitiveness (Pfeffer – Salancik 1978). It arises from the fact that companies are not in full control of the resources they need, and are thus dependent on the knowledge of external parties (Hallén et al. 1991, 31; Baughn et al. 1997, 108). In the light of this argumentation, it is important to note that the basic tenet of dependency is that it has implications on the level of constraints, compliance and adaptation within the relationship context (see Hallén et al. 1991, 31, 34). Thus, as strategically important knowledge becomes acquired, dependency is likely to exist and thus there is a need for its coordination.

Trust and commitment as the second component of the relationship context also need to be considered. Trust can be enhanced through open communication, the avoidance of opportunism, and a willingness to commit to the relationship by adapting activities or making other investments, for example (MacMillan et al. 2000, 73-75; Morgan – Hunt 1994, 22). *Trust* could be characterized as the parties' ability to believe that the counterpart's behavior will remain honest and consistent in the future, even if there is the opportunity to behave opportunistically (see Chapter 5.4.2). Thus they can all rely on each other's commitment and open communication. *Commitment* to a relationship, on the other hand, could be characterized as the parties' intention to stay in it and at least to maintain its quality due to its importance. (adapted from MacMillan et al. 2000, 71; Morgan – Hunt 1994, 23.) Trust, therefore, serves as a basis for both conflict resolution and cooperation in coping with uncertainty (Child 2001a; Zaheer et al. 1998). It is also an essential antecedent of inter-organizational commitment, and trust and commitment together affect the companies' willingness to cooperate (see Morgan – Hunt 1994).

As the relationship develops its past experiences also affect the way in which the companies see each other. Thus, the outcome of the relationship is considered an additional factor in the context of the atmosphere. The effects of past experience are visible in the resource and social bonds that are created between the organizations and the individuals (Ford et al. 1986; Möller – Wilson 1995, 32). Naturally, these linkages affect the companies' level of trust and the way they perceive each other, and consequently how willing they are to make additional investments or adaptations and further develop the relationship (adapted from MacMillan et al. 2000, 74; Anderson – Weitz 1992). As they develop close linkages, it is easier for them to interact and exchange knowledge with a previously familiar and trustworthy partner (see Möller – Wilson 1995, 45). This highlights the cyclical nature of trust development, the basis of which is discussed further in the following section.

5.4.2 Understanding the Basis and Evolution of Trust

Trust is essentially bound to the past of the relationship and the common experiences with the partner organization and its individuals. Often the most successful cooperational relationships are very informal in terms of written agreements, and instead the long history of mutual adaptation and cooperation acts as insurance. (see MacMillan et al. 2000; Håkansson 1989, 126; Brandt Husman 2001, 26; Anderson – Weitz 1992, 27; Zeng – Hennart 2002.) For example, it has been found that technological cooperation, is very often based on long-term relationships, and that the sacrifices made in order to maintain

them can often be quite extensive. Time has to be spent especially on learning to know one another and on the exchange of information before this kind of relationship starts to produce the expected results. (Håkansson 1989, 123.)

Furthermore, it has been emphasized in the literature that trust needs to be understood as a contextual, dynamic and path-dependent phenomenon. Thus, the different types of trust rise in importance as the relationship evolves from formation and partner selection to daily interaction and implementation. (Norman 2004, 244.) Companies that are able to create a trusting environment within the relationship may be better able to engage in deeper interaction and inter-organizational learning. As a result, the organizations concerned may become better able and willing to communicate and to share information openly – in the end leading to a higher level of cooperation. In this case, this may lead to the more efficient acquisition of knowledge because the partners have been able to develop the motivation and ability to work together through their relationship-management efforts. As individuals and companies interact they learn to know each other better, and on the basis of their experience they begin to develop a sense of trust in the partner's activities.

Trust is often analyzed in the literature in terms of the basis on which it is built. Three kinds of trust have been identified: *process-based*, *characteristics-based*, and *institutional trust* (Figure 17). (Zucker 1986; Parkhe 1998b; see Blomqvist 2002, 181-183; Young-Ybarra – Wiersema 1999, 456; Muthusamy – White 2005.)

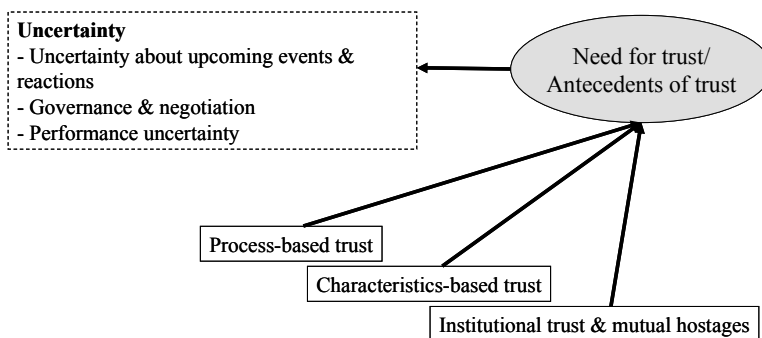


Figure 17: The Need for Trust and Antecedents of Trust

Process-based trust reflects the level of trust between the companies regarding their mutual history, reputation and expected future dealings, as well as their current activities and interaction (Parkhe 1998b; MacMillan et al. 2000). If companies are willing to make further adaptations and do further business, trust in future dealings must be high. Furthermore, partners may differ in reliability in terms of their abilities, honesty and predictability in the processes and routines of relationship management, as well as in their ability

to perform the required tasks (Parkhe 1998b, 419; Blomqvist 2002, 181-183; Dyer – Chu 2000, 263). Trust in the partner's abilities is especially important when the task is highly complex and uncertain, as well as strategically important (Levin – Cross 2004; Blomqvist 2002, 156-158; Parkhe 1998a, 220).

Characteristics-based trust reflects the levels of cognitive and cultural similarity between companies and individuals, as well as their social relations and their ability to develop a shared understanding and identity (Nahapiet – Ghoshal 1998; MacMillan et al. 2000; Parkhe 1998b; Granovetter 1985). In this sense, shared values and attitudes form a solid basis for trust development (see Child 2001a; Jones – George 1998; Nahapiet – Ghoshal 1998).

Institutional trust, on the other hand, is based on formal mechanisms and it is more to do with trust between companies rather than individuals' characteristics. It is based either on explicit certification or on the partners' ability and willingness to use mutual hostages and contractual agreements in order to minimize the benefits of shirking and maximize the value of cooperation. (Parkhe 1998a, 235-236; Zucker 1986, 60-61; Parkhe 1998b; Child 2001a.) Furthermore, adaptations and partner-specific investments are an important vehicle for expressing a willingness to commit to the relationship, and consequently could be considered a good way of creating and enhancing mutual trust (Parkhe 1998a, 236; Hallén et al. 1991, 31; Anderson – Weitz 1992, 20-21, 27-28).

Trust is essentially related to uncertainty in relationships, and the need for security and stability: i.e. uncertainty regarding future events and the partner's reactions to these events, as well as the inability to affect the nature of these reactions (Parkhe 1998a, 220; Ford 1998, 19, 23; see Svensson 2004, 479-480). Furthermore, there seems to be a paradox regarding the importance of trust in a highly complex and dynamic environment. As the complexity increases, so does the need for inter-organizational trust, but so, too, do the companies' risk and consequently the cost of trusting. (Blomqvist 2002, 170-171; see Parkhe 1998a, 222.) Another essential element of uncertainty in relationships related to high technology and learning resides in the partner's ability to deliver what is promised, i.e. in performance uncertainty (see Das – Teng 2001, 257-258). Thus, the difficulty in dyadic relationships is that the governance of the partner and the existing interdependencies in an uncertain environment (and especially in the case of unforeseen change of circumstances) cause transaction costs. *Trust could be seen as an essential way of lowering the uncertainty and the related costs, as the need for governance, conflict resolution and negotiation is lower.* (see MacMillan et al. 2000, 76; Zaheer et al. 1998, 154; Das – Teng 2002a, 441; Powell 1990, 300-305.) In more dynamic environments (such as high-technology partnerships)

trust may be developed more quickly (fast trust) as a result of learning and improvisation (see Blomqvist 2002; 2005, 133-134) as the partners need to be able to capture the emerging business opportunity while it exists. In terms of fast trust, the role of capabilities, self-reference and goodwill are important, but the actual behavior of the partner is the most crucial aspect (Blomqvist 2005, 142,144). Trust is a complex issue in that it is a prerequisite for transparency, and some initial level is required for the relationship to begin.

The company's ability to acquire knowledge is strongly related to trust and to the partner's ability to build up incentives to act transparently. Apart from preventing opportunism, a closer relationship may also encourage the parties to work together in order to obtain the best mutual benefit from the cooperation (Parkhe 1998b). Closely related to the notions of trust and commitment is the idea of *mutual forbearance*, which means that both parties (1) avoid opportunism and (2) help the other partner as much as possible to accomplish the best possible result (Buckley – Casson 1988). The idea of different levels of trust with subsequently differing implications concerning the freedom allowed to the partner within the relationship could also be analyzed in terms of activeness or strength (Huemer 2004, 253-254; Barney – Hansen 1994, 177-180). Active trust enables companies to allow for more uncertainty in terms of the activities engaged in without fear of the partner's misbehavior. Similarly, active trust or mutual forbearance could be considered a result of a combined effect of trust and commitment, and it affects the cooperative nature of the coordination and the partners' adaptation activities. This describes well the problematic situation that relationship management faces when valuable and sensitive knowledge is being exchanged, and the cooperation needs to be somehow limited to the specific knowledge or capability in order to safeguard the basis of the competitive advantage.

In addition, as already discussed, the development of a shared identity may also affect the level of trust between partners. However, it may be difficult to rely solely on social relations and close communication in terms of developing the required level of trust for knowledge acquisition. Instead, a more concrete base may be required, as the weight of social relations in terms of economic constraints may prove to be low (c.f. Baughn et al. 1997, 115). Thus, using contractual specifications and mutual hostages would seem to be an efficient means of controlling the partner's opportunistic behavior. Nevertheless, these mechanisms often cover only a small part of the skills that could potentially be acquired during the relationship (Baughn et al. 1997, 109-110; Parkhe 1998b). The development of trust is thus a critical precondition for developing a relationship context that supports knowledge acquisition and lowers the related uncertainty.

5.4.3 The Dual Effects of Trust and a Shared Identity

At the outset, the companies must be able to trust each other in order to develop the transparency required for open communication and interaction (see Hamel 1991; Möller – Wilson 1995, 37). On the other hand, relationship-specific learning ability (ISK), or more specifically the developed shared social identity, may form a learning barrier if it becomes formalized and cannot be re-created for new knowledge-acquisition contexts (Child 2001b; see March 1991). The basis of the sense-making process lies in the company's organizational identity and causal maps, which affect its ability to create new insights because the old causal maps no longer apply. Consequently, the shared causal maps may pose challenges when the organization becomes trapped by its cohesion – “*if everyone seems to agree on something, then it must exist and be true*” (Weick 1979, 152). This may take place within a relationship if the shared identity becomes too strong – promoting the existing causal maps and not allowing for creativity in the development of new knowledge.

In addition, trust developed within a relationship could support the restrictive nature of social identity, as it will strengthen the mutual sense of cohesion and stability (Seines – Sallis 2003, 91; Yli-Renko 1999). Trust is required for the parties to be able to communicate, whereas too much trust may form a barrier against innovative thinking. Thus, one should also be aware of the role of mutual intent and incentives as a part of the relationship-management process in supporting the development of new knowledge (Wilson – Möller 1995; Hamel 1991). Like the developed mental maps, the organization's reward systems also support the learning process in a specific way (Leonard-Barton 1992, 119-120; Senge 1990; Edelman et al. 2004).

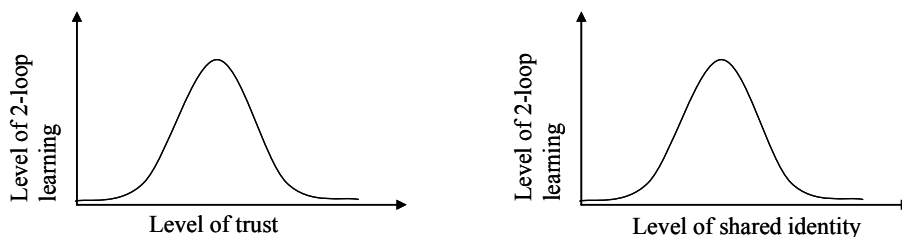


Figure 18: The Bell-Shaped Effects of Trust and a Shared Identity on the Level of Double-Loop Learning

Thus, the relations between a shared identity and learning, as well as between the level of trust and learning, could be analyzed in terms of a bell-shaped curve (Figure 18). The increase in trust and shared identity are

beneficial only to a certain extent after which they may have a negative impact. This is a crucial issue in terms of understanding the nature of inter-organizational knowledge acquisition and the role and effects of the relationship context.

Therefore, as the organization's social identity focuses coordination and learning activities, at the same time it sets limitations on the company's ability to search for new areas of knowledge and competences. Subsequently, individuals may need to question their existing causal maps, and at least partially to re-create them in order to find a common basis for interpretation and understanding in a relationship context. It follows that, although it could be argued that a variety of partners leads to a more diverse knowledge base, it will also mean that sharing knowledge with new partners becomes increasingly challenging as finding a shared basis for interpretation will become more complex (Draulans et al. 2003, 156; see Child 2001b, 669). This highlights the role of the relationship context as a basis for learning in that this kind of sense making requires extensive communication and interaction between the partners.

5.4.4 Inter-dependence between Partners

In the context of inter-organizational knowledge acquisition one could argue that the level of dependence³⁷ is not a question of financial or investment-related dependence, but the differences in the partners' resource bases, and the uncertainty of the learning context could lead to increasing inter-dependence (Das – Teng 2002b, 734; see Contractor – Lorange 1988, 6; Yan – Gray 1994). Thus, assessing the level of interdependence in relationships in which valuable knowledge is acquired is far from simple.

Power dependence may affect the development of the inter-company relationship, and thus may have implications on the knowledge-acquisition process (see Das – Teng 2002a, 441, 448; 2002b, 730-732). Similarly, differences in the aims and levels of learning may lead to an unstable relationship (see Kumar – Nti 1998; Hamel 1991). As the process includes the exchange of resources that are difficult to imitate, intangible and valuable, the dependency is likely to shift (see Figure 19) during the relationship and acquisition process. At first, the receiver might be expected to be dependent on

³⁷ The bargaining power of a company may be related to the asymmetry and dependence in the partners' resource bases, the contextual factors (prevailing uncertainty & potential other partners), or the strategic position of the partners (adapted from Yan – Gray 1994).

the transferor due to the high uncertainty and intangibility of the acquisition target and the transferor's ability to provide what the receiver is looking for.

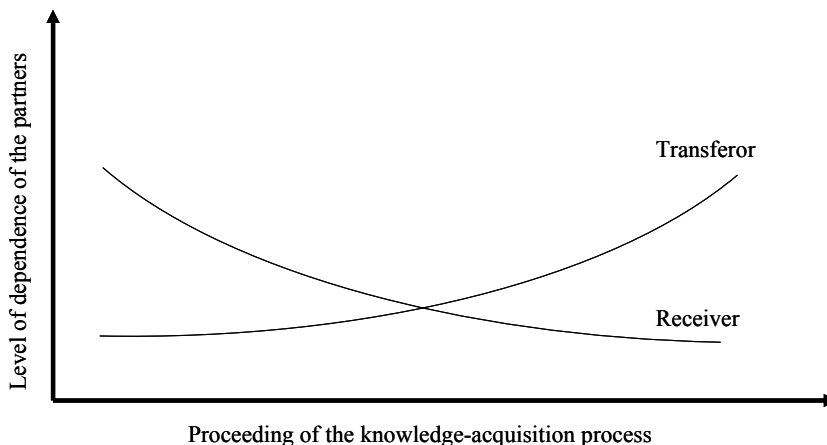


Figure 19: The Changing Nature of Dependence in Inter-Organizational Knowledge Acquisition

As knowledge is acquired and assimilated by the receiver the transferor becomes increasingly dependent on the receiver's willingness not to behave opportunistically (see Das – Rahman 2001, 54-55; Ariño – de la Torre 1998; Hamel 1991, 88-89) as the receiver becomes aware of the basis of its partner's competitive advantage (adapted from Hamel 1991, 88; see Kumar – Nti 1998, 358). This means that there is asymmetric power within the relationship as long as it and the exchange process are not equally important to both parties, or until the parties become dependent on each other as a result of it (Baughn et al. 1997; Hallén et al. 1991; Pfeffer – Salancik 1978, 53). As the dependencies and the bargaining power of the partners shift, this may also affect the way in which the companies are committed to the relationship, and subsequently the level of inter-organizational trust and mutual forbearance. The difficulty is that too much power asymmetry may lead to an imbalance between the partners and their aims, and a possible unwillingness to comply with the other's needs and demands (see Das – Teng 2002a, 447-448).

Dependencies are also behind much of the adaptation activity conducted between the parties involved (Hallén et al. 1991, 34). Although the companies are a part of a co-operational relationship, in which in an ideal world power dependencies should not lead to instability, difficulties concerning relationship management may arise. Similar difficulties arise when the power relations are about to change and this is difficult to foresee. It could be argued that understanding the changing nature of the dependencies does not necessarily lead to a learning race (see Hamel 1991), but it is an essential risk to

acknowledge with regard to the relationship dynamics. The focus of relationship management and coordination should be on the management of these power dependencies and their implications so that the companies are able to work in a cooperative environment.

In the light of these dependencies one needs to consider the role of relationship management and the level of termination costs (see Jones et al. 2002). The termination costs are strongly related to the exchanged knowledge, the input of (human) resources, and the interaction, adaptation and coordination activities within the relationship (see Möller – Wilson 1995; IMP Group 1982). Their role could thus be analyzed in the context of knowledge acquisition, especially in terms of (adapted from Jones et al. 2002):

- *continuity costs*, i.e. the costs of lost potential performance and quality, and the risk of lower performance with another partner or of not finding a suitable partner
- *sunk costs*, i.e. costs already incurred during the relationship and its development through managerial input and relationship-specific investments
- *switching costs*, i.e. the costs of finding another (possible) partner and negotiating
- *learning costs*, i.e. the costs of learning the specifics of a new partner and developing a shared identity.
- *strategic costs*, i.e. costs related to the nature of sharing VRIO knowledge outside the organizational boundaries.

Given the specific nature of knowledge acquisition, the sunk costs are potentially rather low but other types of termination costs are potentially very high. It may be almost impossible to find other suitable partners if the technological expertise is rare, and the understanding of the partner's knowledge and business context may require substantial amounts of learning. Furthermore, when companies commit to the relationship the level of termination costs may rise quickly because the nature of the knowledge is highly valuable. One could thus argue that knowledge characteristics affect the way in which companies commit to each other and how they try to organize their cooperation so as to prevent the most valuable knowledge being subject to opportunism (see Contractor – Ra 2002, 18-24; Das – Rahman 2001).

Moreover, as the termination costs as well as the frequency and the strategic value of the task increase, so does the interdependence of the actors (Campbell 1985, 269-270), as both parties may get hold of valuable knowledge regarding the other party's competitive advantage. Consistently with this, it has been suggested that companies are more protective when the cooperation involves specific, tacit and complex (i.e. more unique and valuable) knowledge (Simonin 1999, 479). It is also important to be aware of how balanced the

partners' investments are: more balanced investments support the flexibility of the relationship especially when the tasks are highly uncertain and complex (Young-Ybarra – Wiersema 1999).

Given the crucial role of the interdependencies within the relationship, it is necessary to understand how the commitment of each party involved develops. If the risk of opportunism or rising switching costs becomes unexpectedly high for either partner, it may affect the atmosphere of the relationship and the success of the learning process. A further task of relationship management is the creation of support structures that reflects the partner's commitment in that they could be seen as a way of creating mutual hostages and increasing termination costs (Hallén et al. 1991). They also allow for more effective communication and knowledge acquisition, and are thus discussed in more detail next.

5.5 The Role of Support Structures

Support structures enable the flow of communication, inter-organizational learning efforts, and transactions between companies, for example (adapted from Goh 2002, 26-28). They could be seen as adaptations to the specific relationship, and thus enhancing trust, but they also affect the companies' ability to acquire knowledge. The aim is to enhance the learning potential through the development of communication channels and systems.

An understanding of the relevant areas of operations sheds light on these structures, which comprise (adapted from Hamel 1991; Johnson – Sohi 2003; Goh 2002; Cummings – Teng 2003; see Daft – Huber 1987):

- The design of the organizations' interaction mode (i.e. the governance mode, contractual basis and operational design)
- The development of a shared infrastructure (e.g., communication systems, shared operational systems and other tools)
- The development of motivational structures (e.g., management support, reward schemes).

As discussed earlier, the design of the relationship's interaction mode essentially affects the level of interaction and openness between the companies – and thus could be considered a basic transparency variable (Hamel 1991; Goh 2002, 27). The logic in considering the mode a factor in the learning process is that it serves to shape (a) the flow of assets, (b) the depth and breadth of interaction, and (c) the incentives for cooperation (Baughn et al. 1997, 109). It thus relates to enabling the flow of communication and limiting potential unwanted knowledge spills to the partner (see Daft – Huber 1987, 24-28; Mohr – Sengupta 2002, 287; 295-297; Norman 2002, 192).

Furthermore, support structures can be developed in terms of how the organizations and individuals are allowed to interact – in cross-functional teams or according to the hierarchical structures, for example (Goh 2002; Compare Daft – Huber 1987, 24-28). Thus, the specific use of human resources or reporting routines is also a form of support structure as it builds a basis for channel richness in inter-organizational communication (Gupta – Govindarajan 2000; Goh 2002, 26; see Huber 1991; Daft – Huber 1987, 13-14, 21-28). It has also been argued that formalization supports sense making and understanding through focusing attention, requiring some level of articulation, supporting interaction, and reducing bias (Vlaar et al. 2006; c.f. Blomqvist et al. 2005, 501).

The communication flows can be further enabled through adopting specific communication methods and operational systems – i.e. developing a relationship-specific infrastructure. The role of technological solutions is further emphasized as the physical distance between the organizations increases (see Cummings – Teng 2003; Goh 2002, 25). *Reward systems also form part of the support structure as they can be used to direct the flow of efforts and resources within the relationship* (Goh 2002). Together with incentives they may help in motivating the individuals to learn, i.e. to take advantage of the opportunities within the relationship context and, in particular, to share knowledge (Szulanski 1996, 36-37; Gupta – Govindarajan 2000; Liebeskind 1996, 97-101; Simonin 2004, 422). However, rewards are useful only for enhancing motivation, and for that to happen the conditions and the individuals' abilities need to be considered.

Management support for learning and a clearly stated mutual intent appear to support individual efforts (Hamel 1991; Inkpen 1996, 133). A clearly stated intent to learn does not guarantee learning as such, but it may facilitate learning efforts, transparency, and communication between the organizations (see Hamel 1991; Johnson – Sohi 2003). The management's role is also to be noted as part of the development of the organizational culture, which may or may not support the learning and cooperating efforts of the individuals (Goh 2002). Similarly, management plays an important role in developing the necessary support structures and communication mechanisms, as well as the strategies and relationship-specific investments (Kulkki 1996, 211).

Although relationship management and the development of support structures are closely related, it seems logical to differentiate the two: relationship management is about creating the trust and preconditions that allow the companies to work together, whereas support structures are also related to the learning process, i.e. to developing structures and communication mechanisms for individuals to use in knowledge acquisition. However, they are closely related and the development of the support

structures may affect the development of the relationship. These issues are discussed next as part of a comprehensive framework designed to facilitate analysis of the relationship context in inter-organizational knowledge acquisition.

5.6 A Framework for the Development of Competences through Inter-Organizational Knowledge Acquisition

One of the most fundamental questions concerning the knowledge-acquisition process and the research at hand is whether or not knowledge can be managed. The nature of tacit knowledge implies that even managers do not fully understand what they are dealing with when they are trying to select or deploy competences, and thus managing the process seems inherently impossible (Polanyi 1966; Hamel 1994, 25-26). The same applies to the knowledge-acquisition process, which additionally relates to the learning processes of the individuals involved. How can we then expect to understand the management process?

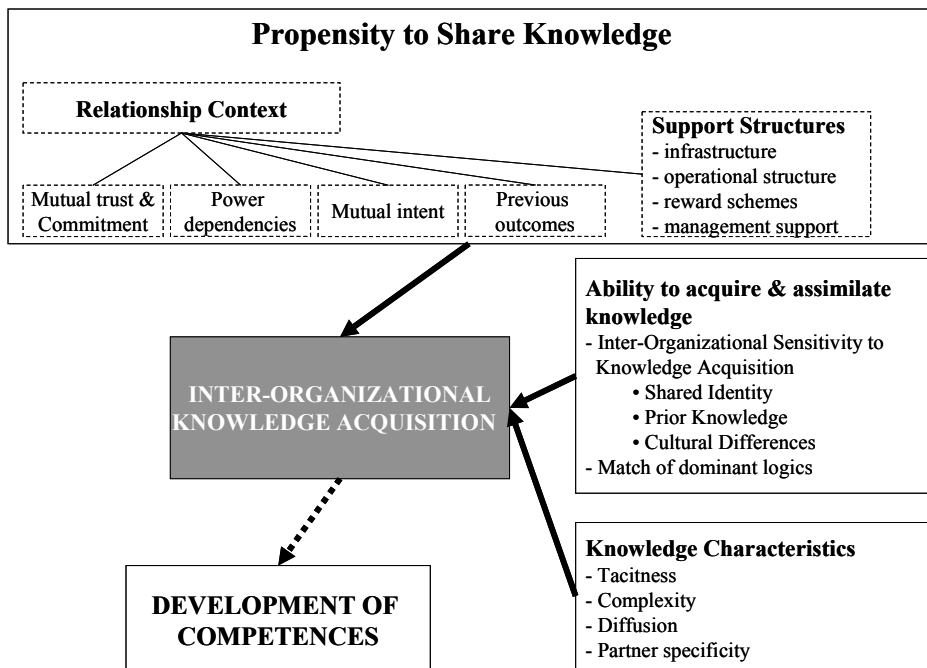


Figure 20: The Developed Framework for Analyzing Inter-Organizational Knowledge Acquisition

The essential issue here is to understand that a company's ability and willingness to engage in knowledge acquisition differs from case to case. It could therefore be argued that there are variables and activities that affect its ability to acquire knowledge. Although the process as a whole cannot be managed in a very strict sense, there are factors and processes that can be coordinated and controlled – allowing for the possibility of affecting the end result. Although it is important to recognize the role of the factors as such, the aim here is also to see the context more comprehensively by analyzing the possible relations and dependencies between them. The relevant factors are reviewed below in the form of a contingency framework (see Figure 20). The framework is aimed at identifying the relevant factors affecting knowledge acquisition: the relationship context, the knowledge characteristics, and the inter-organizational ability to acquire and assimilate knowledge (Hamel 1991; Cummings – Teng 2003; Szulanski 1996; Simonin 2004; Goh 2002).

The dynamics of the relationship context arise from the fact that the environment is not stable, and therefore companies need to realign their activities and processes. The relationship context thus creates the preconditions for the companies to work together and enable knowledge acquisition (see Yih-Tong Sun – Scott 2005; Muthusamy – White 2005), and it should be considered before the problems of inter-organizational learning are addressed. Thus, the knowledge-acquisition process should be analyzed through its inter-linkage to the environmental context, which resides in the context of the relationship and the larger focal network. Given that the development of the relationship is dynamic, changes in it or in the focal network will also be reflected in the need for and success of the knowledge acquisition. (adapted from Bierly – Hämäläinen 1995, 215; Baughn et al. 1997, 114.) Furthermore, according to the existing literature, it seems that mutual trust, commitment, and intent, limit the negative effects of power dependencies and potential opportunism (see Hamel 1991; Muthusamy – White 2005). This further underlines the fact that it is not solely a question of the receiver's ability to learn: the learning process is contextual and interactive, and is therefore also critically related to the transferor's ability and willingness to teach.

The creation of support structures is also a part of relationship management. Their role as a form of supportive infrastructure is emphasized in the framework in that it is closely related to the relationship context. Together with efficient management of the relationship, they may foster a higher propensity for the companies to interact and subsequently to cooperate and become mutually committed to the knowledge-acquisition process. Furthermore, adaptations and well-prepared structures may facilitate closer

communication, which will mean both a better basis for cooperation (due to the incurred investments) and more intensive learning.

As discussed, in organizing the cooperation there is a need to achieve a balance between the ease of knowledge acquisition and the minimization of opportunism. It is important to understand the interrelations between learning and relationship management: it could be argued that as trust allows for more variety and innovative learning, it may also become more difficult to govern the partner's activities (see Huemer 2004, 253-254). This is partly a question of finding a suitable governance mode, but it is also a question of managing the relationship context. In such a complex situation the costs of trusting may be very high at first, and thus trust supported by higher termination costs may make the relationship more durable (see Möller – Wilson 1995, 44). In addition, companies need to set up operational processes that facilitate the inter-organizational learning process. The development of communication flows is closely linked to the relationship context, and mutual adaptations essentially enable the companies to find the right working methods more easily. Means of communication are also closely linked to the characteristics of knowledge in that, for example, the comprehensive communication of explicit and implicit knowledge may require very different methods. Finally, inter-organizational sensitivity to knowledge acquisition and the ability to develop mutual understanding are essential prerequisites for successful learning efforts, especially if the knowledge is highly tacit and complex.

Also affecting the context in which the companies are trying to cope are the characteristics of knowledge: tacitness, complexity, specificity and diffusion. It is suggested here that these characteristics affect both the relationship management, and also the creation of the support structures and the actual knowledge-acquisition and integration processes. For example, they may affect how the companies perceive their relative importance and how dependent they are on each other. The characteristics of knowledge are also strongly linked to the effectiveness of and need for the support structures – the infrastructure and the operational design of the cooperation - since they decide whether or not a certain operational process will facilitate the acquisition process (Goh 2002, 27; see Cummings – Teng 2003; Johnson – Sohi 2003). However and perhaps most importantly, their role is critical in terms of the organizations' knowledge-acquisition abilities (ISK) and the success of the acquisition process. Even in a trusting relationship, communicating and exchanging tacit knowledge between groups of people from different environmental contexts is a challenging task.

Although considered critical, the relationship context and the reliance between the partners represent only one half of the studied phenomenon: trust could also be considered in terms of the partners' ability to develop a mutual

understanding of the knowledge being acquired. It could be argued also that in order to change, organizations need to create an environment in which the individuals can trust each other and feel supported in their learning efforts (Schein 1993): similar factors affecting the relationship atmosphere also affect the inter-organizational learning process. *In particular, the level of a shared identity is closely related to a trusting relationship context (Child 2001a), and interaction between the partners affects the learning process and the development of the relationship* (see IMP Group 1982; Möller – Wilson 1995). In the context of knowledge acquisition, the development of trust is essentially bound to the learning process and the way in which people are able to find a common understanding. Investments may provide a basis for trust development in the early stages of the relationship, but they are not so relevant to the continuity of the learning process. Thus, the role of the relationship context is strongly related to the partners' ability to develop ISK. *It follows from this discussion that the role of relationship dynamics is, in a sense, two-fold in the context of knowledge acquisition.*

Consequently, it could be argued that the sets of factors discussed are closely interrelated. As the aim is to develop competences, this can only be achieved through effective knowledge acquisition. However, it is not only the acquisition of knowledge, but also its integration into the existing knowledge base that has to be done successfully in order for the company to be able to exploit it in the development of new competences (Almeida et al. 2002, 148). Moreover, it is not only the receiver's ability or even mutual intent to learn, but also the partner's ability and willingness to teach that decide the final outcome. Eventually, as the organizations become adept at acquiring and integrating knowledge, the recipient organization may be able to diffuse and further exploit it within its organizational context.

In conclusion, one could say that knowledge acquisition through a dyadic relationship is a process that allows for value creation but also involves a number of managerial challenges. The aim here has been to unravel the complexity of these challenges in order to analyze the issues more closely. As mentioned earlier, the framework was developed from the existing literature, and will be utilized in the following chapters in the analysis of four case studies. Before this, however, the research design is discussed in detail.

6 RESEARCH DESIGN

The research strategy is based on the aim of the research and the setting of the research problem (Yin 1991). It also entails certain certain preconditions about the researcher's ontological and epistemological assumptions, and provides the basis for assessing what the researcher can and ought to do. In this particular study, the phenomenon in question had quite unique problems and requirements as far as the researcher was concerned, and these challenges as well as the researcher's decisions during the research process are described in the following.

6.1 Setting

It could be argued that the researcher in the social sciences approaches phenomena through certain explicit or implicit assumptions about their *ontological* (to do with the nature of the social world and the phenomenon in question) and *epistemological* (to do with the grounds of knowledge and how the phenomena can be studied) *nature* (Burrell – Morgan 1979, 1-2)³⁸. It seemed unnecessary to discuss the philosophical background of research in the social sciences to any great extent here, but it was considered important to touch on the premises of the researcher (due to the specific nature of the research target), as they motivated the choice of strategy and methods (see Morgan – Smircich 1980, 499; Pihlanto 1994; Burrell – Morgan 1979, 2).

It was necessary to recognize the differences between the various assumptions because the decision to use interviews or surveys in gathering empirical data means very different things in terms of what is being assumed about the nature of reality (see Pihlanto 1994). In the realm of realism the general assumption is that there is a single reality that can be accessed, whereas nominalists and interpretivists argue that the number of realities can be accessed only through different perceptions of knowledge. Similarly, as far as epistemological assumptions are concerned, there are differences between whether knowledge can be objectively acquired from the outside world or whether the social world can only be subjectively understood from the

³⁸ Two different schools of thought characterize the discussion of the importance of methodology and the underlying epistemological and ontological assumptions. The pragmatists argue that reflecting the philosophical standpoint is irrelevant as the method selection is usually based on theoretical relevance, and the eventual aim in empirical research should be to gather as much information about the phenomenon as possible. On the other hand, the purists argue that the methodological choices are never independent of the assumptions about the ontology and epistemology and the relationship between human beings and their environment. (Hurmerinta-Peltomäki – Nummela 2004; Raunio 1999.)

viewpoint of the individuals interacting with the studied phenomenon. (Burrell – Morgan 1979, 1-5; Pihlanto 1994, 373-377.) To go into these premises a little more deeply, in positivist research the explanation of phenomena is causal as the researcher is aiming to capture the world as a concrete structure, whereas in hermeneutic understanding the aim is to find a holistic explanation. On the other hand, in positivist research the studied and measured objects could be seen as produced for the researcher's methodological convenience. Thus, there are strong arguments suggesting that the social world cannot be separated from human beings' subjective experiences and understanding, or from their attempts at negotiating a shared conception with others: social research is thus an interpretation of an interpreted world. (Pihlanto 1994, 373-377; Carson et al. 2001, 4-7; Deetz 1996, 193-195.)³⁹ Consequently, the empirical results in this study could be seen as the image of reality that the researcher was able to construct of the case relationships.

Although the ontological and the epistemological aspects of phenomena incorporate certain background assumptions, the research question also affects the choice of research strategy (Yin 1989, 16-19; Marshall Rossman 1989, 76-77; Noorderhaven 2004, 92). The nature of the phenomenon was highly social and processual, and the research was consequently defined with a view to understanding the nature of the process and the factors affecting it. Thus, the researcher applied an action-oriented approach in his study. (see Pihlanto 1994, 373.) *Understanding the context of the phenomenon was essential, and idiographic research appeared to allow for the development of a more comprehensive understanding than positivistic research would have produced.* Once one allows the ontological assumptions of reality to encompass more than the world as a concrete structure, and considers human beings as actively contributing to its creation, quantitative methods appear increasingly shorthanded (Morgan – Smircich 1980, 498).⁴⁰

Without arguing further whether or not the differentiation between subjectivist-objectivist research is the most appropriate basis of analysis (see Deetz 1996), the researcher claims here that he lies closer in his epistemological premises to the subjectivist than to the objectivist view in that he considers human beings to be active creators of reality and knowledge (see Williams – May 1996, 70-88; Pihlanto 1994, 375; Morgan – Smircich 1980).

³⁹ At the subjectivist extreme one might even argue that the existence of objective knowledge as such can be challenged in that the knowledge being transmitted in a tangible form is no more than an expression of the way in which the researcher has arbitrarily imposed his personal frame of reference on the phenomenon (Morgan – Smircich 1980, 493). (Original source: Husserl, E. (1962) *Ideas*, Collier: New York.)

⁴⁰ The reliance on managers as sources of subjective empirical data has been found more effective in solving problems in international business than relying on more positivistic objective research traditions (Noordhaven 2004, 96-98).

Individuals constantly enact their environment and build their understanding of it (see Weick 1979). Furthermore, it was assumed that knowledge and understanding were bound to a specific context (and even to the specific activity in which the individual was engaged) (Cook – Brown 2002; see Tsoukas 1996, 16). *However, it was taken as a point of departure that the researcher could gain understanding of the types and levels of knowledge being acquired by developing an interpretational understanding of the context and the activities within the studied cases.* Therefore, in order to study relationships and learning processes within the relationships one must understand the inter-relations between the factors that methods arising from strictly objectivist or positivist views of the world could not apparently support (see Morgan – Smircich 1980). Although the researcher relied partly on deductive reasoning, given his emphasis on the role of the initial theoretical framework the focus was still on understanding and theory development (Carson et al. 2001, 62).

These issues, together with the nature of the presented research question, supported the selection of a qualitative multiple case study as the research strategy. The ontological and epistemological considerations could be emphasized as the aim was to study inter-organizational relationships in which individuals from different industrial contexts had, at least to some extent, differing ways of understanding their reality (see Noorderhaven 2004, 88-89).

Furthermore, understanding the nature of knowledge represented a big challenge in the research setting, given the aim to study the acquisition of knowledge (Schultze – Stabell 2004, 552). Thus, it was clear from the start that people's views and opinions needed to be used as a projection of their views of reality (see Morgan – Smircich 1980). As discussed earlier, knowledge-related research so far has not produced a commonly accepted understanding of how knowledge should be dealt with, but different epistemologies have been applied in different circumstances. Here, knowledge was considered to be socially constructed and contextual, but still essentially a resource for the organization to exploit (adapted from Chiva – Alegre 2005, 57-58⁴¹; Cook – Brown 2002; see Gherardi – Nicolini 2000, 330). Knowledge was also considered essentially dynamic as it is constantly under development (see Gherardi – Nicolini 2000, 332). Therefore, it could be argued that the company's knowledge resources can and need to be managed to some degree, but this is impossible if it is totally separated from the knower (see Cook – Brown 2002). Thus, the methodological choices made for this study could be

⁴¹ It could be argued that the view of knowledge applied in this study cannot be directly categorized into the proposed cognitive-possession or social-process approaches (Chiva – Alegre 2005, 61). It is rather positioned somewhere between the constructivist and the neo-functionalist discourses (although closer to the constructivist) of knowledge presented by Schultze & Stabell (2004, 556).

seen to support the applied approach to knowledge and learning. The more specific methods used in the analysis of knowledge (knowledge types & level of knowledge acquisition) are discussed further in Chapter 6.5.4.

6.2 Process

The development of competences and the acquisition of knowledge are processual phenomena, thus three dynamic areas (see Figure 21) of research were addressed in the framework: the context, the content and the process (adapted from Pettigrew 1992; Pettigrew 1997). These issues should be understood as interrelated given that the process takes place within a specific context, and context and action could be considered closely interwoven. Moreover, the process may also be interrelated to other processes that could affect the end result, as social processes are inherently discontinuous in nature. (Pettigrew 1992; Pettigrew 1997, 340.) Process analysis is understood here as a specific sequence of events incurring change within the context of the case as a result of the actions of individuals and organizations on a specific set of interrelated concepts – thus also enabling explanatory analysis of the cases (adapted from Van de Ven 1992, 170-172, 183). This kind of analysis could be said to result in a more comprehensive analysis of the constellation of forces shaping the character of the phenomenon and explaining the differences in outcomes (Pettigrew 1992, 8-9).

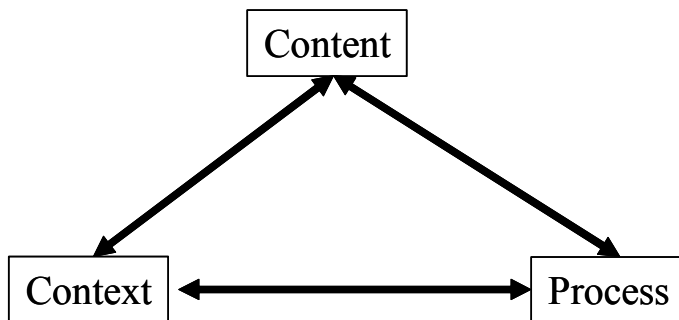


Figure 21: The Interplay between Content, Context and Process in Processual Analysis

It should be noted here that the aim of the process analysis here was not to develop a historical case description about the sequences of events, although previous actions matter in the future development of a business relationship. On the contrary, the purpose was rather to develop a case study in which it was possible to identify and analyze patterns of concepts, and even to compare

them between cases. This could promote understanding of patterns and contingencies between factors as holistic (rather than linear or causal) explanations of a process within an embedded context. (Pettigrew 1997, 337-342; Pettigrew 1992, 8; Tsoukas 1989; see Hunt 1983, 120-122.) *This research was conducted as a multiple case study. The aim was to shed light on a specific phenomenon in different contexts, and thereby to develop a theoretical framework by enhancing understanding of the relevant factors involved and their inter-relations* (see Stake 1995, 37-40).

Before describing the methodological choices and the maze through which he has been scrambling in more detail, the researcher presents a compact overview of the research process in Figure 22 below.

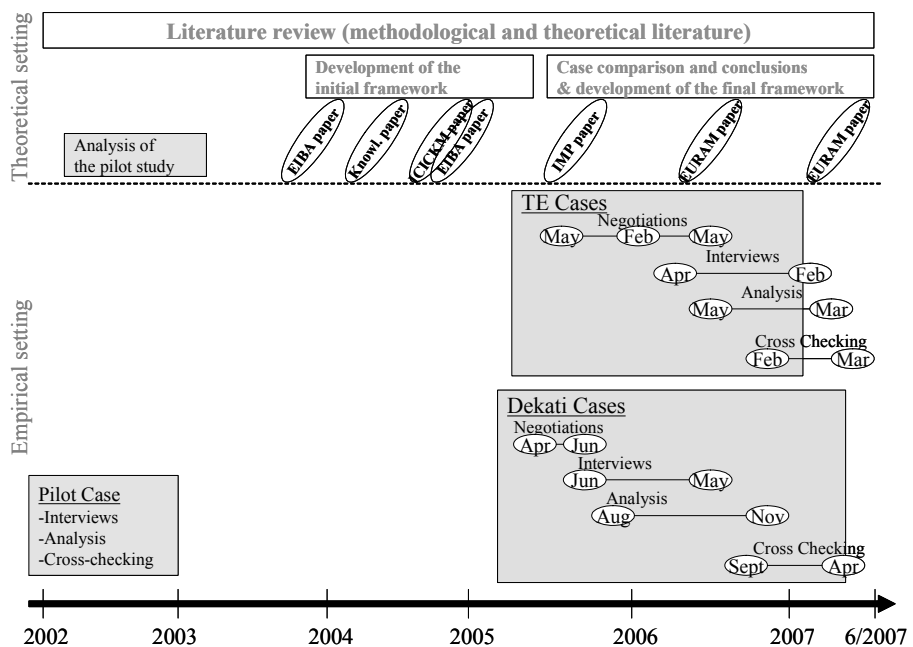


Figure 22: An Overview of the Research Process

The development of the theoretical framework was based on the existing literature. Initially an empirical pilot case study was conducted in 2003 for the researcher's Master's thesis in which the issues were analyzed in a case relationship between Nokia Mobile Phones (NMP) and TietoEnator (TE). As part of the development work, the researcher wrote a number of conference papers (including presentations of the initial theoretical framework as well as the initial findings from the case studies).

The pilot study concentrated on the development of a specific technology for NMP. It was developed in close cooperation, although TE also had

cooperative relationships with NMP's competitors. The basic arguments of the framework were supported in the pilot study, but there were also some issues that seemed to need further attention. These issues included the role of the support structures, the process of acquiring highly tacit knowledge, and the implications of the relationship dynamics for the knowledge-acquisition process. The interesting issue was that although there was a potential risk of opportunism, the level of trust and commitment between the companies was very high. Indeed, there seemed to be more concerns regarding the increase in inter-dependence than a lack of trust between the partners. Furthermore, there were apparently increasing levels of tacit-knowledge acquisition, but on the other hand the companies seemed to actively develop the basis and level of their shared mindset. The set of analyzed factors (knowledge characteristics, relationship atmosphere, support structures and the recipient's characteristics) also appeared to be essentially interrelated. Finally, the pilot study had an effect on the methodological choices in that the case study and theme interviews were found to constitute a good research strategy. The pilot study also helped in building up the researcher's understanding of possible problems in the case settings and the existing literature.

The case studies in this research were mainly conducted between early 2005 and late 2006, although some further clarifications were made and additional interviews carried out during the early parts of 2007. The negotiations at TE were conducted in two parts, as permission to use the cases was confirmed separately. After the interviews and analysis the case descriptions were cross-checked. The main findings were discussed with the main contact people at TE and Dekati in order to get feedback. The case-study strategy and the decisions concerning the methodological choices are covered in more detail in the following section.

6.3 Strategy

The setting for the empirical study was very complex, as the factors affecting the phenomenon could be ultimately considered interdependent. The aim was to conduct a comprehensive study, taking the relevant dependencies and dynamics into consideration. The researcher thus decided that it would be more feasible to concentrate all his interest and efforts on a few carefully chosen cases.

6.3.1 The Multiple Case Study as a Research Strategy

The empirical research was conducted as *a qualitative multiple-case study*. Case-study research should not be thought of as a specific method, but rather as a strategy, which as such could include the use of different kinds of methods for obtaining data (Ghauri 2004, 109; Compare DuBois – Gadde 2002). The case study as a research strategy is generally considered particularly well suited to research aimed at understanding complex, ambiguous and contextual management issues within an interdependent network of actors (based on Ghauri 2004, 110-112; Gummesson 2003). It was therefore considered well suited for this research as it enabled the gathering of comprehensive and intensive information on the relationships and the factors affecting the knowledge-acquisition process (see Hirsjärvi et al., 2001, 123).

As the study was exploratory and explanatory in nature, the case study was considered a suitable strategy for understanding a phenomenon that was not previously well known (Hirsjärvi et al. 2001, 128; Hartley 1994, 213). Furthermore, it also enabled exploration of the relevant dependencies within the environmental context of the case relationships from a holistic perspective. The qualitative approach was considered appropriate given the aim of answering “how” and “why” questions. It was also deemed suitable for studying organizational, social and complex processual phenomena, all of which played an integral role in the framework. (Hartley 1994, 210-213; see Yin 1991, 13-14; Stake 1995, 16; Parkhe 1993; c.f. Töttö 2000, 72-77.)

It has been suggested that case studies support the development of an understanding of processual and contextual phenomena, such as organizational behavior and change in dyadic relationships (Hartley 1994, 210-212; Bonoma 1985, 202; 207). It therefore seemed more sensible to explore a few cases in enough depth to enable logical and insightful conclusions to be made than to try to capture aggregate frequencies of variables (see Bonoma 1985, 200; 206). The reason for deciding to conduct qualitative research was to do with the fact that the aim was to describe, explore and understand a real-life event and the complex dynamics related to it. This is one of its basic characteristics as it allows for a more flexible and comprehensive approach to studying and describing the subject (see Hirsjärvi et al, 2001, 152; Cassell – Symon 1994, 4-5). Other major reasons for selecting qualitative research relate to the following points:

- It seemed to afford better opportunities for understanding the complex phenomena and dynamics within a business-relationship context (Stake 1995, 37; Malhotra – Birks 2000, 159; see Cassell – Symon 1994). It is close to impossible for someone not familiar with a particular relationship

to know the dynamics well enough in advance to be able set highly structured questions.

- It also seemed to allow for a holistic and comprehensive look at the phenomenon and dynamics in question (see Malhotra – Birk 2000, 159).
- It gave more freedom to the interviewees to explain and discuss the essentials (see Hirsjärvi et al., 2001, 155). Although the role of the framework was emphasized, it did not mean that novel results could not be found (Töttö 2000, 105-109, 114). This aspect was also taken into consideration in the selection of the theme interview as the interview method.

The next issue regarding the research setting concerns the defining of the cases. This was a big challenge since there may be different kinds of actors on different levels of a business relationship that could be considered a case (see Yin 1991, 31). The unit of analysis was defined on the basis of the research problem, which involved the questioning of how a process can be conducted on a relationship level. Thus, the basic unit of analysis, the case, was a dyadic relationship between the knowledge transferor and the receiver.

The problem with case studies in general is that the results as such cannot be generalized to other populations since they are based on a specific set of variables in a specific environmental context. However, it is possible to make analytical generalizations, i.e. generalizations in terms of theoretical propositions based on case studies. (see Yin 1991, 21, 38; Smith 1991, 150; Eisenhardt 1989, 541-545.) One of the key elements of case-study research is usually the theory development, and consequently the generating of results and conclusions that have more general relevance takes precedence over producing a unique description of one case setting (see Hartley 1994, 210, 213; Lukka – Kasanen 1993). This was also the aim in this research – to develop a theoretical framework and to analyze how well it could encompass the dependencies of the reality in corresponding relationships.

Furthermore, it was thought that a *multiple case study* would allow a better basis for developing explanations within the specific theoretical context (see Ghauri 2004; Miles – Huberman 1984, 151). The analysis of events within several cases has also been argued to provide better opportunities for insights and comparison, and consequently for theory development (Halinen – Törnroos 1995, 513). Yin (1991) argues that the multiple case study as a research strategy is not very different from the single case study, although the empirical support in the theory development could be argued to be more compelling. In addition, adding to the number of cases has been argued to diminish the risk of self-delusion (see Miles 1979, 598). The viability of using a multiple case strategy in this study was based on the possibility to explore the dimensions of the phenomenon across different contextual settings, and it

also enabled comparison of the meanings of the variables between different contexts (Ghauri 2004; Eisenhardt 1989; Miles – Huberman 1984, 151). The aim in this sense was to better understand the contextuality of the phenomenon in order to develop a better theoretical framework for its analysis (see Chapter 6.6).

The study was conducted at least partly *retrospectively*, which offers some specific opportunities and raises some potential problems, which are discussed in more detail in Chapter 6.6. The retrospective perspective is based on the assumption that individuals are affected by events over time. Consequently, *retrospective research could be said to provide a method for understanding and consequently for explaining the past's relationship with and influence on the present, as well as for untangling the relationships and influences between events and human behavior in the past through the joint development of time lines and sequences of events and the analysis of their interrelations and dependencies.* (based on Gillette 1988, 308; 314; Nevett 1991, 17; Savitt 1980, 53.) Gillette (1988) also emphasizes the role of the researcher's contextual understanding in retrospective studies (as does Mason et al., who also consider idiographic research) (see Mason et al. 1997, 308).

It could be argued that explanation through qualitative research is possible at least in a recursive manner (factors affecting each other interdependently) through analyzing the process and patterns within a longer time span (see Toivonen 1999, 89-90). However, the aim is not to establish a representation of cause-and-effect relationships: it is all but impossible to verify that there are no external factors affecting the relationship (see Williams – May 1996; Smith 1991, 150). On the other hand, one could argue that as idiographic research enables the researcher to study the phenomenon intensively and from a more versatile set of viewpoints, it thus offers more potential in terms of finding and understanding the affecting mechanism within the context and the contingencies between the interrelated factors generating the experienced events (see Tsoukas 1989). This is essential in business research, which is often focused on gaining understanding about managerial challenges.

6.3.2 Theory Building from Case Research

The developed theoretical framework was based on the existing literature (see e.g., Hamel 1991; Goh 2002; Cummings – Teng 2003; Muthusamy – White 2005). The developed framework was used as a “template” in the empirical study, based on which it was further developed through analytical generalization (see Yin 1991, 38). This kind of theory building from case studies could be considered beneficial since it enables the researcher to

undertake creative reframing in order to produce a better theoretical framework, for example. It could also be argued that the use of a template theory increased the likelihood that the developed theoretical framework would not be too complex or too narrow, although a theory that is complete a priori may restrict the researcher's thinking to a specific frame of reference. (Yin 1991; Bonoma 1985, 206; c.f. Eisenhardt 1989, 546-547; see Hartley 1994, 213.)

Strong reliance on a developed theoretical framework is also considered essential in terms of safeguarding the quality of the research: it helps in analyzing the data, and thus in understanding the phenomenon (Miles – Huberman 1984, 28; Dubois – Gadde 2002, 556). One of the basic elements of qualitative case research is the difficulty of analyzing a complex phenomenon with interrelated factors. Therefore, the use of a well-established template framework as a basis for defining the problem and the phenomenon in question, as well as for analyzing the empirical results, could be considered crucial in terms of ensuring that the relevant issues and dependencies are captured but still allowing room for the researcher to note and distinguish unexpected results (Miles – Huberman 1984, 28; Carson et al. 2001, 11-12). On the other hand, the researcher's ability to capture unexpected issues was further supported by the nature of the theme interviews, which allowed considerable freedom to the interviewees, as well as by the gathering of data from other sources.

It has also been argued that developing a framework for understanding a highly complex phenomenon may be easier if there is an understanding of the functioning of its parts, i.e. a functional model or framework capturing the interrelations of the relevant factors (adapted from Johanessen et al. 1999, 28; Beinhocker 1997). Furthermore, the use of theoretical models in the analysis may also improve the explanatory power of case-study research (DuBois – Gadde 2002, 555). However, the use of the framework may also become problematic in the sense that it may blind the researcher to new unknown variables. On the other hand, it may focus the research more on the essential factors, especially if the aim is to study multiple cases in which there may be significant differences regarding the implications of the relationship context and the types and characteristics of knowledge being acquired. (Miles – Huberman 1994, 16-18.) Furthermore, the template framework facilitates the analysis and comparison of empirical data across multiple cases in that it provides a more structured view (Miles – Huberman 1984, 28; see Figure 23).

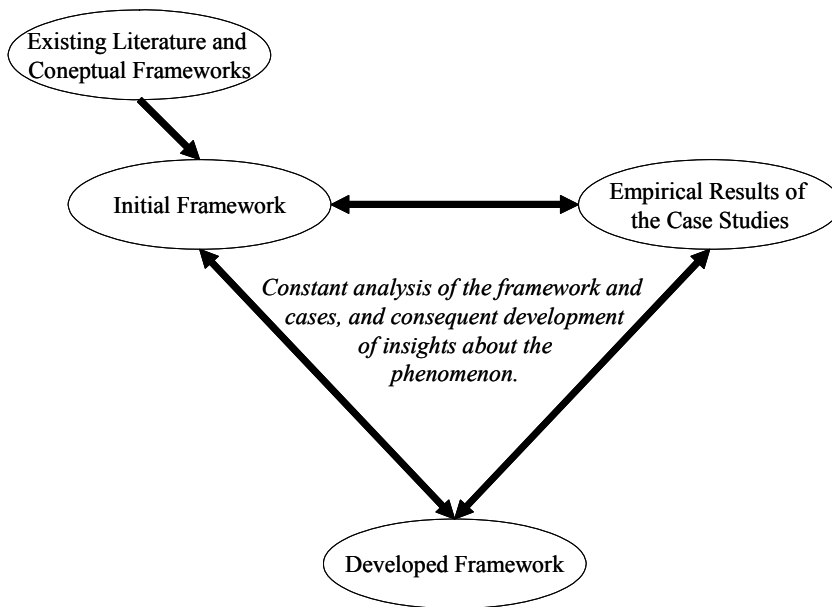


Figure 23: The Development of the Framework

The research could be characterized as iterative interplay between the initial framework, the empirical data, and the developed theoretical framework (c.f. Eisenhardt 1989), which resembles the abductive⁴² research referred to in recent methodological literature (DuBois – Gadde 2002). Existing literature and concepts were used in the development of the initial framework before the empirical study was conducted. This is very common in case studies because the research process is based on developing an understanding of a phenomenon that may be poorly known. The purpose of this research was twofold, however: (1) to understand inter-organizational knowledge acquisition, and (2) to develop a theoretical framework for its analysis. Thus, the framework was developed further based on the empirical study and its findings, partly alongside the gathering and analysis of the empirical data (see Ghauri 2004, 117). This kind of research in which an initial framework is used as a basis for theory development could be seen to preserve a balance between the inductive and deductive approaches, and could be considered highly appropriate for interpretive research (Carson et al. 2001, 12).

⁴² It seems that purely deductive or inductive research is close to impossible to conduct as the researcher always has presumptions about the research target. On the other hand, it could be argued that all theories have been at some point driven from experience (induction) (see Toivonen 1999) and the role of this interplay is an essential one to recognize in qualitative research.

6.4 The Selection of the Case Relationships

6.4.1 The Case Selection

The selection of the case relationships was a big challenge due to the fairly small number of companies and relationships in which this kind of competence development takes place. Eventually the selection was largely based on availability, which was highly unsure before the research began. (c.f. Eisenhardt 1989, 537.) Other companies apart from those selected were also considered, but for various reasons (including an unwillingness to disclose competitively sensitive information) these contacts did not pay off. However, the companies that were chosen seemed interested in taking part in the research, and the interest in the phenomenon was mutual. In addition, the characteristics of the case relationships that were eventually chosen for the empirical study seemed to reflect the typical aspects of relationships in which knowledge is acquired (i.e. the issues that were emphasized in the framework) (see Stake 1995, 4; c.f. Eisenhardt 1989, 537; Ghauri 2004, 112).

Theoretical and purposeful sampling is generally recommended for qualitative case studies in that it assumed to ensure that the cases are representative of the theoretical perspective and of the feature or process of interest (Patton 1990, 169; Silverman 2000, 104-105). The aim was to facilitate theory development through finding useful cases that would replicate and extend the relevant conceptual categories (Eisenhardt 1989, 537; Ghauri 2004, 114; see Patton 1990 170-172; see Hartley 1994). As emphasized by Pauwels and Matthyssens (2004), theoretical sampling could be considered important for theory development as it allows the researcher to find suitable cases that incorporate the required versatility in terms of variance and divergence of the different mechanisms and variables, thereby allowing case comparison and analytical generalization. The selection here was based on the relationships' theoretical representation of the phenomenon and purposeful distinction between the main organizations (TE & DE). The case settings were distinguished in order to highlight the role of the relationship context, which was considered to affect the learning process. In addition, a number of specific criteria incorporating the main points of the theoretical framework were developed as part of the selection process (see Appendix 2 for more details):

- Company characteristics
- Nature of the relationship
- Characteristics of the acquired knowledge
- Nature of the knowledge-acquisition process

- Other qualitative criteria

It should be stressed that purposeful sampling was used not to guarantee that the cases would automatically support the developed initial framework, but only to ensure that the relevant issues could be studied (see Mason 1996, 94; 96). The companies originally targeted ranged from traditionally operating companies connected in their network environments to so-called network organizations in which the operations of the whole value chain were coordinated through a network of partners (see Batt – Purchase 2004, 170; Miles – Snow 1986, 64-66; Miles – Snow 1992).⁴³ The aim was to find two companies from different areas of business in high-technology industries, given that the role of knowledge is essentially important in more dynamic industries (Teece 2000b).

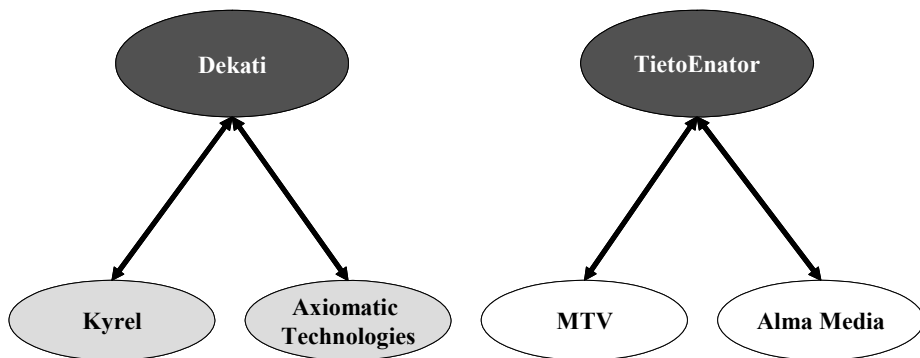


Figure 24: The Setting for the Multiple Case Study

The researcher explained what was expected of the participating companies in terms of time and effort, and also the managerial usefulness of the results (see Huber – Power 1985, 176; Daniel – Cannice 2004, 195). As a result, Dekati Ltd. and TietoEnator Corporation agreed to cooperate and were chosen as the main companies for the case studies (see Figure 24). This enabled the researcher to analyze the process and the interdependencies between two

⁴³ The idea in network organizations is that there is a central organization (or focal company) that manages a network of suppliers and subcontractors throughout the value chain in order to provide the markets with a product or service. Through this kind of arrangement, all the linked but independent parties have the opportunity to concentrate on their own part of the value chain and their distinctive competences. These organizations have also been referred to as dynamic networks, which imply that their major components can be assembled and reassembled in order to cope with environmental changes as they take place. Nevertheless, the parties are usually highly committed to the relationships and need to consider the long-term success and innovativeness of the network in order to hold their position in it. (see Miles – Snow 1986, 64-65; Miles Snow 1992, 55-57.) Furthermore, as there is more than one potential partner for each part of the value chain, the focal company is able to ensure the quality and innovativeness of the final product in that the competing parties need to improve their performance in order to earn their membership in the network (Miles – Snow 1992).

highly differing companies and between their two relationships. The case relationships related to the companies are discussed more thoroughly later on at the beginning of the case descriptions. The following section describes the selection of the interviewees within all six organizations in more detail.

6.4.2 The Selection of the Interviewees

Another essential issue in case studies is to find suitable people to act as informants (see Ghauri 2004). The selection of the interviewees was carried out with the main contact person in each company, the aim being to find knowledgeable people within the organizations (Kumar et al. 1993, 1634). In order to ensure that the most suitable informants would be found within the relationships the snowballing tactic was also used (Mason 1996, 103; Hirsjärvi – Hurme 2000, 59-60; see Welch et al. 2002, 624; Daniel – Cannice 2004, 200). All the interviewees were asked to name other people who might be suitable informants, and this proved to be very useful.

The difficulty in relying on a few key people for empirical data is twofold: it is hard to find competent people to provide information about the dyadic relationship, and the interviewees may not be able to provide reliable and corresponding data on historical events (adapted from Kumar et al. 1993, 1634-1636; Huber – Power 1985, 173). Experienced top- and middle-management personnel could be considered a very good and perceptive source of knowledge given the type of knowledge and the level of learning (Wilcox King – Zeithaml 2003, 765; 771). The higher he or she ranks in the organizational structure, the better the informant is often considered to be, but in this research interviewees on different levels were used as informants on different kinds of issues (see Macdonald – Hellgren 2004, 265). They provided data that corresponded fairly well, but still differed in some details. Furthermore, as Kumar et al. (1993, 1634-1635) suggest, the differences seemed to be highlighted especially according to the organizational level/role of the interviewee. *Thus, interviewees from several levels (from both organizations) were chosen in order to enhance the reliability of the study.* It was possible to synthesize the data into a concise case description for further analysis following the provision of further information and details on the more difficult issues. In addition to bringing in multiple viewpoints, this also ensured that any possible lack of information or imprecise empirical data could be offset by the number of interviewees (see Huber – Power 1985, 175). Moreover, the differing viewpoints within the organization were also considered an important result of the study.

The number of interviewees varied from two to seven depending on the organization. They were chosen based on their roles in the relationships and how knowledgeable they were regarding the aims of the research. A short description of each of them is provided (Appendix 4) in order to clarify their roles and importance in the case relationships. They could all be considered well experienced in their respective organizations and with regard to the case relationships. Furthermore, the case relationships they were asked to discuss could be fairly easily specified, and thus there was an easily specifiable number of people who could be considered suitable informants. Thus, the aims of the study and the focus of the cases seemed to narrow down the number of relevant interviewees (King 1994, 20). Moreover, the relevant people were easily contactable, and all of them seemed to have a positive attitude towards the subject and the research, and were willing to participate in the interviews.

In some organizations there were people who were directly involved in the knowledge-acquisition process on different levels, whereas in others there were only two or three who had been involved with the relationship in any capacity. However, the aim was to have a minimum⁴⁴ of two interviewees in each company – *one with more experience and a background in relationship management and the other from the project level*. This would make it possible to gather detailed information about both the development of the relationship as well as the operational level of the project and the acquisition process. It was important to interview people from both organizations so that the results would reflect the background and state of the relationship more comprehensively. It would also enable the level of subjectivity in the interview data to be controlled. The project personnel's experience in the relationships was a crucial aspect as they were in a key role in the analysis of the types of acquired knowledge. The collection and analysis of the empirical data and the analysis of the knowledge types are discussed in more detail below.

6.5 The Collection and Analysis of the Empirical Data

6.5.1 Theme Interviews as a Methodological Choice

There are several ways of collecting research data, even from one specific case: documents, interviews and observations, for example. For the purposes

⁴⁴ This minimum was realized in only one of the companies involved, others providing three or more interviewees.

of this study, interviewing seemed the most appropriate, but some additional documentation and information from the Internet and other media were also used in order to corroborate the gathered data. (Hirsjärvi et al. 2001, 179-206; Yin 1991, 85, 89.) The difficulty in studying inter-organizational relationships and issues such as trust, power dependence and learning is that there is a lack of documentation, and therefore it was decided that the best way of gaining comprehensive and reliable empirical data was to interview knowledgeable people (Kumar et al. 1993, 1633; Noordhaven 2004, 98). As mentioned, the reason for gathering interview data is so that the people who are knowledgeable about the issues in question have the possibility to discuss the relevant aspects and dependencies, and to bring their own insight into play (see Yin 1991, 89). Contact with the interviewee is very direct and interactive in an interview, which means that as a means of gathering data it is very flexible and can easily be used to cover issues beyond the original framework (see Hirsjärvi et al. 2001, 191; King 1994, 15-16). Interviewing therefore facilitates the discovery of novel results, and thus is especially well suited for exploratory studies (Daniel – Cannice 2004, 186; Eisenhardt 1989, 548-549).

On the other hand, interviews may be quite costly (Daniel – Cannice 2004, 186). They also set certain requirements on the interviewer, as he or she is usually also the one drawing the conclusions based on the discussions (see Hirsjärvi et al. 2001, 193). However, as the study in question concentrated on two case relationships, the number of interviews was not going to be overwhelmingly big (originally planned for between two and four in each relationship). Given the quite big role of the researcher in the empirical study, specific steps were taken to ensure that his subjectivity would not present any problem – most importantly the extensive use of the theoretical framework could be highlighted. Specific attention was also given to the careful operationalization of the research questions and the theoretical framework, and the interviewer prepared carefully for the interviews.

There are various interview types, ranging from more or less structured and theme interviews to totally open interviews in which the discussion flows freely guided only by the topic that is set beforehand (Hirsjärvi et al. 2001, 194-196; Hirsjärvi – Hurme 2000, 48; King 1994, 15-16). A specific kind of semi-structured interview, the *theme interview*, seemed to be the most appropriate for this study: the main areas of interest (so-called main themes) are set beforehand, but the formation of the questions and their sequence may be freely decided during the interview (see Eskola – Suoranta 1998, 87; Hirsjärvi – Hurme 2000, 47-48; Hirsjärvi et al, 2001, 195). This was considered appropriate because the main issues were quite complex and interdependent. Furthermore, the aim in theme interviews is to understand the interviewee's experiences and perspectives, and thus they were considered

well suited to the purposes of this study (Patton 1990, 278; see Welch et al. 2002, 612). Moreover, as finding unexpected information about the case relationships was one of the main aims, structured interviews did not seem to allow for the required freedom and flexibility (see Eskola – Suoranta 1998, 87).

On the other hand, interviews may not capture objective information, and the information originating from the actors themselves may not represent the most important or interesting aspects of the complex web of interactions (see Toivonen 1999, 44-45). The interviewee's role in qualitative research is close to that of a participant in the study, who shapes the course of the interview and the reality for the researcher instead of being a mere source of objective information (see King 1994, 15). On the other hand, the quality of the data obtained is also very much dependent on the interviewer (Patton 1990, 279). This sets challenges as far as the research is concerned in that different questions may represent different things to different people, and thus the results of a qualitative interview should be seen as inherently subjective. However, in the interview situation the interviewer may support the level of interpretation of the interviewees' views by posing further questions. Furthermore, in the case of managerial interviews, the interviewer should remember that the actors being interviewed are at the same time the people who are making the decisions about the strategic choices the company is facing – and thus potentially constitute the best possible source of information about the essential relations between the various factors involved.

The use of theme interviews was considered an appropriate but challenging method, as it required a lot from the interviewer and an ability to coordinate the discussion. These challenges were recognized in advance, and the preparations included drawing up a set of main and sub-themes around the developed framework, as well as having informal discussions with the main contact people in the companies involved (King 1994, 19; see Daniel – Cannice 2004, 192; Wilkinson – Young 2004, 211). This enabled the researcher to take into account the general nature and aims of the relationships in his preparations. He also took into account his experiences from the pilot study, and developed a more meticulous set of sub-themes in case it was difficult to engage the interviewees in conversation (King 1994, 19). Furthermore, the themes were somewhat adapted to each interview depending on the interviewee's position and responsibilities within the relationship in question, as well as on the issues discussed in previous interviews.

Given that the aim of the empirical study was to analyze a real-life case with the help of the developed framework, it seemed appropriate to try to bring the framework and the research problems closer together. When the research problem was operationalized the idea was to make sure that the

empirical study (both the gathering and the analysis of the data) was conducted according to the relevant framework. (see Eskola Suoranta 1998, 75-77, 81.) As a result, the research sub-questions were further related to their operational equivalents and to the main themes of the interviews. The operationalization of the research problem is presented in Appendix 1.

Secondary data, such as companies' internal memos and documents as well as official publications, were used in order to gather background information about the studied companies and their relationships. The use of multiple data sources allowed the gathering of as much information as possible so as to reveal issues previously unknown to the researcher, but was not used so much to ensure the accuracy of the information (see DuBois – Gadde 2002). It also facilitated a more holistic and contextual analysis of the research phenomenon (Ghauri 2004).

In conclusion, one could argue that the theme interview was well grounded in terms of the aims of the research, the guidelines discussed in the literature, and the previous experiences of the researcher from the pilot study. The researcher's efforts in preparing for and conducting the interviews are described in more detail in the next sub-section. The focus then shifts to the way in which the empirical data was analyzed.

6.5.2 Preparing for and Conducting the Interviews

Before the interview process began it was considered essential to have a short, informal meeting at which the main issues regarding the research problem could be discussed with the main contact persons at Dekati (CEO, Juha Tikkanen) and TietoEnator (Marja-Leena Junttila and Vesa Vainio). When suitable partnerships had been found and interest in the study was confirmed, the researcher also met T TietoEnator's project owners informally in order to discuss the project in more detail (see Daniel – Cannice 2004, 187-188). The meeting concerning the TE-MTV partnership was held together with TE's and MTV's representatives, whereas a separate meeting was held with the representatives of the TE-AM partnership. The reasons for meeting the main contact people in advance were as follows:

- It would make it possible to create a mutual understanding about the aims of the research and the interviews. The fact that the interviewer had the support of a member of the higher management made it a lot easier to proceed with both of the organizations.
- It ensured that the case relationship and its contents really matched the requirements of the empirical study.

- It made it possible to obtain better knowledge about the interviewees and the inter-organizational relationships, which was considered helpful at the preparation stage (see Hart 1991, 192).

The researcher conducted a maximum of two interviews a day. The interviews related to Dekati's case relationships were conducted first, after which TE's relationships were studied (see Figure 22). In addition, some of the respondents were contacted later on by telephone or email in order to verify some smaller details or to clarify viewpoints that had come up in later interviews. The interviews were well prepared for in terms of the themes that had been built based on the existing literature. These are set out in meticulous detail in Appendix 5.

The following steps were also taken in order to ensure a high quality of empirical data:

- The researcher contacted all the interviewees except one beforehand. He contacted the so-called corporate elite well in advance: there were really no problems in contacting them or in getting access to the interviewees (see Hart 1991, 191; Welch et al. 2002, 614). Permission was also requested to make contact later (Daniel – Cannice 2004, 200) in the interests of reliability, and many of the interviewees were subsequently contacted in order to clarify certain details.
- The interviewees were advised about how much time to reserve for the interview and were given some general guidelines about the interview in advance (King 1994, 23). As a result, all the interviews were conducted in good time without the interviewee having to hurry to another meeting.
- Information about the companies was gathered when available from the media and from the companies' Internet sites. Discussion on the biggest changes in the companies' operations was integrated into the interviews (e.g., recent mergers & acquisitions and their effects).
- A short description of the dissertation and a summary of the interview themes were sent in advance (see Appendix 3) to all the interviewees (usually two or three days beforehand), and subsequently most of them had prepared for the interviews (see Hart 1991, 193).
- The researcher briefly reviewed the aims of the research before the interview started by giving a short presentation (Daniel – Cannice 2004, 198; Hart 1991, 193). He also guaranteed confidentiality of the interviews and the transcriptions, and discussed possible concerns (see King 1994, 21; Daniel – Cannice 2004, 195, 198).

The interviews could be characterized as low in structure and thus also partly dependent on the interaction between the interviewer and the interviewee, which was acknowledged as a potential source of bias (King

1994, 14-15). The interviewer's previous interviewing experience and his thorough preparation in terms of the companies' business and the research topic contributed considerably to his ability to control the interview situation (Patton 1990, 330). In addition, he prepared for potential problems with non-communicative, over-communicative and high-status interviewees, and subsequently was able to handle the situations quite well (see King 1994).

There were no major problems during the interviews. Some of the interviewees were quite technically oriented and had only limited views on the types and characteristics of the knowledge that was exchanged, but in these cases other interviewees provided further reflection. One interviewee seemed to fall into the over-communicative category, but this was quite well controlled through the asking of more focused questions (see King 1994, 23). If the interviewee was giving overly short answers, a short pause in the interview or the asking of more detailed questions usually provoked elaboration on the issue (see King 1994, 22-23). On the other hand, similar issues kept coming up in the interviews, and it could be argued that a certain kind of fulfillment or saturation of the empirical data was reached (Hirsjärvi – Hurme 2000, 60). One of the interviewees seemed somewhat hesitant to give comprehensive and specific answers to some questions given their competitive significance, but these issues were, at least to some extent, covered in other interviews (see Hart 1991, 194).

Potential problems regarding the power imbalance in the interviews with the top management were also recognized (see Welch et al. 2002). In this regard, it should be noted that the researcher had previously conducted theme interviews in big companies. He was also used to communicating and interacting with higher-level managers who could be labeled the corporate elite in his part-time job as an account manager in a digital media company. Thus, his good preparation (see Hart 1991) and previous experience served as a good basis for interacting with the higher-status interviewees. These interviewees were perhaps also more cautious, and as good communicators could deflect difficult questions (Welch et al. 2002, 615). The researcher was aware of these possibilities and therefore rephrased difficult and more direct questions if issues were being avoided. It should also be noted that only some of the themes were discussed in more detail with the top management at MTV, TE and AlmaMedia: the interviews mainly concentrated on the management of the relationship context, network considerations, and the further development of competences at TE, and the themes were revised accordingly (Welch et al. 2002, 615). This was done in order to focus on their areas of experience about the relationship and to allow more time for discussion.

All the interviews were held on interviewee territory at their organization's premises or at a location of their choice in order to ensure their comfort⁴⁵. A couple of them had to be carried out in an office rather than a more private meeting room (see Hart 1991, 193). There were really no interruptions that might have affected the spirit of the situation in a meaningful way, however. Altogether, around 623 pages of transcription were produced.

The interviewer usually started by asking more general questions about the relationship and the type of acquired knowledge, and ended by enquiring about the interviewee's own experience and background in order to make him or her feel at ease (see King 1994, 21-22). All the interviews were electronically recorded in order to ease the gathering and analyzing of such huge amounts of data. This also enabled the researcher to concentrate on the discussion and the planning of the following themes and questions, instead of making notes, and made the flow of the interviews smooth. (see Hart 1991, 196; Stake 1995, 66; Patton 1990, 348.) A few of the interviewees seemed a little uncomfortable at first due to the tape recorder on the table, but they seemed to relax after a few more general questions (see Daniel – Cannice 2004, 198). The interview guide was an important tool, and it was used mainly as a checklist during the interviews in order to make sure that all the relevant issues were discussed (see Patton 1990, 280; Carson et al. 2001, 74; Daniel – Cannice 2004, 198), but it also helped the interviewer to direct the flow of the discussion, and helped in formulating more specific questions when necessary (Wilkinson – Young 2004, 211). The interviews concerning the different cases all followed the same logic and were based on similar interview guides, although slightly adapted according to the interviewee (see Patton 1990, 282).

Thus, it could be claimed that the amount of high-quality interview materials was satisfactory, and fullness of empirical data was achieved. The interviewees brought up many of the themes themselves, and in most cases the role of the interviewer was rather to guide the discussion from one issue to another. Together with the written materials the theme interviews provided a good basis for understanding the case relationships. The analysis of the materials is discussed in more detail below.

6.5.3 Analyzing the Research Data

The aim in case-study analysis is to develop an understanding of the case through interpreting the gathered empirical data (Stake 1995, 74; 77). The analysis in this study concentrated on the interview materials, although

⁴⁵ One of the interviews was conducted at the home of the interviewee

additional materials (mainly background information from the Internet and other media) were also utilized (see Hart 1991, 198-199). Given the research problem, only the interview data seemed to contain relevant information.

The first step in the analysis of the interview data was to classify it into themes (see Appendix 7). The development of the themes and the classification were critical phases of the process (Eskola – Suoranta 1998, 175-176; see Hart 1991, 197-198; 199; King 1998, 118). It seemed appropriate to use themes since the empirical data was quite clearly aimed at understanding a real-life case and the problematics related to it. The themes turned out to be extremely useful as they enabled the researcher to label the relevant issues clearly for further cross-analysis and interpretation. (see Eskola – Suoranta 1998, 179; King 1998, 119.) The interviews were first transcribed from the tapes, after which the themes were explored and established. The themes were developed through an iterative process: they were first established based on the interview themes, and then developed for further analysis after the transcriptions had been read (see King 1998, 118-122).

The analysis was a combination of aggregating and interpreting the interviewees' reflections and views about the case relationships. Developing an appropriate understanding of the cases involved analyzing and understanding the phenomenon and the relationships between the variables and the patterns taking place within the case relationships. (Stake 1995, 74, 77.) The developed themes were used to allocate the gathered data to corresponding themes for closer analysis, with additional notes being made on the side when especially important or new issues came up (see Miles – Huberman 1984, 65-66). This made it possible to constantly relate the results to the framework, which facilitated reflection and interaction between these two in forming the conclusions, and subsequently gave rise to the solution of the research problem (see Eskola – Suoranta 1998, 176; see Hartley 1994, 220).

In general, themes can be derived either from existing theories or purely inductively from the empirical data, but in this study it was a mixture of these two methods (King 1998, 118-119). The themes used in the analysis were synthesized from the research problem and the sub-questions, the existing literature, and the developed framework, and were subsequently revised based on the issues that emerged from the interview data (see Eskola – Suoranta 1998, 176; Hart 1991, 199; King 1994, 19; 26: see Figure 25).

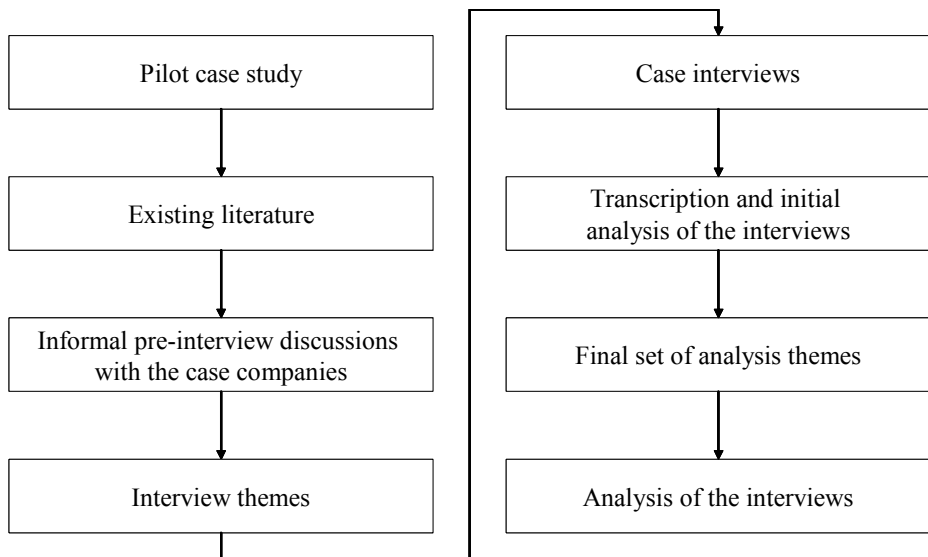


Figure 25: The Development of the Analysis Themes

However, it should be noted that a pilot study had already been done, and this gave the researcher a reliable overview of the relevant themes as well as a good understanding of the methods used. Totally new issues that arose in the pilot study were further analyzed with the help of existing literature, which was comprehensively studied before the interviews. The themes were then further developed based on the matters that were discussed during the pre-interview meetings (e.g., the nature of the relationships, significant environmental changes or developments in the relationship, mergers and acquisitions, and historical background) with all the participating companies, and those that emerged during the interviews (especially unexpected issues about the strategic role of the relationship and the importance of dependencies) (see King 1994; King 1998, 121-122). The themes for the final analysis of the interview data were finally set following the first reading of the transcriptions.

As the themes were built up from those used in the interviews, which in turn were based on the developed framework and thus, originally, on the actual research problem, it was possible to preserve a very strong link between them and the theory (see Hart 1991, 199; Yin 1991, 106-107). In the end, it has to be remembered that the analysis of qualitative research data is very much dependent on the researcher's own intuitive capacities, perceptiveness and creativity (Hart 1991, 195). Accordingly, the linkage between the themes and the theory was seen as a way of controlling the subjectivity of the researcher. The themes were also helpful in highlighting unexpected aspects of the interview data, as they provided a clear link to the underlying theory. New

issues that were not covered by them were also actively sought in order to support the validity of the study (King 1994, 29).

The analysis of the cases and the building of the descriptions involved the use of a number of techniques. The case descriptions could be described as narrations of specific events involving their identification and description, their antecedents and consequences (Savitt 1980, 53). Thus, they could be assumed to offer interpretations of how these events came into existence and developed. Consequently, they facilitated the development of the researcher's understanding of the phenomenon under study (Mason et al. 1997, 314).

Before starting the analysis the researcher read the transcriptions carefully, and then he read them again during the thematization process in order to familiarize himself thoroughly with the empirical materials (see King 1994, 25; Hirsjärvi – Hurme 2000, 143). First he browsed the materials once the transcriptions were finished, and then he very carefully read and analyzed them during the coding of the data. He read the data again during the writing of the case descriptions, and finally browsed through them before sending the descriptions to the companies for comment.

The process of further analysis began with the development of clear conceptualizations of the cases and the chronological order of events in order to achieve a comprehensive overview and understanding of the vast amounts of data available. The individual case descriptions were based on the conceptualizations and analysis, and a cross-case analysis was eventually conducted within the scope of the relevant concepts and recognized patterns. (see Eisenhardt 1989, 540; Gillette 1988, 309; Yin 1991, 55-57; Ghauri 2004, 118-119.)

The initial more general description of the cases and the relevant themes and concepts, which were based on the key interviews, were then further developed through the addition of issues and viewpoints arising from the rest of the interviews. The main concepts were then analyzed within the individual case contexts, and the cases were further scrutinized through matching and comparing the various themes and dimensions (patterns) more comprehensively between the partnerships (see Yin 1991, 109; Eisenhardt 1989, 540; Stake 1995, 78; Ghauri 2004, 118-119). Thus, the descriptions were further developed by adding a level of analysis involving the main concepts and patterns, and also including interrelations between the concepts.

Drafts of the final case descriptions were sent to the informants, which could be considered a good way of getting feedback from the interviewees, and even as a way of better integrating them into the research process (see Welch et al. 2002, 624-625; Daniel – Cannice 2004, 201). The researcher also discussed the findings with the main contact people in the companies in order to find any contradictions or support for the findings of the study (see King

1994, 32), but also to enhance its reliability (see Welch et al. 2002, 625). In addition, some of the figures were checked with the appropriate respondents in order to ensure their validity, and the direct quotations were checked with the interviewees before publication. In order to ensure appropriate translation from Finnish into English the final version was a combination of the researcher's own translations with those of an outside native-speaking person and a translation bureau. On the other hand, it was also taken into account that companies may be manipulative concerning the research findings (Welch et al. 2002, 625). However, the comments received mainly concentrated on the verification of facts and the interviewees found no major misunderstandings or under-/overstatements in the case descriptions.

Finally, the process continued with the cross-case comparison during which the themes and dimensions were further analyzed in terms of their processual development, and compared between the case relationships (see Eisenhardt 1989, 541; Mason 1996, 137). This enabled the main concepts, interrelations and inter-dependencies to be brought closer to the developed theoretical framework by achieving a more conceptual level of analysis within the findings of the case relationships. As a result, interpretation in the form of building linkages, attaching meanings & significance, and offering explanations (and rival explanations) was possible (see Patton 1990, 423). This could subsequently be considered to have enabled the drawing of relevant conclusions based on the case relationships. Consequently, one could argue that the analysis of the case relationships was done in a very consistent and analytical manner, and that the multiple case study provided a set of four very high-quality cases. The analysis of the acquired knowledge is discussed in more detail below, and then the focus turns to the reliability of the study.

6.5.4 Analyzing the Level of Knowledge Acquisition

The difficulty with knowledge-related research in general is very much related to the difficulty of measuring the unit of analysis (see Wilcox King – Zeithaml 2003). This is basically related to the ongoing discussion regarding knowledge-management theorists' willingness to quantify tacit knowledge – something that was considered impossible here given the ontological and epistemological assumptions. On the other hand, knowledge cannot be measured based merely on the changes that have taken place within the new organizational context since new knowledge only enables change. If the acquired knowledge is not considered to provide more value than the existing procedures, changes are not likely to take place within a rational organization even though learning has taken place. On the other hand, there may also be a

considerable time lag between the learning process and the time when the learned issues are further applied and exploited. *Thus, a more holistic analysis of the level of knowledge acquisition was required in this research.*

Finding some kind of basis for the analysis of the level of knowledge acquisition was an essential part of understanding the learning process. R&D spending or patents (e.g., Cohen – Levinthal 1990; Mowery et al. 1996; 2002) have often been used for analyzing the level of learning, but since this research is qualitative in nature and the aim is to understand knowledge acquisition more comprehensively than within a specific area of product-related knowledge, this was not considered feasible (Inkpen 2002, 273-274; see Wilcox King – Zeithaml 2003, 763). On the other hand, since knowledge could be seen to result from sense making by a certain group of people, for example, it cannot be measured based on one individual's views. In addition, the types of acquired knowledge may differ in scope and in the number of areas it is related to, and thus different knowledge types were utilized in order to make the analysis more transparent. (Wilcox King – Zeithaml 2003, 764; see Inkpen – Dinur 1998.) *Thus, the level of knowledge acquisition is analyzed in terms of the bundles of knowledge that the receiving organization reported it had gained.* The more specific criteria according to which the acquired knowledge and the learning results were analyzed were as follows:

- The different types of knowledge being acquired (e.g., technological knowledge, business-logic-related knowledge, customer-specific knowledge)
- The different kinds of characteristics that were related to the acquired bundles of knowledge (tacitness, complexity, diffusion, value/specificity)
- The organizational level to which the knowledge had been diffused (e.g., within the team/project, to other teams/projects, to other units within the organization)
- The core of the developed competences based on the acquired knowledge (e.g., new customer-specific competences, new industry-related competences).

The interest in studying knowledge acquisition in this research lay especially in the acquisition of tacit knowledge from one context to another. However, it could not be measured in a very strict sense, based on a specific measure or level/number, for example. Given the fact that the core and constructs of tacit knowledge are difficult to articulate perfectly, it could be argued that the interviewees were able express such knowledge to some degree through the use of metaphors, examples and storytelling (see Ambrosini – Bowman 2001, 816; see Cook – Brown 2002, 393). Constructing cognitive maps could be seen as a way of representing subjective data in a

more meaningful way in order to gain an understanding of the interviewees' thoughts (Eden 1992, 262; see Weick – Bougon 1986, 104-105). Ambrosini (2003) described a similar method, and it was thus considered viable for the purposes of this research (see Eden – Ackermann 1992, 309). As the acquisition and development of tacit knowledge are highly contextual and subjective, one might emphasize the need to utilize a method that brings out the personal nature and subjective views embedded in it.

The use of group interviews was also considered as a possible way of gaining further understanding of the types of acquired knowledge and the development of cognitive maps, even the types related to tacit knowledge (Ambrosini – Bowman 2001, 825). Group interviews are useful in that they allow for the respondents to provide information about the phenomenon and to comment other people's ideas, thereby leading to its co-construction (Hirsjärvi – Hurme 2000, 61). On the other hand, they may be quite difficult for one person to conduct, and could be distorted by dominating individuals within the group (Hirsjärvi et al. 2001, 198).

It was eventually decided not to use group interviews, but one type of 'knowledge mapping' was applied based on the individual interviews in order to gain a more comprehensive understanding of the acquired knowledge within the relationships (Ambrosini – Bowman 2001, 817-823). *Furthermore, it has been suggested that maps could be derived from individual interviews – as a composite of individual maps – although some of the differences in the interviewees' thoughts need to be synthesized in order to arrive at a comprehensive construction* (Weick – Bougon 1986, 111-112; Eden – Ackermann 1992, 314). The case analysis was based on the experiences and perceptions of the individuals involved in the relationships, and thus could be assumed to partly constitute their shared understanding. The gained knowledge types and characteristics were further utilized in the knowledge-mapping efforts in the subsequent interviews. Moreover, the fact that the researcher was discussing and negotiating the knowledge types and characteristics could have facilitated the development of a contextual understanding (see Noorderhaven 2004, 89; 97-98). This notion is further supported by previous research findings arguing that giving structure helps people to communicate tacit issues (see Herschel et al. 2001).

The knowledge types communicated by the interviewees were classified early on in mind-map-like constructions (see Appendix 6), which already included some sets of main and sub-themes (see Eden – Ackermann 1992, 317; see Ambrosini 2003, 161-179). The tables used in the case descriptions were then developed as a synthesis of the maps by identifying and combining the sub-themes (see Weick – Bougon 1986, 111-112), and further developed

and questioned during the interviews. As a result, a more reliable construction of knowledge types was generated.

Furthermore, certain measures were taken in order to support the reliability of the analysis. *Firstly*, the developed typologies were discussed afterwards with the interviewees who were mainly responsible for the relationships in question. *Secondly*, all the interviewees were asked to comment on them as part of the review of the case descriptions. The final versions were also discussed with the main contact people in the case companies (TE & Dekati) in the post-interview sessions in order to gain feedback and confirmation. Thus, it could be argued that the typologies were fairly valid representations of acquired knowledge within the relationships.

6.6 Evaluation of the Quality of the Research

Quantitative and qualitative research methods are often contradictory in terms of their ability to give reliable and generalizable results. A particular problem has been the unclear guidelines for analyzing the reliability of qualitative research. (Eskola – Suoranta 1998, 209.) As epistemological views in the social sciences differ in terms of the gathering of information about the research target, this also reflects the evaluation of its quality. The basic premise in qualitative research is that there is no one single objectivist truth available for the researcher to capture, and thus the evaluation criteria should differ from those used in objectivist quantitative research. (see Tynjälä 1991, 388; Lincoln – Guba 1985, 289-293; c.f. Kirk – Miller 1986, 19.) This does not mean that the reliability of qualitative research cannot be assessed – although the basis may be different due to the underlying epistemological assumptions. *Thus, for the purposes of this research the quality of the conducted case study is assessed according to the criteria especially designed for qualitative research: dependability, confirmability, credibility and transferability.* (see Eskola Suoranta 1998, 212-213; Tynjälä 1991, 387; Lincoln – Guba 1985, 290-300.)

Reliability in qualitative research could be seen as a measure of high quality in terms of the low level of accidental circumstances affecting the findings, whereas validity could be seen as a measure of the quality of the interpretations made (Kirk – Miller 1986, 20): how well and truthfully the researcher has been able to capture the state of the phenomenon. In praxis this means that if someone else were to conduct similar research with the same research subjects the results and conclusions should be the same. (McKinnon 1988, 37-38; Yin 1991, 45.) This set of requirements is challenging in qualitative research in that it is dependent on the temporal and environmental

contexts. *Therefore, it could be argued that a more suitable evaluation criterion would be the dependability of the research, which measures the researcher's ability to present consistently truthful and reliable information about the phenomenon.* (see Lincoln – Guba 1985, 298-299; Tynjälä 1991, 391.) In other words, anyone else should be able to capture the phenomenon from a similar perspective.

In the interests of dependability, the importance of the framework was stressed, the interviews were carefully prepared for, and the interview guide played a central role. As discussed earlier (see Chapter 6.5.2), specific attention was paid to controlling for the subjectivity of the interviewer. Moreover, the interviews were taped so that the quality of the data would remain consistent for later analysis (see Hirsjärvi – Hurme 2000, 184). Afterwards, particular attention was paid to analyzing the research data according to relevant themes so that the role of the framework could also be maintained during this stage. The researcher's self reflection was also important in terms of the reliability of the data gathering and analysis, as he could also be seen as part of the data-generation process (Carson et al. 2001, 7; Mason 1996, 36; Noordhaven 2004, 97-98) Thus, complete dependability of research is difficult to achieve (see Tynjälä 1991, 391), but in here the researcher minimized this by giving freedom to the interviewees to discuss issues they considered important, and also by relying on the initial framework in the planning of the interview guide.

The second criterion to be addressed is confirmability, which measures whether someone else could come to the same results and conclusions about the phenomenon in question. Thus, this could be viewed as a measure of the objectivity of the researcher and the research data. (Lincoln – Guba 1985, 299-301; Tynjälä 1991, 392.) In the end, the reliability of the research is also very much dependent on the researcher's ability to grasp the essentials of the phenomenon and to remain objective, i.e. on how reliable the researcher has been and on whether the results are consistent with the research subjects' views (Eskola – Suoranta 1998, 213; Hirsjärvi – Hurme 2000, 189; Lincoln – Guba 1985, 299-300).

It was important in this case to recognize that the knowledge base, and even the values and beliefs of the interviewer, could not be separated in their totality from the carrying out of the research (see Hirsjärvi et al. 2001, 152; Stake 1995, 45). Furthermore, the whole process was partly dependent on the researcher's own intuitive capabilities, insights and perceptions. This was an issue that influenced both the gathering and the analysis of the data, and specific attention was therefore paid to the advance preparations for the interviews. Firstly, basic information about the companies in question was collected from the Internet and other media, for example. Secondly, the

informal meetings concerning the case relationships proved to be especially helpful in terms of understanding them and the parties involved. At the same time, it could even be argued that the gathering and analyzing of the research data and the reliability analysis cannot be entirely separated (Eskola – Suoranta 1998, 209).

Therefore, measures taken to control for the researcher's subjectivity included placing again an emphasis on the developed framework during the data collection and analysis, as this represented the views presented in existing literature not those of the researcher. This knowledge of the relevant literature was perhaps the most effective way of ensuring reliability (see Eskola – Suoranta 1998, 209-210): the aim was to avoid pitfalls by developing a relevant theoretical framework that could serve as a reference during the empirical study (see Pettigrew 1997, 344-345). The role of the framework was further highlighted in its operationalization, in the structuring of the themes for the interviews, and finally in the analysis of the results (see Yin 1991, 45).

In addition, support for confirmability was sought through the adding of citations to the case descriptions in order to reflect the interviewees' thoughts and comments during the interviews. Finally, the researcher also tried to explain thoroughly the methodological choices and the progress of the research in order to facilitate evaluation of the analysis and conclusions (see Tynjälä 1991, 392; Lincoln – Guba 1985, 300). The aim was to describe the conducting of the case studies as well as the methodological choices as logically as possible in order to "maintain the chain of evidence" for external evaluation (see Yin 1991, 102). Some of the main conceptual tools used in the study are included as appendixes.

Credibility, the third determinant of research quality, is concerned with the researcher's ability to provide data that corresponds to the reality. It may be impossible to achieve a one-to-one view of the reality, but certain measures can be used in order to minimize the possibility of mistakes. (Lincoln – Guba 1985, 294-296; Tynjälä 1991, 390.) Credibility is related to the internal validity that is traditionally used in reliability assessment (Tynjälä 1991, 390). From a more naturalist perspective it could be seen as a measure of how well the researcher was able to represent the reality constructed by the interviewees (see Lincoln – Guba 1985, 296). In this case, the researcher aimed to support the credibility of the case descriptions by allowing the interviewees to evaluate and comment on how well the true nature of the world was captured in advance of the final analysis including the case comparison and the conclusions (see Chapter 6.5.3). Specific attention was also paid to the possible existence of rival explanations in the analysis of patterns and in the comparison between the case relationships (see Patton 1990, 462). In addition to that, perhaps one of the most effective credibility-related efforts was the

work done with the developed framework and the consequent careful operationalization of the research questions (see Lincoln – Guba 1985, 301-302; Töttö 2000, 102-103).

Emphasis should also be placed on the selection of interviewees and the reliability of the gathered empirical data (see Hirsjärvi – Hurme 2000, 189). Thus, a further aim was to improve the credibility of the research by taking interviewees from both of the organizations involved in the relationship, and from different levels, so that issues could be viewed comprehensively from different perspectives. Another important determinant of the reliability of data gathering concerns the reciprocity of the research, and whether or not this provides the organizations in question with proper incentives (Pettigrew 1997, 343). As far as these particular cases are concerned, TietoEnator and Dekati seemed very interested in the research and cooperation regarding the specific case relationships. They understood that this subject was an important one and that they could learn something from the research in terms of developing the relationships further. In addition, the initial contacts at TE and DE had Ph.D.s, and seemed to have a positive attitude towards academic work in general.

The availability of the research data should also be considered as it profoundly influences its gathering (see McKinnon 1988, 38). Although the companies seemed interested in the research, it still required determined effort to find knowledgeable respondents for the interviews. For example, one potential source of bias in this respect concerns individuals' abilities to perfectly recall past issues, although it has been argued that there may be more differences in the retrospective remembrance of past beliefs and intentions than of past facts and behavior (Golden 1992, 855; Mason et al. 1997, 314). In addition, the possible aims of the interviewees to present their company in a positive light should also be mentioned, together with the potential bias in terms of interviewing managers about their pet projects, with which they may have an emotional association (Golden 1992, 855; see Macdonald – Hellgren 2004, 276).

Nevertheless, it could be argued that the interviewees seemed to communicate openly, although they were unable to fully share information on some future strategies, intentions and projects or technological details with the researcher. In addition, the researcher targeted more than one interviewee in each organization in order to overcome the potential problems with the reliability of retrospective research. He was also able to get in touch with the relevant interviewees as not a lot of time had elapsed, and some of the relationships were actively developing even during the case studies: thus personnel turnover was not considered a problem (see Halinen – Törnroos 1995, 513). Moreover, it should be remembered that the case studies were based on a limited number of interviews, all of which produced a set of

subjective views on the state of the phenomenon in question. *Although the number of interviews was not especially high, the quality was considered very good.* It also seemed that similar issues began to come up repeatedly, which was taken as a sign of the adequate gathering of interview data (see Hirsjärvi – Hurme 2000, 60).

It was clear that the research results as such could not be generalized as they were based on only four case relationships. However, transferability as the last determinant of research quality brings in a wider perspective. Transferability refers to how well the research findings can be transferred from the researched phenomenon to other theoretical and empirical contexts (Lincoln – Guba 1985, 296-298; Tynjälä 1991, 390; c.f. Yin, 1991, 42-43; Lukka – Kasanen 1993, 366-373). As discussed previously, transferability is considered especially important here in terms of generalizing the developed framework (analytical generalization). In addition, contextual generalization as discussed by Lukka and Kasanen (1993) could allow the transferability of the interpretation of research results to another context. This was addressed in this case through the utilization of multiple cases in the analysis, and by explaining the research process and the use & choice of methods as thoroughly as possible. Therefore, the cases could be seen as something more than one-time ideal settings, and it is possible to make theoretical conclusions regarding further understanding of the phenomenon (see Williams – May 1996).

Finally, the evaluation of the theoretical framework should be based on the reliability of the empirical study as well as the logic of the theory. As such, the developed framework could also be evaluated according to the following four specific aspects (adapted from Eisenhardt 1989, 546-548; see Whetten 1989, 490-493; Mayhew 1981, 629):

- *Parsimoniousness* – in order for the theoretical framework to be comprehensive enough to include the relevant factors, but clear and concise in terms of not including all possible factors. In this respect, an original framework was used as a template in the background, which helped in the structuring of new insights.
- *Insightfulness* – in the sense that the framework provides new theoretical insights and understanding of the studied phenomenon. In this respect, the perceptive and creative abilities of the researcher, the use of good analytical tools provided by the framework, the methodological choices were all considered beneficial. Furthermore, the aim was to understand the phenomenon in terms of how changes and processes took place within the specific context, and what the interrelations between these two were, and not to be content with adding new concepts to the existing body of literature.

- *Testability* – so that the phenomenon could be analyzed in an empirical setting. In this respect, it should be pointed out that the developed framework was the result of an empirical study. In other words, the theoretical framework should be empirically valid, although further (qualitative and quantitative) analysis may be required.
- *Clarity and coherence* – so that the framework is logical and concise. In this respect, the work done in becoming familiar with the relevant literature was extensive, and it provided good tools for the analysis of the results and the development of the theoretical framework. In addition, the use of case studies in developing the framework further could be considered an important way of enhancing its logic.

A further basis for the evaluation of the theoretical framework was the way in which the research was conducted, in other words the methodological choices and the use of the selected methods: i.e. the same criteria according to which the reliability of research in general could be analyzed (Eisenhardt 1989, 548). The aim of this chapter was to explain how the researcher ended up choosing the tools that he eventually used and how the research process advanced, as well as the measures he took in order to ensure the reliability of the findings. The case studies are presented and analyzed in the following chapters.

7 AN ANALYSIS OF INTER-ORGANIZATIONAL KNOWLEDGE ACQUISITION IN THE CASE RELATIONSHIPS

The following two chapters present the case studies and the cross-case analysis. The four case relationships studied were based on two main companies: Dekati and TietoEnator. The analysis proceeds from a description of the case relationships and a discussion of the main developments to an examination of the knowledge-acquisition processes. The analysis is based on the interviews as well as the accessed documents.

7.1 Companies Involved in the Case Relationships with Dekati

Dekati Ltd. is a small Finnish high-technology company located in the city of Tampere. It develops real-time fine-particle measurement instruments, samplers and analyzers, and is one of the leading companies in its field despite its small size. It was originally a spin-off from Tampere University of Technology (Aerosol Physics Lab), and since its foundation in 1994 it has been developing fine-particle sampling and measurement solutions for the automotive industry (combustion processes), outdoor air measurement (ambient aerosol research and monitoring), and the pharmaceutical industry (drug screening and inhalator R&D). Its instruments are designed to provide the user with real-time on-line information about the particles: size concentration and distribution, mass concentration and distribution, charge distribution and surface area, for example.

Its turnover in 2006 was ca. MEUR 3.1 and the number of personnel was 28 (MEUR 3.3 & 2.4 and 28 & 25 people in 2005 and 2004, respectively). According to the company management, Dekati's core competence lay in the design and manufacture of innovative fine-particle measuring and sampling technologies. It also had scientific as well as practical know-how and experience in aerosol measurement. The small particles concerned were usually measured in microns or even nanometers, and the smallest had been found to be the most harmful since they can directly penetrate the human blood-circulation system. R&D was in-house, although it was conducted in close cooperation with Tampere University of Technology's Aerosol Research Group, and had always been the basis of its competences. The company also

had research collaboration with its customers as well as universities in Finland and abroad.

Dekati's relationships studied in this research were related to R&D outsourcing and the outsourcing of product manufacturing. Its partners included Axiomatic Ltd.⁴⁶ (located in the city of Tampere) and Kyrel Ltd.⁴⁷ (located in the town of Kyröskoski).

Axiomatic Technologies Ltd. is a small company, which is part of a larger international corporation⁴⁸. It develops customer-tailored solutions in the field of automation, providing customers with consulting, system-design, project-coordination and product-development services. It has knowledge and experience in the integration of hydraulics, electronics, mechanics and software. The company was founded in 1996 as Tampere Multivisions Ltd. It changed its name during 2005 as a result of long-term co-operation with a Canadian company called Axiomatic Technologies Corporation, and their comprehensive technology and business integration agreement announced in 2002. At the time of the interviews, about one third of the income came from customer-automation projects and two thirds from the sale of its own products. Axiomatic worked in close cooperation with Tampere University of Technology (Institute of Hydraulics and Automation).

Kyrel Ltd. is a medium-sized company with about 140 employees and a turnover of ca. MEUR 16 in 2005 (125 people and MEUR 30 in 2004). It provides electronic manufacturing and mechanical and electromechanical assembly services and has been in the industry since 1978. It was re-established in 2003 to continue the business operations of Flextronics Ltd., with which it had been merged earlier. Thus, Kyrel has long experience in manufacturing telecommunications, and industrial as well as consumer products. Its manufacturing is concentrated mainly on small and medium-sized series, but larger series are also possible. Prototype series are also available. Kyrel has developed a global material supply network, which allows for cost-effective manufacturing and product assembly.

The background to Dekati's partnerships lay in its long-term strategy to concentrate on its core competences, which were based on the measurement of small particles. Thus, it was aiming to outsource the manufacturing and assembly of its products in order to grow more rapidly, despite its limited resources.

Dekati's network context and the network context surrounding the two relationships appear to be partly related (see Figure 26). Both companies were

⁴⁶ The relationship is also referred to as the DE-AX relationship.

⁴⁷ The relationship is also referred to as the DE-KY relationship.

⁴⁸ No turnover or employee figures were available for Axiomatic Technologies Ltd.

involved in quite similar outsourcing issues, although in Axiomatic's case the outsourcing was more related to R&D activities. Still, it did not have any mutual partners or suppliers apart from Dekati. Axiomatic and Dekati were cooperating with some of the same local subcontractors, but the linkages were not considered especially relevant to the case relationships. Yet, the most important relations in the network were between the competing companies within the industry and the universities (R&D resources), as well as with the legislators and customers. The customer needs and legislation were under development during the study period, and thus the relative importance of the various actors is beyond the scope of the relationships considered here.

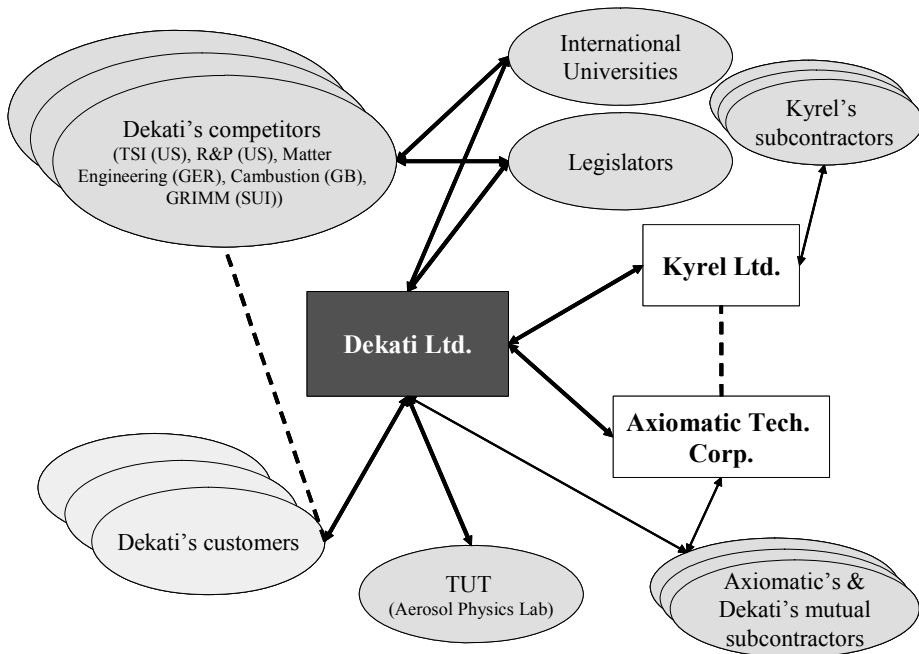


Figure 26: Dekati's Network Environment

This short overview of the companies was given in order to give initial background information that will be elaborated more specifically later on with regard to the case relationships. The partnerships, their development and aims are discussed in more detail in the following.

7.2 R&D Cooperation between Dekati Ltd. and Axiomatic Technologies Corporation

7.2.1 An Outline of the Relationship Setting

The cooperation between Dekati and Axiomatic concentrated on the development of a microprocessor board, which formed a middle layer in Dekati's devices. This layer (see Figure 27) represented a kind of black box in the device, which could be fairly easily outsourced. However, it was the first time that Dekati had decided to outsource its electronics development.

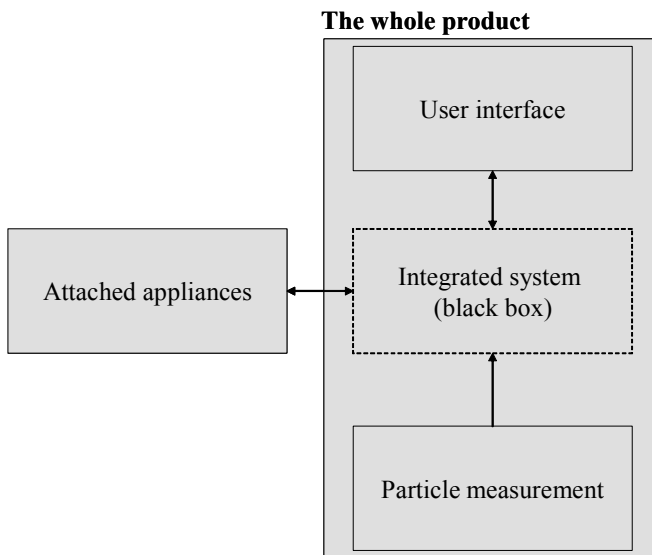


Figure 27: A Simplified Description of Axiomatic's Role in the Development of Dekati's Product

The microprocessor board was the part of the device that transmitted the information from the sensor to the user interface, and the commands from the user interface to the rest of the device and any attached appliances. The board also modified the signal coming from the sensors so that it could be utilized within the system. The sensors (which measured the sample) and the related calculation processes (and how they could be effected efficiently and at very low cost) were considered to be Dekati's core competences, and were therefore not outsourced but kept inside the company – which will also be the case in the future. The development of the user interface was also excluded from the project since Dekati had a lot of experience in the use of

measurement devices. Although the product description makes it look fairly simple, this was not the case given its final layout. New properties were added during the specification and development process, and eventually the card comprised over 1700 components. This was therefore a demanding and complex project for both parties (see Figure 28).

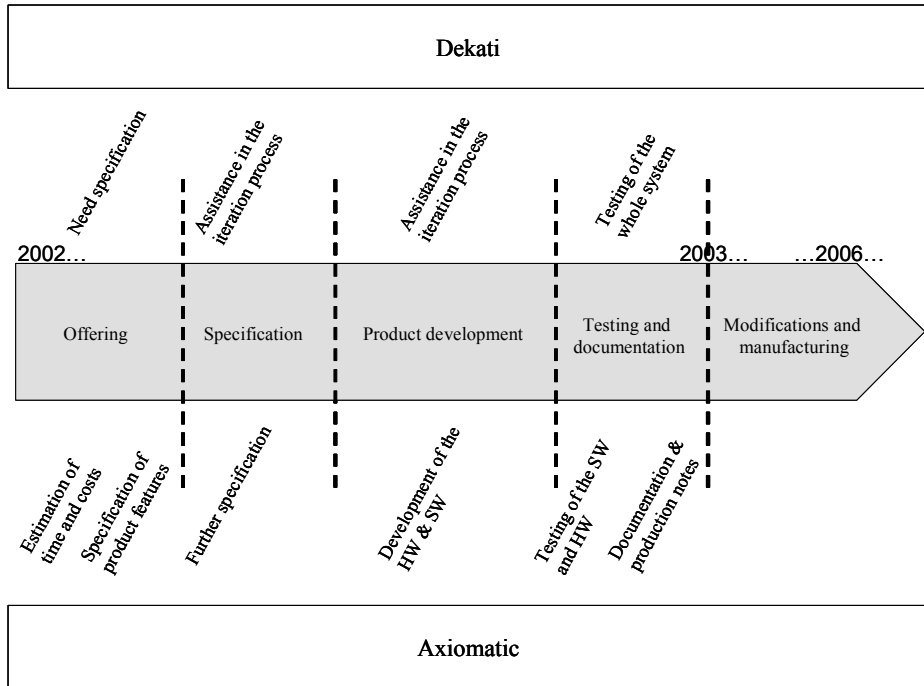


Figure 28: A Simplified Description of the Project Process

The relationship began in spring 2002 with a review and specification of the product. It was a traditional project for Axiomatic, with its extensive experience in the customer-specific design of automation and OEM⁴⁹, but was quite a new challenge for DE. Dekati originally contacted AX on the recommendation of one of Axiomatic's previous customers whose opinions and experiences were highly regarded. Axiomatic was chosen on the basis of this reference and the fact that AX seemed willing to provide a solution that was tailored to the presented needs and specifications, whereas other vendors were only prepared to offer a ready-made product that did not fully correspond to DE's needs.

Dekati had previously carried out a more comprehensive technical planning project in order to map and specify the necessary functions of the developed

⁴⁹ OEM=Original Equipment Manufacturer

product. Although this was not a basis for the product, it marked the beginning of the project during which the original draft was expanded and specified in a more detailed manner. The specification of both the hardware and the software of the final product was worked out in close cooperation, and the process could be characterized as one in which AX aimed to find and provide a solution to a problem communicated and specified by DE's engineers.

Following this and some personnel-related problems⁵⁰ at DE, the development of the product began in the late autumn of 2002, after which DE tested it. The assigned engineers at Axiomatic mainly developed the hardware and software for the card,, but assistance from Dekati was often required concerning the details of the product features and operations. After the testing the product was slightly modified and approved for manufacture. All in all, the project was delayed due to the personnel problems at DE, but also because the product was extensively modified during the process to include new functions.

The first prototypes were made by Axiomatic in Tampere but the "mass" production was done in Canada at Axiomatic Technologies. The transfer of production was not unproblematic, however, and the first few sets of delivered cards were not of the expected quality. Axiomatic's intra-firm cooperation was in the early stages and they therefore had to concentrate on the harmonization of their own processes and communication channels. There were also serious problems with the availability of components, and subsequently with the delivery timetables during the early production phase, which subsequently led to a less stable period within the relationship. However, these difficulties were overcome and Axiomatic was providing Dekati with the product from Canada at the time of the interviews.

The relationship had developed from a development-centered project to a production-centered buyer-seller relationship, although there was discussion concerning the future development of this and other related products. *The focus in this case is on the time between the offering and implementation phases of the relationship, and the further development projects are viewed as developmental phases in the case setting.* The types of acquired knowledge are discussed in more detail next.

7.2.2 The Types and Characteristics of the Acquired Knowledge

The knowledge flows in this product-development project were two-way between the focal company and its partner. Thus, it would be useful to review the types of knowledge that were acquired. The knowledge gained by AX is

⁵⁰ This is further discussed in Chapter 7.2.5.

reviewed in Appendix 9. DE, on the other hand, was the more active party in this respect, its areas of knowledge acquisition being roughly of two different types (see Table 2): (1) *product-development and project-specific knowledge* and (2) *outsourcing-related knowledge*.

Table 2: The Types and Characteristics of the Knowledge DE Acquired from AX

<i>Type of knowledge</i>	<i>More specific areas of knowledge</i>	<i>High tacitness</i>	<i>High complexity</i>	<i>High partner specificity</i>	<i>Knowledge extensively diffused</i>
Knowledge related to product development and design	design principles of the developed product and the modularity of the software	X	X	X	X
	processor and language selection		X	X	X
	design of product families	X	X		
Outsourcing-related knowledge	product-specification principles		X		X
	testing principles in electronics outsourcing	X	X		X
	standardization and coordination of product elements	X	X		
	productification and manufacturability	X	X		
	complexity of outsourcing projects (e.g., coordination of timetables and sourcing)		X		

The product-development-related knowledge was very closely related to the project tasks and covered the processor and language selection, for instance. The product-design principles and the modularity of the software were also considered integral areas of acquired knowledge. This was knowledge related to more general principles of modularity in design and how it supported the development of new devices, product features, and the development of product families in which similar parts and modules could be taken into use. However, there also seemed to be a higher level of knowledge acquisition from AX. These issues were especially related to outsourcing in general, as well as to the coordination of product elements⁵¹ and the standardization of devices and processes.

⁵¹ Referred to as 'productification'

As this was the first big outsourcing project for Dekati, the company did not have extensive previous experience of the specification and documentation of product features on the detailed level required in R&D outsourcing. Previously its product-development process had been very straightforward and on a small scale. The design, development, manufacturing, programming, and testing were all done by one or two people, which meant that extensive specification and documentation were not needed. It was easy for the people who organized the final shipment to coordinate the customer-specific issues and new features. However, given the outsourcing needs, these requirements were about to change, which was a challenge for DE. When the number of people involved and the number of phases in the process increased, the documentation needed to be at a corresponding level.

The specification of the product features and functions was an essential area of knowledge acquisition within the relationship. This was a strong area of expertise in AX. Although DE had had a prior design project regarding the specification, the project-teams now needed to work in very close cooperation. The developed specification was also a key element in the coordination of the product development, as well as in the outsourcing project, and the acquired knowledge was also utilized later in other projects.

“Axiomatic provided us with these good principles for specifying the board functions...”

Testing-related knowledge was also valuable given the more general principles of software testing. AX had experience in testing standards in the vehicle sector, and was able to utilize this during the development of testing procedures at DE. DE thus acquired knowledge of how to implement testing in a more organized manner based on the existing specification, which so far had usually been unavailable. Further, the fact that it was being done with another company meant that there had to be procedures and guidelines for running the tests and communicating the results between the organizations. Later on, the testing of the user interface was further developed, but this was an internal effort rather than a direct result of knowledge acquisition. Still, the acquired knowledge about the principles of testing was further utilized.

Knowledge related to *productification* (referring to knowledge about manufacturability and modular-design principles) and *standardization* (referring to coordination in order to achieve similarity between products and used components) was also acquired. In the former case it was acquired and developed during the product-design phase, and thus provided a basis for developing its manufacturability (referring to easiness to manufacture) and lowering the costs. This type of knowledge was related to DE's outsourcing abilities in general more than to the specific project, although that knowledge as such was utilized during it. It concerned the principles of outsourcing

product development, and the restructuring of the product base and product families into a more industrial format. These issues were highly valuable to DE, which had previously been producing small numbers of devices and was trying through this project to achieve a more industrial product base and a higher volume of business. One part of this was the standardization of its products and components. This was done in order to achieve more reliable product quality, to make the coordination of the product elements and components easier, and to make the final products more similar and compatible. Through communication with AX, DE was able to gain insight in terms of developing its own products, and a deeper understanding of product-development principles and business in general.

“... they forced us into harmonization, so that different devices wouldn't use different signals, for example – this was our internal standardization...”

These issues did not form a clear body or entity of knowledge, however, but were rather gained piece by piece from the partner with extensive previous experience in similar outsourcing projects. One of the comments that came up in an interview at Axiomatic describes this well:

“... but it didn't necessarily become acquired from us purely in the sense that it would have been our core competence, but it did contain some of the knowledge that we have about this electronic production technology.”

Consequently, it would seem that DE not only acquired product-specific knowledge, i.e. about product development and modular design principles, it also learned about the outsourcing process within the relationship. What was more difficult to determine was how much this was a case of active knowledge acquisition concerning a specific issue. What is of significance here is that this kind of outsourcing knowledge was not considered especially especially valuable to AX. Yet, it was something that DE could not have gained without the partnership, and AX also seemed to have an active role in the process. In fact, given the nature of the manufacturing contract, it was also to AX's benefit that the final product was easy to manufacture. Thus, this could essentially be seen as knowledge acquisition in which both parties were active.

Finally, the complexity of outsourcing projects (e.g., the timetables and the coordination of sourcing needs) was brought up in the interviews as an area of DE's knowledge acquisition, although it was perhaps more related to its own process development than to knowledge acquisition in the original sense.

The acquired knowledge and its characteristics were also important in terms of both their value and the ease of acquisition. As shown in the previous table, there were a number of issues that could be considered essentially tacit in nature. Those related to the product development were mainly project-specific

and complex rather than highly tacit, whereas those based on clear facts, although related to the more general principles of product design, were also somewhat tacit. On the other hand, it was more difficult to pin the outsourcing-related knowledge down to specific facts as it was based more on AX's previous experience. Thus, it was passed on to DE mainly through learning-by-doing and mutual sense making, and could be considered tacit as well as complex. Although specification-related knowledge was not considered highly tacit it seemed to have some tacit characteristics as the assimilation was considered to take place mainly through gaining experience. Standardization- and productification-related knowledge were more tacit and were mainly acquired through mutual experience, and through product reviews and discussions with the AX personnel, for example. On the other hand, it was emphasized that the need for this learning had been largely recognized at Dekati beforehand. Nevertheless, much of the learning effort was enabled by the interaction with AX during the project.

Furthermore, the acquired knowledge was not considered especially partner-specific from the receiver's viewpoint. There were small differences between the companies concerning how they compiled their documentation, but the principles were considered applicable from partner to partner. The product-design principles and the component and language selection were perhaps the most partner-specific issues, although it could be argued that answers could have come from other partners. In this cooperation these issues were widely discussed and mutually decided upon, which meant that the reasons were communicated to Dekati fully and it was thus able to acquire further understanding of the reasoning behind the decision.

The level of diffusion of the acquired knowledge at Axiomatic was usually fairly wide in that the number of people working for the company was limited. In general, it seemed that the counterparts in the organizations easily found each other among the few people there were, and the interaction was clearly limited to the project groups. However, the more tacit knowledge concerning productification and standardization seemed more limited in terms of diffusion within the transferor's organization. This implies that the acquisition process was iterative and included partial co-operational sense making. It could therefore be stated that these issues affected the knowledge-acquisition process, and this is analyzed later on. Before that, the development of the relationship context is discussed in more detail.

7.2.3 Relationship Development

The relationship between DE and AX was physically close in the sense that both of the companies were located in Tampere, but in spite of this there did not seem to be any common actors within their network environments that were relevant to this particular relationship. The companies' fields of business were quite different and the strongest area of AX's know-how was in vehicle-related technologies.

The relationship context was a fairly direct result of the development project at hand. Trust was built iteratively and no relationship-specific or otherwise considerable investments or support structures (e.g., governance or reporting methods) were developed. Moreover, there were no specific reward schemes within the organizations or regarding the relationship – related to neither performance nor learning. The relationship was based on a contractual agreement involving sanctions for violating the confidentiality of the exchanged information and knowledge and assurance of the customer's rights to the developed product and software.

Yet, there were quite a few further issues that were seen to build a basis for trust between the companies (see Figure 29). Firstly, although there were really no direct linkages between Dekati's and Axiomatic's customers, suppliers, competitors or other partners, the wider macro environment of the network seemed to have some effects. The market for automation design and production was quite limited in Finland, which meant that news spread quickly. Consequently, Axiomatic understood that they could not engage in opportunism because the news would quickly spread among its current and potential new customers, which often required very strict confidentiality.

Secondly, the company that recommended DE to contact AX was considered a very strong basis for initial trust – especially in AX's ability to deliver what it promised. The actual project performance and the attitude of the project-team at AX helped to reassure DE of the wisdom of its choice. Furthermore, as far as DE was concerned, Axiomatic's openness, ability and willingness to communicate and to suggest solutions strongly affected its trust and commitment to its chosen partner. The companies' knowledge bases were also overlapping to some extent in the sense that there was a fair amount of transparency in terms of project costs and product development. On the other hand, there were also some negative issues as AX had a lot of problems with the delivery timetables once the manufacturing was transferred to Canada - although it was very open and honest about the problems, which seemed to reflect well on trust.

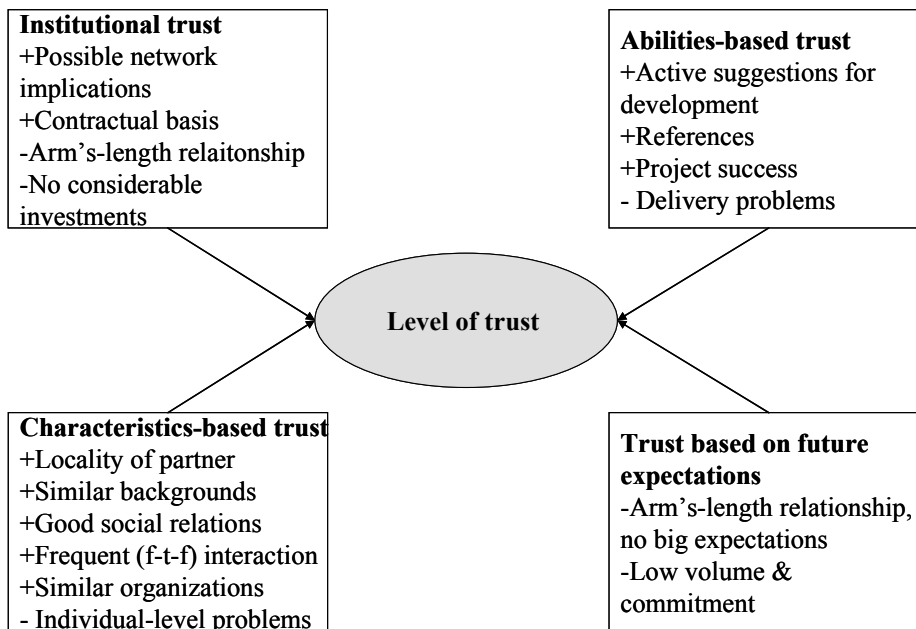


Figure 29: The Basis of Trust in the DE-AX Relationship⁵²

Axiomatic's open communication and activeness regarding the product development also played a role in the development of characteristics-based trust. Frequent interaction, and face-to-face meetings especially early on in the project, enabled the individuals to develop a shared identity and trust and the social relations were consequently very good. There were also similarities between the organizations on a more general level: both were located in Tampere and both were of roughly the same size, with employees from similar backgrounds.

Trust could be considered especially important regarding knowledge acquisition and protection in cooperative relationships. The setting in this case seemed to be fairly open in terms of communication and the sharing of knowledge across organizational borders. Although the contract built the basis for the relationship, no other specific means or support structures were used in order to protect the companies from knowledge leakages. There were only some specific issues that the project-team were instructed not to discuss with the partner. All in all, the communication was very open, and even confidential issues were discussed to some extent without fear of opportunism.

The lack of knowledge protection seemed to be related mainly to the small likelihood that AX would be able to exploit its knowledge to DE's

⁵² In the figure: '+' = an issue having a positive effect on the level of trust; '-' = an issue having a negative effect on the level of trust.

disadvantage. Basically, it was admitted that there was a risk of opportunism if one of DE's competitors approached AX, but this was not considered likely. However, perhaps the main point was that DE's core competence was not the focus of the cooperation. Furthermore, its scientific expertise in physics and aerosol measurement was so specific that it would be very difficult for someone who was not an expert in the field to understand it fully.

Table 3: Changes in the Partners' Power Dependencies in the DE-AX Relationship⁵³

Milestone in the relationship development	The specification of the product	The product development phase	Lack of cooperative structures	Testing of the final product and documentation	Manufacturing phase and lack of potential future projects	Acquisition of product development and design specific issues	Acquisition of outsourcing related issues
Dekati's dependence on Axiomatic	↑↑	↑↑	-	↓	-	↑	↓↑
Axiomatic's dependence on Dekati	↑	↑	-	-	-	↑	↑
Implications on the level of DE's knowledge acquisition	↑↑	↑↑	-	↑	-	o	o

There were certain phases in the development of interdependencies between DE and AX that carried implications for knowledge acquisition (see Table 3). The time and resources spent on the negotiations and on developing AX's understanding about the developed product at the beginning of the relationship supported AX's power within it. On the other hand, DE was also able to benefit from AX's input during the early phases as it put effort into learning about its customer's development needs. The interdependency further developed during the product-development phase as a result of the companies' increased commitment and the knowledge gained by AX that enabled it to provide the right solution. During this phase too, DE was able to acquire a large amount of outsourcing-related knowledge, which did not appear to affect the level of dependency to any great extent. Furthermore, the lack of support and governance structures did not affect the level of interaction. Much of the documentation was created during the testing, which further decreased DE's dependence on its partner. Finally, there were fewer learning efforts in both

⁵³ In the table: ↑=slight increase, ↑↑=considerable increase, ↓= slight decrease, ↓↓=considerable decrease, -=no notable effect, o=not applicable for analysis.

organizations during the manufacturing phase, and consequently there was also less motivation to develop the relationship, which continued on the customer-supplier level.

The lack of any huge shifts in the bargaining power of the companies also seemed natural since neither of the parties acquired knowledge that was critically close to its partner's core competences. Moreover, neither of them needed to make big financial investments in any partner-specific processes or machinery. Instead, DE was trying to develop its outsourcing competences, which could be considered more generally exploitable. Although the knowledge was not partner-specific, it did enhance its chances of finding a replacement subcontractor if necessary. DE was the legal owner of the source code, which made it easier to replace the subcontractor, but from AX's viewpoint the volume of the business was not high enough to pose a serious threat. Nevertheless, this was an essential issue regarding the future development of Dekati's outsourcing processes.

All in all, it could be stated that although there were clearly issues affecting the bargaining power of the companies within the relationship, the role of trust was more important given the relationship context. The relationship atmosphere seemed to be very positive and cooperative due to the very good social relations and AX's abilities. Thus, neither the changes in bargaining power nor AX's delivery problems disturbed the balanced atmosphere. On the other hand, the commitment between the companies was not especially high, and this was clearly closer to an arm's-length relationship. However, this did not seem to be an essential issue regarding the development of trust during the product-development project.

7.2.4 Knowledge Acquisition and Integration

The knowledge acquisition within the relationship was in both directions. However, in terms of this research, the main interest lies in how DE was able to learn from its two partnerships, and thus only the acquisition from AX is reviewed more closely in the following.

As stated, the knowledge acquisition within the project was closely related to its aims, and the learning process followed the project stages. The task-related communication was very open from the beginning, and there were not many details the companies would not have been willing to share with each other. The phases of knowledge acquisition – identification, transmission, processing, storage and retrieval – are reviewed in Figure 30.

It could be argued that DE's need for outsourcing played an integral role in the identification phase. Furthermore, due to the original reference it

recognized that AX was a company that was able to provide it with knowledge about outsourcing and was willing to cooperate, even though DE did not have any experience of similar projects. Furthermore, AX was very willing to come up with suggestions concerning the development of the product during the negotiation phase.

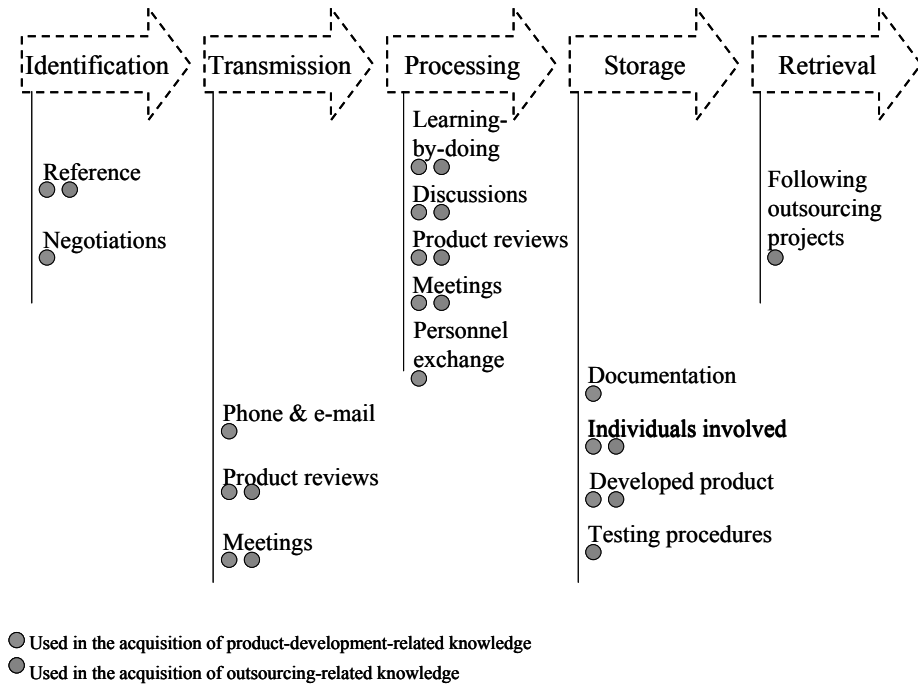


Figure 30: The Knowledge-acquisition Process

The transmission of knowledge was very much related to the project tasks. The communication between the organizations was taken care of mainly through meetings and by phone or e-mail. It was quite frequent, especially at the beginning of the relationship during the product-specification phase. Meetings were then scheduled on almost a weekly basis, but were less frequent later on. Product reviews were also used to help AX understand the functioning of the whole product and the way in which the developed part was supposed to work. The product reviews and meetings generally also provided the forum for discussion on product design and standardization.

The project was taken further among the project-team members in an iterative manner, and communication was considered to be as fluent across boundaries as within the individual organizations. However, there was a lengthy delay when one of DE's employees (the former main designer in electronics) decided not to cooperate because he was not in favor of its

outsourcing aspirations. He thought that the project would undermine his abilities, and that DE was actively trying to outsource his area of expertise thereby making him obsolete. After the specification phase the main responsibility for the project tasks shifted to AX, which continued with the product development. The atmosphere became more cooperative again later on when the product was ready for testing, which was carried out by both companies. At that stage, Dekati needed to learn how AX was testing the product in order to be able to test the whole system properly. The testing was then transferred to DE, mainly through discussions about the principles, but also through learning-by-doing.

The processing of the acquired knowledge (related to both product development and outsourcing) seemed to take place during the project - in the meetings, the discussions and the product reviews. In terms of product development, it was important for AX to understand the wider perspective (what the device was used for and how the particles were measured). Although much of the communication took place on the telephone and via e-mail, the wider perspective was communicated mainly in meetings and product reviews. One good example of this was that the testing of the final software had to be done when the black box was attached to the whole product and the working of the whole system was seen. One of the AX team members was putting together a shipment of the whole product to a customer in cooperation with DE, which enabled him to react quickly to new problems with the software. The intensive nature of the communication in the meetings and product reviews was also emphasized.

From DE's viewpoint, the processing of knowledge related to specification, testing and internal standardization were all closely related to the project tasks and essentially involved learning-by-doing. Thus, even the technological and specified knowledge being acquired was partly tacit in nature and could not be easily understood without being processed in its context. The learning took place in close cooperation, and AX was there to guide DE in its decision-making and internal development work on specification, standardization and manufacturability. In particular, the outsourcing-related knowledge included issues that DE needed to consider and decide upon, as AX forced it to do as the project progressed. The knowledge acquisition thus essentially took place through learning-by-doing and discussions between the project-teams.

Product-development- and product-design-related knowledge was also acquired by means of limited personnel exchange between the partners. The main project-team members from both companies responsible for the software worked for a few days in the same place in order to develop a shared understanding of the system. Similarly, people involved in developing the hardware spent time together, especially during the system-specification

phase. Nevertheless, the implementation was mainly AX's responsibility and DE only gave assistance.

The storage and further diffusion of the acquired knowledge in documents seemed to be fairly limited. Concentrating on documentation was considered to detract from the project performance and was therefore limited. As far as DE was concerned, many of the issues were such that they could not be easily documented. Aside from the documents, the main tool for storage seemed to be the individuals involved in the project, and they also assumed responsibility for the further diffusion of the knowledge in the absence of any clear system. The diffusion of the acquired knowledge also seemed limited because it was quite tacit in nature. On the one hand, DE was a very small organization and the same people were the key personnel in other corresponding outsourcing projects, while on the other hand, the management also recognized the potential risks if the lessons learned and the acquired knowledge did not become further diffused. This risk was also realized later on as some of the key personnel left the company and some of the highly tacit knowledge was lost. Thus, further diffusion was considered an important development area within the organization.

The knowledge retrieval was rather limited in terms of further projects in that the acquired knowledge did not really become further diffused within the organization. It could be argued that outsourcing-related knowledge in particular was tacit and thus difficult to codify, but on the other hand the effort and resources put into diffusing it were close to non-existent. However, it should be stated that productification- and manufacturability-related questions were discussed in future product-development projects at DE. Although its previous experiences and cases were not used actively, it could be seen that the outsourcing projects had made the company conscious of the need to become more industrial. Thus, it appears that some level of unlearning of past processes and retrieval and utilization of the acquired knowledge had taken place, as product development, standardization and productification had become more coordinated and driven by the aim to outsource and standardize. Yet, this process seemed to be iterative and essentially under development.

Through this change the aim was to lower manufacturing costs and increase quality and manufacturability of the products. Products were modified to suit the outsourcing aims, and customer requirements were subsequently considered more critically before customer-specific modifications were implemented. Thus, there were clear changes in the processes and principles according to which the company was being managed. The level of learning related to product development seemed to be visible in particular through the abilities of the DE project-team members. They were able to develop an understanding of the system, and subsequently to better communicate about

the features of the product. Similarly, during the testing phase they became much better at finding system bugs and reporting them to AX.

7.2.5 Elements in the Knowledge-acquisition Process

Three sets of issues affecting knowledge acquisition are discussed next: the role of ISK, the role of organizational characteristics, and motivation. There were a few points worth noting concerning the shared identity between the individuals. Firstly, the main basis for the cooperation was that DE was aiming to outsource the design, development and manufacturing of the product. Thus, it would seem that AX's personnel and the whole project presented a threat to DE's own personnel. Subsequently, there were serious problems with the main electronics designer at DE, who for almost five months was unwilling to cooperate with AX (and the specific orders of the DE management), which meant a lengthy delay in the project timetable. Secondly, the level of interaction between the organizations seemed to be high, which enhanced the level of shared identity and trust within the relationship. Here, the role of national identity was not relevant, and thus the level of shared identity could be viewed in terms of social and professional identity (see Figure 31).

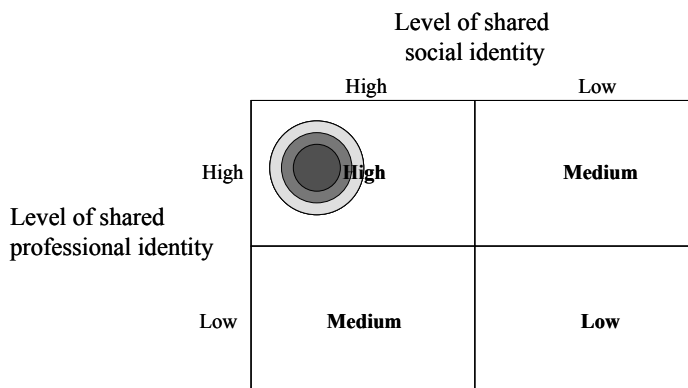


Figure 31: The Level of Shared Identity in the DE-AX Relationship

The individuals involved had very similar backgrounds and the atmosphere at DE was considered by AX to be very close to that of a university department, and thus very familiar to them. This similarity in background was mentioned by the interviewees at both companies as a clear benefit in terms of the ease of communication and the development of a shared understanding of the project and the problems that arose.

“Of course, one thing that could be a factor is that people had similar backgrounds. That provides a sense of social closeness.”

The team members were mainly engineers, highly educated, technology-loving people who had even graduated from the same university in Tampere: this clearly established a sense of mutual history. The teams also spent an evening together in the sauna after the development project had ended, which could be considered a sign of high social relatedness and of a sense of social community. Another key factor was that the organizations as such were similar. They were similar in size, although AX was a couple of years behind DE in its lifecycle development (e.g., in size and turnover), both were involved with high-technology products, and both were located in Tampere. They also had similar organizational cultures that supported learning as an essential part of the business idea.

It seems that the similarity among the individuals was a clear benefit in terms of the inter-company communication and learning, and that the similarity of the organizations as such was further related to the development of the relationship and the ease of developing a trusting atmosphere.

The amount of prior knowledge and experience was also considered integral in this case. Both organizations were experts in their field, but DE’s personnel had limited knowledge of outsourcing or cooperating in corresponding projects, although some of the team members had been involved in outsourcing processes before. AX had extensive experience of providing customers with tailored solutions in the field of electronics design, and thus the complementarity of prior knowledge could be considered a clear advantage.

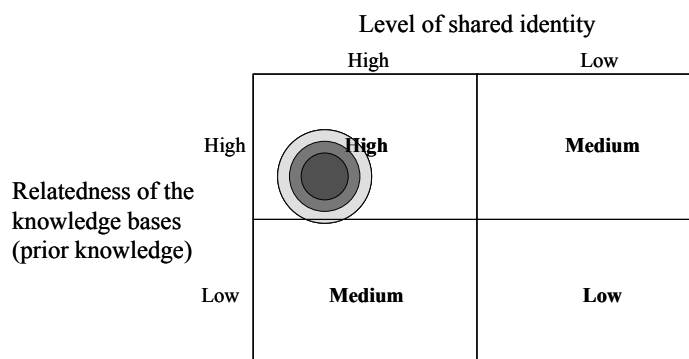


Figure 32: The Organizations’ Ability to Develop a Shared Mindset

In conclusion, it could be said that the companies were able to develop a reasonably solid shared mindset that facilitated the acquisition of tacit knowledge (Figure 32). This could be assumed to ease communication

regarding the product features and development, and also on issues related to standardization and productification. Furthermore, this high level of mutual understanding could form a basis for mutual sense making, although it was limited to this specific project.

The selection of individuals to join the project-teams at both companies was based on the availability of resources and expertise. From DE's side there were generally four people involved depending on the project phase, while on AX's side one person was assigned to software and one to hardware development, and the CEO was involved at the beginning. The two designers at AX were both considered suitable for the project based on their abilities and prior experience, and their communication and social skills were also appreciated. It was also emphasized that both companies had a strong learning culture, which had been the basis of their original business idea. Although both were eager to learn, they were involved in very different kinds of industries and their dominant logics were not considered closely related. Both were used to learning, but the DE people were more used to doing so within their own field of business, and learning about issues related to outsourcing was dependent on their abilities to assimilate new knowledge.

In the context of individuals' abilities and willingness to learn and teach, the role of learning intent is a factor. It seemed that this was considered at the management level, and at the relationship-management level within DE, but the project personnel did not seem to be equally aware of it.

"... so that it's manufacturable before we're able to develop it into a product... when we started working with subcontractors the aim was that this would happen and these things would be learned and could be developed."

In fact, knowledge acquisition was not discussed with AX as a project aim, and the personnel were not totally aware of the learning intent. They were thus not especially encouraged to learn the kinds of issues expressed by the management. DE referred to their lack of experience in specification and outsourcing, and AX was willing to cooperate and help its partner during the process. However, this learning intent seemed related to project performance and product development. It seems that the more general areas of knowledge acquisition (outsourcing competence, productification and standardization) were not very well communicated within DE and the project-team.

Thus, it appears that the aim was not well communicated within the partnership, and that this had its implications on the ease of learning as well as on the diffusion of knowledge. Consequently, no specific learning methods or specifically designed support structures were used in managing the learning process. The project was task-oriented, and the diffusion of knowledge was

limited. This, in turn, meant that the development of more general outsourcing competences as a result of the relationship within DE was limited.

7.2.6 The Effects of the Relationship Context on the Learning Process

The implications of the relationship context are complex in terms of analysis. Perhaps most importantly, the relationship could be considered more or less arm's-length, which made it difficult to evaluate the true effects of the context on the learning process.

It could be said however, that the likelihood of opportunism was quite low due to the developed trust and the existing network context. Firstly, the relationship was between two companies located close to each other, with similar backgrounds, similar organizational cultures, and employees with similar educational backgrounds and very good social relations. On the other hand, AX had big international customers and a reputation to protect, and opportunism was therefore never considered a real factor.

As Dyer & Singh (1998) noted in their article, the truly valuable exchange of resources or knowledge stems from the exchange and acquisition of relationship-specific knowledge. This kind of partner-specific knowledge was not extensively exchanged within the relationship. For DE, the most valuable knowledge to be acquired was related to outsourcing, which AX considered fairly general. Furthermore, the relationship did not include any partner-specific investments, although both partners considered the developed high level of shared identity an essential source of switching costs. It should be noted that DE's lack of knowledge and experience in outsourcing and external product development (as well as in specification and documentation) was acknowledged by the management and this was also communicated to AX before the project started, although it was not directly articulated as a clear learning aim.

Although DE's experiences (both in learning through relationships as well as in outsourcing) were limited, this did not seem to constitute a specific challenge to the process. Of more importance in terms of learning abilities was the role of learning intent, which was poorly communicated within and across the organizations. This may also have been one reason for the limited diffusion of the acquired knowledge within DE. Apart from the relationship context, the basis for creating a sense of shared understanding seemed to provide well-grounded preconditions for knowledge acquisition, but the amount of interaction and inter-organizational learning remained quite low. On the other hand, closer cooperation would also have required more resources as well as clear and consistent strategic aims. Thus, the relatively

small size of the partners could be considered relevant, especially given the limited level of investments, risk avoidance during the early parts of the cooperation, and limited previous experience of knowledge acquisition. In the end, it could be said that learning abilities, different kinds of learning processes, and relationship management all affected the type and level of knowledge acquisition within the relationship.

7.3 The Outsourcing of Manufacturing from Dekati Ltd. to Kyrel Ltd.

7.3.1 An Outline of the Relationship Setting

The cooperation between Dekati and Kyrel was related to the outsourcing of the manufacturing of DE's products. This was the first time that DE had outsourced the manufacturing and assembly of an entire product. At the time of the research it concerned only one product (FPS), which had been designed to take a sample from a combustion or industrial process, dilute it and cool it to make it suitable for measurement devices.

The outsourcing decision stemmed from the company's desire to grow and the increased level of demand for the product: this small and R&D-focused company had limited resources. Furthermore, the costs of its own manufacturing were considered fairly high, and there was a strong belief that outsourcing would give it flexibility in volume, lower manufacturing costs and quicker delivery.

DE's manufacturing process had been very simplified and centered on a few key people who took care of the customer's order from the beginning to the end. The same people made the product development/modifications required for the customer-specific needs, manufactured the required number of products and finally tested them before shipment, and there was no need for large-scale documentation. The process was considered flexible but inefficient in that it could only take care of a small number of products at the same time.

This set quite specific demands on the outsourcing process. The limited documentation about the products and the various customer-tailored solutions made things difficult. Furthermore, people were unwilling to support the outsourcing partly because they believed the products were unique and could not be produced outside the company without losing quality. This was also related to the fear that large-scale outsourcing would lead to the current personnel becoming more or less obsolete in the long run.

The relationship itself was fairly new, beginning in March 2005, and the first products were delivered to DE in June 2005. It then developed into a fairly simple buyer-seller relationship concentrating on the delivery of ordered products. However, it is worth noting that after their first successful venture the companies were planning to extend their outsourcing cooperation to include new products. They were also planning to integrate KY into the product-development process at DE at an earlier stage. Thus, the relationship could be considered more than a short-term transaction to which the companies were essentially committed.

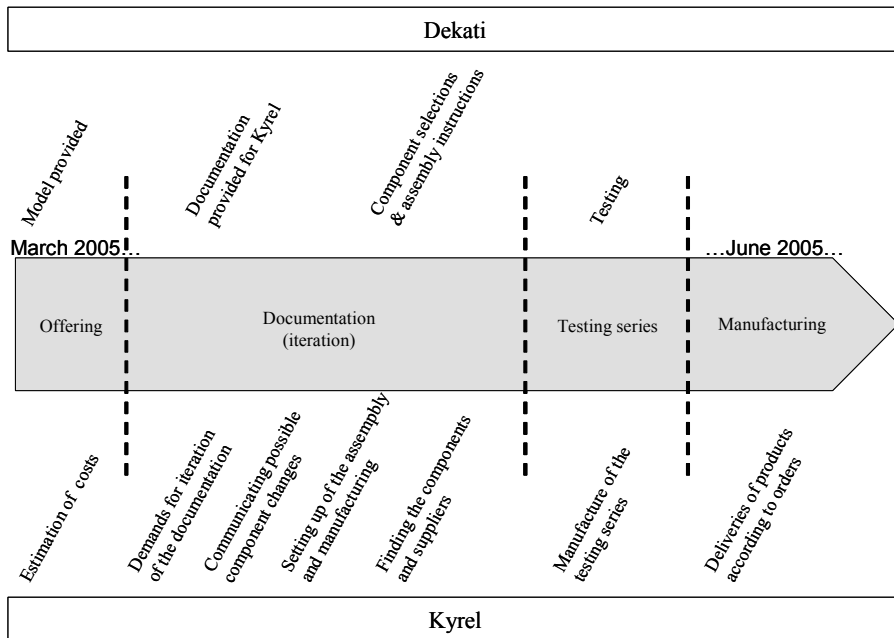


Figure 33: A Simplified Description of the Project Process

The project process (see Figure 33) was fairly straightforward, as KY was working according to the documentation and guidelines received from DE. First, Dekati provided Kyrel with a model product for analysis. KY gave a price estimate, including the manufacturing and components costs. Following acceptance of the order, the project continued with the documentation and specification of the product so that it could be outsourced to KY. This represented the main part of the process during which DE had to iterate its documentation based on the demands from KY and KY was preparing the manufacturing process. As part of this, KY was questioning some of DE's component selections and product specifications, and was helping DE to lower the final costs. On the other hand, as KY was preparing for manufacture, DE was active in helping it to understand how the product could be assembled

with less effort, i.e. in what order the components should be inserted and how the electrical wiring should be done in order to avoid short-circuits.

Following this first project there were plans to extend the cooperation to cover the manufacturing of other similar products and the utilization of KY's knowledge in mass production. A couple of new products were tested for larger-scale production and offers were forthcoming. *However, the focus in this case is on the time between the offering phase and the manufacturing phase of the FPS product, and the events taking place after that are viewed as developmental phases.*

7.3.2 The Types and Characteristics of the Acquired Knowledge

As in the previous case, the knowledge flowed in both directions. The main types of knowledge gained by Kyrel are reviewed in Appendix 10. However, the main emphasis in the analysis of knowledge characteristics and the acquisition process here was on the knowledge that was acquired by DE. DE, was able to acquire *knowledge related to the outsourcing process as well as to some project- and product-specific issues* (see Table 4). The product-specific issues were mainly details about how the product could be developed from the subcontractor's perspective, and it was a question of finding ways to lower the manufacturing costs by using cheaper components, for example.

The principles of setting up the documentation and outsourcing process, on the other hand, involved more general knowledge acquisition. In addition, an understanding of the product's manufacturability was recognized as one of the areas of KY's expertise, and was consequently partly acquired by DE.

"... we have been able to acquire the kind of... that you're just able to look at things from a different perspective. In other words, it's not perhaps so much a question of how things can be done most easily, but instead how things can be most easily replicated..."

The outsourced product was also slightly modified during the outsourcing phase and was consequently made more modular in order to make it compatible with another set of software. However, this and some changes in the components used were not purely a result of KY's ideas and suggestions, and were partly derived from DE's experts. These issues made the product more generic and simple, which was considered a positive development in terms of manufacturability.

Table 4: The Types and Characteristics of the Knowledge DE Acquired from KY

<i>Type of knowledge</i>	<i>More specific areas of knowledge</i>	<i>High tacitness</i>	<i>High complexity</i>	<i>High partner specificity</i>	<i>Knowledge extensively diffused</i>
Project- and product-specific knowledge	component selection	X	X	X	X
Outsourcing-related knowledge	drawing up the documentation	X	X		X
	principles and working methods of the outsourcing process		X		
	manufacturability of the products	X	X		
	outsourcing attitude and cost consciousness		X		

It seemed that knowledge concerning manufacturability was only partly acquired by DE, although it was recognized as important. It was emphasized that the relationship had enabled DE to better understand the challenges in its product development, and thus to make the products more manufacturable and the cost structure more competitive. It was a question of being able to look at things from a different perspective during the product-development phase. Furthermore, this knowledge was based mainly on gaining first-hand experience and was highly tacit, which was further emphasized in the future projects. KY as a competent subcontractor was experienced in manufacturing large series of products for various industries and DE was keen to benefit from this experience. The subsequent joint projects had a more clear emphasis on developing products in terms of manufacturability during the outsourcing phase. Thus, it could be argued that the experiences in the outsourcing project had a decisive effect on DE's outsourcing abilities, and on the joint development of its products. KY also emphasized this in the following comment.

"... we have on several occasions been able to prove that we have this so-called competence in the industrialization of manufacturing..."

In addition, the documentation and the principles of outsourcing in particular affected DE's ability to outsource, which was also apparent to KY in the subsequent projects in which the process had been easier. DE was able to understand better which products could be outsourced, what outsourcing required from the product and how the process should be implemented.

Furthermore, the main contribution to knowledge development from DE's point of view was in developing the documentation. The companies had tried to institute their cooperation with another product (DMM) earlier, and during those efforts the need for documentation-related knowledge was emphasized. As the partners finally decided to concentrate on FPS, this knowledge was even more necessary and further acquired. As a result, DE was able to develop an understanding of the documentation process, as well as of the level and quality of documentation required for the outsourcing of electro-mechanical manufacturing. This was considered something that could not easily be learned without first-hand experience.

"We have learned about documentation, which was previously on quite a poor level..."

From Kyrel's point of view it was also a question of asking the right questions since it had experience from similar projects.

"... we are able to demand that essential issues are documented... to single these things out."

Finally, one of the key issues, especially for the DE management, was the ability to develop and support an organizational understanding of the benefits and possibilities of outsourcing. It became evident during the project that the outsourcing of DE's manufacturing operations was feasible, and that the costs of competent subcontractors were significantly lower. This represented a certain kind of attitudinal change within the organization, and supported the management's long-term plans. It also seemed to be the only area of knowledge acquisition within the relationship that was actively promoted within DE's organization.

The tacitness of knowledge was very difficult to recognize – all in all the amount acquired in the case relationship appeared to be quite limited. Yet, it seemed that manufacturability-related knowledge in particular was not a clear entity that could be acquired in one specific meeting, discussion or document. It was something that KY was able to show its partner when specific problems or issues were questioned – thus, it could be argued to have tacit characteristics. It also seemed to be quite difficult to acquire documentation competence, i.e. concerning what to document and in how much detail. DE was, in fact, able to acquire it through experience and interaction with KY's project-team. Furthermore, knowledge acquired by DE was related more generally to outsourcing competences and was thus not especially partner-specific. The details discussed may have been so to some extent, but the main body of knowledge that was acquired concerned the principles of doing things, i.e. a more general understanding of outsourcing.

The diffusion of the acquired knowledge at KY was fairly limited, as was the number of people working within the project groups. The knowledge

acquisition mainly took place between the key contact people in both organizations, and thus the level of diffusion was limited and the counterparts in the organizations seemed to find each other easily. In particular, the more tacit knowledge related to outsourcing competence was diffused in a very limited way, which also seemed to reduce the possibilities for acquiring it. In conclusion, one could argue that these issues also affected the knowledge-acquisition process, which is analyzed later. Before that, the relationship context is discussed in more detail.

7.3.3 Relationship Development

In terms of the relationship context, DE's and KY's partnership was quite young at the time of the interviews. There had not been any specific or identifiable critical points: it was a fairly straightforward outsourcing project, although the products were quite complex. The relationship was based on a contractual agreement to outsource the manufacturing and assembly of one specific product. It was also in the contract that if DE terminated the relationship, it would be forced to buy the remaining materials from KY.

In terms of inter-firm trust in the partnership, there are a couple of essential points worth mentioning (see Figure 34). First, the need for trust was not especially high because neither of the companies had made any really big investments in the relationship or acquired any critical knowledge. Secondly, all three areas of trust development should be considered: institutional, abilities, and mutual characteristics. In addition, future expectations seemed to support trust and increasing commitment, and DE clearly considered KY to be a partner and not an arms-length subcontractor.

The level of institutional trust was based mainly on two kinds of issues. Firstly, the CEOs knew each other from high school and thus the relationship was on very solid ground.

“We [the company CEOs] agreed that... Kyrel won't rip off Dekati and Dekati won't rip off Kyrel. That was the basis that we agreed on.”

Secondly, in this case too, the network context was important in terms of securing KY's trustworthiness. The number of companies engaged in electro-mechanical manufacturing and assembly was quite low, and the actors involved knew each other well. Thus, KY could not really behave opportunistically as this might have had devastating implications on its business in general. Thus, the basis for building trust was solid. This was further supported in that DE seemed confident in KY's abilities. The companies also seemed to have positive expectations that future projects would continue to meet DE's outsourcing needs.

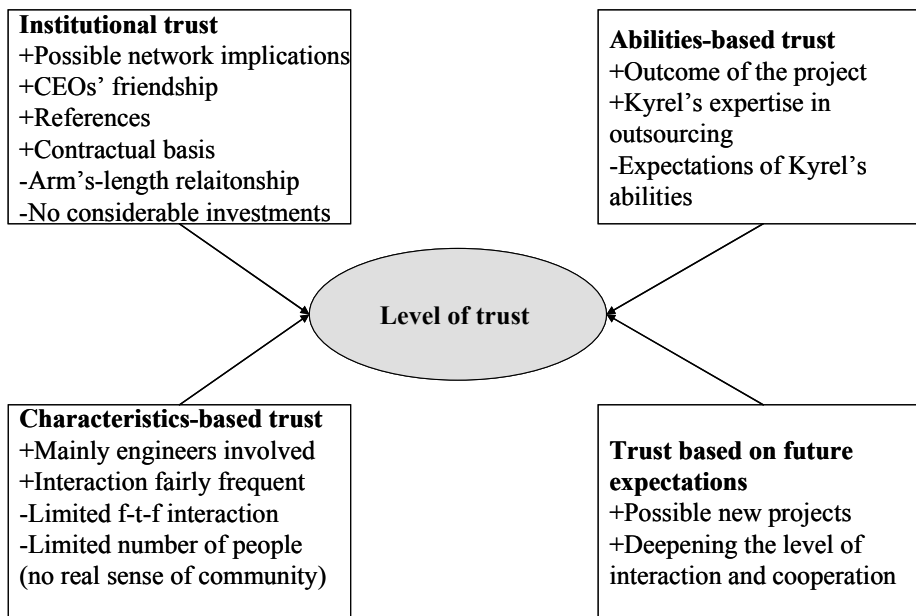


Figure 34: The Basis of Trust in the DE-KY Relationship

Although the high level of trust was apparently based on the top managers' friendship, on the project-team level it was mainly dependent on the project success, the daily interaction and the inter-personal relations between the product managers. The trust in KY's abilities stemmed from the positive outcome of the outsourcing project: KY had good references and long traditions in electro-mechanical manufacturing, but due to the complexity of the products, DE was convinced only by the abilities that were manifested during the project.

"Initially we thought that they didn't know how to manufacture this. But now that we've been working together and we've seen the devices our trust in their manufacturing abilities has grown..."

Further, the fact that the assembly was successfully outsourced at a lower cost also enhanced the level of trust in KY's outsourcing competence. KY was also able to help DE in finding ways of making its products more industrial.

Mutual characteristics were not as important, although the project was mainly concentrated within a community of engineers. However, the amount of face-to-face interaction was not high, although there was frequent interaction via the telephone and email. This close interaction and communication seemed to build a basis for inter-personal trust, especially on the product-manager level.

Furthermore, the future expectations of the relationship also affected the level of trust and mutual forbearance. Both companies believed that the

amount of business would increase, and KY in particular was expecting a closer and deeper level of interaction in future projects. This could be taken further at least through the more open discussion of long-term plans and by bringing KY into the product-development process earlier on so that DE would benefit from its expertise more comprehensively. This closer cooperation could also be seen as a way of enhancing the level of commitment between the companies.

In terms of knowledge acquisition, the level of trust was an essential consideration regarding the level and type of knowledge being acquired, and this seemed to affect the level of required knowledge protection. It is worth noting that there were no relationship-specific instructions or details about how the project-team members should share information and knowledge with their partners, no doubt because the threat of opportunistic behavior was minimal. The acquisition of knowledge was especially limited concerning the type of partner-specific competences that could have been opportunistically exploited. From DE's point of view, the exchanged knowledge was not its core competence and thus the risk was limited. Furthermore, its core competence in measuring small particles was unique and imitation would have required considerable investment and scientific expertise. Furthermore, opportunism was considered possible only if one of DE's competitors were to approach KY, but this was deemed unlikely because the real competition within the industry concerned R&D resources and new innovations, and not the manufacturing costs.

On the other hand, from Kyrel's point of view, it was emphasized that utilizing the acquired knowledge of outsourcing was a positive thing. Had DE decided to start working with some other partner that would have been negative from KY's perspective, but it was a natural part of the subcontracting business. In fact, the knowledge acquired from KY was not so valuable that it would have been very harmful if DE had decided to leave the partnership.

As the most essential areas of acquired knowledge were recognized to lie in the outsourcing, there seemed to be an opportunity for new value creation through closer interaction. However, inter-organizational knowledge acquisition was not explicitly discussed before the project, and no specific reward schemes or aims were set for the relationship. It was only the project-specific information and knowledge that the companies recognized as necessary to the project success. However, the need for further knowledge acquisition was also acknowledged if DE was to better utilize KY's outsourcing expertise.

It is also worth noting that no specific support structures (reporting or other coordination mechanisms) were developed. DE made some modifications to its testing procedures, but they were related more to its outsourcing decision

than to the relationship with KY. Although there were no big investments, the starting up of the outsourcing project was not easy. Given such highly complex products, the setting up of the process took a lot of resources and communication related to documentation and assembly instructions. Thus, the learning costs were fairly high, and changing subcontractors was costly. On the other hand, due to the developments in the industry, KY seemed to have a need for new kinds of customers with more complex products and bigger entities, although given its modest turnover with DE it was not dependent on this specific customer. Moreover, DE also had the opportunity to submit new projects for competitive bidding, and thus KY could not exploit its position in terms of costs.

Table 5: Changes in the Partners' Power Dependencies in the DE-KY Relationship⁵⁴

Milestone in the relationship development	Specification and documentation	The first outsourcing project	Lack of cooperative structures	Potential future projects	Acquisition of project and product specific issues	Acquisition of outsourcing related issues
Dekati's dependence on Kyrel	↓	↑	-	↑	↑	↓↑
Kyrel's dependence on Dekati	↑	↑	-	↑	-	↑
Implications on the level of DE's knowledge acquisition	↑↑	↑↑	-	↑	o	o

The level of inter-dependence between the companies could be considered fairly modest and there were few significant changes (see Table 5). This could, however, have been related to the fact that the companies did not share highly critical knowledge during the project, and the learning efforts were related more directly to the outsourcing project at hand. This and the lack of customer-specific knowledge meant that the dependence was quite limited outside this context. The outsourcing project required extensive learning efforts, but even there the process was less interactive and the emphasis was on the exchange of documentation. The lack of support and governance structures also seemed to limit the level of interaction.

As DE was able to acquire knowledge from KY it was able to develop its outsourcing competences and thus to decrease its level of dependence on KY.

⁵⁴ In the table: ↑=slight increase, ↑↑=considerable increase, ↓= slight decrease, ↓↓=considerable decrease, -=no notable effect, o=not applicable for analysis.

It was thus in a better position to potentially take its outsourcing business elsewhere. However, the situation in reality was very different, as the level of trust between the partners was high, and the level of commitment increased as the relationship developed further to include more products and more diverse working methods. The knowledge flows between the companies thus seemed to help in building a basis for longer-term commitment which would enable the partner's expertise to be utilized more effectively.

7.3.4 Knowledge Acquisition and Integration

The process of knowledge acquisition (see Figure 35) was closely related to the project process described above. As no specific support structures were developed or used in the relationship, no specific learning mechanisms or group working methods were used either. Thus, knowledge acquisition was essentially part of the daily interaction, and learning-by-doing took the dominant role. Furthermore, the process mainly involved the product managers in both companies, and this communication and knowledge exchange worked well.

Learning related to the documentation process took place as it developed. The communication during the project mainly took place in occasional meetings, and by telephone and e-mail. In addition, different kinds of technical images of the product were exchanged and discussed by telephone during the documentation phase.

However, as far as the transmission and processing of outsourcing-related knowledge was concerned, the learning process was more long-term. As in AX's relationship, the knowledge was gained piece by piece during discussions about the manufacturing, component selection, and assembly instructions. Meetings and person-to-person discussions had a more integral role in this aspect of knowledge acquisition than in DE's efforts to acquire documentation-related knowledge. The meetings were generally related to some specific phase of the project, and covered cost-estimation reviews, manufacturing techniques, and reviews of the testing series, for example. Subsequently, mutual understanding on such issues was reached more easily in face-to-face discussions.

The companies did not implement any specific tasks, structures or processes in the project in order to acquire and integrate knowledge, however. Instead, because the product was such a pivotal part of it, much of the knowledge related to manufacturability and documentation was gained in discussions in product-review meetings. The idea was to share the manufacturing instructions with KY, but at the same time, issues related to manufacturability were also

discussed. Learning-by-doing was an essential part of the documentation-related knowledge acquisition and integration. The documentation task was mainly DE's responsibility, and the learning process could be characterized as internal and was considerably affected and enhanced by the interaction and communication with KY. This communication was also related to the acquisition of outsourcing-related knowledge in that issues concerning component selection and manufacturability had to be discussed.

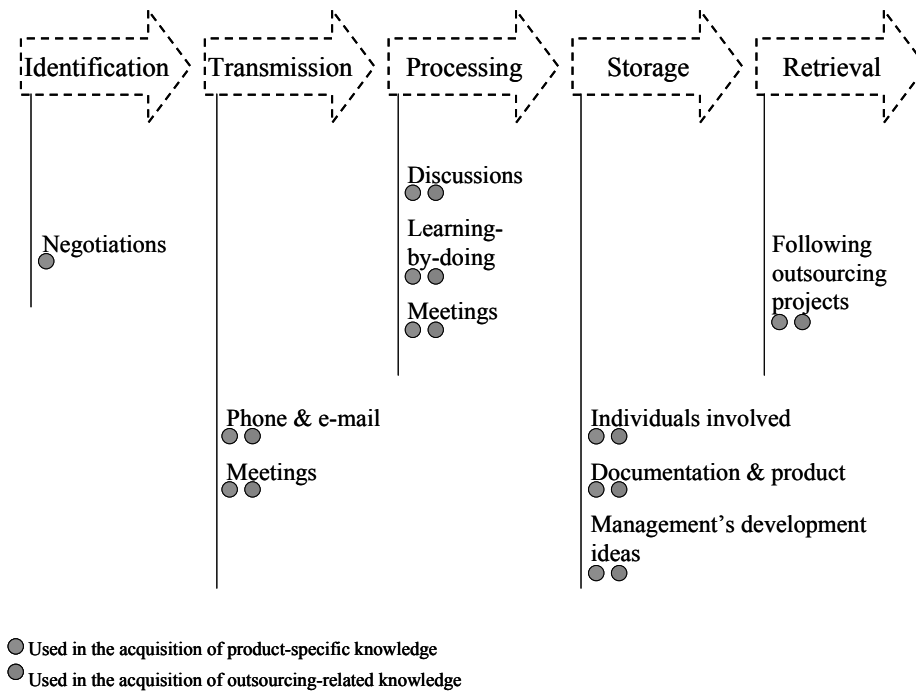


Figure 35: The Knowledge-acquisition Process

Finally, it is worth noting that the acquired knowledge was not very actively diffused further within DE, although the outsourcing-related knowledge seemed to support a major aspect of the company's competitive advantage. The storage of the acquired knowledge mainly rested with the individuals concerned as did the manufactured product and the developed documentation. The project was largely taken care of by one individual at DE, and he did not actively further communicate the lessons learned. However, it was feasible that he would use the developed knowledge in other similar projects. Furthermore, the materials and documentation that had been developed were utilized in other projects. In the end, the learning took place at least to some extent through personal experience given the essentially tacit nature of the acquired knowledge. Thus, one could question how permanent the storage of

the acquired knowledge was as no direct changes in DE's processes were evident.

Yet, as discussed, there were further ideas for deepening the interaction with KY concerning manufacturability and standardization. The aim in this was not to improve DE's manufacturing abilities, but rather to develop the relationship and the company's outsourcing competences, which had been gaining in relevance to the company's business. The tacitness of the knowledge seemed to make it time-consuming to acquire and disseminate, and consequently to effect changes in the organization. Given the central role of the characteristics and the tacitness of the knowledge, the elements of the knowledge acquisition are discussed in the following section.

7.3.5 Elements in the Knowledge-acquisition Process

In identifying the factors affecting knowledge acquisition it was necessary to consider both the process as well as the original aim behind DE's outsourcing aims. Inter-organizational sensitivity to knowledge acquisition also played an important role. Thus, the discussion now focuses on issues connected to prior knowledge, the organizational culture, and a shared identity.

As established in the theoretical discussion, ISK not only concerned the learning ability of the knowledge receiver, it also seemed to pose a challenge to the relationship context more generally. Especially with regard to documentation-related knowledge, DE was left working alone although KY was helping to identify the major problems. However, KY could have taken a more active role in helping DE to develop the documentation, and even in developing the manufacturability of the product. As far as KY was concerned, this was not part of the original project and would have required considerable resources. Thus, these could be considered issues of communication and relationship management, which seemed to be deficient to some degree during the first phases of the relationship.

The personnel-selection decisions were also fairly straightforward: a small organization has limited human resources. The DE product manager was a natural choice, although more people would be included in the relationship later on. This person had previous experience in documentation development, and had been mainly responsible for all the product documentation at DE. The KY production team was selected based on their availability as well as on their previous experience in similar projects. Both organizations were relatively small and the individuals' competences were fairly easily recognized. However, the main concerns emphasized in the interviews were related to their technical competence, not their social skills or team-working abilities.

Surprisingly, the interviewees did not consider the level of shared identity to be of high importance – but it was difficult to determine whether this was, in fact, the case, or whether the interviewees just did not recognize the significance. The majority of the knowledge was not acquired at specific points during the project, but rather iteratively, which could have affected the respondents' ability to recognize the importance of a shared identity since it was also developed iteratively. Again, the national identity was not relevant, and thus the level of shared identity could be viewed in terms of a shared social and professional identity (see Figure 36).

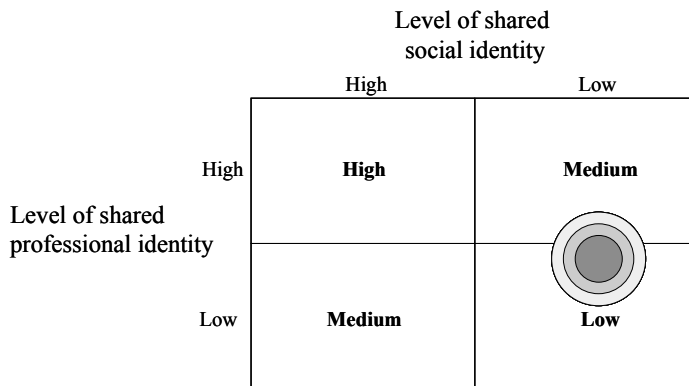


Figure 36: The Level of Shared Identity in the DE-KY Relationship

However, the case was quite specific in the sense that there was no larger community involved in the project and that the face-to-face interaction was limited: the communication between the companies mainly involved the product managers. Their interaction and communication was considered very fluent, and they seemed to have a positive personal chemistry. Moreover, the proximity of the companies was considered to have a positive influence on the level of communication because it was easy to organize personal meetings. However, it was felt that personal chemistry did not matter so much in a product-concentrated project, although the active attitude of the product manager at KY was considered an important facilitator. In addition, there was no clear learning aim and the communication and interaction were focused on the project – not on the learning process as such.

Furthermore, the companies' prior knowledge in similar outsourcing projects was worth discussing. KY had a lot of experience in the subcontracting business, but limited experience in manufacturing this type of complex product. DE however, had its core competences in product development and measuring innovativeness, but had limited knowledge and experience of outsourcing. On the other hand, its scientific expertise was so

specific and deep that the risk of KY's opportunistically exploiting the acquired knowledge was considered very low.

"... so Kyrel would decide to develop its own product for particle measurement – that will never happen. You have to understand a bit of physics and use your head and so forth."

Finally, it is worth noting that the level of interaction and the number of people involved in the partnership increased as the relationship developed, which could also have further affected the easiness of developing a shared mindset (see Figure 37). More people were becoming involved in the relationship and DE was allocating more resources to and putting more emphasis on the partnership. Similarly, the level of communication and knowledge acquisition further enabled the parties to understand each other better and consequently to create a shared social identity, as well as a shared understanding of each other's knowledge bases.

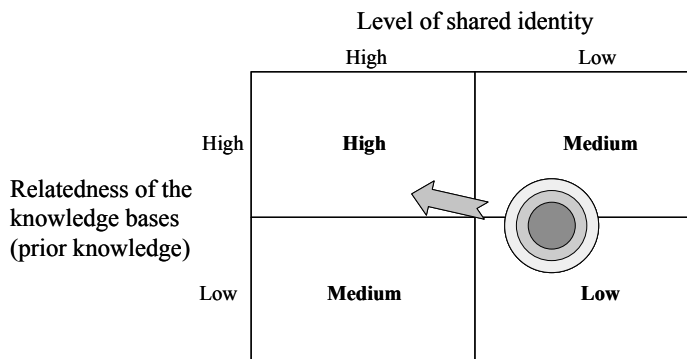


Figure 37: The Organizations' Ability to Develop a Shared Mindset

Issues related to organizational structures and mutual intent could also be relevant to knowledge acquisition. In this case, however, since no specific support structures had been developed this was not highly relevant. Although the companies were very different in size, both had low organizational structures, and the main communication took place between the product managers. The organizations were located quite close to each other, which made it easier, but otherwise the communication was more up to the specific individuals.

In terms of affecting the acquisition process and the companies' learning abilities, the organizational cultures were not considered highly relevant in the relationship since the interaction took place between a limited number of people. The process rather seemed dependent on the people involved and their ability to communicate and to find a common language. This was highlighted in both organizations. More generally, both companies seemed to be positively

oriented towards learning. Furthermore, partnering was an integral part of the business, especially at KY, and it was also growing in importance for DE.

The role of mutual intent could be considered rather critical here as it seemed that no clear mutual learning intents were established, despite the fact that this could be considered an essential starting point in such a new kind of project. Furthermore, no specific incentives or reward schemes were in use at either of the companies. This was significant, since the success of the outsourcing project could have led to a decline in the need for personnel at DE. *Only the internally critical processes of R&D, innovating, quality management, testing, and selling would remain in-house.* Thus, the outsourcing activities were critically perceived within the organization, as not all employees could necessarily be reassigned to other tasks.

7.3.6 The Effects of the Relationship Context on the Learning Process

Although DE considered KY to be its partner, the level of close cooperation was limited at the time of the interviews. The interaction and commitment to the relationship was not yet at a level to produce considerable advantages from the integration of complementary knowledge. However, there were clear aims to deepen the interaction in future projects and to integrate KY's expertise into DE's product development at an earlier stage.

"...they are now, in the latest product [in a new, upcoming project]... Kyrel is [working] with us from the beginning so that we won't make any stupid and expensive decisions because there we need to pay attention to the price of the product."

Furthermore, knowledge integration might be taken further through closer interaction. For example, a suggestion to utilize personnel exchange between the organizations in order to facilitate the learning process was considered possible for future projects. Having KY's experts in DE's organization to learn about their products and manufacturing process was considered beneficial in helping KY to identify any inefficiencies. On the other hand, DE's presence at KY's organization would facilitate gaining knowledge about manufacturing, and promote a better understanding of the requirements, methods and tools of industrial mass manufacturing. This was certainly also an issue of relationship management, and highlighted the importance of commitment to the relationship. It was not a question of developing KY's expertise further, but was rather about gaining access to it and exploiting it in the development of DE's business in the direction of industrial manufacturing.

Furthermore, in terms of the level of dependency in the relationship, there were no huge changes in the bargaining power of the partners. On the one

hand, the type of knowledge that was acquired was rather general in nature and, in a sense, helped DE to outsource its operations to other subcontractors. On the other hand, the knowledge acquisition resulted in more intense cooperation with KY. Consequently, this seemed to increase the mutual commitment, as well as the level of termination costs for both partners, especially with regard to learning costs and future expectations. Yet, it could be argued that the relationship increased DE's ability and willingness to cooperate with external partners, and therefore also had implications for the development of its network position.

Finally, it should also be noted that there seemed to be little importance attached to the elements affecting knowledge acquisition. The project was product and documentation oriented, and thus the face-to-face interaction was not so frequent. On the other hand, the relationship-management efforts were also limited and no clear learning intent was articulated.

The partnership was evidently still very much in the developing phase from both companies' perspectives. Thus, no partner-specific investments, process changes or support structures had been developed so far, although the companies' experiences from the first outsourcing project seemed to support the further development of the relationship and of inter-organizational learning efforts. Consequently, more specific working methods and areas of knowledge acquisition were planned to be part of the future developments. Yet, it was evident that the areas of learning abilities, different learning processes and tools, and relationship management were affecting DE's business in a more fundamental way. These issues are further elaborated on through the following cross-case analysis.

7.4 Cross-Analysis of Dekati's Relationships

7.4.1 Knowledge Acquisition in the Relationships

First of all, it should be pointed out that, in general, the level of knowledge acquisition in the relationships was fairly limited. However, it was clearly emphasized by Dekati's management that that had been the aim, and that a lot had been learned, especially about outsourcing, manufacturability and productification, as well as about documentation and product specification. Furthermore, DE's partners had an essential role in helping it to acquire new knowledge and thereby to make sense of the emerging problems together. This

would seem to distinguish knowledge acquisition in the case relationships from simple learning-by-doing.

DE was actively trying to develop its business into more of an industrial producer of samplers, which meant that it needed to rely on subcontracting its product manufacture and assembly. This was partly related to its limited resources, but more than that it seemed to be a question of developing its business as well as its products and product portfolio to become more industrial and manufacturable through cooperative specialization (Zeng – Hennart 2002). However, the intent to learn did not seem to be clearly communicated to the partner, and there was no clear mutual intent even within the project-team. This seems to be in line with Simonin's (2004) arguments that a clearly communicated learning intent, especially in small organizations, has a significant role in the success of knowledge acquisition. In these cases the need and intent were internally recognized by DE's management, but it was not clearly communicated to the partner or even internally to the project-team. This further highlights the fact that in small companies competences and are very much dependent on specific individuals.

The way in which knowledge processing and integration took place in the relationships seemed to reflect both the sharing of previous experiences as well as cooperative sense making (see Figure 38). At first the companies made efforts to develop an understanding of and share parts of each other's previous experiences, which made it possible to gain an understanding of the existing knowledge base and the environmental context of their partner. During the process, more independent learning took place in both companies based on their own and their shared experiences. DE was subsequently able to develop its testing and manufacturing process as a result of internal workshops and learning-by-doing.

However, the most important part of the learning process was arguably the cooperative sense making, during which knowledge became integrated into the new organizational context. This was the case particularly concerning outsourcing-related knowledge as the partners were asking questions and forcing DE to consider the component selection, and the manufacturability and standardization of the products. These issues led to interaction between DE's and the partners' experts, as a result of which DE had to decide upon the final product elements. This cooperative sense making, as well as the learning based on DE's set of experiences, then became the basis of the learning in future projects. Subsequently, DE has paid more attention to developing its manufacturability, standardization and productification with a view to outsourcing its products.

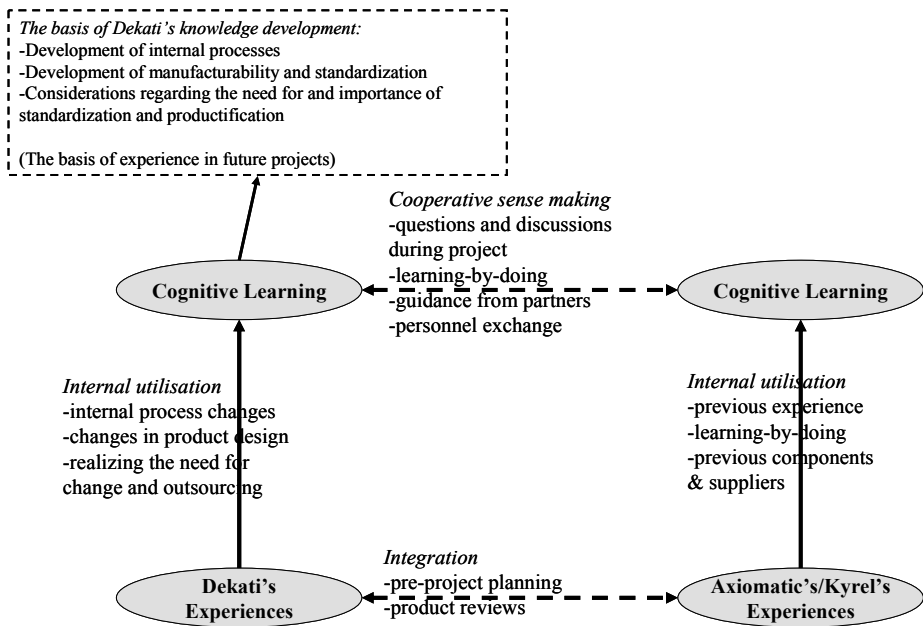


Figure 38: Co-operative Sense making of Standardization- and Productification-related Knowledge in Dekati's Relationships

The shortcomings regarding the further diffusion of the knowledge both internally and externally were subsequently recognized at DE. In order to enhance knowledge diffusion in the future the company integrated internal R&D and the outsourced manufacturing (KY's expertise), and inserted a new middle-management layer. The aim in this change was to include knowledge about manufacturability and cost structure early on in the product-development process.

This is in line with the views expressed in the literature on outsourcing and make-or-buy decisions, in which the role of the supplier is highlighted as something of a producer of added value. More and more attention is being paid to delivery reliability, technical capability, and strategy, i.e. to the subcontractor's ability to provide the company with a competitive edge (see e.g., McIvor et al. 1997; Leenders et al. 1993). DE seems to be going along with this logic in its attempts to integrate KY more into the product-development process and to gain value through closer cooperation (see Dyer – Singh 1998; Leenders et al. 1993). The development of the relationship context and the role of DE's limited resources are discussed next.

7.4.2 The Role of Limited Resources in the Relationship Contexts

In considering the nature of the learning process and the types of knowledge acquired, it should also be remembered that the relationships were not very significant in monetary terms, and that the one between DE and KY in particular had been established fairly recently.

On a more general level, it should also be noted that there was not much relationship-specific investment, which often provides a basis for gaining competitive advantage through the relationship (see Dyer – Singh 1998; Anderson – Weitz 1992; Madhok – Tallman 1998, 336). Similarly, the resources and the ability to facilitate and implement knowledge acquisition were limited. No other participatory learning methods had been tried thus far, which seemed to be due to the quite limited scale of business activities and the lack of capacity for and experiences of inter-organizational learning. Thus, the role of limited resources in a small company could be considered essential.

Given the relatively low level of termination costs, the roles of power dependencies and relationship management were not considered as important as expected, although there had been slight changes in interdependence. The rising level of termination costs was an issue, and the learning costs in particular were considered high. DE was seen to be especially dependent on AX due to the high switching costs and the higher level of product documentation in the DE-KY relationship. DE had put in extensive efforts to make sure that both of its partners learned about its manufacturing process, and was therefore quite unwilling to change partners.

As far as the ease of inter-organizational learning is concerned, one could have expected the level of shared understanding to have a more integral role. *This was considered high in the relationship with AX, but not with KY, in which the knowledge acquisition involved a smaller group of people.* Furthermore, it seems that a kind of *fast trust developed*, especially in the relationship with AX (see Blomqvist 2005). This was based on the partners' abilities, their mutual characteristics (AX) and institutional trust (KY), as well as on their cooperative behavior during the early stages. With KY the development of trust seemed to take more time due to doubts about its abilities, but it speeded up after the first project. Developing fast trust could be seen as a way of overcoming the uncertainty resulting from a lack of partner-specific investments: in this case the resources of DE's partners were limited. Furthermore, the level of trust was essentially high in both cases, but in general the emphasis was on abilities and process-based trust. This may have been the result of concentration on specific products and projects and the limited acquisition of supplier-specific knowledge.

7.4.3 Further Competence Development

From a wider perspective, it could be argued that DE was able to acquire knowledge from its partners' competences throughout the outsourcing process (see Table 6). *However, it seemed that although issues were learned and knowledge about the product development as well as the outsourcing was acquired, the diffusion of this knowledge within the organization was not active.* The knowledge assimilated by the project-team members constituted the main body of the acquired knowledge.

It could be argued that this was an important point regarding the value of the acquired knowledge to DE. Although the outsourcing-related knowledge was not especially critical or partner-specific as far as the partners were concerned, DE considered it valuable. Outsourcing was a way of freeing resources for other purposes, especially for testing, R&D and the development of new innovations. This could happen through lowering the need for manufacturing, but also in this case through developing internal processes for outsourcing and standardization so that the personnel could concentrate on R&D. This internal process of product development and outsourcing was the main aim in DE's learning as the areas of expertise that were acquired were mainly related to product outsourcing and industrialization⁵⁵.

Table 6: Partner Competences Utilized by Dekati⁵⁶

<i>Phases in the general outsourcing process</i>	<i>Axiomatic</i>	<i>Kyrel</i>
product specification	X	
product development	X	
manufacturing technology		
Testing	X	
component choices	X	X
product documentation		X
manufacturing sequence and assembly instructions		X
industrial manufacturing and assembly		X

Although the companies' differences and similarities in characteristics did not seem relevant in the relationships, it is worth noting that the partners were

⁵⁵ Outsourcing was also a way of lowering the costs of the products and making them more competitive. It was a way in which DE could become an industrial manufacturer instead of a small R&D house, despite its limited resources. As the company was able to standardize its products, and consequently the manufacturing process could be made more efficient (although the measurement devices could be utilized in different situations, they could be assembled using similar components and in standardized procedures).

⁵⁶ The phases are based on those discussed during the interviews.

operating in totally different fields of business. Thus, the dominant logics were totally different. Consequently, the main focus of the knowledge acquisition was not on the specific core competences of the companies, it was rather on the acquisition of outsourcing-related knowledge from the partners (experts in the field) to DE (aiming to develop its outsourcing abilities into a competence).

Furthermore, the acquired knowledge seemed essentially to support the development of DE's business idea. As a more or less *networked organization* (Miles – Snow 1986; 1992), one of its competences must lie in outsourcing and partnering, i.e. in network competence, which is based on the ability to manage and develop partnerships (Gemünden – Ritter 1997; see Draulans et al. 2003; Miles – Snow 1986, 64-65). Network competence has an effect on a company's ability to configure and coordinate its network structures and activities within a number of business relationships and the whole network. It also affects the level of innovative efficiency, i.e. how well the network is able to contribute to the company's own innovative processes and innovativeness. (Gemünden – Ritter 1997; see Brusoni et al. 2001.) In the Dekati context, this could be analyzed in terms of its ability to find suitable partners for its outsourcing projects, and to develop its own process in order to utilize and integrate its network of subcontractors into its own innovation and product development processes.

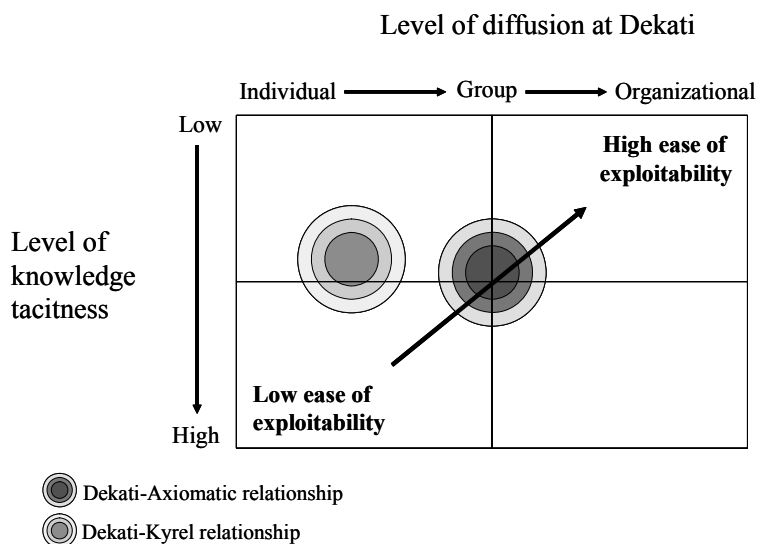


Figure 39: The Ease of Exploiting the Acquired Knowledge in DE's Relationships

Furthermore, a major challenge for DE in developing competences through relationships was to diffuse the acquired knowledge within the company and further utilize it in subsequent relationships (see Figure 39). The difficulty in utilizing the knowledge was that it had not been actively diffused or further developed internally, but remained more proprietary to the key personnel. In addition to the product-development- and product-design-related knowledge, DE also emphasized that there was extensive tacit knowledge regarding the outsourcing process and productification that had not been widely diffused. The lack of diffusion was no doubt partly due to the tacitness, but was also partly due to the lack of effort and clear aims.

However, a change was already taking place within DE. Discussions concerning the need to outsource and to develop its outsourcing, standardization and manufacturability had started, although the case relationships were not used as a basis. Yet, there was recognition of the company's needs for further discussion and knowledge development. Therefore, DE's internal exploitation of acquired knowledge in developing its business is an ongoing process.

7.5 Companies Involved in the Case Relationships with TietoEnator

TietoEnator (TE) is one of the largest providers of IT services in Europe. The company employs over 15,000 people in more than 25 countries⁵⁷, and the annual net sales were over MEUR 1,650 in 2006 (MEUR 1,570 in 2005 and 1,530 in 2004). The company is listed on the Helsinki and Stockholm Stock Exchanges. TE specializes in consulting, building and hosting its customers' core business systems and it aims to build its business on long-term business relationships with its customers. (About TietoEnator 2006; Annual review 2005; Annual review 2006.) The group's services and business idea are based on developing industry-specific expertise, which is strived for through concentrating on the chosen business sectors: banking & insurance, telecom & media, healthcare & welfare, government, manufacturing & retail and forest & energy and processing & network. (About TietoEnator 2006.) The telecom & media sector represented about 31% of the group's total net sales, and around 28% of the operating profit – being the biggest business area within the corporation (in 2006). The media sector's aim is to provide its customers with service solutions including consulting, systems development, systems

⁵⁷ TE's international activities (2006) included activities in e.g. Sweden, Great Britain, Portugal, Poland, Austria, Canada, China, Norway, Germany, India, The United States, Singapore, Ukraine, Slovakia, Denmark and Russia.

integration and product development. (About TietoEnator 2006; Annual review 2005.) In the area of Telecom & Media, TietoEnator worked with customers from different areas of the value chain, from content providers to manufacturers and operators of telecom networks and mobile devices (About TietoEnator 2006). Telecom & media has operations in 14 European countries and China, and the operations are concentrated on the telecommunications industry. The biggest customers in 2006 included Alcatel, Ericsson, Siemens, Nokia and TeliaSonera. (Annual review 2006.)

Two of TietoEnator's customer relationships were studied in this research - with MTV Oy⁵⁸ (in Helsinki) and Alma Media (in Tampere)⁵⁹. These two partner organizations are briefly described next.

MTV Oy was founded in 1957 and was bought from Alma Media in April 2005 by the Swedish companies Bonnier & Bonnier AB and Proventus Industrier AB. It has three major TV channels: MTV3 and Subtv,⁶⁰ as well as four digital pay-TV channels. It also has a majority share in the radio channel: Radio Nova, which is the only commercial radio channel available around whole of Finland. MTV3 is one of the leading TV channels, and the biggest privately owned channel, in Finland and reaches around three million viewers each day. (Organisaatio 2007; MTV Oy:n tarina 2007.) It began broadcasting as an independent TV channel in 1993, and instantaneously reached around 43% of all viewers (MTV Oy vuodesta 1957 2006). In the year 2005 the number of viewers of the biggest TV channels in Finland was divided as follows: MTV3 32.6%, YLE1 24.5%, YLE2 19.1%, Nelonen 11.5%, Others 7.5%, and Subtv 4.2%⁶¹ (Tutkimustuloksia 2006). In the year 2006, the turnover of MTV Media was MEUR 210 with a profit of MEUR 28, and it employed 421 people at the end of the year (the corresponding figures in 2005 & 2004 were: MEUR 195 & MEUR 195; MEUR 16 & MEUR 11; and 434 & 516) (Lind 2006; MTV Media 2006). So far the main source of revenue for the company has been advertising, whereas YLE is not allowed to broadcast commercials between or within its programs⁶² (see Tv-maksusta kysytyä 2006).

⁵⁸ The relationship is also referred to as the TE-MTV relationship.

⁵⁹ The relationship is also referred to as the TE-AM relationship.

⁶⁰ Subtv was the fastest growing channel in Finland during the case study with approximately 1,2 million viewers a week (2007).

⁶¹ Source: Finnpanel Oy / TV-measurement research. Finnpanel Oy studies Finnish households and their behavior, and this research focused on the time used for viewing TV on an average day among people over 10 years old.. The results are based on a TV-measuring system installed in 1,000 households (about 2,200 people), which automatically registers the time spent tuned in to each TV channel each day.

⁶² MTV is obliged to pay a fee for TV broadcasting rights to YLE (the national broadcasting company in Finland), but this obligation was about to end in the autumn of 2007 as analog TV broadcasting ended.

Alma Media (AM), on the other hand, is a media corporation whose business included newspaper publishing, the production and distribution of financial information, and the production of online services. The group has a strong position in the Finnish newspaper business, with over 30 published newspapers and a presence in business, afternoon, regional and local newspapers, including Kauppalehti, Aamulehti and Iltalehti. (Alma Media in brief 2006.) Its biggest newspapers had circulation figures of over 130,000 in 2005 (Aamulehti 136,000, Iltalehti 130,000 and Kauppalehti 81,000) (Circulations and print-runs 2006). In addition, AM's on-line services and marketplaces included three market leaders in their respective areas of businesses: etuovi.com (for people looking for a new house), monster.fi (for people looking for a new job), and autotalli.com (for people looking for a new car). The company is listed on the Helsinki Exchanges and it employs about 1,800 people. The net sales of the whole group from its continuing operations were MEUR 301.9 in 2006 (MEUR 285.9 in 2005 and 283.6 in 2004), with an operating profit of MEUR 49.1 (MEUR 42.3 and 37.0). Of the total turnover around 49% comes from media (advertising) sales and 42% from newspaper circulation sales. (Annual report 2006; Strategy 2006; Alma Media in brief 2006.)

The network context surrounding TE and the two relationships was apparently of fairly low significance, as it was not considered relevant by the interviewees. However, the case relationships were partly related as MTV had been previously owned by AM, and TE had initially established the relationships with only one partner (see Figure 40).

As described, TE had direct linkages to the customer relationships, and also to other actors in the market: it had a joint venture with YLE and various kinds of projects and customer relationships with many of the major newspapers in Finland. Its position in the network was also related to the positions of other solution providers, potential customers in the media industry, in Finland and abroad.

MTV and AM had a shared history in that MTV was previously owned by AM before being acquired by the Swedish Bonnier & Proventus. There were still some structural linkages⁶³ between the two companies, which were nevertheless of less significance considering TE's focal network. Furthermore, the projects within the relationships were in totally different areas of systems development, and in that sense were not very closely related. More importantly for TE, both of the customer organizations had other solution providers. The linkage between MTV and Bonnier & Proventus could be

⁶³ The relationships between the three were not especially volatile, and they were still using some of the same systems and even cooperating in some areas of technology development.

considered relevant to TE as it represented a linkage to a big international media organization. Both customers naturally also had links to their competitors in their respective industries. For example, MTV was working in cooperation with Nelonen, it was in discussion about potential cooperation with YLE, and was open to various co-operational arrangements with other actors in the newspaper business.

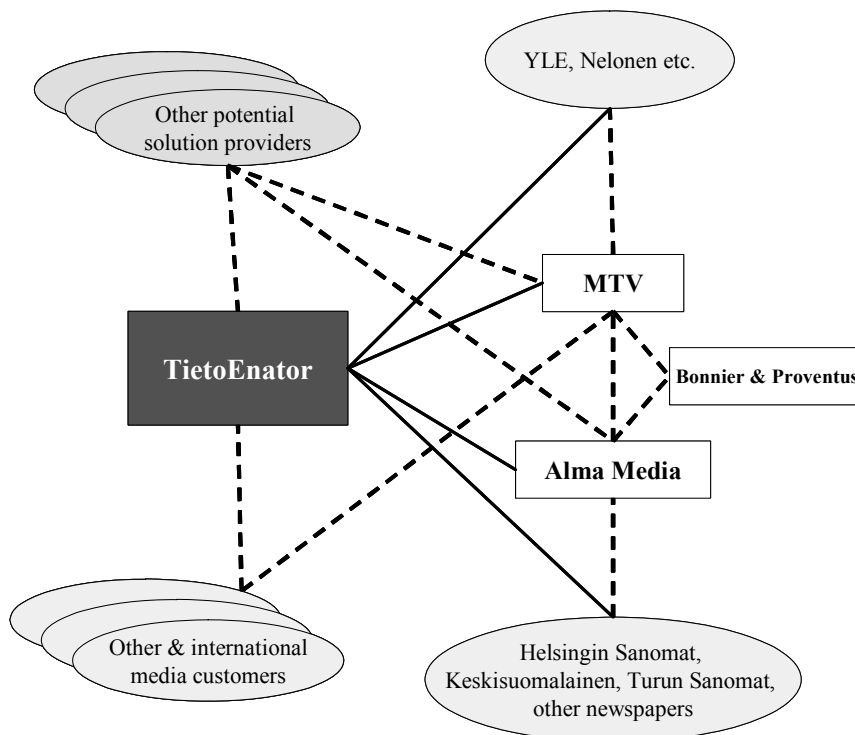


Figure 40: The Network Environment of TietoEnator's Relationships

TE's focal network was thus closely related as both customer organizations were from the media industry. The field of competition, especially with regard to newspapers, could be broadly analyzed on two levels: competition for media revenue and competition for the consumer's time and money (Media industry and competitors, 29.5.2006). Thus, AM was also a competitor of the broadcasting companies on some level, especially given the limited size of the Finnish media market. There are only a few really big TV channels and newspapers competing for the same marketing budgets, interacting with the same media/marketing agencies, and fighting for the time and money of the same potential viewers/readers. On the other hand, it was emphasized by the interviewees that in such a limited market these linkages also provided cooperation possibilities.

Consequently, the background to TE's partnerships was in the company's strategy to build industry-specific competences through developing long-term partnerships. Both of the partnerships could be considered fairly typical customer relationships in which TE was developing customer-tailored solutions: an air-time sales system (ASS) for MTV and a media archiving system (MAS) for Alma Media. The partnerships were essentially developed during the development projects, and TE acquired knowledge about the customers' systems and business models, for example.

This short overview of the companies was given in order to give some initial background information that elaborated more specifically later on with regard to the case relationships. The partnerships, their development and their aims will be discussed more closely next, before the analysis of the knowledge acquisition processes and the cross-case analysis.

7.6 The Development of an Air Time Sales System for MTV

7.6.1 An Outline of the Relationship Setting

The cooperation between TE and MTV was mainly concentrated on the development and re-building of MTV's air-time sales system. However, later on the relationship was expanded as new systems and responsibilities were dedicated to the TE organization. Figure 41 depicts the development of the relationship in order to highlight the main phases of the cooperation.

The relationship started in the year 2000 when MTV began to look for a partner with which to develop its air-time sales system (ASSystem). The ASSystem was highly critical for MTV's business operations, and there were pressures to develop it ahead of the beginning of digital TV broadcasting in Finland (autumn 2001) and its planned launch of a new TV channel. TE was given a chance to prove its capabilities during spring 2001 in a pilot project. As the project went very well and TE expressed its willingness to get to know and understand the existing and related systems, MTV decided to begin the cooperation and to develop the existing ASSystem with TE⁶⁴. At the same

⁶⁴ After some development work with TE, MTV decided to engage in less development work, and subsequently TE concentrated more on taking care of the updating and maintenance of the existing ASSystem due to the uncertainties regarding the beginning of digital TV. Later on, as the hype around digital TV was diminishing, MTV decided to take another look at the operative systems available on the market. As there were only few capable companies, and even they seemed to have few ready-made systems/products, it decided to continue the development of the existing system with TE in smaller projects, step by step. The ASSystem-related development work also included integration projects

time, it decided to continue the development of its broadcasting scheduling system (BSSystem) with a third party⁶⁵.

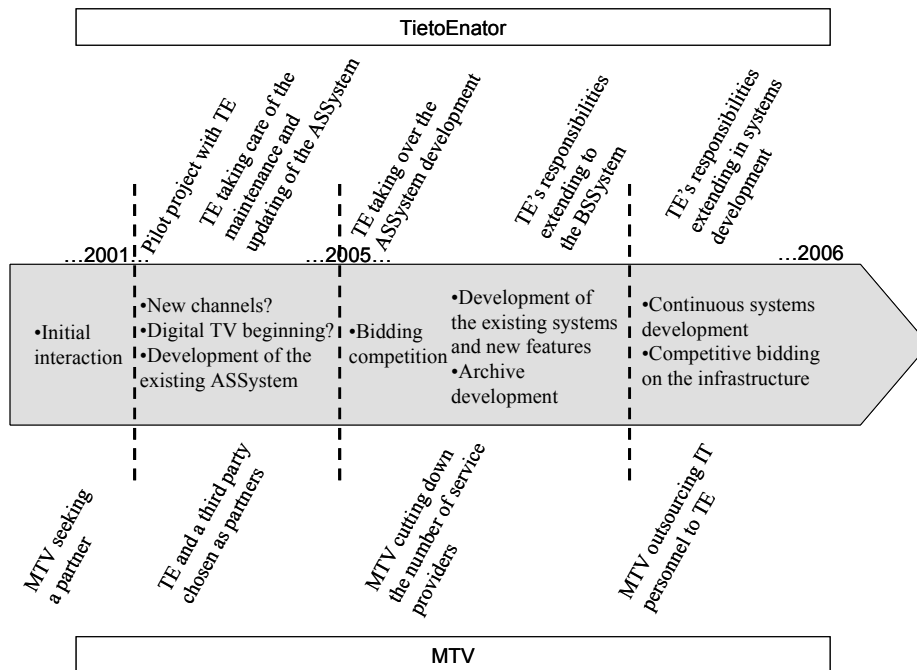


Figure 41: The Main Phases in the Relationship between TE and MTV

Later on, at the beginning of 2005, MTV decided to lower its number of service providers in order to streamline coordination between different systems and development projects. More specifically, the aim was to concentrate the development of the ASSystem as well as the closely related BSSystem with the same partner. *There were five companies participating in the competitive bidding and eventually TE was chosen.*

From then on, the cooperation expanded to include the further development of the ASSystem and the re-building of the old system in phases. The development of other related systems was also initiated with TE, including the BSSystem⁶⁶ (used for planning the broadcasting programs and commercials, including the broadcasting plan and diary), a sales-support system (including information on customers, contracts and commercials), the materials archive

with the BSSystem during the time period between 2001-2005, but the responsibilities were divided during that time with MTV's other partner.

⁶⁵ The name of the company is undisclosed information. MTV had outsourced its IT infrastructure to a third party although TE participated in the competitive bidding.

⁶⁶ The BSSystem enabled the planning of the sequence and timing of the programs and commercials before they were broadcast.

(archiving of all materials: commercials as well as programs), and the commercials & program information management system (management of the information about the contents and characteristics of commercials and programs) (see Figure 42).

The ASSystem was related to the broadcasting scheduling as well as to the commercials and program information management system. Information concerning specific commercials and programs had to be managed before the commercial spots (places and times) could be sold, and it was only after this that the actual broadcast could be planned and managed within the BSSystem. The materials archive, on the other hand, was developed as part of the BSSystem with the aim of developing the archiving and management of all the broadcasted materials. TE also managed the development of a closely related sales-support system, which was used by the sales personnel and included information about customers as well as an air-time reporting system⁶⁷. This set of systems was also integrated into the Finnpanel system, which provided information on viewing statistics related to MTV programs and commercials.

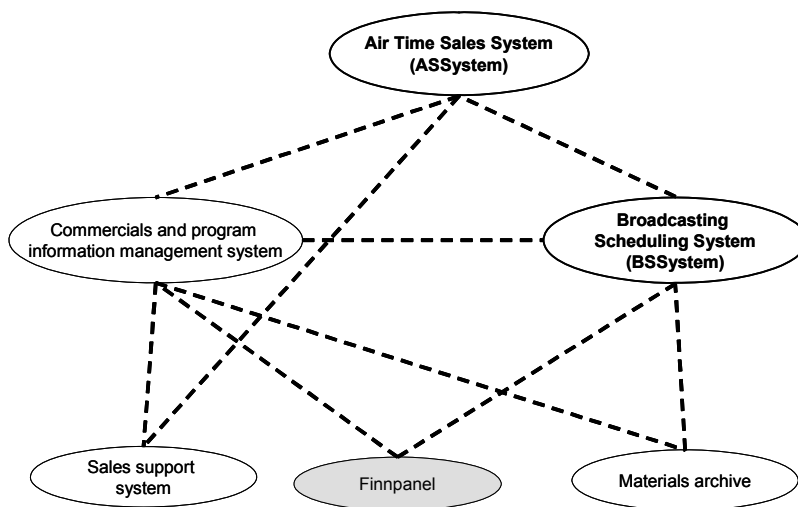


Figure 42: A Simplified Description of the Linkages between the Systems Developed by TE for MTV

Finally, in the late autumn of 2005, MTV decided to outsource parts of its own IT organization (a total of four people) to TE. At the same time, the support services (including the updating and maintenance of the systems and the on-call helpdesk) was outsourced to TE – thereby extending the scope of

⁶⁷ The air-time reporting system provided information about the coverage of the broadcasted commercials.

the relationship. At the time of the interviews, TE's responsibilities included the development as well as the updating of the maintenance and helpdesk functions⁶⁸ at MTV. In addition, the ASSystem was being totally re-developed in order to make it more flexible, and together with the BSSystem & other systems it was under continuous development.

The business logic and pricing strategies⁶⁹ in the TV media industry changed quite often and rapidly. Consequently, this put some time pressure on the development of the related systems so that they could be utilized even in the face of big changes in pricing strategies, for example. Furthermore, the information related to the program information, its characteristics, target groups, and viewing groups needed to be easily accessible and manageable. *Making the whole ASSystem more flexible and adaptable to the changes in the industry's commercial practices was a more recent project that was being carried out jointly with TE.*

One could thus say that the relationship had been developing in stages since 2001, just as the number of people at TE responsible for it had been increasing. By the end of 2006 it had, in a sense, reached a more stable stage as the outsourced personnel had been integrated into their new organization and more emphasis was placed on the development projects. *The focus of the case is on the time between the pilot project and the end of 2006 (the integration of the outsourced personnel from MTV).* The acquired knowledge and the learning processes are more closely discussed and analyzed in the following section.

7.6.2 The Types and Characteristics of the Acquired Knowledge

First, it is important to recognize what kind of knowledge was being acquired between the organizations within the relationship. Here, the scope of knowledge acquisition refers to the case relationship, and the two larger

⁶⁸ Later on referred to as the "support services"

⁶⁹ At the time of the interviews it was possible to buy commercial space (i.e. air time) according to the following criteria (MTV3 – katsotuin kaikissa kohderyhmissä 2006):

- based on a specific program, which meant that the commercials would be broadcast during a specific program
- based on a specific target group, which meant that commercials would be broadcast according to the required number of people in that group
- based on a specific regional impact, which meant that the commercials could be used nationally and specifically in MTV's 11 broadcasting regions
- based on a co-operational branding with a specific program or series, which meant wider visibility on TV as well as on MTV's Internet site or the programs' own Internet sites, for example.

Air time was also sold based on the time of broadcasting: prime or off-prime time. This time-based selling was previously divided into four blocks: morning, midday, prime time and night time.

projects and the personnel outsourcing already briefly discussed. Knowledge acquisition took place in both directions between the partners, and the main areas of knowledge gained by MTV are reviewed in Appendix 11. The main interest here is in the types of knowledge acquired by TE. *TietoEnator was developing MTV's systems as tailored solutions based on its needs and requirements, which provided the basis for the needs and areas of knowledge acquisition.* The types of knowledge acquired could be roughly divided into three: system-specific knowledge, industry-specific knowledge and customer-specific knowledge (see Table 7).

Table 7: The Types and Characteristics of the Knowledge TE Acquired from MTV

<i>Type of knowledge</i>	<i>More specific areas of knowledge</i>	<i>High tacitness</i>	<i>High complexity</i>	<i>High partner specificity</i>	<i>Knowledge extensively diffused</i>
System-specific knowledge	Content- and design-related knowledge	X		X	X
	Broadcasting technology and development tools		X		
	System and solution expertise	X	X	X	
Industry-specific knowledge	Industry standards in content transmission		X		
	Industry terminology	X	X		X
	Industry business logic	X	X		
	Air-time sales business logic and commercial practices	X	X		
Customer-specific knowledge	Social relations and networks	X		X	X
	Understanding the background of systems development	X	X	X	
	Understanding the operating principles and business processes of a broadcasting company	X	X	X	

First, *the system-specific knowledge* was related to a number of issues: the development of specific solutions and systems for the customer, and the way in which they were supposed to be developed. Content-related knowledge about the systems was related more to TE's, and more specifically, the project-team's ability to understand how the systems were supposed work and how to design the user interface. Thus, this could be seen as an understanding about the system's design and usability within the specific customer organization.

The system-specific knowledge also included general principles of broadcasting technology, and concerned the kinds of system-development tools that had been used at MTV thus far and why. Finally, knowledge about how to develop the right kinds of solutions and systems was also acquired. The main focus was on understanding how the systems had been developed so far, how different systems were related to others, and how they were supporting the business processes. This was naturally related to understanding how the systems could be developed in the future, and to a more holistic understanding of the interlinkages of those within the customer organization. The support services further enabled TE to understand the linkages between the systems in their daily operations.

"... or about the systems and how they've been implemented and how they function and so on, that's being acquired all the time like in huge amounts... that requires a lot of know-how, which is not written down anywhere in a way, but it's... in the heads of the people responsible for the specific applications..."

TE also acquired knowledge that was more *industry-specific*. On a very basic level, this meant a general understanding about the standards used in content transmission by the different actors within the industry. This was the first time that TE had had the opportunity to get a more comprehensive view of the industry and the technologies in use, and it was considered to be a very important gate opener.

Another significant step in gaining more understanding about the industry as well as the systems involved was to learn the terminology used. However, and more importantly, knowledge acquisition was related to the development of industry expertise, i.e. to understanding the business logic as well as the industry in terms of its systems. This meant that TE was able to gain understanding about the kinds of issues that were important and business-critical within the industry and why, and it also enabled the company to see what kinds of systems were available on the markets.

"These systems that we're working on here, they support MTV processes, each for its own part... and through that we've pretty well got in on everything that's going on there [within MTV]... about what it takes so that the business is running and things are happening in a way that they are supposed to, and about all the things that are required for things to happen..."

Through these steps TE was better able to understand the set of operative systems and to find areas that required further development. It also acquired knowledge about MTV's customers and other stakeholders in the value chain of the company and the whole industry, which enabled it to build network linkages to other actors and to understand the business opportunities available

within the industry. Apart from this industry-level understanding this was also related to understanding air-time-sales business logic. It was considered essential to see what kinds of rules and regulations restricted the activities of the customer, but more importantly it enabled TE to develop an understanding about the commercial practices that formed a basis for the changes and developments in the ASSystem. These changes in practice could be quite unexpected and rapid, and the systems development needed to be implemented at very short notice. Thus, there was a need to understand what the industry was heading for in the future and what kinds of changes and developments would be expected – and consequently what kinds of system-development requirements this set.

Finally, there was also a certain amount of *customer-specific knowledge* acquired by TE. This was related to the systems and the operational processes, but also to the social aspect of interaction. The people in the partnership interacted closely, and different projects were taken care of by different individuals. TE was subsequently able to gain insight into the different people working within the MTV organization in terms of how to interact and with whom, and to become familiar with the operative systems within MTV and how and why they had been developed in that way. This was essential since the systems were old and had evolved in stages over the years. In order to develop new functions and solutions, TE had to understand the existing environment and interrelations. In turn, it was also able to develop an understanding of the customer's operating principles and business processes. It became familiar with the different concepts being developed and the channel-specific functions, and with the way in which these changes (e.g., new channels or new pricing concepts) were related to the systems. As a result, it was better able to understand the changes taking place in its customer's processes and business, as well as their implications on systems development. Furthermore, and partly related to the industry expertise, it was also able to develop an understanding of the customer's business development and processes. TE thus acquired knowledge of the industry's business logic and commercial practices, which gave it a basis for understanding the reasoning behind the systems-development needs.

“We're not told about the actual reasoning about why something is implemented, but instead we receive the pre-processed information that they want this and this, whereas in fact there's that other thing in the background...”

The same problematics also seemed to exist from MTV's point of view.

“... really it would also be possible for TietoEnator to look a little farther from our point of view, so that they'd learn our business better, so that they could develop durable solutions, so we wouldn't be

forced to re-build those commercial practices on top of the old platform every year.”

With regard to the acquisition of customer- and industry-specific knowledge, TE emphasized that this had been included in the planning of the systems-development process, but there remained room for improvement. *From their perspective, early involvement in the solution development was essential in terms of gaining a wider understanding of the customer’s business environment and industrial context.* The idea was that as TE gained further industry expertise it would be better able to guide the long-term development of the various systems in order to make them more flexible.

The *characteristics of the acquired knowledge could be analyzed mainly in terms of complexity and tacitness.* Purely technological issues could be considered less tacit, and issues related to systems expertise, industry-specific understanding, customer processes and changes in business logic, and social relations more tacit. One could even argue that the system-specific knowledge was partly tacit, although the solutions as such were documented in the source code. However, the systems were very old and highly complex in their interrelations with other systems, and it was basically impossible to document the whole story. A full understanding of the systems and their development was only attainable through the experience of learning-by-doing, and the required knowledge could consequently be considered strongly tacit. In addition, the content- and design-specific knowledge was strongly related to the customer’s specific requirements: it was considered difficult to explain, and was rather built on experience.

Similarly, industry-specific knowledge and knowledge about customer-specific systems development and business processes were considered to be mainly tacit. The industry standards were more or less straightforward and documented, but knowledge of the terminology could be developed only through experience. It was thought to be highly difficult to learn the required jargon and terminology purely by reading a manual, for example, and thus this was also considered at least partly tacit. Finally, the business logic of the industry, the customer’s business processes, and the air-time-sales business logic were considered highly tacit, and TE was still engaged in the learning process. These issues were also highly complex in that they incorporated various standards, actors, and business logics, and also a number of related systems and technologies. *Thus, industry-specific expertise and understanding of the customer’s processes and business could be considered highly tacit.*

There was not very much purely partner-specific knowledge acquired, and TE intended to develop the gained knowledge further to be used with other customers. There was also a need for customer-specific knowledge acquisition concerning the customer’s processes so that TE could carry out its tasks, but

this kind of knowledge was considered fairly applicable to the context of another broadcasting company. The level of diffusion of the acquired knowledge at MTV was fairly limited on the whole. Knowledge related to the nature of the operations within the customer organization was usually available to TE in the part of MTV's organization to which the system development was related. However, sources of knowledge related to technical details and tacit knowledge related to the development of the industry and the commercial practices seemed to be scarce. This imposed specific requirements on the acquisition process, in which MTV had an essentially active role.

In conclusion, it appears that the knowledge characteristics essentially affected the knowledge acquisition and provided a basis for the development of the relationship. This kind of systems and solutions development required TE to learn about issues beyond the actual source code, and this had implications in the relationship context. The development of the relationship setting is described in more detail in the following, then the focus moves to the knowledge-acquisition process.

7.6.3 Relationship Development

The relationship between TE and MTV had been developing in several phases over the years. At first TE was only responsible for the air-time sales system, but later in 2005 it was chosen as MTV's main partner in its systems development, having proved its competence. In terms of systems, the partnership extended to the development and the updating & maintenance of the BSSystem of the related support services. The partnership was further extended when a group of people was outsourced from MTV to TE. These three main phases in the relationship development provide the basis for the following analysis of the formation of the relationship setting.

When MTV decided to lower the number of partners the relationship was faced with a big change. There were a number of reasons why TE was finally selected as the main partner, and after this decision the cooperation between the companies increased considerably. As far as the partner selection was concerned, TE was considered a big solution provider and well placed to develop the required level of technological expertise. MTV needed a competent partner that could provide solutions corresponding to the organization's needs. Furthermore, TE's human resources had remained fairly stable, whereas there had been many personnel changes in the main competitors. The role of TE's project manager and his competence and contributions to the relationship and previous projects were also highlighted. TE was physically closer to MTV, and had showed full commitment in

previous projects. Finally, the learning aspect was also important as the ASSystem (already at TE) was considered the more difficult one to take over: it would be a lot more difficult for another party to learn that system than it was for TE to learn the BSSystem. The ASSystem was also more critical to MTV as it was its main source of turnover, and consequently its further development was more critical.

After selecting its partner, MTV committed time and resources to training TE in systems development, meaning that the relationship was no longer purely project-based. The systems-development needs were derived from MTV's business organization, prioritized and then discussed with TE, after which TE gave cost estimates. Still, the amount of governance concerning the development of the operational systems was lowered at MTV due to the lower number of partners. On the other hand, following the widening of TE's responsibilities for the BSSystem, a number of other projects were started by the partners involving the development of a commercial-edit system and a corporate intranet, for example.

In line with the increase in TE's responsibilities, the partners implemented organizational changes over the years in order to clarify communication and cooperation concerning systems development and support services. The aim was to develop a clear process for communicating and prioritizing development ideas, initiating new projects, and establishing what kinds of learning would be needed at TE. The partners had to reorganize the tasks and procedures affecting the outsourced personnel, and at the same time, MTV had to reorganize the coordination and management of the systems development projects within the IT department. New system entities were transferred to TE in a fairly orderly fashion according to a set of developed procedures⁷⁰. The cooperational procedures, regarding the support services and the gathering and communication of development ideas for example, were also under continuous development.

As part of MTV's outsourcing process⁷¹, TE also gained important knowledge and expertise about the systems and their interrelations. After the outsourcing the outsourced individuals previously employed by MTV focused more clearly on the development work, as helpdesk requests were directed to a

⁷⁰ First, training sessions and workshops were arranged in order for TE to develop an understanding of the system and its inter-relations. It was then easier to begin the development work and to initiate the support services, although the main learning happened during the actual development projects.

⁷¹ A total of four people were outsourced, of which one concentrated purely on systems development, one focused on the support services, one did both, and the last one was involved with other projects that had been started before the outsourcing. In terms of implementation, the outsourcing was not totally without problems, one being connected with the fact that some of the personnel had to work continuously at MTV's premises, and it was therefore difficult to integrate them properly. There were also differences among the insourced individuals in terms of how their system-specific knowledge and good social relations with MTV had been utilized.

specific group of people⁷², and TE still had people working physically at MTV in order to provide the necessary support services. These people were better able to react to the users' problems, to see on site what kinds of problems arose and to solve them more easily. Other members of the customer-dedicated team (+ the project manager) participated in the helpdesk function by being on call in the evenings.

As the relationship became closer and TE's role grew, MTV also involved TE in the development of new solutions earlier on. There were more comprehensive pre-project discussions about possible development needs and system-development paths. In praxis this meant that TE was able to *plan the use of its customer-dedicated human resources in advance* more carefully. It was also able to *contribute more in technical terms to the development process* as fewer issues were carved in stone before they had their say. Furthermore, TE's role in the early stages of the solution development and specification grew after the outsourcing because it had the people who had previously been involved in the specification process. Still, there were needs for TE to become integrated into the process even earlier as the idea was to provide added value to the solution development, and to understand the development of the various systems and their inter-relations more comprehensively.

Business-critical information was also communicated to TE more openly as the partnership evolved. This was considered essential as it enabled TE to do its work, but it also facilitated more sensible solution development as more interrelations and potential changes in the business processes could be foreseen. It was also an important area for further development given the changes in the business logic and the consequent urgent need for modifications to the systems.

At the same time, as TE took on more responsibilities and the partnership became more than just an arm's-length relationship, the *partners decided to begin developing their cooperation mode and procedures*. This seemed to be a question of increasing mutual commitment and managing the interaction between the organization and the development of the relationship more consistently. The relationship was based on a contractual agreement, with certain agreed procedures and even adopted organizational structures (see Appendix 8). Consequently, it could be said that the partnership had been evolving quite consistently over the years. As TE's responsibilities were growing the need for task coordination and relationship management also grew, which was why the cooperative procedures and governmental structures were developed. Thus, the relationship seemed to be very close and cooperational.

⁷² TE also used their project-management tools in organizing their teams' work more effectively.

TE was considered a highly trustworthy partner with an internationally renowned reputation. Further examination of the basis and level of trust and commitment within the relationship revealed a number of issues, of which abilities, social relations, and mutual commitment would appear to be the most essential (see Figure 43).

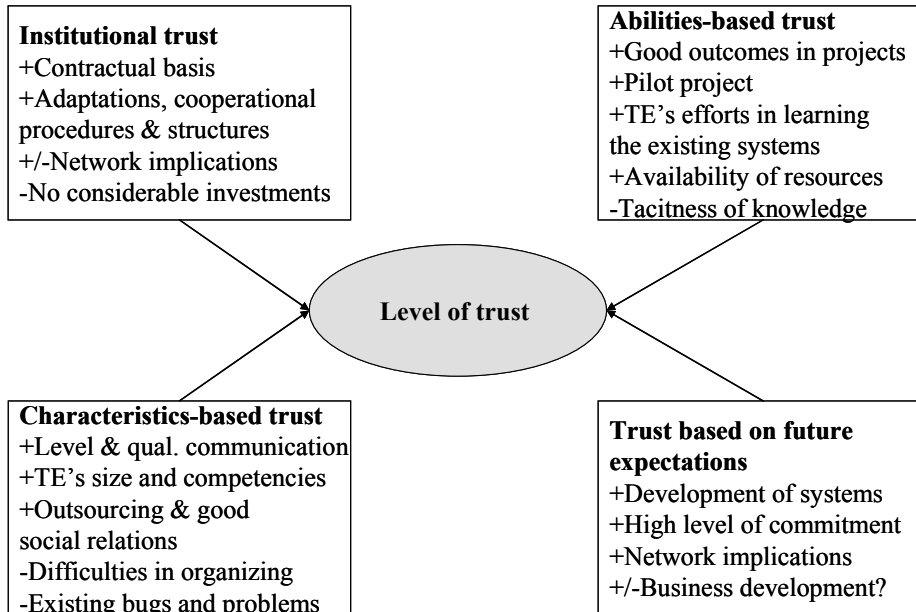


Figure 43: The Basis of Trust in the TE-MTV Relationship⁷³

In terms of *institutional trust*, the adaptations to and the role of the contract were emphasized during the interviews at both organizations. The customer relationship was based on a contract, but the companies had committed to a more long-term partnership and had clearly communicated this to the partner organizations. There were no huge investments in the relationship, apart from the common technical infrastructure, the testing equipment, and the project-management tools taken into use. *More importantly, the high level of trust appeared to stem from TE's willingness to commit to the relationship and its attitude towards building a partnership.* This was shown in the number of small investments and in the level of learning effort, which required constant further investments.

Furthermore, the potential network implications provided a form of insurance, especially for MTV since possible misbehavior would quickly

⁷³ In the figure: '+' = an issue having a positive effect on the level of trust; '-' = an issue having a negative effect on the level of trust.

become publicly known in the small market. On a more positive note, the network was also a reference for TE, as its previous experience in the media industry and cooperation with YLE were highly regarded by MTV. On the other hand, MTV was previously part of a bigger corporation (AlmaMedia), and after it was sold its potential as a customer for TE may have slightly decreased. On the other hand, it was significant that AlmaMedia was also TE's customer, although the media mix was smaller as AlmaMedia concentrated on print and the Internet. A further positive effect of the acquisition was that it gave TE international growth potential, as MTV had become part of a big international corporation.

"...what effect did it have, it's more that, from TE's point of view, that there would have been a more interesting and larger entity there..."

As discussed, the contract built the basis for the relationship development and project management. In terms of trust, this concerned the confidentiality policies and agreements between the partners. The contract also set out the partners' liabilities and the billing methods used, and there were limited reward schemes and sanctions regarding TE's performance within the projects. The companies used target-based pricing, according to which each project had a fixed budget and monetary sanctions in case the delivery was delayed, and monetary rewards if it was ahead of schedule.

Furthermore, there were considerable adaptations at both organizations in order to support the partnership. One example of this concerned the organizational structure, which guided the coordination and management of the projects and the relationship. In addition to that and the shared infrastructure, the companies developed clear co-operational procedures: they agreed on ways of contacting and communicating with the helpdesk personnel⁷⁴ so that the outsourcing process could be implemented successfully, and developed formal methods for gathering development ideas from end users. TE's project-management system⁷⁵ was taken into use in order to control the estimated work amounts, schedules and project prioritization. The partners also shared network connections and network folders, which included the minutes of meetings, application specifications, plans for new upcoming development needs, lists of received helpdesk tasks, and other documentation. As part of the development of MTV's intranet, there were also plans to use the project or work-group areas for the project organizations. This

⁷⁴ TE tried to integrate the insourced people and thus to limit their interaction with their old organization. This was partly due to the development of new organizational bonds, but it was also a question of organizing the working time of people so that they would not be disturbed in their systems-development work, as was the case in the old organization.

⁷⁵ The system included all the tasks performed within the relationship: development work from very small details to bigger entities together with the linked documentation, planned and implemented projects, and hourly time-consumption reports.

could enhance the communication and would enable the use of discussion forums and file sharing, as well as more interactive interpersonal communication. There were some limited reporting schemes within the relationship, such as working times, customer-satisfaction reports, and bug lists. There were also plans to follow up the long-term development of the systems and the projects in a more formal way.

One could argue that the role of these support structures was essential in the sense that they supported the development of the relationship and the process of knowledge acquisition. Although there were no reward schemes directly related to the amount of learning, the various commonly used procedures and infrastructure were also important facilitators of learning. MTV set the requirement from the beginning that TE had to be willing and active in investing in the relationship, especially in terms of learning and project coordination. This was a measure of the level of cooperation in the sense that TE was also required to be willing to invest and adapt its procedures in order to make the relationship work. For example, during the introduction of new systems to TE, and in the case of personnel changes, the training costs were partly attributable to TE. *This meant increased termination costs, but it also increased the level of mutual commitment and consequently the level of mutual trust.* Yet, the investments were not highly significant in monetary terms. They were rather adaptations made in order to make the relationship work and thus they did not involve mutual hostage taking. It was rather TE's learning efforts and future business expectations that increased the termination costs more substantially.

In terms of characteristics-based trust, the good social relations between the project personnel in the organizations played a crucial role. Moreover, the quality of the social relations and the level of trust were high on the top-management level. Apart from that, TE was perceived as highly committed to the development of the systems and wanted to do its best in the projects. There were problems during the early phases of the relationship in that TE had not always understood the critical nature of the systems or the emergent problems. However, later on it was better able to understand the criticality of the customer's needs: the personnel prioritized the customer's problems and requests even if they came late in the afternoon. The TE project-team's open communication and helpful attitude were also considered to have positive effects on the daily interaction. On a more general level, relevant strategic changes and developments of internal significance to the companies were shared between the partners, and their potential effects on the relationship were communicated in advance: some of that information could not be communicated publicly, but TE needed it in order to perform the job. As it

became clear over time that it was a reliable partner in this respect, the feeling of trust was further enhanced.

“...big size and trustworthiness are... as a result of a long history of cooperation, also because they know us as a customer and our needs.”

TE as a big organization was seen as a reliable solutions provider that would not disappear in the near future. *Its size was also considered positive in the sense that it therefore had extensive resources and different kinds of technological competence.* A further indicator of its reliability as a partner was its experience in and solid references from a number of industries.

The level of abilities-based trust was directly related to the competent people and the good results in the projects and development work regarding the developed systems and applications. Initially, the pilot project had an important role in the institution and positive development of the relationship. MTV wanted to make sure that TE was able and willing to commit to the customer relationship. Furthermore, TE had proved that it had the required technological expertise and the competence to manage a number of development projects. It also understood MTV's development needs, which could be considered a result of its learning efforts.

The employee turnover in this specific customer relationship was very low at TE, which meant that competence was increasing through experience. This also had a positive effect on the development of tacit knowledge, especially concerning the key personnel. In addition, MTV was involved in the recruitment and replacement of project-group personnel. This trust in TE's abilities was further emphasized as the outsourced people naturally had strong competence and experience of MTV's systems and solutions. On the other hand, it was a potential challenge for the relationship in that if key personnel were transferred to another customer relationship or decided to leave TE, a huge amount of tacit expertise would be lost.

Some problems arose connected with organizing the activities within the relationship because MTV's personnel could no longer contact the knowledgeable people they used to consult. There were also initial problems with the quality of the support services, as the level of system- and customer-specific tacit knowledge at TE was not the same as at MTV. Another thing was that previously existing bugs and problems in the systems were often seen at MTV as being related to TE's projects, and therefore “unjustly” affected the way in which its personnel were related to.

Finally, trust based on future expectations was related in particular to the high level of commitment and TE's increasing industry expertise. The network implications of the relationship also had an essential role. As discussed, the acquisition of MTV by B&P made the relationship strategically more

interesting for TE as it opened up opportunities for it to enter international markets. International growth was aimed specifically at the Nordic countries, and also at Central Europe. As discussed earlier, TE's aim more generally in similar kinds of relationships was to take companies from a specific sector and provide them with value through understanding the context of their needs. It would thus be able to build larger networks for new product development, for example, and MTV as an innovative company with limited resources to try out new technological ideas would essentially be a beneficiary.

All in all, the level of trust between the companies was very high, something that was to be expected from a partnership that had developed over a number of years. *What was important in terms of the level of trust and knowledge acquisition was that neither of the companies considered opportunism a real threat or possibility.* Whether this was due to the kind of knowledge being acquired or to the high level of inter-organizational trust is another question. The companies had a contract covering their responsibilities regarding confidentiality and including possible sanctions for its violation. It was also stated that neither customer-specific knowledge nor the project group's resources could be utilized with other customers without MTV's consent, and MTV was confident that its procedures and working methods would not be delivered to its competitors. Nevertheless, the rules concerning the required level of confidentiality were well established, and there was little fear of opportunism.

"...we can trust TietoEnator almost like our own organization..."

On the other hand, MTV had very strict policies covering the kind of strategic planning and information that was distributed outside the organization, and this limited the threat of leaked competitively sensitive information. In any case, acquiring that kind of expertise in the broadcasting business would require more extensive experience in the industry and of the customer's daily operations. *Perhaps even more importantly, TE was trusted in the sense that MTV understood its aims to develop industry expertise, and relied on its ability to handle customer-specific issues confidentially.* TE had a good reputation and experience of a similar type of working with banks and insurance companies in Finland, for example. Its industry expertise and knowledge about customer processes also benefited MTV's systems development in the long run.

"... on the contrary, the better they know how [to do their work], the better it is for us."

The fact that TE's potential opportunistic misuse of its MTV-specific knowledge was not considered relevant was also something to do with the limited size of the Finnish markets in this sector, and the high customer-specific nature of the solutions. Furthermore, MTV owned the source code for

the developed systems, so in any case, possible productification opportunities would need to be negotiated. There was an understanding in both companies that operative systems as such could not build a basis for competitive advantage, but instead this was related to their utilization in support of the customer's business processes. Indeed, it was considered potentially positive that another company (even a competitor) might be included in the cooperation, as this would allow the sharing of the development costs.

Thus, one could state that there was a limited threat of opportunism although there was frequent interaction and clearly a high level of knowledge acquisition. The trust and commitment between the companies was essentially high, and the companies had significantly higher value expectations of the close cooperation than fears of opportunism. The role of tacit knowledge, which was an essential part of the systems development in the relationship, is also significant here. It was very difficult to leak this highly tacit knowledge about MTV's systems and their interrelations to anyone else.

It is fairly easy to characterize the partnership between TE and MTV as very close and committed. The high level of trust was perhaps best visible in the closeness of the relationship and in the fact that MTV relied extensively on TE. *However, it also entailed high levels of interdependence with which the organizations needed to cope.*

MTV's dependence on TE had grown steadily over the years as its responsibilities for the main operating systems had increased⁷⁶. On the other hand, TE's dependence on MTV had also grown, which was evident in how the relationship and the learning efforts within it had progressed. TE made investments in human resources through training and fostering learning, as well as in the development of the co-operational structure and the infrastructure. Thus, one could argue that the dependence between the companies was a significant factor in the relationship development. *The termination costs were not considered of significance in the daily interaction, but it could be argued that they gave a longer-term perspective to the relationship.*

If the relationship were to end suddenly⁷⁷ MTV would be faced with quite considerable termination costs: the slowing down of all the various projects and systems development work, having to find a new suitable partner, and

⁷⁶ As far as MTV was concerned, the transfer of solution development regarding the ASSystem and the BSSystem, as well as the personnel outsourcing, had been the three main areas of increased dependency over the years.

⁷⁷ However, there were other potential solution providers, and it would be possible to gather a competent group of people from within MTV's own organization and to work with available partners in order to continue the development work. MTV could also have introduced a ready-made product. Furthermore, the documentation systems were significantly developed during the projects, which meant that there would be fewer problems in case of the termination of the relationship.

then to help the new people to learn about all the systems and projects in progress. *Thus, the level of termination costs could be analyzed in terms of continuity costs, sunk costs, switching costs, learning costs and strategic costs.* Both companies had made smaller adaptations to and investments in the relationship in order to facilitate the daily interaction, and they could be considered sunk costs. The role of these investments was relatively small, however. In addition, MTV faced essential continuity and switching costs due to the close relationship and TE's long-term cooperation and learning efforts. Both companies, and especially TE, had also put a lot of effort into knowledge acquisition, which meant high learning costs. One of MTV's major concerns was that TE would neglect the relationship if other bigger customer relationships emerged within the media sector, while from TE's perspective, the relationship was of high strategic value in terms of its overall business strategy.

"...the concern is that we are, in the end, a small customer. If it should happen that there would.. appear a need to focus on the largest and most crucial [customers], then would we be in that group that is shaken off?"

TE's aim was to develop cooperation throughout the value chain within the industry. Thus, the relationship strongly supported its overall strategy and provided a basis for extending its activities in the media sector. It was also a relationship setting that had the kind of cooperational structure TE wanted to develop. There were not that many actors in the Finnish media industry, and the expertise acquired from the relationship would not be wasted even if it ended. *Furthermore, it was felt that the relationship opened up major international growth possibilities for the company:* Bonnier & Proventus owned other companies in the broadcasting business, but the acquired experience and knowledge were also more widely applicable. Furthermore, system productification⁷⁸ was also considered an option for MTV because it would considerably lower its share of the development and maintenance costs.

However, there still seemed to be issues that the companies wanted to develop in the relationship, especially with regard to learning and knowledge acquisition. Most of the IT personnel at MTV had been outsourced, but TE was not included in the decision-making concerning the development projects: they were in a position in which they were given specific tasks and projects to implement (although they had growing involvement in the specification of new functions). Consequently, its role still seemed to be that of an adapter to

⁷⁸ The idea of productification had been discussed and it offered interesting opportunities, but it had not been considered realistic due to the need for huge investments. It would be a totally new line of business and would require a set of new potential customers if it were to be financially justified.

the customer's needs and priorities. Its situation as a solution provider was therefore still very different from that of a solution-development team member inside the MTV organization.

In conclusion, it could be said that the partnership was very close in terms of the level of trust and commitment. The relationship context also seemed to build the basis for inter-organizational knowledge acquisition. This was extensive regarding knowledge that was closely related to the tasks involved, but more limited regarding MTV's business development (i.e. more business-critical knowledge), although it was emphasized that it was crucial in the long-term development of the systems. This was an important issue, especially in view of the fact that opportunism was not considered an issue in the relationship.

7.6.4 Knowledge Acquisition and Integration

The knowledge-acquisition process was quite closely related to the relationship development, and to the phases in the systems development described above. However, from a longer-term perspective, there was a very consistent and comprehensive knowledge-acquisition process going on within the relationship, although there were aspects that the partners were still hoping to improve upon.

The role of mutual intent was considered significant. The companies were both strongly committed to TE's learning efforts, and both recognized the need for TE to develop a comprehensive understanding of MTV's processes, and business as well as the related operative systems.

In order for TE to develop customer-tailored solutions for MTV it had to become familiar with the customer's needs, systems and business. However, at the beginning the relationship was more arm's-length, which clearly affected the learning process as well as what was being learned. Knowledge flows between the organizations had been quite limited and TE had to find out about much of the system by itself. When TE took over the pilot project MTV made some documentation available, but did not want its people to be disturbed too much on that account. Thus, in the early stages TE had to rely on the available materials and its own studying of the systems.

The pilot project tested TE's technical capabilities and its commitment to MTV, and its learning ability. One major reason why TE was chosen as the partner was arguably that the department manager had been developing the systems at MTV a couple of years previously, and had since moved to TE. He was still familiar with the customer organization and was well acquainted with the systems and their interrelations. He also knew the industrial context and

the business logic, and the type of changes that were to be expected. This kind of previous experience of the customer’s business and systems environment was valuable in getting the project-team off to a quick start.

The main phases of the knowledge-acquisition process are depicted in Figure 44. The decision to begin the acquisition was made very early on as TE began its first development project with MTV. It was during this pilot project that TE had to learn the existing system in order to develop it further, and in order to secure a longer-term contract with the prospective customer. Afterwards the relationship and the development projects were more organized, and thus the learning process also became systematic as the communication became more open and specific ways and forums for communication and learning were developed. This affected the elements and the methods of learning in the knowledge acquisition, in particular with regard to customer- and industry-specific knowledge. These forums and working methods were under continuous development as new needs and challenges emerged.

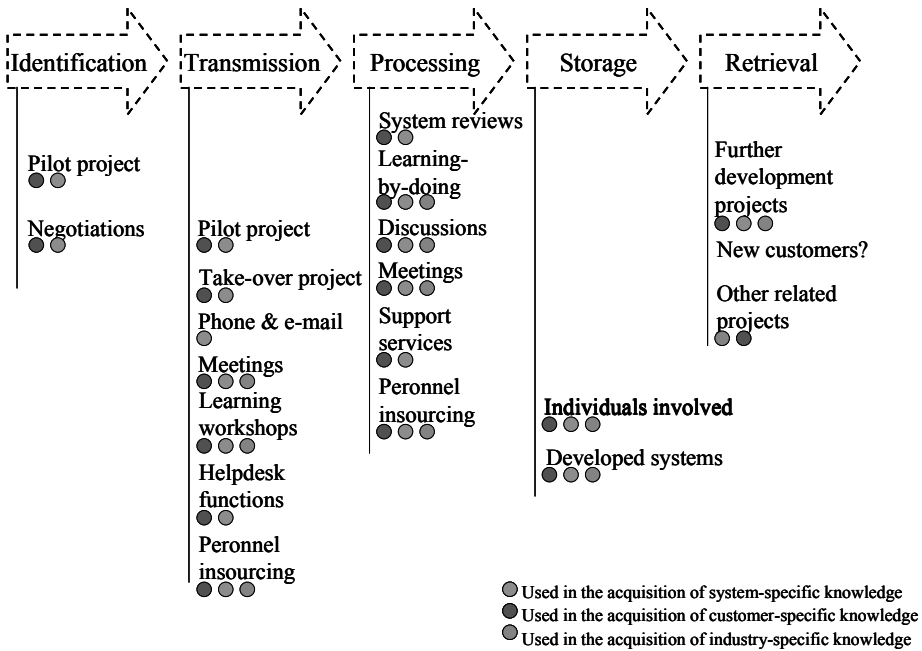


Figure 44: The Knowledge-acquisition Process

The systems were initially discussed and analyzed in terms of the business process (linkages to the processes), but TE was soon required to learn about the systems independently. Consequently, it could be argued that the business side of the processes was only briefly reviewed, and a more thorough

understanding was gained later on. The industry and the customer's processes were thus understood better and more comprehensively in the light of the developed and reviewed systems. Learning about these more tacit issues took more time, and happened over the years in the systems-development projects, and through the changes in the industrial context that affected them.

The transmission and integration of the acquired knowledge was clearly slower and more limited during the early stages of the relationship because MTV did not have such an active part in the process. Once it made the decision to concentrate on TE however, the knowledge acquisition was more intentional and active. As shown below, this also had implications on the level of tacit-knowledge acquisition.

“... downright wondering and astonishment about why these have been implemented in such a difficult way, but part of that has turned around so that, when we've gained insight into these concepts and stuff, and this type of industry or customer-specific things, then they've clicked together in a sense, things have fallen into place so that... it's easier to understand...”

The transfer of responsibility for the system development came about through specific take-over projects, but the actual acquisition of knowledge was a more complex process and incorporated a number of communication methods. It was very difficult to draw a clear line between the processing and integration phases in the acquisition process.

Learning workshops were run during the takeover of the applications and systems, usually lasting one or two days for each application. These sessions were considered extremely important since not all of the normally required documentation⁷⁹ was available, and it was even partly and jointly re-created during the projects. Furthermore, the fact that the partners organized the workshops showed their commitment to knowledge acquisition. The workshops included discussions and product reviews, when TE had the opportunity to see how the systems had been developed and to pose questions to the current experts and the end-users⁸⁰. As part of the workshops, the take-over projects also required intensive learning efforts at TE in that the aim was to gain understanding of the systems in order to develop them consistently.

⁷⁹ There were a lot of issues that were not clear even within the MTV organization, and these needed to be clarified by TE. There were also old bugs and problems with the systems, which was a surprise to the TE people, who also had to deal with them during the learning process.

⁸⁰ The participants discussed the systems and utilized system reviews in order to develop a shared understanding about: (1) the current use of the systems; (2) their roles in MTV's business processes and (3) the more technical issues and details initially provided about the existing inter-relations within the systems and the utilized development tools, and (4) the existing connections with other systems.

"...they introduced us to how the systems work, how you do things there, how they are related to these other parts of the process... we were able to get a pretty good general idea... but then the whole of the system as such is very complex and the learning then took place bit by bit..."

Thus, these workshops enabled TE to develop an understanding of the historical development paths and the underlying assumptions and causal relations that formed the basis of the systems development. It was argued that this kind of tacit knowledge was essential to the acquisition of system-specific knowledge. The workshops and sessions also enabled the acquisition of industry-specific knowledge as the wider setting needed to be discussed in order to clarify the reasoning behind the solutions. However, this type of acquisition was more challenging due to the tacit nature of the knowledge, and also to the complexity of the variables and interrelations within the customer's systems and business environment/processes. *Therefore, it appears that the acquisition and integration of more customer- and industry-specific knowledge was more a matter of developing mutual experiences in the projects and of learning-by-doing.*

"...that know-how has then in a way been acquired... so that we have implemented some modifications there, and so we've had to learn how some system works... in the ideal situation there's some description there... but there are also situations where they just don't exist, when it has to be figured out, in a way, by just experimenting and otherwise, implementing those modifications..."

Much of the more technical knowledge was such that it was mainly transmitted and processed during the projects through learning-by-doing. TE thus seemed able to gain insights into how different systems could be developed technologically, and also into visual and user-interface design issues. In the context of the development projects and various meetings and workshops, it was also able to build up industry-specific knowledge as these issues were discussed with the customer a number of times. It needed to develop an understanding of other companies' similar current solutions and implementations, and of how they had solved similar problems. The TE people also acquired knowledge about the decisions made by other broadcasting companies – where they used the existing products and what outcomes were dependent on tailored solutions. The main point was that this seemed to require TE to develop its own experience and expertise in dealing with the complex issues and questions within the customer's business context.

As a very specific form of learning-by-doing, one could emphasize the role of the support services⁸¹. For example, the helpdesk function was considered an effective way of gaining application-specific know-how in that it involved a very broad spectrum of problem-solving tasks. It was also important in the development of social relations between the MTV organization and the end users. Moreover, it enabled TE to build up an understanding about the complexity of the systems and the interrelations between them, which in turn gave insights into systems development.

“... system-specific knowledge is gained through this support function through which all of them get acquainted with more application areas, so we can see that you shouldn’t design that into that application in this way, when there’s that other system over there, and it affects it, so let’s do it like this so that it works better as a whole in a way...”

Experiences of industry- and customer-specific knowledge were constantly discussed on various occasions, in workshops, specification sessions and meetings during the projects, and in the meetings of the various cooperative bodies. It could be argued that exchange took place as the relationship became more comprehensive, but over time TE was able to build up its own experiences as well. It was the experience in working with the customer on the different business changes and challenges that most effectively increased TE’s understanding. Thus, the development work became more interactive and workshops were used more often. Consequently, customer- and industry-specific knowledge flowed more actively to the TE organization.

It was not only the workshops, but also the co-operational structures and the communication methods/channels between the TE project group and the MTV organization and project group that contributed to the knowledge acquisition. The discussions between the project groups in general were very open, especially in the later stages of the relationship. They took place at meetings that were held more or less daily, as well as in face-to-face conversations, on the telephone and by email. TE’s knowledge sources were mainly the people in MTV’s IT department, but later on as the interaction spread included the rest of the line organization. These sources formed an important channel enabling TE to understand the customer’s operations and the changes in the industrial context.

A more comprehensive analysis of the knowledge integration requires attention to the different types of knowledge. The processing and integration

⁸¹ The original idea of the support services was that all the project personnel would be included in the work and would be working part-time at MTV’s premises in order to interact directly with the people and processes. However, as the outsourced people took over the support services, there were fewer of TE’s original personnel involved.

were more complex and it was very difficult to pinpoint specific tasks or moments when it took place. In particular, the more tacit knowledge related to the industry expertise and to the customer's systems and how they interrelated was acquired in small steps in discussions and meetings. *It has been suggested that a crucial stage of processing and learning involves the development of a shared understanding about the underlying assumptions and causal relations.* The workshops and documentation were significant in terms of developing an understanding at TE about the various systems and other issues to be taken into consideration as part of the systems development. *However, in order to see and understand the real meaning of the various factors TE had to build on its experiences.* It could be argued that MTV's participation in this process was crucial as its people were better able to reflect on and understand the circumstances and changes to their previous experiences in the customer's business context⁸². On the other hand, TE was considered to be very good at posing questions and questioning MTV's existing activities, and also at understanding the underlying reasons behind the systems-development paths, and consequently finding the right solutions.

"... it seems that when people take over a new job or project they don't... "dare to ask", what's this, what it is all about, what are you doing, why are you doing it that way and so forth. TE's people really asked questions... Often one imagines in the customer organization that everything is going fine, when the supplier doesn't ask anything or question things, but then at some point you notice that everything went wrong due to misinterpretations or a lack of information, not so much due to a lack of technical know-how..."

It was difficult to specify a certain point in time at which the unlearning took place. It is clear that learning about the customer's systems and business and industry context requires the development of totally new knowledge, and so the unlearning process could be considered less critical in this context. Nevertheless, the results of TE's learning were visible. First of all, things were done in a shorter time period – meaning that TE was able to implement the projects more quickly. It also learned more quickly about the systems and it was easier to find the right places and solutions when problems emerged. As a result, its problem-solving ability had also developed.

Furthermore, TE's understanding of the industry and the processes at play in a broadcasting company and the role of operative systems in these processes

⁸² One further challenge in the learning and outsourcing was finding the time for learning. For example, the ASSystem was very large and complex and it was suggested that it would take one or two years to master it. At the same time, TE was supposed to be developing the systems, and to take over the control and development of new entities.

increased through the opening up of communication channels to MTV's other reference groups. *As a result, there were fewer misunderstandings when the projects were implemented, the customer's development needs were met more quickly, and there were fewer arguments about the criticality of the customer's needs and their prioritization.*

"..and then their [TE] problem-solving ability is better, in other words they are able to identify problems more quickly, when they're interacting directly with the organization quite a lot.."

Finally, the storage of the acquired knowledge was very much dependent on the people involved. The level of documentation was limited at first, and the systems development depended on considerable amounts of tacit knowledge. Furthermore, as the modification and development work was in progress it was not easy to document it because there was nothing to build on: the documentation remained incomplete and rested on the individuals' tacit knowledge. Yet, knowledge was also stored in the implemented systems and applications. The customer-specific and industry-specific issues were rather difficult to document in that they were experienced-based. Thus, it could be argued that the role of the project group and the outsourced people was crucial for the further development of MTV's systems. *There were clear aims for utilizing the acquired knowledge in other customer relationships, but very limited concrete opportunities had emerged (see Chapter 7.6.6).*

The level of tacit-knowledge acquisition and the further diffusion of knowledge were also affected by the new employees from MTV, and the personnel outsourcing was significant not only in terms of the knowledge-acquisition process. *TE was able to acquire important knowledge through the outsourcing, but MTV lost significant internal knowledge about its systems and solution development.* The interesting thing here is that this knowledge was also highly tacit and there was very limited documentation about the existing systems, and after the outsourcing this documentation was even more difficult to access. Thus, it could be argued that MTV's dependence on its partner increased considerably.

"Anyway, one way to learn about the customer and its major operations is through outsourcing... their [the outsourced personnel] two most important skills are that they know the customer and they know the industry... they were outsourced together with the systems. [They] know the systems, which we're now starting to modernize."

It could also be argued that the outsourced people also brought a *wider industrial understanding* of the customer's processes and the industrial context. As TE had very limited background knowledge about the development needs, the outsourced personnel could fill in the gaps – tell the

story behind the projects and reveal the reasoning behind the solutions or new development ideas.

"...those who were outsourced to us were closer through that, they have a totally different degree of industry know-how for sure, and in addition to that industry know-how they also know people more intimately from the [customer's] organization..."

It was emphasized that the outsourced people knew the customer organization extremely well. The outsourcing was thus quite a natural development in the relationship as the support services were related to the outsourced systems being developed at TE.

Furthermore, TE had not really utilized the outsourced people in its knowledge sharing outside the project group, despite the fact that they were potential resources in other similar projects with another customer. The knowledge they possessed was shared mainly through natural interaction. They had, to a certain extent, quite clear responsibilities in systems development, and no specific training sessions or internal workshops were arranged in order to share and exploit the "insourced" knowledge. The new team members were integrated into the project-team and a significant part of the learning took place through daily interaction. In addition, some of the outsourced people were not at TE's premises, but were taking care of the helpdesk functions, and thus their knowledge sharing was limited. They all had long experience of the customer systems, the customer organization, and the changes in and business logic of the industry, and thus carried learning potential for TE.

As discussed, a number of methods for communicating and transferring knowledge to TE were used during the relationship. Nevertheless, there were areas in which the partners wished to improve. Previously there had been problems at TE in terms of understanding the reasoning behind the systems development. This situation improved as the companies learned to trust each other and as TE's responsibilities increased. Thus, there was a clear emphasis on the fact that TE wanted to participate even more in the long-term planning of systems development. This seemed to relate to its ability to develop understanding about the customer's business processes and operations, and about the industrial context. TE's role in the development projects seemed to be increasing in line with its responsibilities for the operating systems at MTV.

"... we speak of a solution description, then as if, we then purely like.. we were doing it in a way, that they told about the problem and defined what they roughly wanted, and then we, as we knew the application, we like figured out the solution for it: how to solve it,

what it will look like to the end user and how you implement it technically...”

The difficulty at TE was the lack of understanding of the underlying assumptions and the reasoning behind the solution and systems-development projects. At the same time, MTV was hoping for more emphasis from TE’s side on the long-term perspective in the form of suggestions and discussion about different development paths and possibilities, and the introduction of new thinking into the co-operational projects. However, there was insufficient acquisition of the more tacit knowledge, and a lack of accumulated experiences about the customer’s business and industrial context. *The need for TE to become involved in the development process was important as it enabled better project management and learning.* Given its involvement in the development process earlier on, it was better placed to affect the system-development paths. It could therefore make use of its technological expertise, and its understanding of the customer’s business would facilitate more innovative development ideas.

“... so, more than before we’re involved in these co-operational working groups directly, through which we’re able to get information as early as possible about things that affect the development of those systems...”

Thus, being able to understand the underlying assumptions about the customer’s business and strategy development within its industrial context was a key issue in developing a mutual understanding of the customer’s context at TE. In conclusion, one could state that the learning process is quite clearly related to the development of the relationship context. As the relationship became a partnership, both parties became active promoters of TE’s knowledge acquisition. Further issues affecting TE’s learning abilities are discussed in more detail below.

7.6.5 Elements of the Knowledge-acquisition Process

As discussed in the context of the theoretical framework, there are other elements within the relationship besides the process of knowledge acquisition that could affect the level and depth of learning in an inter-organizational setting. The companies’ ISK had an important role in the learning process. These issues can be considered essentially related to the relationship atmosphere, as TE had previously demonstrated its commitment to the relationship as well as its learning within it. The discussion thus now turns issues concerning prior knowledge, organizational culture and shared identity.

Firstly, it was emphasized during the interviews that the nature of the systems development set high standards for the social relations and communication. The development of tailored solutions required an understanding of the customer's needs and business. *The shared identity and the high level of good social relations were highlighted at both companies.*

"...still, this is about working with people and this cooperation depends on people..."

Good social relations were considered a basis for open communication in the partnership, and thus an integral part of learning. It was also emphasized that these relations had developed over a long period of time, and had become very close as TE's responsibilities and MTV's trust had grown. At first the interaction was infrequent, but at the time of the interviews it was on more than a daily basis. Furthermore, there was stability in terms of the people involved in the partnership: the main contact and development personnel as well as TE's department manager had been involved with the customer for years. TE's personnel also visited MTV's premises and were able to get to know its organization and people better. It was also physically close, which was considered a clear benefit given the need for daily interaction. Related to this, TE tried to plan who would join the project-team beforehand, and also negotiated with MTV concerning any new resources that were needed. *Thus, the role of social relations and a shared identity was important as a basis for the learning efforts within the partnership.* Furthermore, the people involved in the project organization also held more informal meetings outside the daily routines, usually twice a year, in order to support the shared identity and social relations. These meetings were usually evening sauna gatherings that encouraged people to socialize in a more open atmosphere.

TE's positive attitude towards helping MTV with its systems development and with more acute and smaller problems through its helpdesk functions was also emphasized. There were no specific rewards in connection with learning within the relationship. The customer's, or more specifically the end users', satisfaction was analyzed through surveys within MTV, and feedback on implemented projects was frequently discussed. It was also apparent that TE's personnel were motivated and had a positive attitude towards their jobs. The atmosphere between the organizations was good, which was visible especially in the level of open communication and a sense of shared identity.

As Figure 45 shows, the level of shared identity⁸³ developed considerably during the relationship. The level of *professional relatedness* was fairly high from the very beginning as both organizations consisted mainly of engineers

⁸³ The level of shared national identity is not considered relevant here because both companies were Finnish-based and the project groups comprised Finnish personnel.

situated in the Helsinki region. Furthermore, TE's personnel had previous experience in the media industry and digital TV, and the department manager had been working for MTV and still knew the organization quite well. The outsourcing of MTV's personnel increased the level of shared professional identity further as the individuals came to TE with a high level of MTV-specific knowledge and a background in systems development.

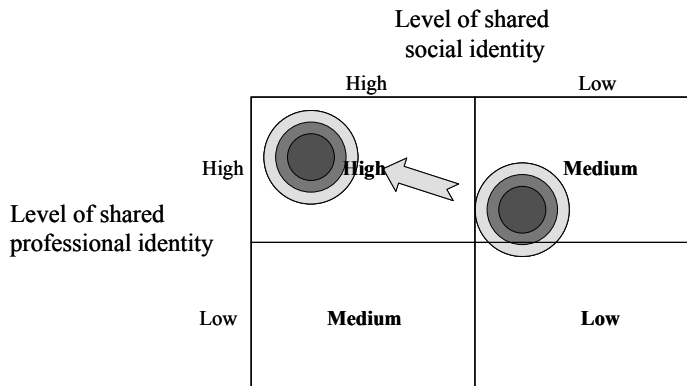


Figure 45: The Level of Shared Identity in the TE-MTV Relationship

The level of *shared social identity*, on the other hand, seemed to develop more iteratively during the years of cooperation. At first the relationship was more arm's-length and the project personnel did not interact as frequently: the projects were considered mere assignments from MTV. However, once TE gained more responsibilities, it needed to acquire knowledge more quickly, and the companies set a mutual goal with regard to TE's learning efforts, the level of shared identity developed strongly.

The role of *prior related knowledge* could also be highlighted as an essential part of TE's learning ability. TE as an organization had experience in the media sector, but perhaps more importantly, the personnel originally in the project group were considered very experienced and extremely good in their technical know-how. In addition, most of the tools were familiar to the team members (operating systems, application development tools, databases etc.), and those that were not so familiar were still fairly easily adopted by experienced personnel. Furthermore, TE's knowledge base was quite clearly extended due to the personnel outsourcing. They knew the customer's systems like the backs of their hands, and were able to pinpoint very closely the different processes, queries and relations between the different systems and databases. This prior knowledge was visible especially in their ability to ask the right kinds of questions, to understand the customer's business and systems, and to organize the relationship effectively.

"... TE's quality is in that they've been able to ask the right questions... anyway they've had such a good understanding of business operations that we haven't had to spend a lot of time explaining the business processes."

The role of prior experience in the broadcasting business is considered next. YLE was TE's customer, but operated on a totally different basis without any commercials, and therefore the system entities at MTV and YLE were different. Furthermore, the customer's business was different in terms of where the turnover came from and what was critical to its operations. *Thus, it was prior knowledge and previous experience in similar kinds of learning, development tasks and problem solving – not in the customer's systems and operations per se – that mattered.*

However, TE also recognized the importance of MTV's activeness in the learning process.

"Yes, in my opinion you could say that they've [MTV] been an active party... they've always responded when we've asked, but in addition to that also in the stages when we were given more of these responsibilities and things, then they've also been very active, bringing in their knowledge..."

Perhaps the biggest challenges in the relationship concerning the role of ISK and a shared identity were related to the outsourced personnel and their integration at TE. They had all been with MTV for a long time and seemed to find it fairly difficult to identify with their new employer. TE tried to get them away from their old organization and to work at TE's premises so that they would begin developing new social contacts and would become familiar with the new organizational culture. However, some of them had to continue working in MTV's premises in order to take care of the helpdesk function.

As discussed earlier in the theoretical chapters, people want and need to identify with a social community in order to feel a sense of closeness, trust and appreciation. This was a challenge with the outsourced people, although they already knew the TE personnel, which helped during the integration process. Consequently, the idea was to form working pairs within the project-team that would bring the outsourced people into close contact with TE's original personnel and thus facilitate knowledge sharing. TE also had meetings with the outsourced personnel in order to establish the working methods and tasks, and to organize the support services in a way that people would feel comfortable. The support services were still under organization at the time of the interviews.

The organizations were generally quite different. MTV was a fairly fast-paced organization by its very nature and new ideas could come up at any time, which in terms of the systems required rapid adaptation. Indeed, the

whole industry was in a constant state of change, whereas the development of customer-tailored systems usually requires clearer guidelines. This fundamental difference in organizational culture was perhaps the main issue raised by both parties during the interviews. TE was also clearly bigger with more formal structures and hierarchies.

Still, it was difficult to compare the organizational cultures because the individuals concerned were mainly from specific parts of the organization in question. What seemed more important was that most of them had similar technical educational backgrounds, *and were used to working on similar kinds of projects and developing tailored solutions.* Thus, although the dominant logics of the companies and their industries as such were very different, the interacting departments were very close in their working experiences. Consequently, the personnel characteristics seemed to be important facilitators of learning and relationship development. Furthermore, although TE was a big organization it was used to working in smaller, customer-specific project-teams, which meant that it was fairly flexible. It was also able to allocate resources flexibly if a critical project emerged, and had more formal methods of managing projects, and these methods were then adopted by MTV as the number of projects grew.

Consequently, *the level of shared mindset within the relationship, and more specifically within the project groups, was a significant factor* (see Figure 46). Inter-organizational trust was high, and as far as the day-to-day activities were concerned, the high level of shared identity was an essential part of it.

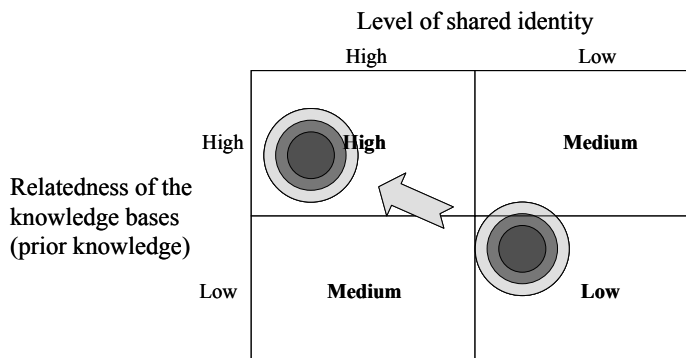


Figure 46: The Organizations' Ability to Develop a Shared Mindset

Considering the level of shared mindset, there had been significant development during the relationship. The level of shared identity increased significantly over the years as a result of frequent interaction and successful projects. The different types of learning efforts also contributed to the increasing relatedness of the partners' knowledge bases. *However, although*

the partners' shared mindset was at a relatively high level, TE still wanted to become involved in the systems development earlier on.

In conclusion, the role of both parties not only in the relationship development, but also in the learning process should be further emphasized. It is worth noting that things did not work out by themselves, and the building of the co-operational structure and the right means of communication required close communication between the partners. Thus, the shared identity was a result of development efforts and communication between the organizations – not something that was there at the very beginning.

7.6.6 The Effects of the Relationship Context on the Learning Process and the Further Development of the Acquired Knowledge

A closer look at the type of relationship and its long-term development is required in order to assess the level of knowledge acquisition and the effects of the relationship context on learning. The relationship was fairly old and well established. There had been big changes quite recently, but they were consistent with its long-term development and seemed to further increase the trust as well as the partner interdependence.

The partners were strongly committed to each other and to the partnership, and this had clear implications on the level of learning. The level of knowledge acquisition was high, in terms of both the different types and the amount of knowledge gained. Perhaps more importantly, knowledge acquisition was something that the companies had really focused on in developing various cooperative structures and using different kinds of discussion and training forums, as well as workshops. Nevertheless, there still seemed to be a need to further develop the knowledge-acquisition process, and also the knowledge exploitation and competence development at TE, although nothing concrete had been done so far.

Interestingly, the fear of opportunism was not considered a relevant issue even though the level of knowledge acquisition was relatively intense. TE did not interact directly with the customers and media agencies, which would have involved more business-critical knowledge acquisition from MTV's perspective. Moreover, the developed solutions were fairly country- and customer-specific, and thus could not be utilized directly with another customer: they would need considerable tailoring because the aim was to support the business processes and operations through the systems, not the other way around.

The power division between the partners could also affect the levels of inter-organizational trust and knowledge acquisition. In this case the

bargaining power within the relationship was changing, partly due to TE's knowledge acquisition.

Table 8: Changes in the Partners' Power Dependencies in the TE-MTV Relationship⁸⁴

<i>Milestone in the relationship development</i>	Pilot project as an initial investment	Updating and maintenance contract with TE	Development of the ASSystem to TE	Development of cooperative structures	Development of the BSSystem to TE	Outsourcing of MTV's IT personnel	Acquisition of system-specific issues	Acquisition of customer- and industry-specific issues
<i>TE's dependence on MTV</i>	↑↑	↓	↑	↑	↑	↑	↑	↓↓
<i>MTV's dependence on TE</i>	-	-	↑↑	↑	↑↑	↑↑	↑↑	↑↑
<i>Implications on the level of TE's knowledge acquisition</i>	↑↑	↑	↑↑	↑	↑↑	↑↑	o	o

As Table 8 shows, the bargaining power between the companies changed in line with the crucial phases in the relationship development. It was a conscious decision by MTV to develop a close partnership, but this also meant that it would become increasingly dependent on its partner. At first, when TE took over the pilot project it made initial investments in learning, development tools and personnel choices, while MTV made no such investments. This could be seen as an important part in the relationship development in that it increased TE's dependency on MTV without a clear guarantee from MTV that the partnership would continue. It was thus a good way of showing commitment to a long-term arrangement. TE also invested in terms of developing the cooperative structures and infrastructure. As it took over the systems development it also became more dependent as a result of the extensive learning efforts and the growing amount of business. However, MTV's dependence was increasing even more substantially as TE's responsibility for the operational systems was extended. TE was also getting

⁸⁴ Explanations for the characters used in the table: ↑=slight increase, ↑↑=considerable increase, ↓=slight decrease, ↓↓=considerable decrease, -=no notable effect, o=not applicable for analysis.

involved in other projects that were not directly related, which meant that more customer-specific knowledge was being accumulated with the partner.

The outsourcing phase made MTV increasingly dependent on its partner since it no longer had the resources to develop the systems independently in an effective way⁸⁵: if the relationship ended the development projects would thus slow down considerably. In addition, in terms of knowledge acquisition, for TE to be able to do this kind of development work meant that it was becoming increasingly important to MTV. This was further emphasized following the outsourcing phase when MTV's IT resources were integrated into TE, and much of the systems expertise was thus transferred.

Finally, learning per se also had its implications in that the level of systems-specific knowledge increased the interdependency. This was of more significance to MTV, which had concentrated its operational systems on one solution provider. It appears that as TE gained customer- and industry-specific knowledge, this further increased MTV's dependency, but had partly diverse effects on TE: on the one hand the learning efforts required considerable investments and this led to additional projects, and on the other hand the knowledge and experience could possibly be of use with other customers in the media sector.

The last row of Table 8 shows the changing levels of knowledge acquisition. The "double-arrowed" increases in knowledge acquisition to TE seem fairly consistent with the "double-arrowed" increases of MTV's dependency. In addition, TE's initial investment in the pilot project could also be considered a major learning point. It could even be argued that MTV's dependence on TE was a result of TE's learning, but it would perhaps be more useful to consider the general development of the relationship. As time went on and the level of trust increased, the role of learning changed. Similarly, there was a growing sense of a shared mindset, which facilitated the acquisition of tacit knowledge. *As the companies were committed to a long-term partnership, the type of knowledge acquired regarding MTV's business and processes became more meaningful and tacit.* Commitment was also apparent at TE, which had been active from the very beginning in terms of learning.

"... I feel that [TE's] learning is affected by how... how you dare to throw yourself into it and take the responsibility and start pushing yourself into the task and go into the organization and ask about things openly, without assumptions..."

⁸⁵ On the other hand, the aim was to develop the systems so that MTV would not need TE's development resources as much in the future regarding changes in commercial practice, for example. Thus, the dependency was also being decreased as a result of the development work.

The role of strategic intent in this case seemed to be to drive the relationship development and knowledge acquisition further, *largely fuelled by the increasing interdependence between the partners and the increasing knowledge flow and acquisition*. The knowledge acquisition that enabled TE to develop the ASSystem seemed to be connected to the fact that the scheduling system had also been transferred. Furthermore, the outsourcing phase and other projects increased the level of system- and customer-specific understanding. As a result, MTV also became more dependent on its partner. Yet, this increasing learning at TE also made it possible for it to find new business opportunities, and TE's dependence was also similarly increasing along with the acquisition of valuable industry- and customer-specific expertise.

It was significant that TE had been very careful not to take advantage of its customer's dependency as it considered the relationship strategically important. It could be argued that this was also at least partly related to the strategic intent behind its learning efforts. The aim was to develop industry expertise within the media industry. MTV was thus a strategically important customer and a major addition to the existing customer portfolio in the media sector, which at the time included newspapers and YLE.

"...this has been an exceptionally important issue that we have gained knowledge and experience from the broadcasting industry..."

The role of the high level of shared mindset within the partnership is also worth noting. This could be considered a result of the active development of the relationship, the cooperative structures and outsourcing being good examples. There were challenges concerning the utilization of the high level of shared identity, and there still seemed to be room for improvement in the acquisition of knowledge - *referring to the acquisition of business-development-related and tacit knowledge*.

Whereas the relationship context seemed to be a basis for full-scale knowledge acquisition and learning, there were also significant developments in TE's intra-organizational knowledge sharing and utilization. The outsourcing phase increased the level of customer-specific knowledge considerably, but there were apparent difficulties in exploiting this knowledge. It nevertheless enabled TE to develop a better understanding of its customer's business and closely related systems development. However, the resources that TE had received were yet to be efficiently exploited – which seemed to open up new possibilities especially with regard to inter-organizational learning and developing the relationship context.

As discussed, TE's aim was to develop industry expertise through inter-organizational knowledge acquisition, and to utilize it in other customer relationships. This was understood at MTV and it was also considered to be

beneficial for them. *As TE would be able to acquire more expertise, and to gain experience of different kinds of systems and applications, it would consequently be able to provide better solutions - also for MTV.* Most of all, TE's competence development was related to an increased understanding of broadcasting processes and their subsequent ability to develop solutions.

Another area of competence development concerned the possible productification of the developed systems, which both partners considered feasible.

"...because we know their operations extremely well, so they would benefit [in case of productification] from it from a cost point of view for sure... and the updating and maintenance costs and stuff would not rise at all, but decrease..."

The costs perspective was one clear area of potential benefit, and neither of the parties considered further knowledge exploitation a threat to MTV's business or business development. Systems and applications were not seen as a basis of competitive advantage, and it was the way in which they were used in the business processes that was more valuable. This knowledge was not to be shared outside the relationship, and TE was assumed to understand the difference between exploitable knowledge and business-critical knowledge.

The relationship also paved the way for developing industry expertise and understanding about future business opportunities and business logics for potential customers as well as for TE. MTV was operating in broadcasting (BSSystem), commercials (ASSystem), the Internet, mobile solutions and mobile TV, which meant that it was essentially a part of the industry diversification. The traditional business areas were re-specified and integrated with new ones, which was also a challenge for TE. It was assumed that through developing further industry expertise it would serve the mutual interests of a wider set of companies within the media industry and its value chain in Finland, and this could benefit all the companies willing to initiate large-scale cooperation. At the time, TE was able to cover major parts of the value chain within the media sector, but was still not especially dependent on any one specific actor. It clearly had access and negotiation power when industry development and new business models were discussed. The changes in MTV's traditional business also motivated TE to find out about potential business logics within the sector. It was a relatively big player in the Finnish ICT sector and, given its experience in Telecom & Media, this relationship seemed to support its network position. *Discussions about industry development were relevant in terms of both TE's own position and the possible developments in MTV's business and, by implication, in its systems.*

So far the opportunity to use the acquired knowledge in other relationships had been limited, but the aim was to utilize the experience gained in the

broadcasting business further. Discussions had been initiated with MTV about the development of services and related systems in digital and mobile TV. These possibilities were also discussed more comprehensively in the media value chain, extending from the producers of mobile devices and operators to the content providers. MTV was considered an important player in this value chain as it was the content provider and had a background in commercial TV. The synergies were especially aimed at more comprehensive cooperation incorporating the whole value chain of the industry through the cross-unit involvement of experts. In addition, the people responsible for a specific project (e.g., mobile TV) could be “cross-consulted” by the key people involved in the specific projects in the media sector (e.g., MTV’s customer relationship). It should nevertheless be borne in mind that these matters were dealt with, at least to some extent, outside of TE’s customer-specific team. Thus, the experience of MTV’s processes (customer-specific knowledge) was not utilized to its full extent, the aim being to utilize the industry-level knowledge and linkages to other actors within the industry.

The aim more generally within TE was to further share the knowledge and experiences within the corporation. This normally came about through engaging more people in the development of the customer solutions, and in internal workshops and discussions. Besides that, experts with experience from MTV or YLE, for example, could be used throughout the corporation, especially during the early planning, specification and development stages, in order to avoid potential shortcuts and pitfalls as far as possible. In the longer term, job rotation was considered a good way of sharing knowledge within TE, but it had not so far been instituted. The usual practice in the international exploitation of gained experiences is for the actual projects to be taken care of by the local personnel, who are normally trained & mentored for the specific industry and project by more experienced in-house people, but these practices were not adopted here either.

Two different levels of knowledge sharing and competence development seemed to emerge (see Figure 47). The first was the within-business-unit (Telecom&Media) development of wider media-industry competences through engaging people involved in different kinds of projects and customers in order to gain industry-wide expertise. The second was more concentrated on developing understanding and TE’s expertise in the development of customer- and industry-specific solutions within the media sector, and on the exploitation of experience and knowledge.

In terms of systems development, the exploitation and further development of the acquired knowledge was in the very early stages. In other words, the

customer-specific team in MTV's case had been utilized in other projects or customer relationships in a very limited manner.⁸⁶ *Naturally, the most important area of knowledge development and exploitation was in the future systems development within the relationship with MTV.* On the more general level of competence development, there were no specific limitations on who could be utilized from the MTV-specific team in other projects, but the huge demand for development resources in MTV's projects seemed to be the major limiting factor. Yet, some developments had taken place. The project manager had been working with YLE in the area of digital TV during the early parts of TE's and MTV's cooperation. In addition, the outsourced people had been utilized, although in a very limited manner: one person had been used in the early stages (customer meetings, planning, the specification and preparation of the project plan) of another customer project. It was strongly emphasized, however, that the MTV-specific team had a very high level of expertise covering customer-specific systems, and that it was important to guarantee these resources for the development work.

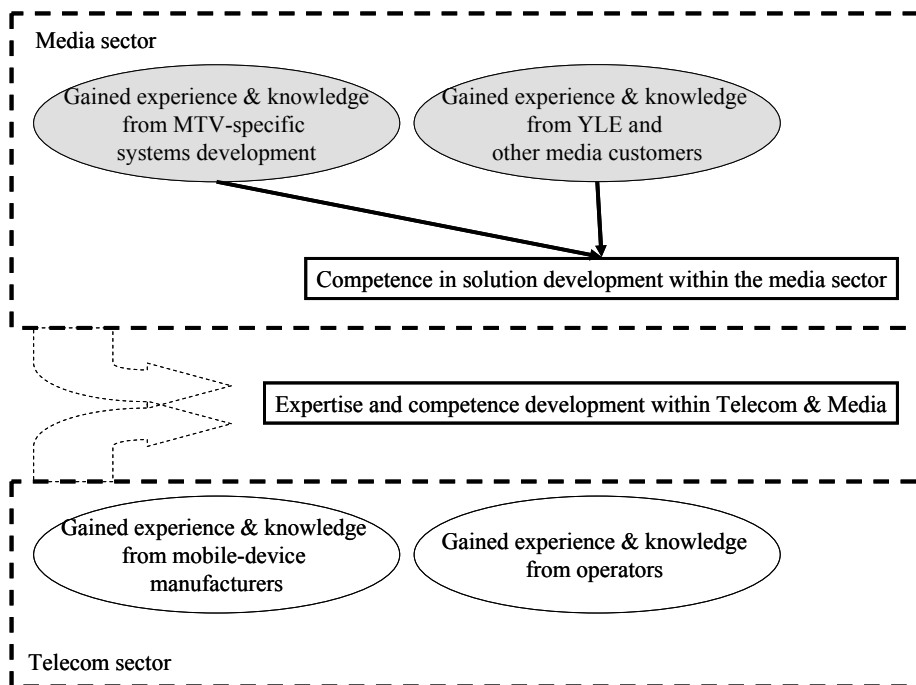


Figure 47: The Development of Competences based on the TE-MTV Relationship

⁸⁶ The use of customer-specific resources was also partly limited by the established contracts, and consequently, TE's exploitation of customer-specific issues was secure from MTV's perspective.

On the other hand, there were also very few potential customer relationships in which more comprehensive cooperation could be initiated in the broadcasting business in Finland. Thus far, the acquired knowledge had been shared mainly among individuals and no specific training sessions had been organized in order to discuss the lessons learned. However, some of the experiences had been discussed in internal development projects. In addition to that, general practices and problem-solving principles were often discussed and compared in various parts of the TE organization, without revealing competitively critical customer information. This kind of interaction was especially highlighted with regard to TE's customer-specific development teams with YLE and MTV. Some of the experts from the YLE-specific team had also participated in MTV's project workshops in order to discuss solutions, and this was actively pursued more comprehensively. Furthermore, MTV's personnel had been utilized in YLE's projects, especially on account of their specific technical expertise. Other cooperative working methods included seminars, workshops and training sessions, which usually focused on some real-life problem-solving case or development idea. The aim was to include people from different levels in order to facilitate analysis and discussion of the systems in both conceptual and technical terms.

It was challenging for TE to coordinate the use of the same resources in other customer relationships. On the one hand, its reliability and the project personnel's confidentiality were considered of utmost importance for developing customer intimacy and long-term partnerships. On the other hand, however, the ability to work without utilizing confidential knowledge was seen as problematic. Much of this reliability of individuals was a question of common sense – people with experience in this type of project would understand what could be discussed and utilized in other projects and what had to remain confidential.

As far as MTV was concerned, the part-time *utilization of the outsourced people and other members of the MTV-specific team was positive from the customer's perspective, too.* The potential use of people from the project groups was generally discussed with the customer in advance, and it was out of the question in a customer relationship in direct competition with MTV. Still, MTV valued this kind of sharing of experiences and wider competence development as it helped TE to develop better solutions and even to extend its business in the media sector.

In conclusion, it seems that the relationship context formed a basis for inter-organizational knowledge acquisition in a number of ways: it was a precondition for the initiating of learning, and it facilitated the further development of knowledge acquisition. *Thus, it could be argued that neither*

knowledge-acquisition nor the relationship context should be considered in isolation, and should rather be seen as dynamic and interrelated processes.

7.7 The Development of a Media Archiving System for Alma Media

7.7.1 An Outline of the Relationship Setting

The second TE case relationship was related to the cooperation with Alma Media and the development of the customer's *media archiving system* (MAS). The users of the system were a number of newspapers and other media organizations that needed archived contents in the creation of new contents or news. The system as such was on a large scale, developed for the archiving of news and other contents (i.e. text materials, images, PDF files and reference information)⁸⁷. The archiving is an essential part of the operational processes of a newspaper in that all the materials have to be stored in case they are needed later. The archived materials were used by editors as a major source of background information in the creation of news articles, and images were also often republished. The basic idea in developing the archiving systems was to allow all the materials produced by AM's newspapers to be uploaded into the archiving system, and later on to include other media. Thus, the contents would include all the materials on which AM had copyright, thereby excluding those from external news providers such as STT, but including images produced by freelancers.

The materials were uploaded into the system at a certain point in AM's operative editorial process. The archiving process was not even visible to the users of the editorial system in fact, but the materials were automatically uploaded as the articles were finished. Furthermore, all the newspapers within AM used the same editorial system, and thus the archiving system could be comprehensively utilized within the group.

MAS was originally based on a database product called 'TRIP'⁸⁸, but also entailed extensive development work and customization. The main customization work covered the linkage with the editorial systems and various industry-specific materials-handling processes. MAS also included different

⁸⁷ Support for audio and video formats was being developed during the time of the interviews.

⁸⁸ TRIP comprised the database, data structure, search engine and some specific functions concerning formatting the text materials as part of the index creation. The functions included the translation of all words into their basic form, the separation of compound words, and other linguistic checks and operations designed to make the system more reliable and usable.

user interfaces for a number of user groups: AM's internal users, freelancers, external reference groups, and system administrators, for example. The system could be described as a *customized archiving system* based on AM and industry-specific needs and customer-specific processes and operations.

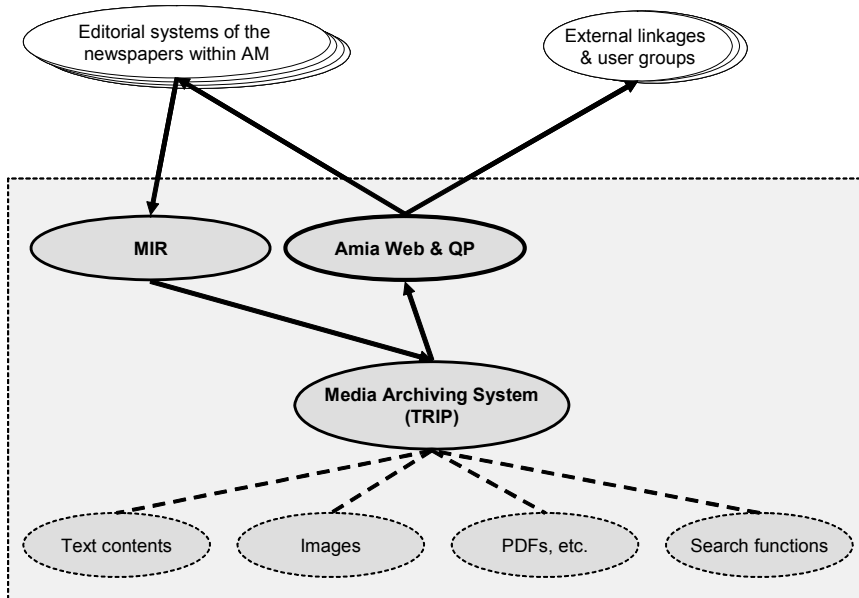


Figure 48: A Simplified Description of the Media Archiving System

The basic structure of the system entity for which TE was responsible is depicted in Figure 48. The main parts besides TRIP were the MIR (media importer router⁸⁹) and the Amia Web (AW) & Query processor (QP). AW was a user interface for the image archive, which was linked with QP and other user interfaces for text and other materials⁹⁰. The customization extended from the archiving process to the user interfaces, e.g. of images so that the system would fit the working processes and operations of the reporters and editors. Although the same editorial system was used comprehensively within AM, not all the newspapers used it in a similar manner, which created needs for further development of the system. The newspapers were thus far independent organizations and of very different sizes, and it was impossible to force them to use the editorial system in a specific way. For example, the sections differed in the various newspapers, which required some pre-processing before the archiving, and the use of reference information differed from one newspaper

⁸⁹ A module pre-processing the materials before they were archived.

⁹⁰ There were several different user interfaces to the system from external organizations, publicly available services (i.e. media-arkisto.com) and one for AM's internal user groups.

to another. The aim was to make the archiving process more straightforward and effective in the sense that materials could be uploaded into the archive directly from the editorial systems of the newspapers.

Consequently, the main part of the MAS customization was related to the MIR functions, which represented the service layer in the system, and the developed user interfaces. Each newspaper had its own settings within MIR, which enabled it to organize and pre-process⁹¹ the materials correctly for the archiving process. There were also external linkages from the system to other partners and organizations utilizing the archive. There were plans to commercialize the archive for consumer markets, but they had not taken off at the time.

The AM-specific tailoring was related in particular to the contents, the user interfaces, and the usage purposes. Consequently, the system was built and developed specifically to support the processes of a newspaper organization. As a result, the various newspapers could easily archive their materials as MIR automatically checked their validity and made the necessary adjustments based on the source from which they were being uploaded. These differences between the newspapers within and between corporations made the industry in general very demanding in terms of systems development.

The functions regarding the META data⁹² represented a major part of the MIR customization. The META data was an important part of the system as it simultaneously built the basis for the usage of the materials and ensured that they could be easily found and accessed. Similarly, the article itself (headline, ingress, body text) was directly extracted from the editorial system into the archiving system.

The process was more complicated with images because most of the materials came from freelancers, but the basic idea was that the META data and the images were uploaded into the editorial system, from which the materials and data were further uploaded through MIR into the archiving system as the article was finished. Moreover, different versions of the images (originals, publishable versions, thumbnails, viewing version) were uploaded into the archiving system. The user interface in the image archive was also

⁹¹ The functions of MIR included: (1) checking the material source and pre-processing the materials according to the channel-specific settings; (2) checking the availability and completeness of the text material so that it could be archived, and standardizing the materials by producing new contents; (3) checking the availability of the basic META data; and (4) reacting to missing information, e.g., creating information, (e.g., a missing headline from one specific newspaper – rules created for known possible missing information).

⁹² The META data included information covering the section of the newspaper in which the article was published and the author for example, and information about the subject and other descriptive material. There was extensive META data available on images, e.g., about user rights, photographers, terms of use (how they were archived, how they were supposed to be used and how they were accessible) etc. in the system.

customized according to the needs of the customer (various image versions, shopping-cart functions, previewing functions, for example).

As such, the development of MAS had been a long process that had not always been very simple or purely positive (see Figure 49). At first there had been problems with both the development of the system and the organizing of the development work at both of the companies involved. The relationship began during the early 1990s, but it was disorganized during the early stages, which affected the way in which the development work was carried out later on. It was originally shared between AM's informatics department and TE's Swedish unit, which had developed the TRIP. Thus, the developmental focus was very academic in parts, and very technical in parts, and the business perspective and the question of how the system and the archived materials could best be utilized in the newspapers' editorial and business processes were somewhat overlooked. The users of the system were not listened to and the decisions were mainly made by the informatics experts at AM. Consequently, the usability suffered and large parts of the system became redundant later on and were re-built to suit the current system.

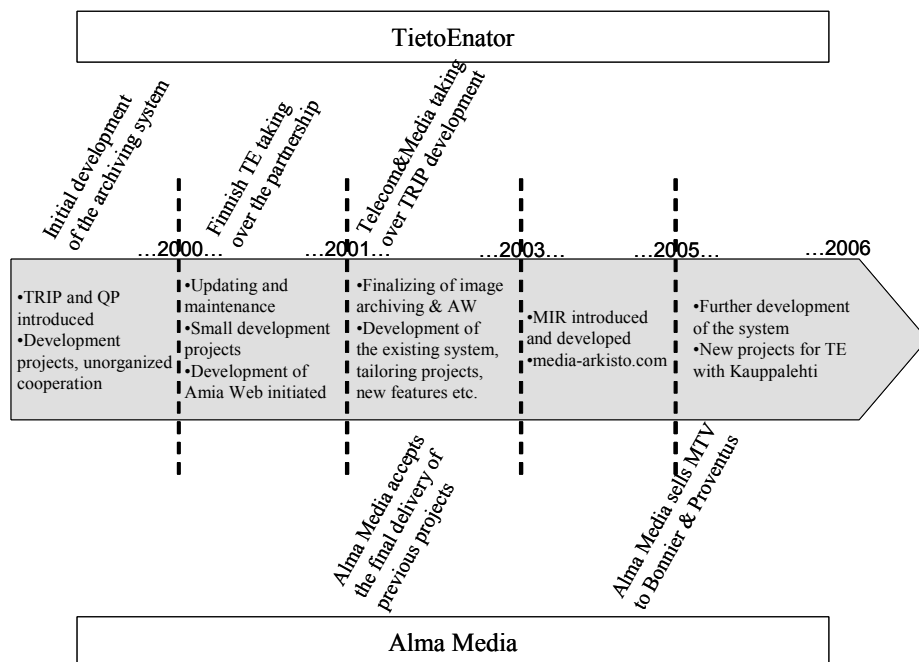


Figure 49: The Main Phases in the Relationship between TE and AM

The responsibility for the system development did not seem to be clearly organized either, and the development work did not have a clear long-term aim or an owner at either of the organizations. Consequently, the project-

development ideas were thrown haphazardly to TE's Swedish unit and the result was a long list of poorly coordinated and partly overlapping tasks and projects. The development needs were never turned into clear projects, and the development work was rather a continuous flow of ideas and implementation.

TE's Telecom & Media was founded in 2000, and soon after that the current project-team took over the customer relationship. *As the customer relationship was concentrated within Finland's Telecom & Media, the coordination of the projects and the relationship as a whole started to become more organized.* At that time TRIP was being developed in a tech-centre within TE. Before the re-organization the whole relationship was in trouble as there had been difficulties in making the system work as required, and in understanding the customer's needs and demands regarding its use. In particular, it was very difficult to get the image archiving being developed in Sweden approved by the customer.

It is worth noting that the cooperation between AM and TE was a systems-development partnership rather than a traditional systems-development project in that the aim was to develop something that did not exist. Thus, the inadequate planning and specification in terms of the aim or how much effort and cost it would entail led to a vicious circle of uncontrolled projects, and unfinished systems and functions.

The changes made during the project were mainly a result of the changes in the customer's business environment, which were especially rapid during the late 90s. This at times led to a lack of resources at TE's organization as AM was throwing ideas at its partner. Furthermore, the lack of pre-project specification caused problems with the finalizing and approval of the projects as the customer and the software developer had different views about the agreed aims and results.

"...need to specify in detail, what he wants and... the supplier delivers... it hasn't been like that here. This has been more of a multi-year undertaking, during which the customer may also in the middle... in the middle of the project have changed his wishes..."

Before the re-organization the customer relationship was taken care of by a number people and business units. At times, there were up to three contact people at TE and up to five at AM handling the ordering, which made the communication complex. Following the re-organization at TE this became more transparent and straightforward. AM also re-organized its systems development at around the same time because it had taken a bad turn.⁹³

⁹³ At the time of the interviews the development of the archiving system was organized within AM in one of the biggest newspaper units, which coordinated the development projects for the whole group. There had also been concerns regarding the commercialization of the system to consumers. This idea

As the new project-team took over at TE they started making extensive modifications to the functions and developed new versions of the system. The co-operational mode was also re-organized: all the new ideas were turned into clear projects and were coordinated by specific contact people at TE and AM, and AM appointed a new key contact person in order to coordinate MAS development. *As a result, the set of projects and the customer relationship were better coordinated, which also meant that the systems-development work became more manageable.* However, for some time MAS development was concentrated on smaller development and updating tasks before a more active series of development projects started.

Moreover, the responsibility for the system development given to TE also meant that it took care of the contacts with other subcontractors. For example, it took responsibility for having an up-dated version of Finnish grammatical rules and vocabulary in the system, which was delivered by a third party. Outsourcing the whole system to TE made it easier for AM to coordinate because it reduced the number of partners. Consequently, TE had a more concentrated role as the main partner in archive development. Eventually, AM also decided to downsize its informatics unit and to rely on TE's abilities in terms of archive development.

Following the development of AM's editorial system, the MAS system was modified and re-built extensively between 2001-2003⁹⁴. As part of the MIR application there was increasing customization of the whole system according to customer needs. The various sources of the materials were taken better into account, and the differences between the newspapers affected the way the materials were handled when uploaded. Similarly, images were modified depending on the source: for example, the color tones were modified based on the type of camera that was used in a specific part of the organization. The idea for the development of MIR came originally from the customer and its needs in terms of developing the archiving process more comprehensively so that the archives could be used more efficiently in the editorial process.

At the time of the interviews there was still some minor development work going on, after which it seemed that the companies were planning their next bigger steps, but in a more orderly fashion than previously. Extensive development work was done on the reporting of user visits and the

never really took off, but limited access to the archives was sold outside of AM's internal customers to other newspapers and organizations. At the time of the re-organization the business logic in the consumer markets and in various co-operational arrangements was considered non-viable, and therefore the focus of the relationship was on the development of MAS itself.

⁹⁴The META data structures were redesigned at that time, and most of the user interfaces were re-built to suit the renewed editorial system. Furthermore, an important part of the current system, MIR was introduced in 2003, and at the same time, media-arkisto.com (a public user interface for the text archive) was developed for external user groups.

downloading of materials, among other things. All in all, the development of MAS was a long process that had taken a lot of resources from both companies. However, at the time of the interviews both parties seemed to be fairly satisfied with the system.

Concurrently with the archive development, TE had other projects going on with AM during the time of the study, but they were related to other parts of the customer organization and to solution development in other types of systems and infrastructure projects. This study concentrated on the development of MAS for AM as a customized solution. *The focus in this case is on the time between the re-organization of the relationship with Finnish Telecom & Media and the extension of the cooperation between TE and AM to the projects with Kauppalehti.* The relationship and the knowledge acquisition are discussed in more detail next.

7.7.2 The Types and Characteristics of the Acquired Knowledge

Again, it needs to be recognized what kind of knowledge was exchanged between the organizations within the relationship. Here, the scope of knowledge acquisition was concentrated on the case relationship regarding MAS development. As in the previous cases, knowledge flowed in both directions, and the knowledge types gained by AM are reviewed in Appendix 12). Yet, the main interest here is in the types of knowledge TE acquired. *TE was developing Alma Media's media archiving system as a tailored solution based on customer-specific and industry needs and processes, which formed the basis for the three types of knowledge being acquired: system-specific knowledge, industry-specific knowledge and customer-specific knowledge (see Table 9).*

Firstly, the system-specific knowledge was generally related to the systems and technologies used in developing MAS, and to the linkages between MIR and the operative systems. TE acquired a general understanding of the kinds of systems used in a newspaper organization, for what purposes and how. This was important considering the technical implementation and the development of the archiving system and its linkages to other operational systems. TE needed to understand the system in order to develop the user interfaces and the service layer (i.e. MIR). More importantly, the acquired knowledge was related to the development of MIR, which was based on customer-specific needs and required TE to understand the operational systems and their use, as well as the usage of MAS.

"... they really didn't know what these systems were, in fact, used for here, so their knowledge about these issues has increased..."

Table 9: The Types and Characteristics of the Knowledge TE Acquired from AM

<i>Type of knowledge</i>	<i>More specific areas of knowledge</i>	<i>High tacitness</i>	<i>High complexity</i>	<i>High partner specificity</i>	<i>Knowledge extensively diffused</i>
System-specific knowledge	Technical implementation of MIR		X		
	Editorial system & inter-system integration		X		
	Transferring META data from the editorial systems, News XML	X	X	X	X
Industry-specific knowledge	Terminology and concepts	X	X		X
	Business logic & typical problems and challenges in the industry	X	X		
	Operational processes and systems of a newspaper	X	X		
	Archiving processes of a newspaper	X	X		
Customer-specific knowledge	Social relations	X		X	X
	Customer's editorial process and system- & customer-specific usage and differences	X	X	X	
	Customer's archiving process and system- & customer-specific usage and differences	X	X	X	

TE acquired knowledge about the editorial system at AM, although it was mainly related to the linkages between the archiving and editorial systems. It also learned about AM's technological environment on a more general level, the existing linkages between different systems and server environments, and the subsequent MAS development implications. The editorial system used at AM had a strong position in the Finnish market and there were also numerous other newspapers with a similar technical basis for which similar archiving systems could have been developed.

META-data-related knowledge was also more system-specific. News XML was an industry-specific XML format that was used in structuring the META data, and transferring it from the editorial system of texts and images to the archiving system was further AM-specific. This was a challenge for TE in terms of gaining understanding about both industry- and customer-specific issues, even though both were technical in nature. In the end, the system developed for AM was highly customer-specific, especially in the way that the editorial process was taken into account and the META data was being

handled in the archiving process, and in the development of the user interfaces.

"Here the point of departure is that most of the metadata is generated automatically. There is about as much metadata in that [MAS] as is generated in the editorial process... Then if there are clear deficiencies and they are known, then they are fixed... this requires it [MAS] to be tailored to the Alma-specific process, their way of doing things."

There had also been an acquisition of industry-specific knowledge and an accumulation of industry competence. This was related in its simplest form to developing an understanding of the terminology and concepts used in the industry and the customer organization, and formed the basis on which TE began discussing the customer's problems and challenges.

More importantly, the development of industry-level expertise was related to understanding the media and the newspaper business, and the customer's business environment, partly with the help of the customer. To a certain extent, the partners did discuss the development of the industry and AM's newspaper business. TE also developed some understanding of the logic of the newspaper business: how turnover was created, what the market was like and how it was divided, and how the industry as such was developing, for example. It was also suggested that understanding the business logic formed a basis for understanding the industry development, especially in terms of systems and MAS development. There had even been discussions about the business logic of the archiving business in the industry, but this type of knowledge acquisition remained limited.

"... understanding the process, then understanding the industry development like this and.. in all industries there is some kind of specific internal world, its own laws, which aren't written down anywhere, which just happen to work like this and are special characteristics..."

Furthermore, TE gained experience and understanding of the subtleties of the industry and the actors within it, which in combination created the environment within which the customer was developing its business and solutions. Consequently, it was better able to exploit further business opportunities and to engage in large-scale cooperation with the actors in the industry. The developed understanding about the nature of the industry had limited effects on this particular solution – it was rather a way for TE to build up its industry expertise in order to develop better solutions in the future and, to some extent, in other areas of systems development. Thus, its developed expertise was also related to the development of the archiving system.

TE also gained the necessary understanding about how the operational processes and systems within a newspaper organization worked: *if it was to understand the role of archiving in a newspaper organization, it needed to understand the other operational processes as well.* At the same time, it became familiar with the IT environment of a newspaper corporation. This could be considered essential in terms of understanding the IT systems and the development tools used by the customer.

“We have, of course, increased our industry understanding quite a lot... in other words of the kind of problems that are related to this industry, how the processes relate to each other, what kind of tools the customer uses...”

As a result, TE acquired extensive knowledge about archiving in a newspaper and media business, which was one of the key elements in understanding the customer’s industrial context. The use of archives was an essential part of the system, and TE needed to understand the role of newspaper images, texts, and pages, and the relations between them.

“But for sure, if you develop a new version for another customer in say half a year, in that case a responsible system developer... can throw in a person who has been in our [projects’] interface... who can say hey, hold on, you want it that way, but have you thought about this, what if it’s like this and that, is it sensible then to do it like that after all.”

Furthermore, TE needed to understand why archives were so important for newspapers, and why good archives were so difficult to develop. It needed to know what the editorial process was like, how the archives were created, and how they were utilized in the editorial process (i.e. how image materials were processed within the system, and how the user interfaces could be developed for both the text and the image archives).

“... learning about the customer’s needs. So OK, we pre-process these things in this way, why do we [in AM’s editorial process] pre-process them, because we want [the materials] the output this way...”

There were aims among the partners to further increase TE’s understanding about the customer’s processes in future projects. Even so, the processes seemed to represent more of a goal to aim at in the newspaper industry rather than a clear definition of how things were being done. This made the situation especially challenging for TE in view of its long-term aim to develop industry expertise in the chosen business areas, of which the media represented an important and growing part. It had therefore developed some level of understanding about the industry, and about how the archiving systems (as well as other operational systems) would be developed in the future. However, there seemed to be clear message from the customer’s side that it was

expecting TE to share its views on the industry development more actively. AM wanted to know how the different systems, and especially the archiving systems in the newspaper business, would develop on a long-term basis.

"...you could say that you can make these so-called innovations here... you don't invent anything new as such, and you don't create any trends, but when you know what you're doing... resolve some issues more sensibly. But what happens to the circulation of newspapers, for example... with that kind of industry-specific knowledge and trend, I can't contribute anything to that... in order to be able to do that, you need to have information about the industry at a certain level..."

The expertise of TE's people was still quite concentrated on specific issues within the MAS projects. There were limited resources allocated to the development projects and the customer relationship, which in turn limited their capacity to develop wider scenarios about the newspaper industry and its development in terms of IT solutions. The innovations were fairly solution-centered and mainly processual, focusing on how things could be done better in the archiving process. It was argued that a more comprehensive view of the industry development would have required extensive experience in newspaper distribution, advertising, and ordering processes and systems, for example.

Finally, customer-specific knowledge was closely related to knowledge of AM's organization and processes. Firstly, social relations were considered important in the sense that in order to obtain information on a specific issue one needed to know who to turn to. On the other hand, TE and AM both learned, especially during the early parts of the relationship, how important documentation and formal processes were in systems development: issues that were traditionally well understood at TE.

Secondly, customer-specific knowledge was related to understanding the customer's editorial processes in order to develop MAS and MIR as a highly customized solution. This meant that TE gained understanding about the operational and editorial processes of a newspaper organization – the kinds of materials that were being utilized/created and how. It also learned how the different functions in the editorial process (e.g., photographing, writing and editing) were related, how the different materials were processed in the editorial process, and how they needed to be dealt with in the archiving process. For example, images needed to be archived for different purposes in different formats (thumbnails, originals, publishable versions), and in order to support the editorial process specific user interfaces and shopping-cart functions were developed for MAS. Thus, it could be argued that TE's ability to understand the customer-specific needs in terms of the archiving process included knowing about the sources of incoming materials and their

differences, and also about the further use of the archived materials. This was considered important since the way in which the materials were archived also affected their later usability and usage.

Thus, the acquired knowledge was also related to developing the user interfaces for the end users in different parts of the AM organization. The aim was to support their tasks in terms of making the materials more accessible and usable, and eventually making the editorial process more efficient

"... well, the delivery process of course from the point of view that... we do have to understand how the information is created, what kind of metadata is used for example... Knowledge has been acquired there in particular, and that's tacit knowledge related specifically to that process. These processes have never been described on an accurate level in any company and especially not the manual phases or things, what is done. They're just known."

TE was also required to understand the differences between the units within AM because they utilized the editorial and the archiving systems differently. It needed to know how and what kind of information was being uploaded to the system in different parts of the organization. On the other hand, this implied that the solutions for the newspaper industry needed to be flexible, easily integrated and scalable. Furthermore, it was emphasized that this was representative of the whole industry: there were big differences in the use of similar systems and in the editorial processes more generally between the different organizations in the newspaper industry, but the end results were similar. Thus, it was difficult to draw a clear line between customer- and industry-specific knowledge.

The characteristics of the acquired knowledge were especially complex, and its tacitness had an essential role. The technical knowledge that was acquired was mainly complex, and partly customer-specific in the sense that the aim was to develop a customized solution. The project was highly complex in terms of technical implementation. The system was being developed so that it could be used independently of the server environment, and of the language and grammatical rules, with high user volumes and huge masses of materials, in different kinds of environments (multiple newspapers), and partly publicly (www.media-arkisto.com).

The industry-specific and customer-specific knowledge was considered to be more tacit. The former was something that could really only be understood through personal experience. For example, the developments and the subtleties involved in the archiving were only realized during the project. Similarly, knowledge related to industry expertise required an understanding of the IT and business environments, in conjunction with the user needs, and could therefore, be considered complex. *The customer-specific knowledge* was also

considered tacit as it mainly involved undocumented issues and differences in processes across the organization. This was something that was understood along the way and as the differing needs of the organizational units emerged. Customer-specific knowledge was also considered highly complex in that there were major differences between the units, and numerous users and exceptions in the editorial process. The same applied to the archiving system to a certain extent, as there were different kinds of materials and users to be taken into account in the development work. Furthermore, customer-specific issues were also considered less applicable than industry-specific issues in other customer relationships. The level of diffusion of the acquired knowledge at AM was usually fairly limited, especially regarding industry- and customer-specific issues, and only the more general types of knowledge were extensively diffused. Otherwise TE had to find the right people before the knowledge exchange could take place. For example, knowledge related to the processes and the usage of the systems and the differences between the units was not extensively understood, even within AM. *On the other hand, although there were difficulties in finding the right sources of knowledge at times, AM was actively helping TE in the learning process.*

It could further be argued that the characteristics of knowledge had significant effects on the knowledge acquisition, and also on the development of the relationship. This kind of systems and solutions development required TE to understand issues that were actually outside of the source code, and this also carried implications in terms of the relationship atmosphere. The development of the relationship setting is elaborated on in more detail in the following, and then the focus shifts to the knowledge-acquisition process.

7.7.3 Relationship Development

The relationship between TE and AM had been developing over the years, and at the time of the interviews, the partnership was concerned with the development of the MAS and its updating & maintenance. In terms of the relationship context, the network was a major factor, and this, the basis of the trust, and the relationship atmosphere - including the power dependencies - are discussed in more detail next.

The network environment within the case relationship seemed to have serious implications in terms of how the systems development proceeded and the further potential the acquired knowledge had for TE. Essentially, the nature of the media industry was very fragmented, and often constrained by various intra-industry power struggles. Furthermore, the newspaper market in Finland was fairly small and all the major players knew each other quite well.

It was even argued that the various newspapers did not compete against each other as much as against Helsingin Sanomat⁹⁵ or other media (TV, radio). Consumers were considered unwilling to change their daily newspaper, and thus the market was geographically divided, but electronic services were seen as a potential way of generating additional business. The newspaper organizations cooperated in some areas of business, but seemed to be very jealous of each other in others - despite the fact that the competitors apparently had a fairly good understanding of each others' processes and systems-development ideas.

The newspapers were not especially interested in competing in the development of different kinds of operational systems because IT solutions were not considered a source of competitive advantage. The focus was rather on finding out about the timing of investments, although these were usually made in readily available and tested products – not in tailored systems development. TE considered it important to gain access to the Finnish market for circulation-management systems, for example, because other customers were expected soon to follow.

“If the product is very good then these newspapers begin to compete over who’s next in line to get the product, who gets it... for example if the product brings something new to marketing, then the one who gets it in use earlier than others... is able to take advantage of it earlier than someone else.”

There were no other newspapers or media companies for which TE was developing a similar archiving system, and the archiving business did not seem to have huge growth potential. All the major players had some sort of applications in use, but none of them seemed willing to cooperate with anyone else in order to develop a more comprehensive and commonly used archive. They were willing to let other companies use their archiving system, but not to outsource their archives to anyone else. Thus, the archiving theme had proven to be a very sensitive issue for the newspapers, and seemed to offer limited growth potential. The goal of finding a common ground between the different actors in the media sector in order to develop a national materials archive were pursued by TE together with AM, but thus far the efforts had not paid off.

“... such genuine, open, cooperative relationships and partnership around this issue, it hasn’t taken off in this country...”

. On the other hand, TE was actively looking for and developing new business opportunities in the newspaper industry, such as in the areas of circulation and customer-resource management, which made it an important

⁹⁵ HS was the only truly national newspaper and the rest of the industry actors had their quite clearly divided shares of the market.

target. TE had other customers in the industry, and at the time of the interviews AM was not considered especially big or important. TE had been developing other products for other big players, but these efforts were at the very early stages. One could argue that the industry was led by HS, but that AM came a very good second and therefore had significant growth potential as far as TE was concerned.

Although the relationship had been through more painful phases, at the time of the study it was fairly stable and both parties seemed to be content with the success of the on-going projects and with the MAS. In general, the level of trust was considered to be high (see Figure 50).

"... trust is [in this cooperation], as I understand it, mutual."

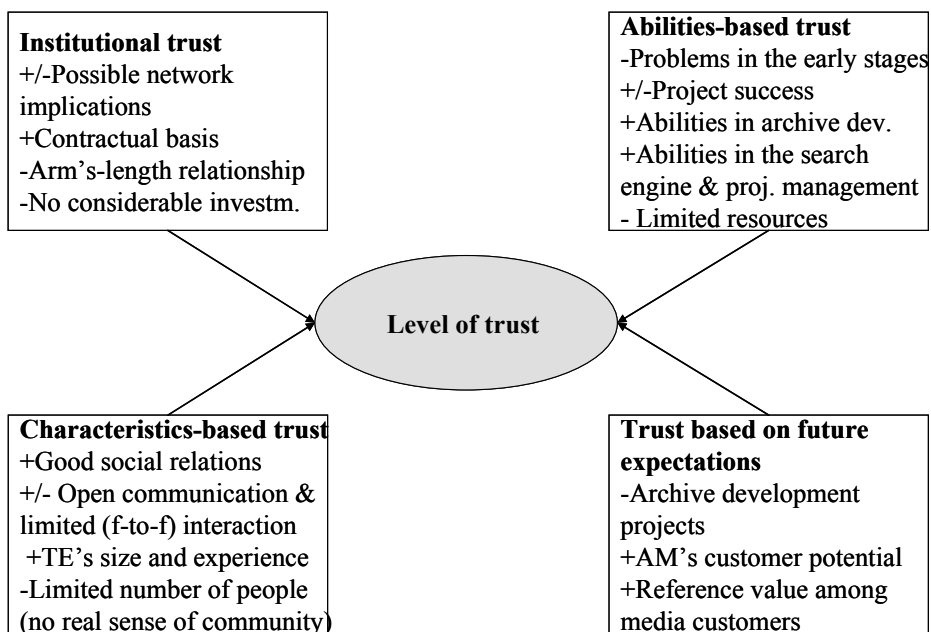


Figure 50: The Basis of Trust in the TE-AM Relationship

Most of all the trust between the partners seemed to be based on TE's abilities in systems development, and more specifically on the abilities shown in the MAS development. TE had been able to gain experience of AM's organization and systems, and not many potential solution providers had that kind of insight. Furthermore, the solution provider's abilities were especially emphasized as a basis for partner selection because even a big newspaper organization did not have the resources to be experts in IT solution development in a competitive market. On the other hand, TE had limited resources dedicated to MAS, although the TE-AM relationship also covered other areas of solution development.

The role of TE's abilities was considered important on two levels. On the one hand, it was able to overcome the MAS development problems early on. This also seemed to affect the social relations and the level of inter-personal trust between the parties as TE's reliability and abilities were questioned in parts of the customer organization. Thus, TE needed to show understanding because AM was not satisfied with the way in which the projects had been handled previously. TE also thought this was justified, although the difficulties were partly related to the unorganized state of the relationship, and the system development more generally. Yet, this mutual understanding made it easier for the partners to find a sustainable development path for the relationship.

"... justified demands... no one has really paid any attention to them... we had the patience to start working on them, showed understanding and the willingness to resolve those things... and then in the end that you are able to deepen your own knowledge and begin to discuss with them... then on the other hand, when in some processes we've been able to show professionalism and expertise that no one else possesses..."

After the re-organization of the relationship, TE needed to establish its credibility again to a certain extent, by completing the unfinished projects. It was now possible to discuss potential problems more openly, and it was easier to inform all the relevant parties about them. In addition, TE's project-management competences also affected AM's level of trust in TE's abilities. AM had not had clear project-management procedures and they adapted them and the working methods largely from TE. Thus, TE's more formal working methods helped to create a sense of trust as they forced AM to organize its development needs ready for implementation.

On the other hand, TE's abilities were paramount in terms of showing its expertise in systems development and in understanding the customer's problems. It also demonstrated its understanding of AM's business and processes in the customization of the system and in the development of MIR. However, although the abilities were considered strongly supportive of the level of trust, the relationship seemed to have difficulties due to the limited human resources devoted to MAS development. This was considered problematic in terms of keeping up the level of service and systems-development work, but also in terms of keeping up the dialog between the organizations about possible development ideas and more general industry development. It also sometimes caused a problem with the MAS development, as it was highly dependent on just a few key people. This was further highlighted as these people were given additional projects and responsibilities related to other customer relationships.

The limited human resources also affected the level of inter-personal trust and the sense of social community within the relationship – thereby building the basis for characteristics-based trust. Since the number of people involved was limited there really was no sense of social community within the relationship. This was further affected by the limited amount of social interaction: most of the communication was via email and by telephone. Various workshops and meetings were held, but only when there were larger issues or development needs to be dealt with. On the other hand, the high level of open communication was considered an important facilitator of trust: because a limited number of people were involved, they knew each other well. The personal relations were considered very good, and the inter-personal level of trust was high in both organizations. *In addition to that, AM saw TE as a big, reliable solution provider with extensive experience in the media and other industries.*

Thirdly, as discussed in the previous section, the network environment had an important role given the significance of the relationship and consequently the level of institutional trust between the organizations. The effects of the network environment on the level of trust and commitment were somewhat difficult to assess as purely positive given the fact that AM also had several other influential partners⁹⁶ in its IT systems. It was thus difficult to imagine that AM was highly committed to extensive cooperation with TE. Its role as TE's customer changed quite dramatically when MTV was sold. Although the development projects continued, AM represented a smaller part of TE's customer base in monetary terms. Furthermore, it was emphasized by the interviewees that the MAS development would lead to a limited number of projects as the system was not AM's main source of income. Thus, its role as a customer had declined in terms of archiving, but as a potential customer in other areas of systems development it was essential. However, the archiving system as such was really not related to the other projects within the customer relationship, and was rather seen as an important reference in terms of other potential archiving development projects. From a totally different perspective, the network context was also important for the level of trust in the sense that TE was highly committed to expanding its business in the media sector, especially in Finland. In case of serious problems, bad news traveled quickly in such a small market. Therefore, the network environment seemed to provide insurance to the customer against opportunistic behavior.

Furthermore, the relationship was built on a contractual basis, which meant that the partners' liabilities were fairly limited. There had been no huge

⁹⁶ One other company provided AM with hardware, and a third company had just received a big contract as some of AM's IT personnel were outsourced to them.

investments, and little in the way of mutual hostages. The agreement set the basis for the cooperation and working methods, but there were no specific sanctions or reward systems in use. *The partnership also had limited support structures in place for the coordination of the relationship development.* No specific systems were introduced in order to track and coordinate the projects and their tasks concerning MAS development, although some similar systems had been used in other projects within the customer relationship. Nevertheless, the companies had developed a shared infrastructure so that TE could gain access to AM's systems from its own premises. All in all, the relationship-specific investments were very limited, and could not be seen as a basis for mutual hostages taking. In terms of working methods, TE and AM had periodic meetings focused on developing the relationship⁹⁷, which shows that they were actively aiming at coordination in this respect. *It could thus be argued that the support structures did not especially support knowledge acquisition within the relationship, but were rather used to coordinate and manage the number of projects.*

The fourth area of trust affecting the relationship setting lay in the role of future expectations. As discussed, the relationship had a very limited role in terms of finding new business opportunities in the archive development at AM. Moreover, the customer relationship in other areas appeared to be less active at the time of the interviews. *Thus, although the level of trust was considered relatively high, the level of commitment to developing the relationship seemed to be significantly lower.* The commitment was such that the projects were conducted with TE, competitive bidding was not practiced, and the companies were looking for opportunities to extend their cooperation.

In sum, the relationship was really somewhere in between an arm's-length relationship and a strategic partnership in the area of archive systems development. However, due to the potential role of AM and the existing cooperation between the parties, it could still be considered very trusting in nature, and there seemed to be strong commitment in terms of developing the relationship as a whole, especially from TE's side. TE was committed to the media sector and was actively seeking new business opportunities in terms of developing new operational systems for the industry. Since TE saw the

⁹⁷ These meetings, held a few times a year, involved the project managers and project owners. They allowed the parties to analyze the situation regardless of the problems and open issues. The relationship development was also discussed a couple of times a year on the corporate-management level, and in the wider context of systems-development projects and strategic planning. The various development projects were discussed on a more general level in order to ensure that the relationship and the projects were managed effectively, and that new opportunities could be grasped. A further aim was to make sure that all parties in both organizations on the different management levels and concerned with the various development projects had a comprehensive understanding of the relationship as a whole. The meetings were also a venue for discussing potential cooperation with other industry actors and large-scale new software-development efforts.

extensive future potential, it also became partly dependent on AM. The relationship seemed to be more important for TE in terms of the archiving experience acquired, the expertise gained in the newspaper and media industry, and the network implications.

"... there really are all the good elements of a partnership here.. Mentally we are on a partnership level but operationally not."

"... in that regard we're no longer so interesting, because we're significantly smaller, and then we weren't able to begin cooperation on this immensely big issue..."

Closer analysis of the level of power dependence between the partners should focus primarily on the level of business and the limited growth potential from TE's perspective. In addition, in a corporation of TE's size, no one customer is in a position to make TE essentially dependent on it. The termination costs were considered fairly limited if the relationship were suddenly to be dissolved. In monetary terms, there was practically a customer-specific team responsible for the MAS development, which would need considerable re-organization in case of termination, but this was not considered a problem in such a big organization.

"... they intend to invest and develop these things... we've concluded that it's sensible for us to be in close cooperation... we're potentially one of their best customers in the country... but their business won't come crashing down even if Alma [AM] buys nothing..."

From AM's point of view, the longer it developed systems with one specific partner (TE), the more dependent it became on it. *On the other hand, it could be argued that the termination costs for AM would be somewhat higher than for TE.* TE still owned the rights to the source code, and therefore AM could not carry on any significant development work with any other solution provider without acquiring a totally new archiving system. There would thus be a considerable time lag in the systems development if the relationship ended, and it would require a big investment.

AM could have continued with its business for some time without the risks becoming realized, but when bigger development needs emerged it would have been forced to find a new partner and to start developing the system almost from scratch. It could be argued that part of the tacit knowledge concerning the editorial and archiving processes was included in the MAS, but for the most part, together with the ability to deal with future problems in AM's archiving, it rested with TE's personnel. It would be a highly difficult task to develop a working system by mimicking the old one and the specifications without considerable investment from both sides in learning about the customer's processes and the existing working methods, not to mention the differences between the various newspapers involved. *From AM's*

perspective it was felt that TE's knowledge acquisition as such had not changed the level of dependency between the partners. This was natural, because whereas TE had put in resources into learning, AM had put efforts into teaching.

On the other hand, there were only limited relationship-specific investments apart from the learning efforts. The continuity costs were fairly limited as there was not much development work going on, but finding a new partner was not thought to be an easy task. There were only limited fears of strategic costs, i.e. losing competitively important knowledge through possible termination, as TE was considered highly reliable, and the network implications of potential opportunistic behavior were considered serious. Yet, the strategic cost of the relationship becoming terminated was considered relevant because as a result AM would lose a competent partner and TE would lose one of the biggest customers in the industry. There were not many big solution providers in the newspaper industry with comprehensive experience of different kinds of solutions. TE aimed to develop a whole product family for the newspaper industry, and was essentially aiming at European growth. In that sense, it was considered important for AM to foster good relations in view of TE's potential future product-development efforts⁹⁸.

"... TE is probably among the top three application suppliers in our industry... there are no competitive big suppliers. Our industry with its specialities is so small anyway... we're among the customers with the most potential in the country ..."

In terms of MAS development, dependence had increased over the years, especially from AM's viewpoint. *However, this was not only a bad thing, since as a result TE was able to gain an understanding of its customer's business and systems-development needs.* In addition, the inter-dependency was also related to other systems-development projects undertaken by TE and AM.

7.7.4 Knowledge Acquisition and Integration

TE's knowledge acquisition process is discussed in more detail in the following (see Figure 51). The acquisition of knowledge about customer needs and the requirements according to which the system was supposed to work was not especially well organized, particularly at the beginning of the

⁹⁸ AM had participated in TE's product-development seminars in order to give ideas and feedback on TE's propositions. Although AM did not have any intention to purchase the system at the time, it did consider this kind of interaction useful in terms of getting a competitive product onto the market.

relationship. However, this improved after some changes were made and as new project models were taken into use.

Consequently, it seems that, from TE’s viewpoint, this type of learning was a basic starting point in customized systems-development projects. TE wanted to know how the system was supposed to work for the customer, and how it was supposed to interact with other systems. Learning as such was not considered in the planning of budgets for the development projects, but as much of it took place during the projects and workshops, it was also at least partly paid for by the customer. This exchange of knowledge enabled the parties to gain a mutual understanding of the aims and principles of the system and the existing operational processes. *One could argue, therefore, that the need for knowledge acquisition was agreed upon by both parties, and it was actively supported by both organizations, although inter-organizational learning as such was not especially emphasized as part of the development projects.*

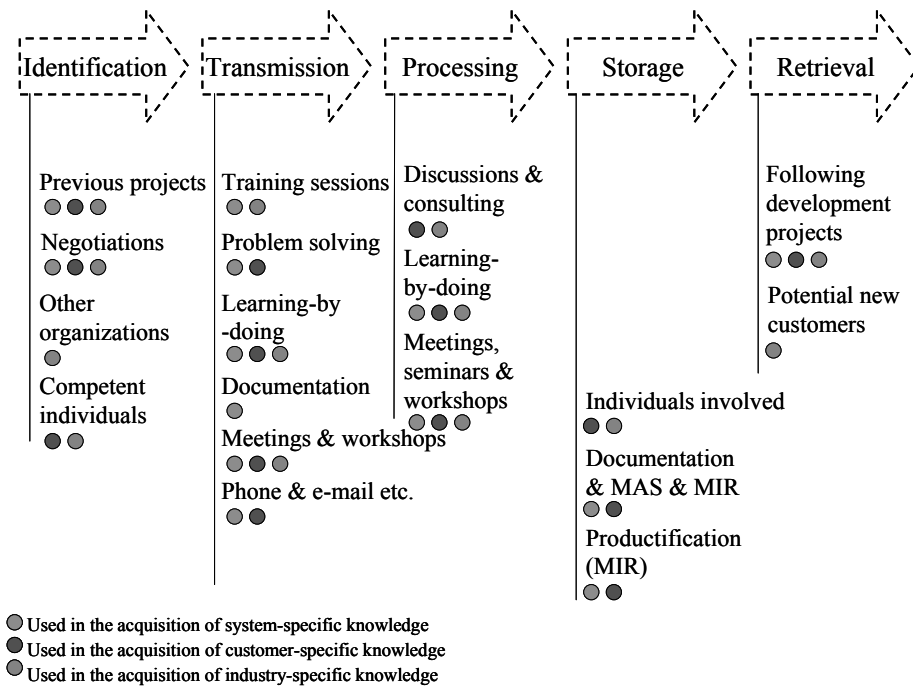


Figure 51: The Knowledge-acquisition Process

The identification of knowledge in AM’s organization was facilitated by its openness in terms of communication, which was recognized as a basic policy in its systems-development projects. On the other hand, it needed to be open for TE to be able to do its work. Other organizations were utilized as sources

of industry-specific knowledge, but this was more general, and not directly related to the MAS development.

Even according to the new project model, the decision to acquire knowledge was not considered an especially conscious one by the partners.

"It wasn't in this case... or what is conscious anyway. It's true in the sense that the process always includes going through with the customer what's being done and what the concepts are... the archiving process, how it continues after the editorial process..."

The *transmission of knowledge* was brought about in a number of different ways. Most importantly, it was related to the daily interaction and communication between the individuals involved. It was also very closely related to the processing of knowledge, which made it highly difficult to differentiate one from the other.

The companies did not organize any specific learning sessions or workshops on AM's business or the editorial process, and the relevant knowledge was rather acquired during the course of the development projects. AM held a one-day public seminar entitled "*Matka aamuun*", in which the participants could follow how the newspaper was produced, from the editorial work, the gathering of advertisements and the layout design all the way to delivery. However, this was not specifically aimed at furthering understanding of the systems used in the process. Moreover, there was no specific consultation or project specification before the systems-development project started, and the processes and related systems were learned as it proceeded.

Apart from that, the daily interaction between the organizations was mainly by telephone and via email. The communication was considered to be open, although no specific weekly meetings were held. There was a solution that enabled two people to look at the same screen in two locations, and this was used especially in order for AM to re-gain understanding of the system. Instant messaging was also frequently used among the technical experts. *Meetings and workshops were less often arranged as people were geographically dispersed even after the re-organization.* Meetings were usually held when more comprehensive development ideas or project-management-related issues were being discussed, while the workshops were usually quite technical.

Documentation was mainly used for acquiring information and knowledge about technical details and timetables (and other project-management-related issues). Existing documentation related to the editorial system and processes was also used in the acquisition of knowledge, but this was only of limited use because there were extensive differences in how the system was used in different parts of the customer organization. *The transmission and processing of system-specific knowledge was mainly done through learning-by-doing.* Training sessions focused on the resolution of newspaper-specific differences

were not really used, and TE had to learn over time. Such sessions were set up mainly in the early phases of the development work, or when some new and bigger issues arose for the first time. It was also emphasized that in this type of systems development, learning-by-doing and casual meetings during the course of the daily development work were more efficient than training sessions or workshops organized specifically in order to facilitate learning.

“... the learning situation, if it is organized, then it’s not necessarily as effective [as], when it takes place there in between [dealing with] customer-specific issues...”

Thus, learning-by-doing was strongly emphasized as a way of learning about the system and various customer-specific issues. Even the industry-specific knowledge was originally acquired on a general level in the training sessions held during the partnership re-organization, and thereafter mainly through more casual discussions.

The *processing and integration phases* of knowledge acquisition were very much related to the development tasks in the projects. However, the acquisition of industry expertise was considered to be slightly different from the acquisition of system- or customer-specific knowledge in that it was more comprehensively related to the industry and other areas of systems development.

The role of learning-by-doing was especially high given the customization of the MIR to the different ways of uploading the materials into MAS. *The customer-specific knowledge* was essentially tacit and needed to be acquired through the development of solutions and the discussion of issues with AM’s representatives. The details of AM’s editorial process were considered relevant to the development of MAS and its tailoring to customer needs.

“... [we] also went through the process... details, that it’s not important for the overall process, but for the sake of the developed system...”

Thus, the parties were concentrating on getting TE to understand the existing differences and material sources and flows that had to be taken into account in the MAS development.

Because much of the learning was related to *system-specific knowledge*, i.e. the integration of the existing operational systems into the MAS, the bulk of it was learning-by-doing during the integration projects. For example, since the META data from the editorial system was being utilized in the archive, TE needed to understand how the system was used and how the information could be uploaded. It also had to understand the operational processes in the newspaper organization, and how, for example, a freelance photographer took images and inserted them into the editorial system, and furthermore what this meant in terms of archive development. In addition, as the processes seemed

to differ among the newspaper organizations within AM, and any differences and nuances had to be picked up as the changes were being put into the system.

"... their knowledge has increased probably partly through their own activities in acquiring information and partly probably through the fact that they needed... really then to deal with this process and to understand it, that this is one... part of the editorial process..."

TE also had the chance to participate in AM's internal seminars during which the different newspaper organizations presented their problems and views concerning their archiving processes. This was important as it mediated the fragmented nature of AM's organization to TE, and emphasized the role of system scalability. The role of problems in terms of gaining experience was highlighted during the interviews at TE.

"... so then to find the right spots, it requires that experience in the customer's operations... [it's] like very person dependent."

TE also gained significant insight into the editorial and archiving process through workshops in which the representatives were able to discuss matters with the people responsible for the archiving process at AM. The user needs regarding the user interfaces and the usability of the archive were discussed by the people involved in the daily archiving tasks. The number of people participating in the workshops and meetings was usually limited, and often included only the main contact people from both organizations. The next step was to include more people from AM's organization in the development work so that the user needs could be better communicated. On the other hand, it was also emphasized that the main contact people at AM were important sources of industry expertise, especially in terms of the subtleties of the industry and the general business logic.

Project-management-related meetings were not considered an essential source of knowledge, however, because they concentrated on past issues or future planning. The actual implementation of the software and the related problem solving happened somewhere else. Thus, it was argued that system-specific and customer-specific knowledge in particular was best acquired in a real problem-solving situation.

Besides all this, there was dialog between the organizations in which TE took an active part in finding and suggesting new development opportunities. Thus, its role in the discussions and workshops had changed from the early stages when it was mainly concerned with absorbing knowledge about the customer's processes and development needs.

"... idea generation about how you really should do these things... so in a way also giving hints to the customer on whether you could do it like this or change the process..."

The acquisition of industry-specific knowledge took place mainly during the workshops and consultation sessions, and in the informal interaction between TE and AM's personnel and management. To some extent it was not directly included in the projects and was not mutually aimed for or supported. In the main, the knowledge and expertise were acquired in discussion and face-to-face interaction between TE's and AM's personnel. In addition, TE's internal discussions were mentioned as an important source of more comprehensive view of industry-specific knowledge, and knowledge concerning the terminology and some general issues related to the editorial processes was available from other sources, such as printed materials. TE also held frequent discussions with other industry actors, but these were limited as far as the subject of archiving was concerned. However, in the wider context of systems development and other related projects in the media sector, the wide-scope of inter-organizational relations and dialog was considered more important. Moreover, the acquired knowledge was considered closely related to the system and the materials in question, and to the processual side of the customer's operations. *This made industry-specific knowledge more difficult to acquire because the customer- and system-specific knowledge were closely interrelated.*

Consequently, industry-specific expertise was also acquired as a result of a more lengthy process of learning-by-doing, which both organizations referred to as still very much on-going. When TE's people became familiar with the terminology, the customer-specific processes, and the role of the operational systems in the editorial process, they were better able to understand how and why the system needed to be developed.

"... how you're able to extend it there bit by bit... by discussing with the customer, in these training sessions in particular, by studying the customer's operations, reading more, ordering Suomen Lehdistölehti [a magazine about the Finnish Newspaper Industry], discussing with others, and combining that information in this way..."

This initial customer- and industry-specific knowledge enabled TE to start working, but the more specific differences in the processes had to be discussed as they emerged. Thus, TE made the effort to learn the terms and processes used in the newspaper industry early on in the project by reading literature on informatics and the editorial process, as well as industry-specific magazines. These issues were briefly discussed with the customer, but no extensive training sessions were organized. It therefore took a while for TE to gain experience and understanding because it was not possible to absorb everything in the short training workshops without understanding the context and content of the daily processes and problems. Discussion with other customers also

helped in opening up a fuller perspective on the whole industry and the different approaches to the archiving and editorial processes.

The TE people had to put effort into acquiring basic knowledge about the newspaper industry and about archiving in order to be able to help the customer. It was acknowledged within the company that the building of a partnership required a certain level of effort and investment in developing an understanding of the customer's processes. There were some resources for training and development, and the individuals were, in fact, considered motivated to learn. The company also apparently recognized the need to invest in learning about the industry in terms of the types of IT systems used and the nature of the solution-development work.

In this specific customer relationship, the effects of knowledge acquisition (i.e. the storage and retention phases) were said to be most visible in the results of the projects. This also showed in the need for fewer iteration cycles in the development work, and in the decreased time and effort required for the projects. Firstly, it seemed that moving from customer need to customer solution took considerably less time than during the early parts of the relationship. Secondly, the development projects also required fewer and fewer resources from AM as TE gained a better understanding.

However, *the most important results of the knowledge acquisition were considered to lie in the developed systems, modules and functions, and in TE's increased ability to find new development ideas at the customer organization.* TE gained enough understanding of the customer's operations and processes to enable it to improve the logic of the system and make it more easy to use. Thus, it introduced small innovations related to the system as part of its daily work, and more importantly the development of MIR was considered a major innovation resulting from the partnership.

On the other hand, it was not possible to convert all knowledge directly into a piece of source code, and industry-specific and customer-specific knowledge in particular were more supportive of TE's ability to develop solutions than anything else. As a result, TE was able to work within the specific environmental context, helped by its understanding of the media industry and the possible development needs of archiving and other operational systems. AM saw the productification potential of the systems as positive: it did not wish to be pioneers in terms of solutions and preferred tested products with extensive support and clear development plans.

There seemed to be limited consideration of further knowledge acquisition within the partnership, although the reciprocity of the learning process and the mutuality of benefits were thought to be potential areas. AM was hoping for more active involvement by TE in idea generation, and expected clearer recognition of its input regarding TE's development of industry expertise.

"...we still have to think here in relation to the usability of the user interfaces and how they are related to the processes... [people at TE aren't] experts in the creation and post-processing of our material streams..."

In addition, TE participated in AM's internal dialog about the MAS development needs in terms of the kinds of functions that were needed and how the META data could be utilized. These discussions included feedback and questions from TE to AM about how things could be done more effectively. This kind of discussion in particular could be considered a form of co-operational sense making. Including more people with relevant but varied backgrounds (in terms of their role in the archiving process) in the workshops was also mentioned. It was considered important in terms of facilitating TE's knowledge acquisition and bringing in relevant viewpoints from the end-user-level to the systems-development process.

The level of dissemination of the acquired knowledge at TE was also fairly limited, especially regarding industry- and customer-specific issues. Matters related to the processes and the usage of the systems, and to the differences between newspapers, were constantly discussed with AM, but there had been no specific diffusion efforts within TE's organization. The fact that TE had developed this type of system for AM was acknowledged within the company, but there had been no specific internal workshops or presentations in order to share the experiences internally. Thus, the dissemination of the acquired knowledge within TE and between the experts in different parts of the media value chain was essentially an on-going process.

It was also recognized at TE that the acquired knowledge was strongly concentrated on its own main system developer, although his supervisor and other team members were also considered capable and well informed. *Still, most of the system- and customer-specific knowledge that was acquired during the daily development work and in a number of workshops resided within one person.* The industry-specific knowledge was more widely spread between these two above-mentioned people. The limited dissemination of knowledge was recognized as a potential problem in both organizations, and there was active transfer of documentation and knowledge about the system back to the customer. The development of meticulous documentation processes was problematic, however, because the resources for the project were limited. *This lack of resources also prevented the acquired knowledge from becoming diffused further and exploited more comprehensively within TE and in other projects.* Consequently, the exploitation of the acquired knowledge was dependent on the people involved in MAS development, who were considered more capable of asking the right questions the next time they were called upon to develop a similar solution for another customer.

Thus, AM's role was supportive of TE's learning efforts in this sense too although it wanted TE to recognize its role in the dialog more clearly. More importantly, there seemed to be a mutual need to increase the level and depth of that dialog with regard to the customer's processes and the use and development of the MAS. Still it seemed that there was no shortcut to acquiring knowledge that was highly customer- and industry-specific, and the role of close social interaction between the organizations was critical. The elements affecting the knowledge acquisition are discussed in more detail below.

7.7.5 Elements in the Knowledge-acquisition Process

One should also consider other elements affecting knowledge acquisition outside of the relationship context. Thus, the roles of prior knowledge, the organizational culture and shared identity are discussed next.

There were some notable and clear similarities and differences between the organizations on a more general level. Although both were big corporations with units in several locations around Finland, they were still quite different. TE was big but fairly inflexible as an organization, especially compared to AM in that media companies often need to be more flexible and fast acting when new ideas emerge. However, in terms of systems development, TE's inflexibility was considered a good thing as it ensured that clear procedures would be followed in an organized and systematic manner.

"... [One could argue that] a big actor is rigid and it's not innovative... but it's very easy to work then... in a way for the sake of contracts and project management and reporting there are specified ways of [dealing]..."

This was further related to the good level of documentation, which was considered a clear benefit when cooperating with a big player. Despite its size, TE's resources for the MAS development were limited, although more were allocated from other parts of the organization when necessary. TE was also considered to be fairly straightforward in terms of its organizational structure, with quite strict management authority over its industry-specific units. Furthermore, the culture was very learning-oriented, and this formed the basis of its corporate strategy.

In comparison, AM's organizational structure was fairly complex and dispersed. It had its coordinative and administrative units, and a number of independent newspaper organizations, but in terms of internal decision-making there was no clear corporate chain of command through which regulations could be enforced. The organizational culture was considered

rather hectic and fast-paced. Furthermore, there was no clear cooperative culture, even in systems development. The organization was very concentrated on its daily product and was used to working with smaller companies that only took care of specific parts of the systems. Thus, building a cooperative culture within the relationship was considered valuable, but it was also something that needed to be worked on.

The organizational and cultural differences and similarities were not considered especially relevant in terms of knowledge acquisition within the relationship. Moreover, the fact that the companies formed a partnership was seen to affect the levels of communication and learning. The organizational structures of the individual companies as such were not considered important, but the ways in which the relationship was organized and the relationship atmosphere had developed were considered critical.

The number of technical people involved in the relationship was reduced at the time of the re-organization, as they were not concentrating so much on the usage of the system as part of AM's editorial process. There had also been some friction between the downsized personnel and TE's product-development people at times when their thoughts about the MAS development were not totally compatible and the coordination of the various projects was unorganized. Thus, the level of shared social identity appeared to have developed in a more positive direction, and the level of personal relations seemed to have improved considerably during the period after the re-organization.

Thus, the level of shared identity essentially changed as the relationship developed (see Figure 52).⁹⁹ The individuals involved in it after the re-organization had good personal relations, and seemed to have a certain kind of personal connection. Communication was considered very open, informal and direct, and it was possible to give negative opinions without having to find a nice form of expression. The cooperation between the main technical person at AM and the main systems developer at TE was very close and they were in daily contact. However, the fact that there had been problems with the projects in the past seemed to affect the level of inter-personal trust and relations during the later stages, although the unorganized state of the relationship did not seem to be attributable only to TE. Yet, the current problems seemed to be between TE and the editorial organization at AM rather than among the team responsible for the AM system.

⁹⁹ It should be noted that it was difficult to analyze the shared identity in the different phases of the relationship (before the time of the re-organization vs. at the time of the interviews) due to the fact that many of the people involved had changed.

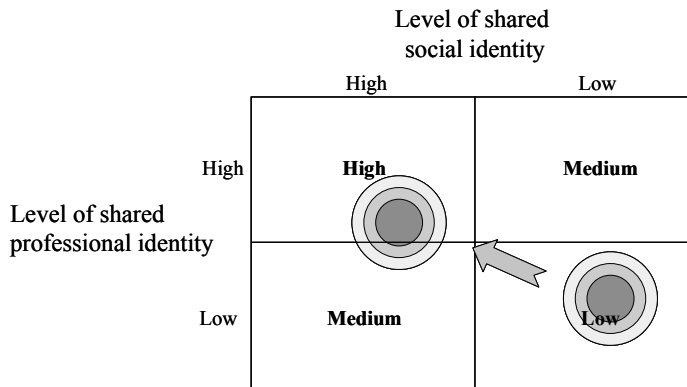


Figure 52: The Level of Shared Identity in the TE-AM Relationship

There had also been a lot of personnel changes and re-organization at TE, and this diminished the level of shared identity especially earlier on in the development work. A further challenge in dealing with AM was the fact that it was not like one big corporation, but comprised many small newspaper organizations that were fairly independent, and there was not one way of doing things. In addition, TE had limited contact with the people involved in the editorial process, and mainly communicated with the technical personnel¹⁰⁰. Thus, the level of shared identity was not considered particularly high to begin with. On the other hand, there was a large number of people with whom to communicate, and the role of the MAS users would be further increased in the future in order to make the system more widely applicable. Furthermore, after the re-organization all the main people involved were located in Finland fairly close to each other and had a common language and cooperative structure, which made the interaction and communication easier.

The individuals most closely involved in the relationship were all male and enthusiastic about sports, which created a sense of a common background outside the working environment. They used to meet on a more casual basis every once in a while at volleyball matches, for example. However, this was not recognized or especially highlighted during the interviews as a factor affecting their ability to learn within the relationship. Yet, the closer to the implementation level one came in the interviews, the more the role of chemistry as a factor affecting the level of communication and cooperation seemed to be emphasized.

"... of course it helps if you're friends with the customer, but it's still usually enough that you respect the customer... want to genuinely

¹⁰⁰ A couple of the key contact people regarding the operational systems also changed during the last few years, which made the communication challenging at times.

understand why he's so angry or why he sees things in a specific way..."

Still, it seemed that the level of inter-personal relations, and subsequently of shared identity, depended on the individuals' ability to work together. The level of shared identity was also dependent on TE's customer- and industry-specific knowledge, which was deemed essential in terms of understanding the customer on the mental level. Thus, the two dimensions of shared identity could be considered closely related.

The level of prior related knowledge also appeared to be a relevant issue. In fact, before the re-organization at TE there was limited prior knowledge regarding the development of archive systems. The Swedish unit had developed the TRIP database, and was considered technically very capable, but had limited understanding of the media industry. Once the Finnish unit took over the project, the situation changed and there was more understanding of the customer-specific needs. The project manager had extensive experience in the newspaper business, and had even done some editorial work in the past. He also had previous experience working with customers in the media industry, which gave him a good basis on which to build further customer- and industry-specific knowledge. The main system developer in Finland had limited prior knowledge about the media industry as such, but was well acquainted with the TRIP database. The other members of the development team, who were used only occasionally in the project, were technically qualified, but had limited prior knowledge about the customer and the database.

The main informatics unit at AM was downsized at the time of the re-organization. Furthermore, the company had limited capabilities and knowledge in the areas of systems development and project management. However, after the re-organization it started gaining more technical and system-specific knowledge about the MAS, which made the communication about specific project tasks and development needs easier.

More general comments on issues that were less relationship-specific were also made during the interviews. A higher education was considered important in complex systems-development work in that it facilitated the search for knowledge and promoted independent learning. Still, it was acknowledged at TE that its people were mainly professionals in IT and not in the media industry, and that was, in the end, what the customer was paying for.

"... what we're paid for... where we need to be on the front line, that is indeed IT and finding ways to utilize it. And then the kind of industrial understanding unfortunately comes in second place..."

TE put in extensive efforts in order to understand the customer and its industry. As stated in the description of the knowledge-acquisition process, the

problem-solving and learning-by-doing situations were considered the most effective. Thus, the knowledge acquisition was seemingly also dependent on the iterative development of the related knowledge base through the gaining of experience. *This points to the sense of a shared mindset within the relationship, which developed quite clearly after the re-organization* (see Figure 53).

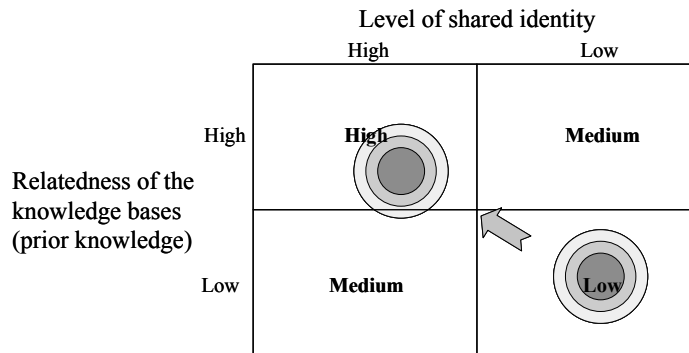


Figure 53: The Organizations' Ability to Develop a Shared Mindset

As the customer organization gained some technical understanding to complement its more business-concentrated thinking the level of shared mindset increased and the daily development work was made considerably easier. On the other hand, the limited experience in systems development and project management made the work more challenging. Still, the improvement in the relatedness of the knowledge bases was significant over the years of cooperation. Thus, the shared mindset had been developing since the re-organization of the relationship, although the number of people involved decreased. Furthermore, the changes appeared essentially to derive from knowledge acquisition, which enabled TE to understand its customer better. Furthermore, it seemed that this shared mindset was still quite strongly concentrated on MAS-related issues, as understanding of the wider context of the customer's needs was limited.

In conclusion, one could say that the changes in both organizations had negative effects on their learning, as the development of knowledge is cumulative. However, there were also positive effects due to the development of the relationship context and ISK. People became closer and agreed on clear relationship structures, and they seemed to have a higher level of interpersonal trust. Moreover, the level of communication was essentially higher, and a sense of shared understanding built up through the relationship structures, the personal relations, and the acquisition of customer- and industry-specific knowledge. Consequently, it seemed that the issues affecting

the easiness or difficulty of learning were also related to the methods utilized in learning. The need to understand the customer and to develop good interpersonal relations was emphasized, and much of the knowledge acquisition took place through gaining experience. In the end, a significant finding was that the active development of a shared identity was not discussed between the parties, although the steps taken over time took it in a positive direction. Moreover, it still seemed to be strongly related to the level of inter-organizational learning.

7.7.6 The Effects of the Relationship Context on the Learning Process and on the Further Development of the Acquired Knowledge

As TE wanted to become “the solution provider” for the media industry, it also needed to put effort into gaining industry-specific knowledge and expertise. The interplay between the relationship context and knowledge acquisition is further discussed next, and then the development of competences and the relationship context are analyzed more closely. The biggest changes *in the level of power dependence* between the companies seemed to be closely related to the level of knowledge acquisition (see Table 10). The introduction of the TRIP database was the starting point of the relationship, and fostered the initial dependence of AM in that it was a big investment for a newspaper organization. This also initiated the knowledge-acquisition process concerning the use of archives in the newspaper industry and its customization needs.

The second major milestone referred to in the table was the re-organization of the relationship. At that point AM outsourced some of its own resources and became increasingly dependent on TE as a result. This put further emphasis on TE’s learning efforts within the partnership, and increased AM’s role as a customer and reference. The subsequent development of the cooperative structures further increased the level of knowledge flow in that TE had more comprehensive communication structures and knowledge sources available. The development projects that followed were considered to be the most important sources of knowledge within the relationship, and further increased AM’s dependency. Moreover, the archiving system was such a big investment for a newspaper that similar customer relationships were few. Thus, it was an essential source of knowledge and experience for TE, besides being an important reference in the media industry.

TE strongly emphasized the need to understand the nature of the customer’s industrial context in order to be able to apply the technical know-how. It could be argued that this further increased TE’s dependency in terms of its future customer relationships and abilities. Finally, losing MTV was a setback for TE

in terms of seeing AM as a customer, although it was still cooperating closely with MTV. On the other hand, TE's aspirations to develop a national archive and AM's support for that were considered potentially significant in terms of the level of inter-organizational trust and commitment. The archive development would have reduced AM's dependency on TE as the number of customers would have increased. At the same time, the need for further investments and resources from TE's side would have been emphasized. However, since the plans for the national archive were abandoned, AM's potential to TE in terms of MAS development decreased considerably.

Table 10: Changes in the Partners' Power Dependencies in the TE-AM Relationship¹⁰¹

<i>Milestone in the relationship development</i>	Introduction of TRIP	Re-organization of the relationship	Development of cooperative structures	Introduction of MIR and development projects	Acquisition of MTV by Bonnier	Acquisition of system-specific issues	Acquisition of customer and industry-specific issues
<i>TE's dependence on AM</i>	-	↑	-	↑	↓	-	↓↑
<i>AM's dependence on TE</i>	↑	↑↑	-	↑↑	-	↑↑	↑↑
<i>Implications on the level of TE's knowledge acquisition</i>	↑↑	↑	↑	↑↑	-	o	o

The knowledge acquisition within the relationship seemed to increase AM's dependence on its partner in particular. TE was the only solution provider to have developed such a deep understanding about its archiving and its role in the operational processes. Still, the dependency was mainly seen as limited to the MAS development. As far as TE was concerned, however, it was increasing as a result of the knowledge acquisition because it had invested time and effort into the relationship. However, its ability to gain industry-

¹⁰¹ In the table: ↑=slight increase, ↑↑=considerable increase, ↓= slight decrease, ↓↓=considerable decrease, -=no notable effect, o=not applicable for analysis.

specific knowledge also reduced the dependency in that it was able to use its expertise in other media companies and other areas of systems development.

The level of dependency was further related to the development of the relationship and to knowledge acquisition. Although there were no specific reward schemes used, both of the companies seemed to be committed to TE's learning efforts. What was important was that AM also considered these efforts a positive sign and an essential element in the knowledge-acquisition process. The aim to facilitate TE's knowledge acquisition was mutual in the sense that AM also understood that if TE had access to the right kind of information and understood its needs better, it would be better able to provide a working system.

Still, knowledge acquisition was not considered particularly conscious in this specific project because understanding the customer-specific needs in order to customize the product was part of a normal project process at TE. *Consequently, acquiring industry-specific knowledge within this project was not made a clear mutual aim.* Neither was there a clear learning phase in the relationship covering industry- or customer-specific knowledge, which was acquired as part of the project process. Consequently, the acquired knowledge was very closely related to the archiving process, and more comprehensive industry expertise remained limited. Yet, there were a few issues that the companies considered worth further effort and wished to improve.

AM was hoping to benefit more clearly from its teaching efforts, and was expecting to see closer communication in the acquisition of industry-specific knowledge. It found the situation difficult in the sense that it felt that TE had been the receiving party in terms of knowledge. This applied in particular to customer- and industry-specific knowledge, which was considered essentially tacit and valuable. AM was not totally satisfied with the way in which this accumulation of knowledge and experiences at TE had become visible in the form of systems-development ideas and industry foresight (in terms of business or systems development). It was hoping for more long-term visioning and planning from its partner.

"... another side [of industry-specific knowledge] is then... how this industry development will take place in the future... what new things are on the horizon, which way it's going to go, what its [TE] role is in that... in understanding this kind of industry development..."

On the other hand, more comprehensive consideration of the relationship context between one of the biggest media corporations and one of the biggest solution providers in Finland clearly reveals major implications for the partners and even for the media industry more generally. TE was a big solution provider, and AM thought it was a good thing that it was interested in developing systems for the media industry. AM, in turn, considered it essential

to develop a close relationship with TE and to communicate about its development needs. *Thus, from AM's perspective, the major potential advantages of cooperating with TE lay in the development of innovations through the integration of different resources: TE had experience in archiving as well as in CRM systems and circulation management.* AM was also hoping for more open discussions regarding the development of the media industry and archiving from its own perspective, and regarding the development of various products and technologies from TE's perspective. AM also recognized that knowledge acquisition within the relationship was quite strongly related to the archiving system and its implementation. Thus, the acquisition of more comprehensive industry- or customer-specific expertise, in terms of editorial processes for example, was limited. On the other hand, TE admitted that there was a need to increase the level of dialog concerning the development of the industry and of technological solutions in different areas of a newspaper organization's operations.

"...this archiving system, in the editorial process of the newspaper it's limited to the relation between the editorial system and the archive..."

On the other hand, the partnership more generally had only started to shift towards a strategic level partnership. The companies had discussed issues such as business development and potential systems-development needs on the strategic level, but the number of projects did not correspond to what was the norm in a strategic partnership. However, some new projects were given to TE in late 2006 and afterwards, which seemed to bring the companies closer together. Still, it seems that the acquired knowledge was partly related to issues that did not correspond to the specific expectations at AM. The more comprehensive view and anticipation of future developments seemed to be related to other parts of TE's organization, and to other customer relationships in the newspaper industry. It was thus at least partly related to the wider context of the relationship between AM and TE, outside of the MAS development that was the focus of this case study.

"... they [TE] are anyway working with the customers and the technological solutions developed for them, so then the scenario side is left with somewhat less attention..."

Thus, it could be said that the partnership was still developing. The companies did not have a clear mutual strategic aim that would have facilitated more comprehensive discussion, but it was emphasized that the high level of trust and the moderate level of shared identity supported the knowledge acquisition. Furthermore, the commitment of the project personnel to MAS development was considered high in both organizations, although the lack of broader mutual commitment could have limited the knowledge acquisition in the wider context.

In spite of all this, TE and AM had an active dialog going on the subject of MAS development. TE was actively involved in finding new development opportunities and thereby developing a solution that could be utilized more effectively. The contract as such did not specify any time period reserved for learning about AM's processes and business, and thus there were no specific investments in knowledge acquisition as far as TE was concerned. However, the processes and user needs were discussed during the workshops and meetings, which were at least partly paid for by the customer. TE had only limited resources for MAS development, and it was argued that the acquired knowledge was mainly visible in the development of new MAS solutions, and in a broader archiving context, of business- and system-development needs in the newspaper industry.

As far as industry expertise was concerned, the aim at TE was to utilize the acquired knowledge in other similar relationships as well as in other projects in the newspaper and media industry¹⁰². AM, in turn, was hoping to develop clear structures and mechanisms to facilitate the exchange of industry-specific knowledge.

"... but then what about all that other knowledge and understanding about what has emerged from that theme and which they take advantage of in all their other customer relationships..."

For example, AM was willing to cooperate with TE in developing a new editorial system for the newspaper markets, but before entering into deeper discussion it wanted to make sure that this type of knowledge acquisition would be compensated somehow without its having to commit to buying the product later on. This shows that AM was active in terms of TE's learning, but wanted to have clear mechanisms in place for projects outside of the archiving system. It was suggested that issues related to industry development could be more openly discussed in case TE could subsidize these in somehow in MAS development.

¹⁰² The acquired archiving expertise was developed and utilized further within TE, particularly in other customer relationships in Scandinavia, but also outside the media sector. Even some of the functions of MAS had been utilized outside the media sector, but the project-team members had not been involved. The utilization of the developed systems, on the other hand, had only been considered a potential future development.

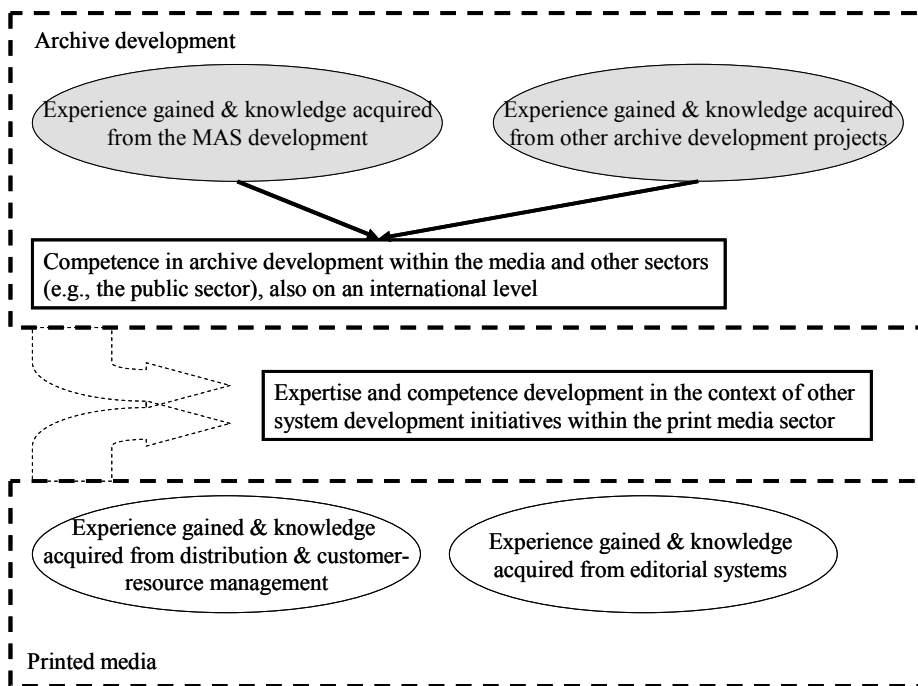


Figure 54: The Development of Competences Based on the TE-AM Relationship

Thus, two different levels of knowledge sharing and competence development emerged at TE (see Figure 54). The first was the within-business-unit (Telecom&Media) development of more general competence related to the printed media through experience gained in different areas of systems development, and the second was concentrated on archive development in other industries.

"...in the product business here... what we have learned from AM and a big newspaper house with a huge amount of newspapers and this kind of multi-channel operations, its weight is less ... here too you could say that it's... industry understanding, understanding the industry process is the biggest lesson learned."

Furthermore, despite the fact that the relationship had a long history, it seemed to lack mutual strategic aims, although the future development of the industry seemed to offer some potential. As the customer did not seem to be strongly committed to it, the supplier was also somewhat reluctant to invest heavily in developing the interaction. Although the MAS-related relationship was considered trusting, the partnership in general seemed to be lacking in commitment and mutual intent. Thus, it could be argued that the relationship context significantly affected the knowledge acquisition.

7.8 A Cross-Analysis of TietoEnator's Relationships

7.8.1 The Development of the Relationship Contexts

Although both cases were related to the same company, the relationships were fairly different in nature. The TE-MTV relationship was strong in terms of trust and commitment, which also entailed extensive interdependency. The TE-AM relationship, on the other hand, had high levels of trust, but limited levels of commitment and anticipation of further cooperation. It is essential to understand the basis of the relationship context because it seemed to have an effect on the type of knowledge being acquired, as well as on the level of tacitness of the acquired knowledge. Furthermore, there were also implications as far as the learning process and the development of inter-organizational sensitivity to knowledge acquisition were concerned. These issues are considered more carefully in the following cross-case analysis of TE's relationships.

On the more general level, it should be noted that with MTV there were quite extensive *relationship-specific costs*, whereas in the TE-AM relationship such investments were clearly more limited. The intent to learn seemed to be strong in both, relationships, and support structures were developed. It seemed that TE was used to setting up relationship-specific organizational structures in bigger projects and when there was more extensive customer cooperation, and this enabled the partners to coordinate the development of the relationship and the number of projects. However, it was significant that outside of the shared infrastructure, the investments were mainly related to cooperation and interaction, and were thus limited in monetary terms.

It was also emphasized that opportunism was not considered a major problem in either of the relationships. The fact that TE had more than one competitor as a customer was rather considered a positive thing because it ensured a certain level of competence in developing solutions and systems for customers dealing with the challenges of the media industry. However, TE needed to make sure that the customers' strategically important information would not be misused.

More generally, trust in the relationships was considered to derive from a variety of issues. In terms of network implications, the relationship with MTV in particular was considered important as far as TE's role in the media sector and its international growth were concerned. The relationship with AM, on the other hand, had a more limited influence on its position and power within its focal network. TE was also looking for broader cooperation initiatives within

the respective industries. With AM the aim was to find larger development projects within the Finnish newspaper business, and with MTV it was to seek international or Finnish coalition opportunities, or then to establish cooperation across business areas. These relationships enabled TE to prove its competence in the media industry, at least to some extent, and established it as a reliable solution provider for media companies. These issues were also important in terms of the companies' expectations of future cooperation.

Trust was also considered to be a result of TE's size and of the quality and availability of its resources. As far as the basis of trust was concerned, in the relationship with AM it seemed to be related more to the previous positive outcomes, to TE's abilities and characteristics, and to the level of interpersonal trust, although in general it seemed to be more of an arm's-length relationship. The companies had been cooperating for a long time, although not very successfully at first. Yet, as new systems-development projects were launched, TE was able to gain a better understanding of AM's needs and archiving processes. Thus, as the level of trust in TE's abilities and of commitment to the archive development increased, TE's learning increased. The basis of trust in the TE-MTV relationship, on the other hand, was fourfold: TE's abilities, the companies' and the individuals' characteristics, the initial efforts and investments, and the future expectations. The relationship developed in a positive cycle of TE's learning efforts and systems development from the very beginning.

On the other hand, one could argue that the extent of learning effort and knowledge acquisition within the relationships, and the investments in human resources (and even the personnel exchange in the TE-MTV relationship) increased the interdependency between the partners. The relationship with AM clearly involved more customer dependence, and notably lower levels of interdependence. With MTV, on the other hand, the development of interdependency was quite clearly related to the mutual learning efforts, and also to the future potential of the relationship and the developed systems. Outsourcing increased the level of dependence from MTV's viewpoint, but on the other hand, it also increased the level and quality of TE's customer-specific knowledge and resources.

There was clearly a more committed and mutual aim within the TE-MTV relationship to develop it further. With the AM relationship, on the other hand, the focus seemed to be on updating and maintenance, and on the limited development of the MAS. Thus, it seemed to have limited potential in terms of extensive system development or extensive market expansion of the archiving system. The relationship was considered important by both partners in view of the essential role of the companies in their respective industries. AM was an influential reference and had business potential for TE in other areas of

systems development. The MTV-TE relationship was more concentrated on the systems developed by TE. The partners cooperated actively and the amount of customer-specific resources was constantly rising. There was still extensive development work going on, but the relationship also offered business opportunities abroad in terms of systems development in media industries.

The most significant result of the comparison made here would seem to be that the relationship context and its nature were clearly related to the type and amount of knowledge acquired. *In addition, it was not only a question of high levels of trust and the importance of the network implications, and there was a clear emphasis on mutual commitment and the mutuality of learning intent.* Furthermore, the interdependency between the partners seemed to feed the need (or the recognition of the need) to exchange and acquire knowledge and the level of mutual commitment. The nature of the learning processes and the role of ISK are discussed in more detail in the following.

7.8.2 Knowledge Acquisition in the Relationships

As discussed, TE's relationship with MTV seemed more mutually committed than the TE-AM relationship. Furthermore, and more importantly, this also had implications as far as the level and type of knowledge acquisition within the relationship was concerned. It also seemed to affect the number of diverse working methods used in order to acquire knowledge.

The types of knowledge acquired within the relationships were roughly similar. At the same time, the customers appeared to acquire an understanding about IT-related development possibilities and how the solutions could be utilized in their businesses. However, in relation to the depth of the specific sub-types of knowledge discussed earlier, one could argue that the TE-MTV relationship was a more intense partnership in terms of learning: due to the nature of the relationship contexts, the mutual aim to learn and the future aims were considered more important. There was extensive acquisition of system- and customer-specific knowledge in the TE-AM relationship too, but the intensity of industry-specific knowledge acquisition was emphasized more in the relationship with MTV.

The methods utilized to acquire knowledge were also quite similar, although the more tacit areas, i.e. customer- and industry-specific knowledge, required more versatile and interactive learning methods. The key people usually acquired their knowledge and experience through their involvement in the development of the customer relationship and in specific workshops, discussions and even training sessions with the customer. It was strongly

emphasized that, as far as the more tacit knowledge was concerned, workshops and learning-by-doing were the most important sources of knowledge. The relationships were quite similar in the sense that both were related to the operative systems of the customer. This meant that in order to make the development work, TE had to acquire an understanding of the existing systems, their use (and thus also the customer's industrial context and basis of business operations) and interrelations, as well as the way in which the processes needed to be supported by the developed systems. The use of workshops in this context was quite similar in both relationships, although with MTV there was a need for a broader understanding of the processes and systems. With AM the projects were related to the customer's archiving and, to some extent, the editorial process, whereas the MTV relationship involved a more comprehensive mix of processes. Moreover, the exchange of personnel was an additional factor in the TE-MTV relationship. TE insourced parts of MTV's IT personnel and also had people constantly working at MTV's premises. Consequently, a useful way of looking at TE's ability to acquire highly tacit knowledge would be through the analysis of cooperative sense making within the relationships.

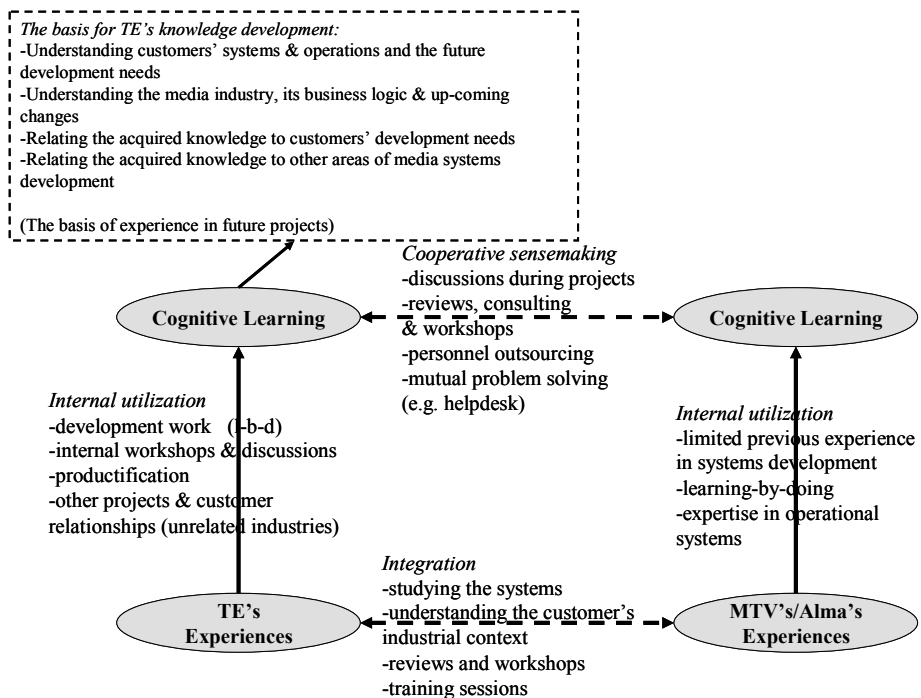


Figure 55: Co-operative Sense Making within TE's Case Relationships

As Figure 55 shows, knowledge was acquired and developed on several levels in the relationships. *The integration of the partners' existing knowledge base was extensive, and the partners also engaged in cooperative sense making.* Previous experiences were integrated through studying the systems together with the customer, in system reviews and workshops, and through trying to understand the customers' industrial context. On the other hand, it should be noted that TE's understanding of systems development was high before the project, and it also had some understanding of the industrial context. However, it did not have experience in the specific context of the customer, its systems or processes. The customer, on the other hand, had only limited knowledge of project work related to systematic systems development, and at times this seemed to affect the partners' mutual understanding.

MTV had a deep understanding of the systems and their "historical" development. *However, acquiring this kind of tacit knowledge and understanding was not easy for TE, and it essentially had to build up its own experience.* It also required an understanding of the underlying assumptions about the systems-development paths and the customer's processes, which could only be gained through extensive interaction and communication. Furthermore, it was only through mutual experiences, in other words co-operational sense making, that TE was able to develop an understanding about the customer's business processes and industrial context, and how these were related to the systems development, and to bring its own technological and industry expertise into the development process.

Apart from sharing their previous experiences, the companies also actively worked together in order to develop a shared understanding of the challenges they were facing. Furthermore, the true nature of the customers' operations was often unclear to the customer organization, which again required cooperative sense making. As a result of these efforts and TE's own internal utilization of the shared experiences, they were able to enhance their knowledge in several key areas. TE became familiar with the customers' systems and operations/processes as well as their systems-development needs (including the ability to develop the solutions). Secondly, it developed an understanding of the media industry, its business logic and commercial practices, the nature of its operations, and the up-coming changes in the industrial context. Finally, it gained some understanding about how its acquired industry expertise could be utilized in other areas of systems development within the media industry as well as in other related industries (e.g., mobile phones).

In terms of inter-organizational sensitivity to knowledge acquisition and TE's abilities to learn, the partners seemed to be quite active in both relationships. In both cases it was understood that TE needed to acquire

knowledge about the processes and the industrial context, in addition to the purely system-specific knowledge, in order to do its job. However, the interaction between the organizations in the MTV relationship was more extensive in terms of the number of people participating in the projects, and the working and learning methods used and the governance structures imposed were more varied. *In the end, both of the relationships had clear and mutually set aims for further developing the knowledge acquisition.*

On the other hand, the TE-AM relationship seemed to involve the acquisition of knowledge that was less tacit, which could be argued to highlight the role of a shared mindset. Thus, the levels of a shared identity and a shared mindset appear to be related to the type of knowledge being acquired. Furthermore, it could be argued that the development of ISK is related to the type and tacitness of the knowledge, and consequently its potential value to the receiving organization. The further development of the acquired knowledge into competences is discussed in more detail in the next section.

7.8.3 The Development of Competences within TE

Analysis of the further development of competences on the basis of the knowledge acquisition in TE's case relationships reveals certain opportunities, but also a number of challenges. Although the companies were able to acquire even highly tacit knowledge, its exploitation outside of the specific customer relationship was not easy. Furthermore, the most valuable and generally applicable knowledge seemed to be related to the more general industry expertise that had been acquired and diffused in a more limited manner rather than to the more specific system-related knowledge more widely gained within the relationships.

"...our task is then to find these painful points in the customer's processes, know the trends and the customer's customers as well as the people that have an effect in the media industry... so that we have very good customer intimacy. We know our customer well..."

In assessing the value of the acquired knowledge and its further development into competences, one must consider its exploitability, rarity and immobility. *In these two case relationships the knowledge was mainly industry- and customer-specific.* The developed understanding of the customers' systems and processes, as well as of their future development needs, was more customer-specific, but the industry-specific knowledge was more general. However, there were only a limited number of potential TE customers in Finland in these sectors, and the acquired knowledge could be

considered relatively rare and immobile. Nevertheless, the aim was to exploit it further, which was done on four levels (see Table 11).

Table 11: Competence Areas for TE's Knowledge Development

	<i>TE-AM</i>	<i>TE-MTV</i>
Exploitation of knowledge within the case relationship	Done	Done
Development of competences through cross-customer exploitation	Done, limited	Potential, limited
Development of competences through cross-system exploitation	To some extent	Not considered relevant
Development of competences through cross-industry exploitation	Not considered relevant	Potential, limited

Most of all, the acquired knowledge was visible in the case relationships in the form of an increase in TE's abilities. In addition to that, TE aimed to exploit its enhanced system-, customer- and industry-specific understanding in other similar relationships. The relationships were considered important in the sense that they enabled TE to become more familiar with the operations within the customer organizations. With MTV it was able to gain experience in the broadcasting business, which it was able to use in other similar customer relationships. Similarly, it had gained experience and understanding about the archiving and editorial processes at AM, which it utilized in other archiving projects (outside the media sector) and in other solution-development projects in the media sector.

"... the profound business know-how is of course always there with the customer... our strength [lies in]... understanding technology and understanding the future of technology..."

The customer was naturally the best expert on its own business, but TE needed to have an understanding of the internal processes in order to develop the systems to support them. *Thus, TE gained an understanding and experience of solving customer-specific problems in a specific industrial setting, which was the basis of its competence.* Therefore, as discussed in the literature, it was not necessarily the solutions themselves, but the experience of coming up with them that mattered. As discussed earlier, TE had some experience of this type of knowledge exploitation and competence development from its relationship with AM, but with MTV the possibilities were more limited because of the small domestic market.

The third form of exploitation and competence development was prominent especially in the TE-AM relationship, and involved the use of the gained experiences in other systems-development projects. *TE developed its industry-*

wide expertise by combining it with the experience gained in other parts of the organization. Finally, the acquired knowledge included understanding of how the customers' and the other actors' and reference groups' business developed within the focal network. TE needed to acquire this industry-level expertise in order to understand the future need for systems-development work within the industry.

“...so that you understand what the operative core process is... but what the operations should be like... in three to five years, in which direction it should be developed... [It has been] extremely fruitful to have these intimate and confidential relations on different MTV levels there.”

It could thus be argued that the relationships supported TE's corporate strategy fairly well, as it was aiming to develop industrial expertise in order to utilize it in other related projects and customer relationships. *However, there had been very limited exploitation of the acquired knowledge thus far, in the sense of using it directly in other customer relationships.* Such endeavors had so far been unsuccessful in the newspaper sector and the media sector, which at least in Finland has few actors with which to cooperate. There was perhaps more potential for archiving in other sectors, and more international potential in broadcasting.

Along with the utilization of the acquired knowledge by the customer-specific team, the level of knowledge diffusion was part of the competence development within TE. This was crucial in terms of the further exploitation of the knowledge.

As illustrated in Figure 56, there were interesting differences in the exploitability of the acquired knowledge within TE's relationships. Both seemed to provide it with knowledge that was only modestly exploitable, but the reasons for this were quite different. In the MTV case the knowledge was more widely disseminated within TE, and the insourcing of MTV's personnel further supported this. However, the use of knowledgeable resources seemed to be limited in other projects and customer relationships. There were limited opportunities for this as the number of potential projects was limited, but the acquired knowledge was also considered to be highly tacit. Furthermore, the knowledge that the transferred people possessed in particular was quite system- and relationship-specific. The dissemination in the TE-AM relationship, on the other hand, seemed to be more limited, although the level of tacitness was perhaps somewhat lower. Still, there were very few people who were considered to have gained in expertise, and there seemed to be limited exploitation potential as the number of similar projects was limited.

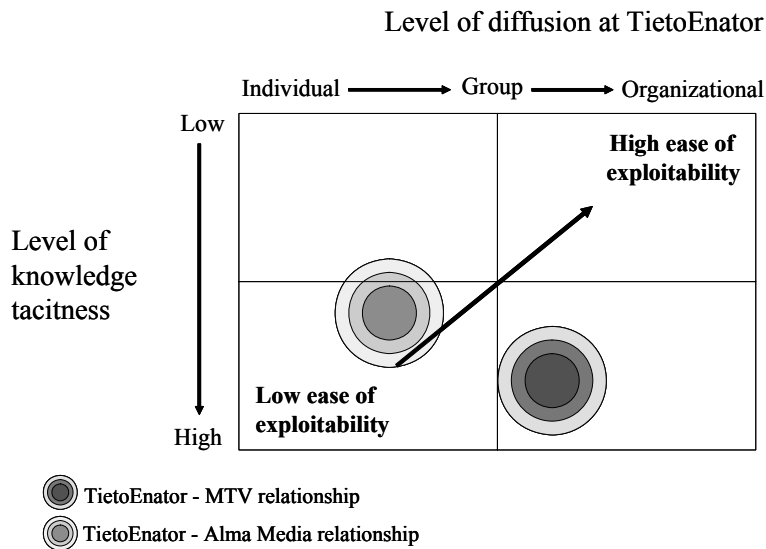


Figure 56: The Ease of Exploiting the Acquired Knowledge in TE's Relationships

It is significant that in neither of the case relationships had there been active organizational diffusion of the acquired knowledge. There were limited initiatives to disseminate it through closer interaction with other parts of the TE organization, but it seemed that TE was aiming at the somewhat tacit exploitation of its acquired industry expertise. *Industry expertise was referred to as an understanding of the different technologies and solutions used, and of the related operational processes and business opportunities within the industry.* The more specific themes TE had been covering in various projects for the media sector included customer-relations management (customer-specific data), distribution and circulation management (connecting customer data to addresses), air-time and ad-sales management (connecting sales and circulation-related information), and editorial systems and archiving. *Knowledge in these areas was mainly shared through emerging customer cases (learning-by-doing), which could be considered reactive rather than proactive in terms of competence development.* On the other hand, the acquired knowledge was so tacit in nature that it was hardly appropriate for mass-dissemination. Thus, participatory learning methods also had to be utilized in the further process of dissemination, which made the competence development more time-consuming. The highly contextual and tacit knowledge seemed to be easier to disseminate through learning-by-doing, for example, as the gained experience could be attached to a new context and a new set of problems.

8 A CROSS-CASE ANALYSIS OF THE CASE RELATIONSHIPS

The results of the case studies are analyzed in the following in terms of the four case relationships. The analysis is based on the factors and processes introduced in the theoretical framework: knowledge acquisition (including knowledge characteristics), support structures, organizational characteristics and ISK, the relationship context, and further knowledge development.

8.1 Analysis of Knowledge Acquisition

Table 12 below gives an overview of the case relationships and the types of acquired knowledge in order to enhance understanding of the effect of the various factors on the relationship context and on knowledge acquisition.

Table 12: An Overview of Knowledge Acquisition in the Case Relationships

<i>Relationship Context</i>	<i>Type of Knowledge</i>	<i>Learning Methods</i>
DE-AX	- Product-development-related knowledge - Outsourcing-related knowledge	Product reviews, meetings, discussions, Learning-by-doing, personnel exchange, daily interaction
DE-KY	- Product- and project-specific knowledge - Outsourcing-related knowledge	Meetings, discussions, Learning-by-doing, daily interaction
TE-MTV	- System-specific knowledge - Customer-specific knowledge - Industry-specific knowledge	Pilot project, support services, meetings, workshops, interaction, outsourcing, system reviews, learning-by-doing
TE-AM	- System-specific knowledge - Customer-specific knowledge - Industry-specific knowledge	Previous projects, documentation, training sessions, meetings & workshops, daily interaction, learning-by-doing

DE's relationships were related to its own outsourcing and product-development projects with its partners - in effect it was the customer in the relationships. The situation with TE's relationship was quite the opposite as it was developing tailored systems for its customers. Still, knowledge acquisition had an important role in all four cases. Moreover, the knowledge-acquisition methods utilized differed quite significantly between the cases. For example,

the level of tacit-knowledge acquisition was considerably higher in some of the relationships, and the reasons behind this are discussed in more detail next.

8.1.1 The Types and Characteristics of the Acquired Knowledge

Given the learning processes discussed in the case studies, the type and characteristics of the acquired knowledge played a crucial role. It seemed that the more tacit the knowledge acquired, the higher the need for versatility and communication. The types and characteristics of knowledge are reviewed before the knowledge-acquisition process is discussed in more detail.

As suggested in the existing literature (Simonin 2004; Brandt Husman 2001; Szulanski 1996), the level of tacitness of the knowledge significantly affected the difficulty of its acquisition. The amount of acquired tacit knowledge in DE's relationships was relatively low as fewer learning methods were used, whereas it was higher in TE's relationships because the companies utilized more versatile learning methods. This also seemed to hold true in the DE-KY relationship in that the companies aimed to increase the number of workshops (participatory learning methods) for the experts involved as they recognized that the knowledge could not be communicated through documents (i.e. it was tacit), but required cooperative sense making.

Table 13: The Characteristics of Knowledge

Relationship Context	Amount of knowledge acquisition	Level of tacitness	Level of Complexity	Level of diffusion	Level of partner specificity	Amount of tacit knowledge acquired	Tacitness of acquired knowledge
DE-AX	Moderate	Moderate	High	Moderate	Low	Moderate	Moderate
DE-KY	Low	Moderate	High	Moderate	Low	Low	Moderate
TE-MTV	High	High	High	Low	Moderate	High	High
TE-AM	Moderate	High	High	Low	Moderate	High	High

In addition to tacitness, other knowledge characteristics emphasized included complexity, diffusion, and partner specificity (see Table 13). Complexity was high in all of the four relationships, and the knowledge was often quite technical (Simonin 1999). Complexity was something that could be coped with by involving competent individuals in the projects, and by assigning the systems-development and business-related tasks to relevant parts of the organizations and to people with prior experience (see Cohen – Levinthal 1990). The lack of knowledge diffusion was a major challenge in

some of the relationships as it made it more difficult for the individuals involved to find knowledgeable people. *This was also relevant in that the level of tacitness could be lowered by giving access to people who could explain the underlying mechanisms to the partner organization.* Finally, customer specificity of knowledge was not as common, and it was not really considered a problem in terms of knowledge acquisition in the cases in which it was relevant. It is also worth noting that in TE's relationships in particular, *experience in dealing with customer-specific problems was considered more relevant to competence development than the actual customer-specific solutions*, thus supporting the existing understanding (see Gelbuda et al. 2003; Cohen – Levinthal 1990).

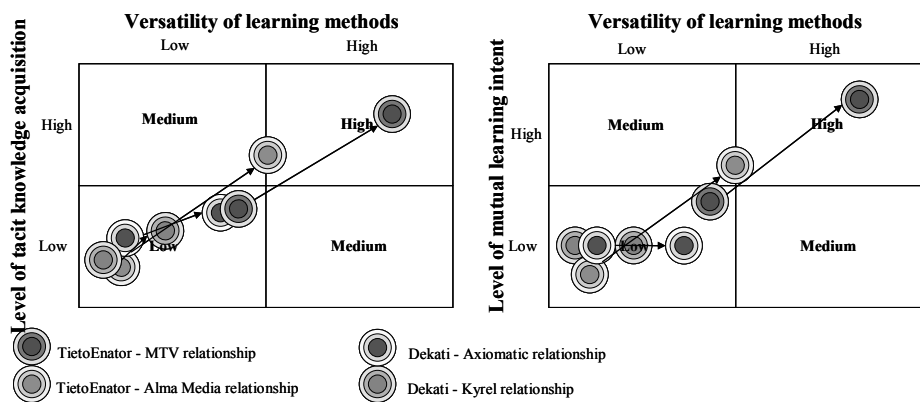


Figure 57: The Relatedness of the Versatility of Learning Methods to Tacit-Knowledge Acquisition¹⁰³

Furthermore, the versatility of the utilized learning methods seemed to be strongly related to the levels of tacit-knowledge acquisition in the case relationships. Although knowledge complexity was also often emphasized, it was not considered to set specific requirements for the partners apart from the amount of effort put into the learning. The versatility of learning methods was relevant, however, in terms of the interactive and participatory nature of the learning process as far as tacit knowledge was concerned. Thus, versatility is used here as a measure of how well the learning methods allowed for social

¹⁰³ The points of analysis in the figures: DE-AX: the negotiations at the start of the relationship vs. the end of the product development process; DE-KY: the negotiations at the start of the relationship vs. the end of the first outsourcing project; TE-MTV: the start of the pilot project vs. the implementation of the personnel outsourcing; TE-AM: the introduction of TRIP at AM vs. the further development projects of the MAS (These same points of analysis are applied throughout the case comparison).

interaction and participatory working methods (i.e. enabling cooperative sense making) (see Figure 57).

There were especially big changes in TE's case relationships, and more moderate ones in DE's relationships, regarding the versatility of learning methods, which seemed to affect the level of tacit-knowledge acquisition in both cases. The versatility of learning methods also seemed to be related to the level of learning intent. The development of a mutual intent seemed to be related especially to an increased intent to acquire tacit knowledge, which required more versatile learning methods. Thus, it was not easy to pinpoint whether the learning intent and the learning methods had a combined effect on the level of tacit-knowledge acquisition, or whether tacit knowledge required more versatile learning and coordinated intent.

The knowledge characteristics clearly affected the difficulty of knowledge acquisition and increased the need for more versatile learning methods. However, it seemed that the companies benefited from experience in knowledge acquisition in their preparation for the acquisition process. As DE had limited experiences and limited resources, the acquisition process developed slowly although iteratively. TE, on the other hand, used more varied, interactive and participatory learning methods from the beginning, and was able to develop the level of learning quite quickly.

8.1.2 The Nature of the Learning Processes

As discussed, the nature of the learning process strongly affected the level of tacit-knowledge acquisition in the cases. The learning methods employed in TE's relationships were more varied, and even between those two, a clearly wider spectrum of methods characterized the MTV-relationship. With regard to the phases in the knowledge-acquisition processes, there did not seem to be any clear advance identification of the acquired knowledge (see Szlunaski 2000). DE had a rough sense of what it was aiming to develop, and tried to reassure itself about its partners' abilities by discussing with them and checking their references. TE had a strategic aim to become a solution provider for the media industry, and a rough idea about what was usually needed in similar kinds of projects. Although it was more active in terms of learning, the focus of its knowledge acquisition only became clear during the process as it realized what it was supposed to do in the development projects. Thus, in TE's case, gaining an understanding about the customer's processes was a prerequisite, whereas in DE's relationships the acquisition of knowledge was otherwise quite strongly related to how the projects were proceeding. The knowledge-acquisition processes are analyzed further in Table 14.

Table 14: The Development of the Knowledge-acquisition Processes

Relationship context	Initial stage	Development stage	Project implementation	Critical development stage	Future potential
DE-AX	Need specification including limited interaction. Mainly AX learning. DE's management expecting learning internally. Mutual backgrounds, prior related knowledge.	No mutual learning intent. During the development stage more interactive learning methods (product reviews, meetings, and discussions) introduced. Personnel visits used for e.g. testing, main concentration on the project tasks, not on learning.	Product assembly & deliveries begin. Active project tasks decline, very limited learning efforts or possibilities. High levels of shared mindset developed as a result of the project.	Lack of further development intent, decline of relationship. Diminishing learning efforts.	Possible further development projects. Low potential in terms of learning due to limited commitment.
DE-KY	Offering of the manufacturing project. Limited interaction, product reviews utilized.	Manufacturability-related issues discussed during the documentation phase. Limited participatory (meetings) or interactive methods (learning-by-doing, discussions) utilized. Limited shared mindset.	Limited interaction during the manufacturing of the product. Success of the project and the feedback contributed by Kyrel builds a basis for further commitment.	Successful project, high levels of valued tacit-knowledge acquisition. Increasing commitment and willingness to cooperate from DE, leading to new projects. More participatory methods introduced.	Increasing commitment between partners, DE increased learning intent. High potential in terms of learning. Shared mindset could be developed.
TE-MTV	TE's active learning efforts (learning-by-doing), MTV's minimal support. Learning supported by MTV's openness, but limited versatility in terms of learning methods.	Initiating relationship development. Development of mutual learning intent. More versatile (in terms of interactivity) learning methods introduced.	Widening of the relationship, and increasing mutual learning intent. More mutually participatory working methods (workshops, system reviews) introduced, including personnel insourcing. Support services re-organized.	TE's initial commitment enabled it to develop the relationship. The development of commitment & mutual intent enabled tacit-knowledge acquisition, which led to successful projects	High commitment and mutual aims for future development of the partnership. High potential in terms of projects & learning. High level of shared mindset & commitment.
TE-AM	Lack of mutual intent, difficulties in the project management. Limited knowledge acquisition – mainly the outsourcing of coding. Projects product-oriented.	AM outsourcing resources, dependency on TE increasing, and AM committing to the relationship. Re-organizing of the relationship, development of mutual aims and learning intent. More versatile learning methods (training sessions, workshops).	MIR implementation included workshops, daily interaction, learning-by-doing, and participatory working practices. Shared mindset enhanced due to social relations, outcome of projects, and the versatility of learning methods.	Continuous new smaller development projects. Failed attempts at industry-wide collaboration, limited commitment from TE. Limited needs and potential in archiving – more needs in other areas of systems development.	Limited potential in terms of large-scale projects. TE in possession of highly tacit knowledge. High potential in terms of learning in other areas of systems development.

It could be said that DE’s case relationships implemented knowledge acquisition in a more careful way than TE’s. They introduced versatile learning methods more iteratively, whereas TE was quicker to take advantage of a wider spectrum of methods. On the other hand, it should be noted that the DE-AX relationship practically came to an end in terms of learning after the product-development phase, whereas the DE-KY relationship had more potential and the partners were mutually committed to its development. TE’s relationships featured more interactive learning methods, especially during the processing and integration of the acquired knowledge, in other words when the knowledge was processed and understood by the receiving organization. The development of a shared understanding of the acquired knowledge clearly had a bigger role in these cases.

One could argue that the learning intent was more clearly communicated in TE’s relationships, and this affected the utilization of more versatile learning efforts and methods. TE was used to working in similar types of projects, and understood the value of acquiring tacit knowledge in the customer’s industry. The high learning intent was also due to the expected effects of knowledge acquisition on other potential customers. DE did not have as much experience of cooperative arrangements, and only established internal learning intent. However, as it began to understand the value of the acquired tacit knowledge, it started to allocate more resources to and place more emphasis on its learning efforts. *Thus, its inexperience in cooperative arrangements and its limited resources partly affected its ability to acquire knowledge.* Learning intent was also related to the development of a shared mindset within the partnerships (see Figure 58).

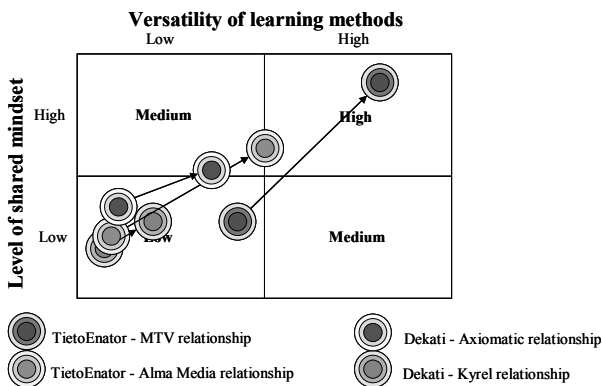


Figure 58: Versatility in Learning Methods and the Level of Shared Mindset

At the same time as the companies were introducing more versatile learning methods they were also able to develop a wider understanding of each other’s

knowledge bases, which enabled cooperative sense making (see Fiol 1991, 206; Cook – Brown 2002; Daft – Weick 1984). Cooperative sense making in TE's relationships was achieved through finding solutions to emerging development needs and the activities in the support services. This required TE to develop a better understanding of the customers' processes and business operations, and of the related challenges, from a systems-development perspective. The difficulty here was that, by and large, this could only be done by TE's customer team through gaining first-hand experience, but with the customers' help the acquired knowledge could be processed more easily. Thus, TE discussed problems related to the systems, the emerging development needs, and the use and specification of the existing systems with its customers in order to develop an understanding of a previously unfamiliar context (see Cook – Brown 2002). The level of cooperative sense making in DE's relationships was lower because the use of participatory learning methods was more limited. However, activities enabling cooperative sense making seemed to help it to better integrate the knowledge into its context. The means of enabling cooperative sense making were very similar (c.f. Daft – Weick 1984; Daft – Huber 1987) to those that characterized TE's relationships: workshops and participatory product reviews, for example, could help those involved to understand the system from a different perspective.

Moreover, the more interactive and participatory learning methods affected the companies' willingness and ability to develop shared mindsets (see Fiol 1991, 206). Both the development of a shared identity and the introduction of these learning methods were more or less conscious management decisions. It should be noted that the development was active in all but the DE-AX case, although the TE-AM relationship was considered to have more limited future potential. The TE-MTV relationship was clearly the most active in increasing the level of knowledge acquisition, which was done by adding to the number of participatory working methods. Development also characterized the DE-KY relationship, and the TE-AM relationship was also very high in terms of method versatility during its more active stages.

"... we act as the customer's best friend, so it also affects the customer's relation to this... helps in the acquisition of that knowledge... how knowledge is best acquired and what type of knowledge is acquired, so that it's not only here regarding the system..."

The main problem in DE's relationships appeared to be related to the limited intent to work together and the lack of willingness to commit. The effect of its limited resources as a small company was apparent in the slower growth in the level of interaction, thereby also avoiding the project-related

risks to some extent. The problems in TE's relationships, on the other hand, seemed to lie not in knowledge acquisition, but rather in ensuring the further development and exploitation of the acquired knowledge within the organization. This was not only a question of learning intent in that the exploitation possibilities often lay in different industry sectors.

Thus, the development of learning intent seemed strongly related to the relationship contexts. *However, the ability to develop a shared mindset and to introduce more versatile and participatory learning methods also seemed to be related to experience of knowledge acquisition* (see Figure 59).

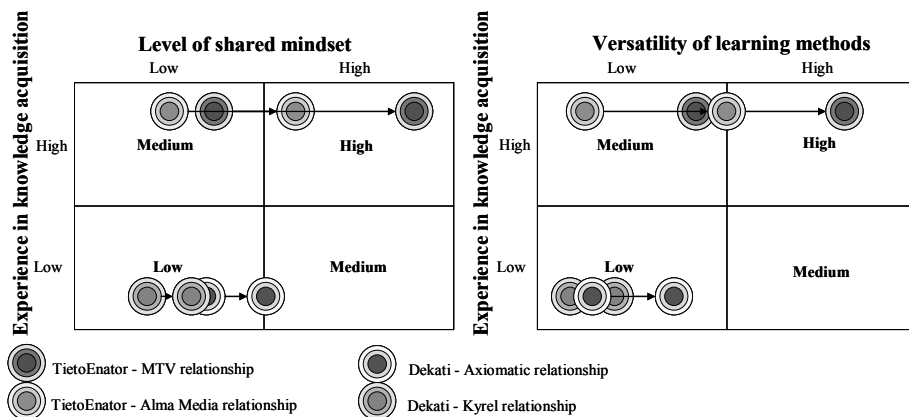


Figure 59: The Role of Previous Experience in Knowledge Acquisition

It was apparent that DE's relationships were fairly new, and that both they and the TE-MTV relationship were novel for the receiving company in terms of what they were trying to accomplish. Thus, one could question the effects of newness on the nature of the relationship context and the level of inter-organizational knowledge acquisition. It seemed that DE's relationships were in the exploration phase, and that with KY was entering the expansion phase, whereas TE's relationships had apparently reached the commitment phase (see Dwyer et al. 1987; c.f. Ford 1998).

Thus, the phase of the relationship could be considered to affect the level of tacit-knowledge acquisition. More committed and trusting partners are better able to increase their partner-specific investments (see Anderson – Weitz 1992), the depth and breadth of their interaction (see e.g., Möller – Wilsonn 1995) and their knowledge acquisition. The newness of the relationships had clear implications on the DE relationships in that there had not been extensive adaptations or investments.

More importantly, the role of experience in relationships and knowledge acquisition was apparent since the development of more diverse learning

methods was essentially quick in TE's partnerships even though MTV was its first customer for which it was developing a sales system in the broadcasting industry. TE had extensive experience in similar kinds of cooperative relationships, and consequently also had the resources to support knowledge acquisition through various interaction methods and inter-organizational structures. There were more significant changes during the course of the relationships, although it should be noted that DE's relationships were considerably younger and analyzed over a short time period. It could thus be said that the relationship context sets the preconditions for knowledge acquisition.

Similarly, the exploitation potential of the acquired knowledge was realized in TE in the development of industry expertise on a more general level, and in the development of other systems in the customers' industries, rather than in the two specific case relationships. DE on the other hand, had limited experience of this kind of cooperation, but was able to develop its abilities during the projects and was actively forging closer cooperation and commitment with KY as a result of the experience it gained. This experience affected how it planned to increase its level of relationship commitment and the versatility of its learning methods in the future.

8.1.3 Synthesis of the Knowledge Acquisition Process

As discussed, the acquisition of knowledge, and especially of tacit knowledge, is a complex process that, in the end, stems from the relationship context. The relationship context also enabled the partners to develop mutual learning intent in that it affected the easiness of developing versatility in knowledge-acquisition methods and ISK.

The growing interdependence and partner commitment seemed to build the basis for more intense knowledge acquisition – especially of more valuable and tacit knowledge. This is a finding that supports and complements the existing literature in that the willingness to cooperate with other companies and to make adaptations and investments, and the subsequent penetrability, affect the ability to learn from relationships (Draulans 2003, 154-156; see Child 2001b; Dyer – Singh 1998; Dyer – Hatch 2006; Madhok – Tallman 1998). This is further highlighted in that it has been argued that prior experience of business relationships supports the acquisition of tacit knowledge (Simonin 1999, 474, 480).

The versatility in learning methods supported some of the arguments presented in the literature (see Gupta – Govindarajan 2000; Huber 1991, 103; Daft – Huber 1987, 13-14; Daft – Weick 1984), but at the same time, the

concept of channel richness was broadened by bringing it into the context of inter-organizational learning (c.f. Daft – Weick 1984, 287-289). *As tacit knowledge is considered to be highly contextual and dependent on individuals, media richness should also be seen in a new light: as richness in learning methods that allows for individuals' personal communication and cooperative sense making* (c.f. Daft – Huber 1987, 14-16; Daft – Weick 1984, 287-289, 290-293; see Lyles – Salk 2007, 13; Cook – Brown 2002).

This could open up new avenues of research based on the novel construct of cooperative sense making in inter-organizational relationships. Daft & Weick (1984, 287-288) highlight the role of an organization's intrusiveness into its environment as part of its sense-making process. More active intrusion refers to more active enactment as opposed to passively analyzing incoming messages. In an inter-organizational context this could be considered a willingness to question existing causal maps (Fiol 1991; Weick 1979), and to enact the environment together with the partner organization ("*see the world through the eyes of the partner organization*"). Thus, more participatory learning methods (e.g., inter-group workshops, participatory product reviews, and cooperative & participatory learning-by-doing or personnel exchange) enable more enactment, together with cooperative sense making supported by the partner (see Figure 60).

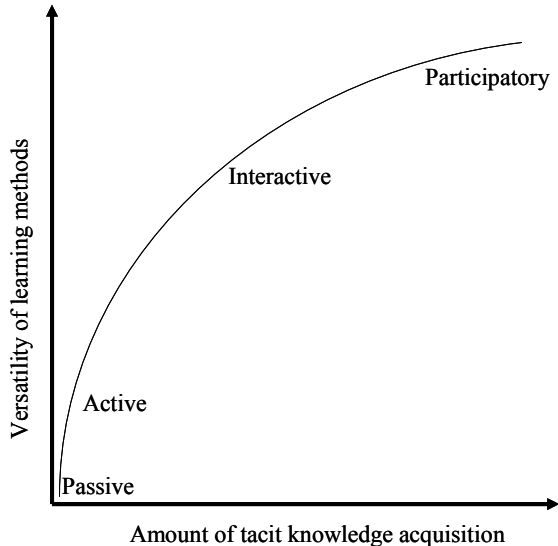


Figure 60: The Implications of Participatory Learning Methods

Participatory learning methods thus allow individuals to share and discuss their experiences and to develop shared causal maps (see Cook – Brown 2002; Weick 1979). This could also allow for more inter-organizational learning.

Furthermore, it has been said that learning takes place by design rather than by default (Hamel 1991; Simonin 2004). Therefore, the importance of management support and a clear intent to engage in effective learning could be seen as significant managerial implications (Lyles – Salk 2007). Learning intent was considered especially important in terms of deployment and attitudes towards learning in the case studies, thus supporting earlier findings reported by Simonin (2004). Contrary to expectations based on Hamel (1991), mutual learning intent did not have a negative effect in the form of a learning race or knowledge protection because the companies were acquiring highly complementary knowledge from outside their own industries.

As stated earlier, being actively involved in similar kinds of partnerships has been found to help companies in building up the ability to manage partnerships successfully (Draulans et al. 2003; Powell et al. 1996; Anand – Khanna 2000). Furthermore, cooperating with more partners may help in the development of a shared identity and inter-organizational sensitivity to knowledge acquisition as the company gains experience in similar situations (see Child 2001b). However, here the experience of acquiring knowledge through relationships was highlighted rather than experience of relationships as such. Thus, it is important to understand how the learning process may affect and be affected by the relationship context, and by relationship-management efforts in the knowledge-acquisition context. A company's ability to develop a shared mindset is strongly relationship-specific given the tacit and complex nature of the social processes involved, but experience may help in developing new capacities in other relationships. Moreover, the social nature of developing a shared identity makes it very much dependent on the selection of the project personnel.

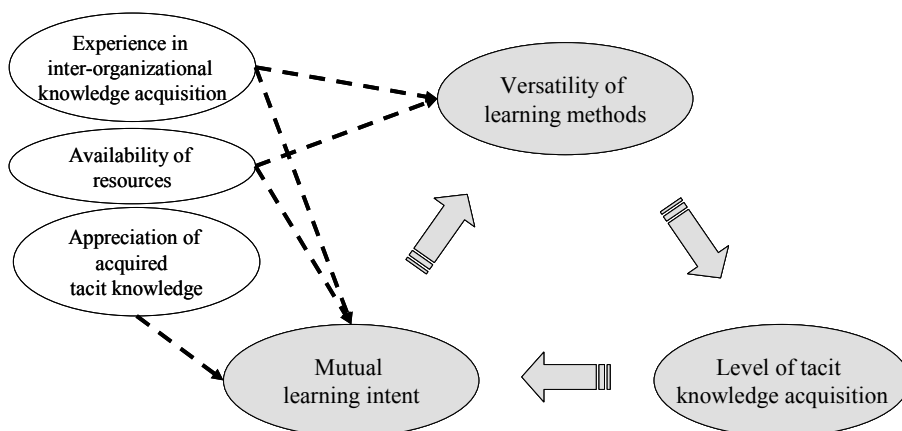


Figure 61: The Implications of Learning Intent and Learning Methods on the Acquisition of Tacit Knowledge

Consequently, one could say that the increase in tacit-knowledge acquisition was a result of the learning methods used, as only the intent to learn could and did not allow for such an increase. *Yet, learning intent, the versatility of learning methods and the level of tacit-knowledge acquisition evidently formed a cyclical development path* (see Figure 61). Learning intent affected the level of interaction and communication (TE-MTV & TE-AM), but the acquisition of tacit knowledge required more from the learning processes in the relationships (TE-MTV & TE-AM & DE-AX & DE-KY). Therefore, the more participatory learning methods leveraged the partners' cooperative sense making in the relationships and in the development of a shared mindset. Furthermore, the nature of the learning efforts was also further affected by the experience of knowledge acquisition and the resources available for the learning.

8.2 Support Structures in the Case Relationships

The role of support structures has been highlighted in the literature on more than one occasion, but in the case relationships they were considered to have only moderate effects on knowledge acquisition. They were clearly more significant in TE's than in DE's relationships (see Figure 62), and could also be considered more important in terms of relationship management than of knowledge acquisition.

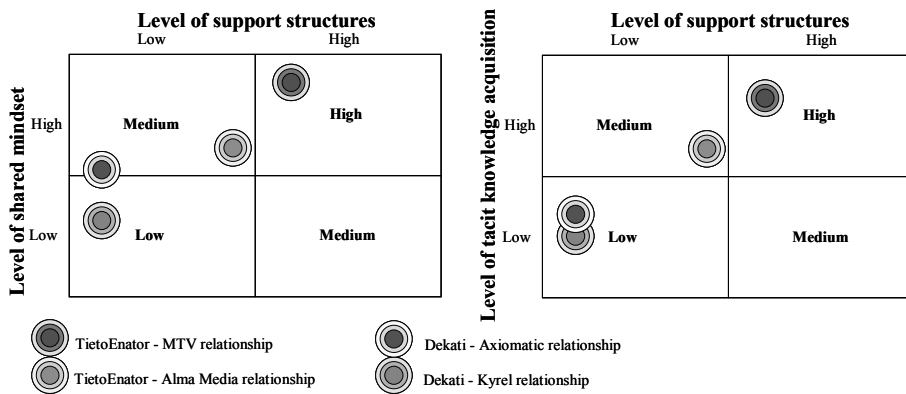


Figure 62: The Role of Support Structures in the Case Relationships

The apparent correlation between the use of support structures and both a shared mindset and the level of tacit-knowledge acquisition was not straightforward. *Indeed, it should be noted that the support structures were mainly related to relationship management and the inter-company*

coordination of activities (see Hamel 1991; Goh 2002; Baughn et al. 1997). It could be said (see Table 15) that they were utilized in a number of ways in the relationships, but the interviewees did not consider their role to be important.

Table 15: The Utilization of Support Structures¹⁰⁴

Relationship context	Management support of learning	Reward schemes	Governance mode	Cooperative structures	Shared Infrastructure
DE-AX	Only within DE, not fully communicated even internally.	None	Contractual Confidentiality was considered essential by DE, some issues were communicated in a limited manner.	None	Limited
DE-KY	Only within DE, not fully communicated even internally.	None	Contractual Confidentiality was considered essential by DE, some issues were communicated in a limited manner.	None	Limited
TE-MTV	Both companies committed to learning	Organization-level rewarding (for time-efficient projects). No learning-based rewarding. Rewards not considered very relevant.	Contractual Contract mainly a complementary control mechanism which was not referred to.	Extensively developed and utilized on multiple level. Important source of knowledge concerning future plans and projects. Essential for relationship coordination.	Technical environment, personal working spaces. Infrastructure considered a basic requirement for TE's development work.
TE-AM	Both companies committed to learning.	Not considered very relevant.	Contractual Contract mainly a complementary control mechanism	Developed and utilized on a requirement basis. Limited role outside relationship coordination.	Technical environment Infrastructure was considered as a basic requirement for TE's development work.

DE had very limited support structures in place, and those utilized by TE were originally built not to support learning or learning incentives as might have been expected (see Szulanski 1996; Gupta – Govindarajan 2000), but to support the coordination of the relationship. They were not considered a result of mutual intent and commitment, but were rather a way of coordinating the increasing number of tasks and activities, and developing the relationship reactively in response to the emerging problems.

However, as the relationship developed and knowledge acquisition became more critical the developed cooperative structures proved to be essential

¹⁰⁴ The shaded areas represent the areas in which the support structures allowed for most support for the partners' knowledge-acquisition efforts.

arenas for acquiring knowledge about the customers' business and future systems-development needs in the TE relationships. They were also used in developing a shared infrastructure in order to help TE to do its work. On the other hand, reward schemes were not utilized in the case relationships. In addition, the structure of the TE-MTV relationship was related to the learning efforts (e.g., the support services were an important source of knowledge). *Thus, given the developments later on, the support structures provided a forum for directing the organizations' activities and even its learning efforts.* In addition to supporting the various interaction mechanisms, they (as well as the contracts) also helped in dealing with knowledge overflow by focusing efforts through formalization (see Daft – Huber 1987; Vlaar et al. 2006).

In comparison, the learning in DE's relationships was concentrated on the kind of knowledge from which the partners could not directly benefit. Thus, the type of relationship and the type of acquired knowledge essentially affected the relationship context and the usability of the support structures. *Perhaps the most significant effects of the support structures were related to the role of management support in developing mutual learning intent and a psychologically safe learning environment* (see Child – Rodriguez 2003, 544-545). In the DE cases the lack of communicated learning intent seemed to limit not only the way in which knowledge was assimilated, but subsequently also its further development and exploitation. Thus, the study results support the argument that learning takes place by design rather than by default (see Hamel 1991; Simonin 2004). It should also be emphasized that the established learning intentions in the TE relationships were mutually committed to and did not lead to increased fears of opportunism or to knowledge protection (c.f. Norman 2002; Mohr – Sengupta 2002).

Finally, there was support for the existing literature in that the role of contracts in relationships is often complementary in terms of trust, rather than a basis for building trust (Bradach – Eccles 1991; see Blomqvist et al. 2005, 500). Contracts were developed after the aims of the relationships had been established in order to clearly set out the responsibilities of the parties. They were not really used during the projects, but remained a safety barrier in case of possible problems. The development of trust and the relationship contexts is discussed more comprehensively later on.

Thus, it could be said that the role of support structures was smaller than anticipated in the case relationships (see Hamel 1991; Johnson – Sohi 2003; Goh 2002; Cummings – Teng 2003). Still, it is possible to differentiate between issues affecting their use and the three main areas in which they were utilized (see Figure 63).

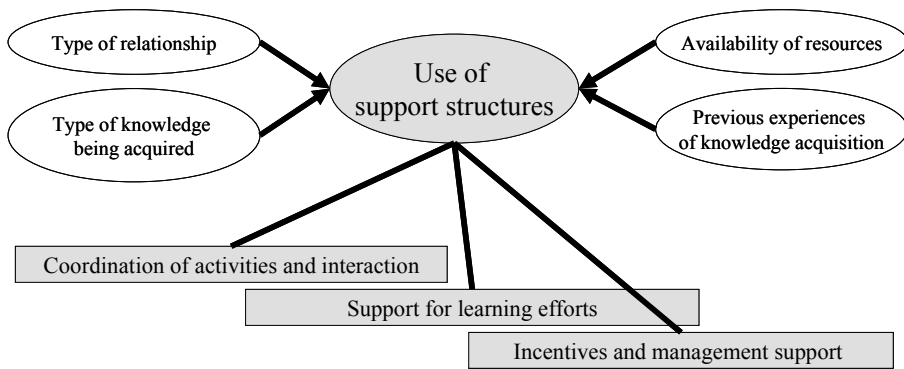


Figure 63: The Basis and Use of Support Structures in Knowledge Acquisition

Naturally, the use of support structures is essentially related to the type and scope of the relationship and the knowledge being acquired. DE as a small company had limited resources, and the concentration of its efforts thus lay in the project at hand. Moreover, the nature of its working was more product- and task-oriented. On the other hand, the role of support structures was more significant in TE's relationships as the companies had a longer history of cooperating, more comprehensive commitment, and extensive experience of tacit-knowledge acquisition. As with its versatility, previous experience of knowledge acquisition also seemed to play an important part in that TE was accustomed to developing cooperative structures and infrastructures. DE, in comparison, had limited experience of developing structures in addition to its limited resource availability. In sum, support structures are essential in terms of both their potential use and the types of structure that are utilized. They were relevant to three important areas of knowledge acquisition: relationship management, incentives and management support, and support for learning.

8.3 The Role of Organizational Characteristics and ISK in the Case Relationships

8.3.1 The Role of Organizational Characteristics and Similarity

Contrary to expectations, the effects of organizational characteristics on knowledge acquisition were not considered especially relevant in any of the case relationships. Even though DE and TE operated in very different industries and were organizationally very different, their resources available for and previous experience of knowledge acquisition were the most important

issues. *Furthermore, the partners' good relations were also seen rather as a result of the relationship context and mutual intent rather than of the companies' organizational fit with each other.*

Organizational characteristics were considered somewhat more important in DE's relationships. It should be pointed out, however, that knowledge acquisition took place between relationship-specific project groups in the case relationships. The similarity of the companies was considered rather more important as a basis for characteristics-based trust – not so much concerning the ease of interaction.

Table 16: The Organizational Characteristics

Case	Similarity in dominant logic	Organizational / individual similarity	Development of a shared mindset
DE-AX	Low	High, was considered relevant for the initial level of trust. Individuals' similar background highlighted	Was considered important especially for AX to understand DE's needs. Knowledge highly complementary.
DE-KY	Low	Moderate, limited number of people, low level of interaction.	Was considered important only after emphasis was set on the acquisition of tacit knowledge. Knowledge highly complementary.
TE-MTV	Low	Low, but the development teams were considered to have more similar backgrounds professionally, and in terms of previous experience.	Was considered important in order to understand the customer's needs and processes. Shared identity actively developed. Knowledge highly complementary.
TE-AM	Low	Low, the differences were highlighted during the early parts of the relationship. After the re-organization people had more similar backgrounds in terms of previous experience.	Was considered important in order to understand the customer's needs and processes. Shared identity actively developed. Knowledge highly complementary.

The existing literature also emphasizes the match between the dominant logics (e.g., Lane – Lubatkin 1998) in terms of the receiver's ability to capitalize on the acquired knowledge. However, this was not as such a facilitator in the case relationships, which were all between companies from totally different areas of business (see Table 16), and the differences in dominant logic were strongly related to the aims of the relationships. What was more relevant to the easiness of knowledge acquisition was the variation in the partners' knowledge base (Cohen – Levinthal 1990), and the resulting fairly low compatibility and high complementarity of the acquired knowledge types (Madhok – Tallman 1998, 327) that required the companies to develop a shared understanding (c.f. Lane et al. 2001). On the other hand, it could be argued that knowledge complementarity in the case relationships was an

essential factor in that the companies' prior knowledge bases were not closely related, at least initially. The differences in the dominant logics led to a need for developing a shared basis of understanding also considering the further exploitation of knowledge, but they also created opportunities for knowledge exploitation. Thus, it was the type of relationship and knowledge that were highlighted rather than the organizations' similarities and differences as such. *In addition, the characteristics of the individuals involved were more relevant than the organizational characteristics and the true importance of the match between the dominant logics is difficult to assess.*

In conclusion, it could be argued that one should concentrate on the aims and organizing of the relationship and the complementarity of the companies' knowledge bases instead of on their general similarities. This would also considerably affect the ability to develop ISK, which is analyzed more closely in the following.

8.3.2 The Development of ISK in the Relationships

One of the main aims of this study was to enhance understanding of how companies could develop their ability to acquire and assimilate knowledge. In terms of ISK, the notion of national cultures was not applicable here since all the companies involved were Finnish. However, it should be noted that their physical proximity was considered more comprehensively than the ease of setting up meetings. This applied especially to the DE-AX relationship in the sense that the people lived in the same region (and shared the regional culture). They had studied at the same university, been to the same classes, spoke the same regional dialect, for example, and subsequently derived a sense of togetherness from that.

The organizational culture was not considered especially relevant to the interaction between the teams and individuals. Its role has been found to vary as the differences are often delineated over time, as a result of relationship-management efforts, for example (see Simonin 1999; Lyles – Salk 2007, 12, 15). *In this case, the project-teams were considered fairly independent in their project work, and the development of their shared identity and shared understanding was emphasized as a basis for communicating and learning.* Moreover, the most significant communicational difficulties between the teams were related to the differences in people's prior knowledge and between the companies' dominant logics.

Table 17: The Implications of the Organizational Culture

Case	Relevance of national culture	Relevance of organizational culture for relationship development	Relevance of organizational culture for knowledge-acquisition efforts
DE-AX	Low, physical proximity a basis for shared identity.	Similarities considered more important concerning inter-organizational trust.	Organizational cultures significantly supportive of learning efforts in both organizations. Cultural similarity not considered especially relevant concerning learning (interaction within specific teams).
DE-KY	Low	Number of people was originally so limited that the main concern was the relations between the individuals involved.	Organizational cultures significantly supportive of learning efforts in both organizations. Knowledge acquisition not significantly affected.
TE-MTV	Low, physical proximity enabling close interaction.	Differences between organizational cultures slightly more significant. Yet, interaction concentrated between project-specific teams	Organizational cultures significantly supportive of learning efforts in both organizations. Knowledge acquisition not significantly affected.
TE-AM	Low	Differences between organizational cultures slightly more significant. Yet, interaction concentrated between project-specific teams	Organizational cultures significantly supportive of learning efforts in both organizations. Knowledge acquisition not significantly affected.

The differences and similarities in organizational culture were not considered relevant as part of the interaction or knowledge flows between the companies (see Table 17) (see Simonin 2004; Lyles – Salk 2007). *What was relevant was the way in which the relationships were organized.* Although there did not seem to be any specific criteria in the selection of people to be involved in the projects, they were well suited for their tasks. Thus, one could further emphasize the individuals' learning abilities and the way in which people were able to develop a sense of shared identity.

The role of human resources was critical as they represented a learning tool. Furthermore, the levels of shared identity and of prior related knowledge were clearly related to the level of tacit-knowledge acquisition in the relationships (Figure 64). However, as the partnerships were long-term and were developed over time, the need to refer to the relatedness of the partners' knowledge bases instead of their prior related knowledge became apparent.

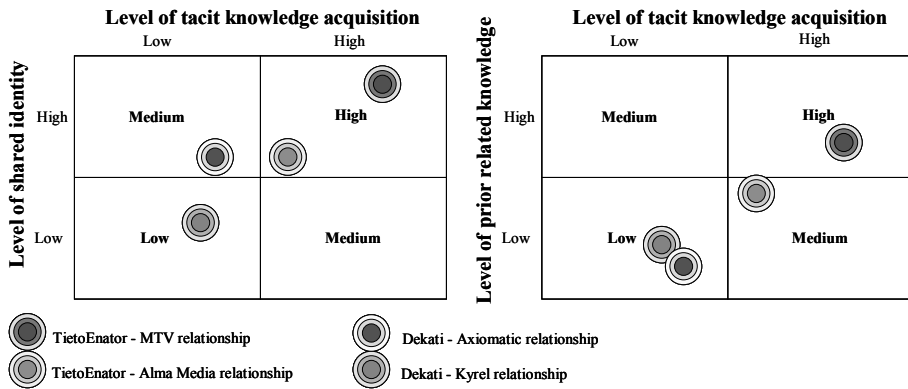


Figure 64: The Effects of Shared Identity and Prior Related Knowledge

There was a high level of shared identity in the TE-MTV relationship, and at least a moderate level in the TE-AM and DE-AX relationships, but it was clearly lower in the DE-KY relationship, in which the acquired knowledge was less tacit. The level was significantly high in the TE-MTV relationship: it had developed over an extensive period of time, TE had former MTV personnel working in the project-team, it insourced MTV's IT personnel, and both companies had a large number of people involved in the cooperation and no big personnel changes.

The level of prior related knowledge also had an effect on the level of tacit-knowledge acquisition. Prior related knowledge was more extensive in TE's relationships, whereas DE's relationships were aimed at the initial development of its outsourcing competences. *Prior knowledge was especially relevant regarding the pace of TE's accumulation of knowledge about its customers' systems and processes* (see Cohen – Levinthal 1990), *and about the more time-consuming and iterative nature of DE's learning efforts.*

In terms of the development of a shared mindset, it would be extremely interesting to analyze whether increases in prior related knowledge preceded increases or decreases in the level of shared identity (see Table 18). However, this was not straightforward in the case relationships.

Table 18: The Development of a Shared Mindset

	Initial conditions	Development stage	Project implementation	Resulting situation & further development
DE-AX	Limited prior related knowledge, but sharing of documentation enabled the development. Shared identity fairly high from the beginning. Shared identity enabled interaction.	Relatedness of prior knowledge developed fairly quickly during the early stages. DE in particular gained a lot from AX's expertise. Shared identity enhanced as a result of interaction – the number of people involved was fairly high.	More limited interaction and sharing of knowledge (emphasis on AX's learning efforts). Shared identity high, and informal interaction supported it. Limited effects on relatedness of knowledge.	Relatedness of knowledge bases moderate – high level of shared identity, but limited utilization.
KR Effects	-	++	+	0
SI Effects	+++	++	++	0
DE-KY	Low prior related knowledge, low shared identity. Limited interaction from the beginning.	Relatedness of knowledge bases developed (emphasis on DE's learning efforts). Limited interaction initially and a limited number of people were involved => shared identity developed slowly.	Relatedness of knowledge bases developed as a result of knowledge exchange between organizations (emphasis on KY's learning efforts). Limited effects, but the results enhanced shared identity.	DE's recognition of the value of its partner's expertise. Intent to increase knowledge acquisition (highly complementary knowledge). Tacitness of knowledge required more interaction & shared identity. Conscious decision to increase participatory working methods.
KR Effects	+	++	++	++
SI Effects	0	+	+	++
TE-MTV	Fairly high levels of prior related knowledge, but interaction & knowledge acquisition limited. Limited interaction => low shared identity.	Prior knowledge consciously shared with TE. Increasing level of shared identity as individuals began interacting.	Relatedness of knowledge bases growing in both organizations as a result of knowledge acquisition. Shared identity high (insourcing, close interaction, support services).	High relatedness of knowledge bases enabled easier knowledge acquisition, and is still being actively developed. High shared identity supported close interaction, and is still being actively developed.
KR Effects	++	++	+++	+++
SI Effects	-	++	+++	+++
TE-AM	Fairly high levels of expertise in both, but low relatedness. A low level of interaction and high physical distance.	Emphasis on the business perspective in systems development. Relatedness of knowledge developed, especially at TE. Shared identity developed after positive project results. A limited number of people were involved.	Relatedness of knowledge continuously developed during system development. AM also valued and absorbed TE's expertise. Shared identity developed due to close interaction & informal meetings.	Relatedness of knowledge bases fairly high, and still being developed as a result of knowledge acquisition. Shared identity a basis for close interaction.
KR Effects	+	++	++	+++
SI Effects	-	+	++	++

The two components of a shared mindset seemed to be developing as a result of the interplay. The DE-AX relationship was the only one that clearly developed initially with a stronger focus on the shared identity (SI effects) than on the relatedness of the knowledge bases (KR effects). There seemed to be an initial development of knowledge relatedness in the other three relationships, which supported the development of abilities-based trust and the establishment of a longer-term relationship. The level of shared identity then increased, and especially in TE's relationships was supported by participatory learning methods, which also facilitated more intense knowledge acquisition. Consequently, it was difficult to clearly separate the two, and to determine which one created the basis on which the other developed.

This finding is not trivial as there are few empirical studies focusing on the interplay between prior related knowledge and shared identity. It could be argued that this confirms the role of abilities and process-based trust in the early parts of the relationship (Levin – Cross 2004; Blomqvist 2002). Only after some initial trust had developed did the companies seem more willing to begin working on social interaction and relatedness. *Thus, the development of a shared identity and shared understanding further increased the established trust, which became more active* (Huemer 2004, 254). *This enabled the companies to engage in more unpredictable and uncertain activities, including the acquisition of tacit knowledge.* Therefore, shared identity was also a factor affecting the relationship-management efforts.

Thus, in order to complement the static analysis of the effects of a shared identity, one could further examine the companies' active development efforts following the establishment of mutual learning intent (see Fiol 1991, 203, 206-208; see Table 19¹⁰⁵). A shared identity was actively developed in the DE-KY relationship as the companies increased their levels of commitment. As DE recognized the value of KY's expertise it also aimed to increase the level of tacit-knowledge acquisition from its partner. The shared identity was also actively enhanced through participatory learning and informal gatherings, although the number of people in the TE-AM relationship was more limited. Furthermore, the outsourcing of MTV's personnel had implications in terms of inter-organizational dependency and the level of a shared mindset, and consequently of tacit-knowledge acquisition.

¹⁰⁵ In the table, the red color highlights the changes in the level of shared mindset, and the blue color highlights the changes in the relationship context and the utilized learning methods.

Table 19: Analysis of the Case Relationships in Terms of Developing ISK

Case	Initial stage	Development stage	Project implementation	Critical development stage	Future potential
DE-AX	Initially characteristics-based trust had high importance. Physical and psychic distance was low. Relatively high level of shared identity, but more limited prior knowledge.	Intense interaction during specification & planning phases. Shared identity developed. Learning-by-doing emphasized. Easy to communicate, limited sharing of experiences	Less interaction during product development although DE was assisting AX. Limited benefit from shared identity due to low versatility in learning.	No real long-term commitment to the partnership from either side. Development of shared identity successful, affordable initial conditions. Limited shared mindset due to limited versatility of learning efforts.	Limited future potential due to lack of commitment. Shared identity fairly high, but utilized quite little, limited co-operational sense making. Tacit-knowledge acquisition adjusted to the project needs.
DE-KY	DE's learning intent limited communication, no mutual learning intent. Strong basis of trust between companies, but individuals had limited basis for trust or shared identity.	Limited prior related knowledge or interaction during the project. Documentation implemented by DE, KY only assisting. Limited number of people with limited interaction.	Successful project & recognition of potential of tacit-knowledge acquisition, leading to mutual commitment. The partners' knowledge bases highly complementary, trust increased between individuals, limited co-operational sense making.	Afterwards DE put emphasis on utilizing KY's knowledge better. Acknowledgement of the need to develop a shared mindset and to include KY earlier on in the process to promote tacit-knowledge acquisition.	High potential in terms of further projects & learning. Tacit-knowledge acquisition potentially increased through developing a shared mindset, mutual intent.& more participatory learning methods (allowing an increase in coop. sense making).
TE-MTV	TE with high intent to work with MTV and acquire knowledge about the media industry. Thus, low levels of interaction and shared identity. High levels of trust, but limited initial mutual intent.	MTV's decision to commit further to TE. Conscious development of shared mindset. High level of shared identity, sharing of prior knowledge actively executed. High versatility of learning.	Successful projects leading to more responsibilities for TE. Participatory working methods (& informal interaction) enhanced the shared mindset. High level of shared identity further enhanced through outsourcing & informal interaction.	Development of a mutual aim and mutual commitment to work together and exchange as well as acquire knowledge. Commitment a basis for introducing more versatility into the learning, which supported the development of a shared mindset.	High learning potential & highly committed partners. Development of a shared mindset and learning versatility allowed for co-operational sense making. Introducing TE into the projects earlier increased the potential.
TE-AM	Initially low level of interaction. Relatively low level of shared identity. Low level of shared mindset. High number of people involved.	After re-organizing, clear emphasis on developing shared understanding through sharing previous experiences. Yet, a relatively limited number of people involved. AM's own resources limited, reliance on TE's expertise.	Intense knowledge acquisition as a result of developing mutual learning intent and shared understanding. Shared identity actively developed by informal means.	The re-organization of the MAS development in Finland and a more business- & learning-oriented approach towards systems development. Conscious decision by AM to rely on TE's expertise and to facilitate knowledge acquisition.	Limited potential in terms of developing the MAS further. Some personnel changes on the management level but the technical team still continuing. High shared-mindset can be utilized further within the MAS development team.

As already emphasized, the different kinds of knowledge required different kinds of learning methods. However, the study also lends support to the existing literature in the sense that different types of knowledge required different levels of shared identity, since the numbers of people involved in the acquisition process varied significantly (Child – Rodrigues 2003, 543). *A shared identity was a major contributor to tacit-knowledge acquisition.* Furthermore, it was considered in these relationships to be a pre-condition for a shared mindset and more intense communication. Since there was only a limited threat from the partner organizations, the challenges in knowledge acquisition were rather related to the development of a shared understanding.

Furthermore, the limited resources of a small company appeared to be a major factor in terms of the level of commitment and the development of ISK in DE's relationships. A comparison of the amount of tacit-knowledge acquisition showed how the role of ISK and a shared identity affected the ease of inter-organizational learning. *On the other hand, the higher amount of tacit-knowledge acquisition in TE's relationships seemed to be a result of the intent in MTV and AM to pursue closer cooperation, and of their assisting role in TE's learning efforts.*

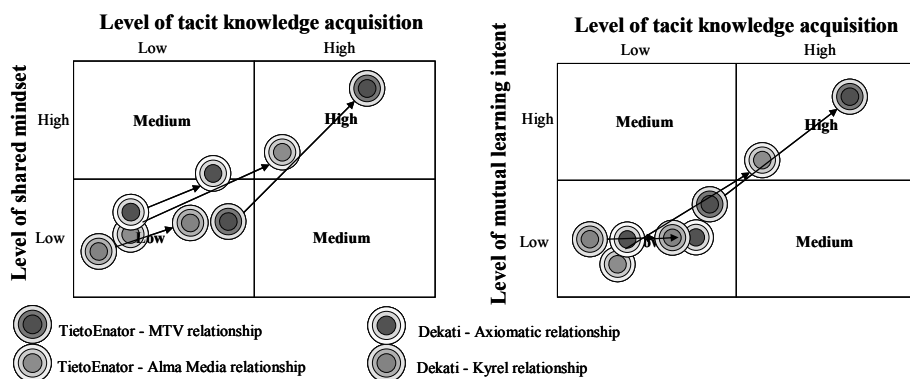


Figure 65: The Development of a Shared Mindset and Mutual Learning Intent in the Case Relationships

There were least two factors involved in the building of a stronger basis for tacit-knowledge flows in TE's relationships that were not clearly visible in DE's relationships: (1) a mutual intent to learn and (2) an aim to develop the level of shared mindset (see Figure 65)¹⁰⁶. It was necessary to acknowledge

¹⁰⁶ The points of comparison highlighted in the Figure for the case relationships: TE-MTV: The pilot project and the situation after the personnel outsourcing; TE-AM: The situation before Finnish

the role of the partners' active development of ISK in the analysis of tacit-knowledge flows within the relationships. It was argued in the theoretical discussion that a shared mindset facilitates the acquisition of tacit knowledge, and this argument seemed to hold in the case studies. *The higher the level of shared mindset, the higher was the level of tacit-knowledge acquisition.*

Table 20: An Example of TE-MTV's Shared Mindset Development¹⁰⁷

Phases	Initial & Trial Stage	Adjustment Stage	Development Stage	Commitment Stage
Shared identity	Fairly low	Slow initial establishment	Was significantly developed as a result of more interaction	Developed with a mix of ways
Relatedness of the knowledge bases	Relevant experiences in similar projects	Began to develop as partners committed (increased interaction)	Increasing continuously	Increasing continuously
Mutual learning intent	Initially mutual intent was low	MTV committing to the relationship	Increasing mutual commitment	Strong as a result of successful projects and commitment
Level of tacit-knowledge acquisition	Fairly low	Increasing rapidly	Fairly high	Fairly high

The TE-MTV relationship could be taken as an example (see Table 20) of how the companies developed their learning abilities. The learning intent was initially low, but once MTV had committed to the relationship the knowledge-acquisition efforts increased significantly. In addition, learning intent played a central role in the development of ISK: it affected the level of knowledge acquisition as it lead to clearer commitment and increased learning efforts, and

ownership and the situation at the end of 2006; DE-AX: The situation at the beginning of the relationship and at the end of the development project; DE-KY: The situation at the beginning of the relationship and at the end of the first outsourcing project.

¹⁰⁷ In the Table, the red circle refers to the key event in the relationship which built the basis for the changes to come. The arrows refer to the effects between the factors presented during the presented phases of the relationship development.

it also had an indirect effect on learning as it seemed to create the basis for the development of a shared identity and knowledge-base relatedness. Thus, the increasing mutual intent resulted in a positive development cycle of tacit-knowledge acquisition and further commitment as shown in the table.

In comparison, a shared mindset was fairly actively pursued in the DE-AX relationship through the use of interactive working and learning methods, although later there seemed to be a lack of mutual strategic intent and commitment. On the other hand, the DE-KY relationship started slowly with a limited number of people, but as the partners recognized the need for knowledge acquisition they placed emphasis on the more interactive working methods that would enable the development of a shared understanding.

However, as noted above, it is difficult to argue that the shared mindset was developed in order for the acquisition of tacit knowledge. It rather evolved through a combination of circumstances: (1) an increase in the versatility of learning methods and (2) the active development of a shared identity through personnel selection and more informal interaction. The essential point, however, is that it usually seemed to take place after the partners had established a mutual learning intent. However, as previously discussed, the level of shared mindset appeared to be a result of an increase in the versatility of learning methods rather than of mere mutual learning intent. The level of prior related knowledge could not really be affected by any activities, and a shared identity was developed mainly during the interaction in the projects.

The commitment in TE's relationships, as far as TE was concerned, was quite clearly established from the beginning, whereas learning efforts varied in intensity. Yet, it could be argued that the driving force in the TE-MTV relationship was the companies' mutual commitment and learning intent, closely followed by a need to develop a shared mindset and learning methods. In the TE-AM relationship, however, it seemed to lie in the projects, and even the commitment seemed to change according to the level of cooperation. *Thus, although the level of interaction and learning was low, the commitment and mutual learning remained high: both companies seemed to be looking for more active cooperation.*

In DE's case, the relationships underwent more moderate changes, but they also had considerably shorter histories. The amount of knowledge flows was lower, but strongly dependent on DE's commitment. Learning intent seemed to be quite low in both relationships, but the development of a shared identity appeared to facilitate a higher level of tacit-knowledge acquisition, and the aim in the DE-KY relationship was to introduce more versatile learning methods. *In addition, the acquired knowledge in DE's relationships was mainly complex rather than tacit, and consequently a high level of mutual understanding could be considered somewhat less important.*

In conclusion, the value and tacitness of knowledge were strongly related to the level of ISK, and even to the development of the relationship context. *Consequently, the companies' activeness in developing ISK was also related to the type of knowledge they acquired, and further to their ability to diffuse it more widely within their organizations.*

8.3.3 A Synthesis of the Elements of Knowledge Acquisition

The role of inter-organizational sensitivity to knowledge acquisition was clearly important. However, given the nature of the relationships, a shared mindset was emphasized and the organizational characteristics and national & organizational cultures had limited relevance. *A shared identity, a shared mindset and mutual intent had varying significance, but could still be considered important in the process of acquiring highly tacit and contextual knowledge.* The learning process was more comprehensive and varied in TE's relationships, in which the shared mindset levels were also more established. Yet, the limited resources and lack of long-term commitment, especially in the DE-KY relationship, seemed to limit the level of knowledge acquisition and the role of the shared mindset. Furthermore, there seemed to be commitment to developing the shared mindset level in the future in all but the DE-AX relationship.

A shared identity and mutual intent had varying significance in DE's relationships, but could still be considered important as far as the learning process was concerned. In terms of mutual learning intent, the opportunities and challenges seemed to support Simonin's argument that a clearly communicated intent has a significant role in the success of knowledge acquisition, especially in small organizations (Simonin 2004). It was also an essential factor regarding the further diffusion of knowledge within the new organizational context to enable the receiver to develop its competences (see Inkpen – Dinur 1998). Moreover, the role of a shared identity also seemed to vary between the partnerships depending on the level of mutual intent and tacit-knowledge acquisition. Both of these issues seemed to be related to the limited resources and the project aim. Thus, the role of available resources and the nature of the project aim should be taken into consideration in the analysis (Sanzhez – Heene 1996; 1997).

Of the factors affecting the level of shared mindset and its further implications, it could be said that the development was often dynamic and a result of the companies' active efforts, increasing commitment, and learning intent. These efforts were visible in an increase in the use of more participatory and interactive working and learning methods, the allocation of

more personnel to the relationship, the development of support structures, and an increase in more informal interaction. However, the shared mindset developed among the individuals involved, and could not be unilaterally enforced by the management (see Figure 66). The relations between the factors outlined were not easy to establish based on the case relationships. Versatility in interaction and learning methods seemed to affect the amount of both knowledge acquisition (TE-MTV & TE-AM & DE-AX) and the acquisition of tacit knowledge (TE-MTV & TE-AM & DE-AX), while the mutual intent to learn had more effect on the amount of knowledge acquisition and on the learning methods used. Intent as such was not considered directly to affect the acquisition of tacit knowledge.

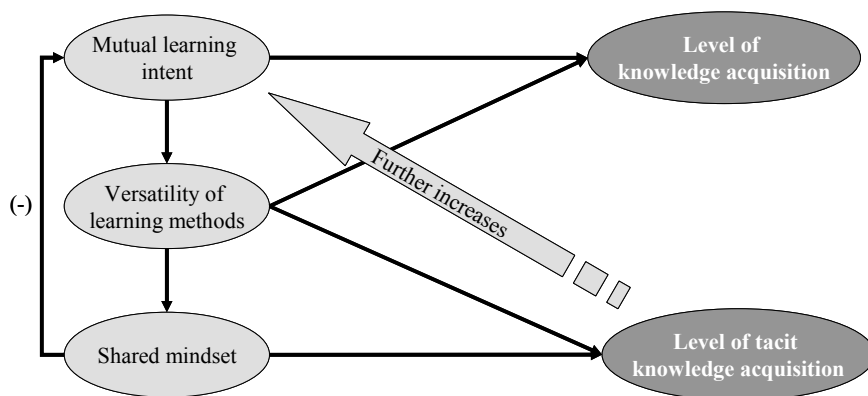


Figure 66: The Effects of a Shared Mindset on the Acquisition of Tacit Knowledge

However, it would be difficult to say that the amount of acquired tacit knowledge was the result of a high level of shared mindset in the relationships. *Rather, it could be argued that the shared mindset was a result of conscious decisions by the companies to commit to the partnership and develop their learning intent, and consequently to actively strive to expand the acquisition of tacit knowledge.* Consequently, as the companies recognized the value of such acquisition, they further increased their level of mutual intent.

Yet, it was not necessarily always recognized that a shared identity or shared mindset was an integral part of the tacit-knowledge acquisition, and more participatory learning methods were introduced instead. It is suggested in the literature (e.g., Child 2001b; see Fiol 2001; Selnes – Sallis 2003) that high levels of shared identity (and high levels of trust) may present a learning barrier, but this was not especially supported or contradicted in the case studies. This issue is discussed in more detail in Chapter 8.4.5.

Finally, Dyer & Singh (1998, 673) discuss how co-evolved capabilities become increasingly difficult to imitate over time owing to their path dependence and invisibility. Relationship-specific absorptive capacity and scarce complementary resources could also form a basis for competitive advantage. As noted, however, there were no relevant relationship-specific investments (see Madhok – Tallman 1998, 336; Dyer – Singh 1998) in DE's relationships, whereas the partners were more committed in terms of investments and learning efforts in TE's relationships. Therefore, it could be argued that in the latter case the companies were better able to identify the possible value of their cooperation. A corresponding and positive difference was also visible in terms of developing a sense of shared mindset, which was strongly relationship-specific (Dyer – Singh 1998; Dyer – Hatch 2006; see Fiol 2001). Furthermore, TE's business-development aim was to build up industry-specific competences, which would require the ability to re-build shared identities for new relationship contexts (see Child 2001b; Fiol 2001). Thus, one could further emphasize the importance of being able to develop a shared-mindset within the relationship, and to learn from the cooperation experiences. In the long run, this could be considered an issue of relationship development and management, both of which are discussed in more detail next.

8.4 The Development of the Case Relationship Contexts

The levels of knowledge acquisition in the case relationships were quite different, depending on their type and maturity. *TE's relationships were further in their life cycle and more committed to knowledge acquisition whereas DE's relationships were in their early phases, although the potential of tacit-knowledge acquisition had been recognized.* Thus, the type of knowledge acquired and the level of mutual intent seemed to be largely dependent on the context and the relationship-management efforts.

8.4.1 The Effects of the Relationship Dynamics' on Knowledge Acquisition

In terms of the level of tacit-knowledge acquisition and the issues affecting the relationship context, the role of commitment and inter-dependency seemed to carry the most significant implications. The effects of the relationship context on the level of tacit-knowledge acquisition are analyzed more closely in this section. Although the figures (see Figure 67) do not carry extensive analytical

potential as the level of knowledge flows is depicted as static, there are a few noteworthy points.

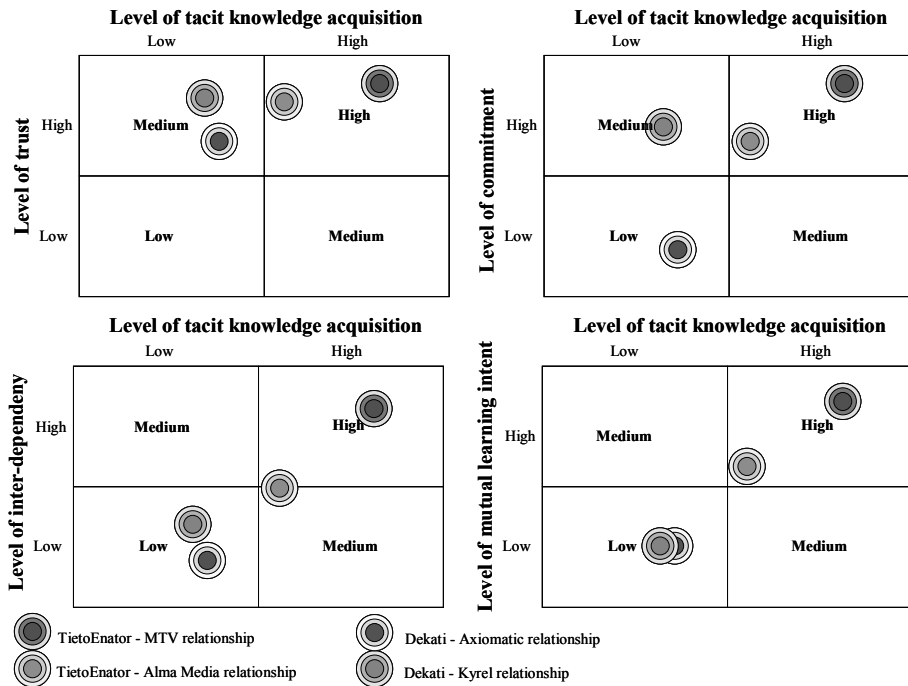


Figure 67: The Effects of the Relationship Contexts Effects on the Level of Tacit-Knowledge Acquisition

A high level of trust and the fear of opportunism have been widely discussed in the existing literature (Helleloid – Simonin 1994, 221-222; Das – Rahman 2001, 46-48). However, these issues were not emphasized as much as expected in the case relationships. They all seemed to have high levels of trust, but differing levels of knowledge acquisition (c.f. Huemer 2004; Barney – Hansen 1994). *Thus, trust seemed to be more of a prerequisite for cooperation and knowledge acquisition than a variable affecting the level of knowledge acquisition.* Inter-dependency and commitment to the relationship and to learning within seemed to have a more significant effect on the level of knowledge flows than trust, however. Commitment was fairly high in TE's relationships, which affected the way in which the partners supported its learning efforts. Moreover, although DE had increased its commitment to KY, this was not clearly visible in the level of knowledge acquisition or the number of projects thus far.

In terms of the relationship context, trust, commitment, dependency, and learning intent were considered the most relevant issues in the case

relationships. They are therefore analyzed in more detail from each company's perspective (see Figure 68 and Figure 69¹⁰⁸).

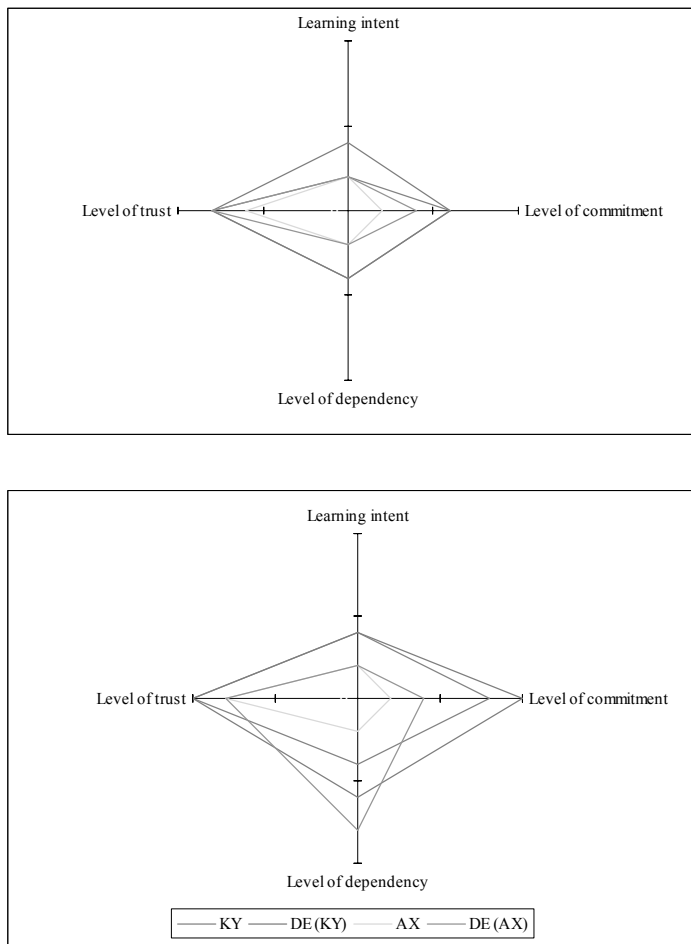


Figure 68: The Relationship Contexts in the DE Cases

In a sense, the DE-KY relationship clearly developed in a more positive direction. Trust was high in the DE-AX relationship, but DE's dependency on AX increased when the product deliveries it had committed to contractually began. In addition, DE had accumulated considerable termination costs, which made it difficult for it to change supplier. The DE-KY relationship, on the

¹⁰⁸ The figures are used here to highlight the relative changes in the presented factors within the relationship contexts (the points on the continuums are based not on specific measures, but on an idiographic analysis of the relationship contexts). Scale used: Low, Moderate (low), Moderate, Moderate (high), High.

other hand, was rather characterized by an increase in DE's dependence, but also an increase in mutual commitment to the relationship. At the same time, the companies were putting more emphasis on knowledge exchange, although this seemed to be rather poorly communicated to the DE organization. Thus, the level of learning intent did not rise to a significant level at any point, although DE and KY seemed committed to the cooperation.

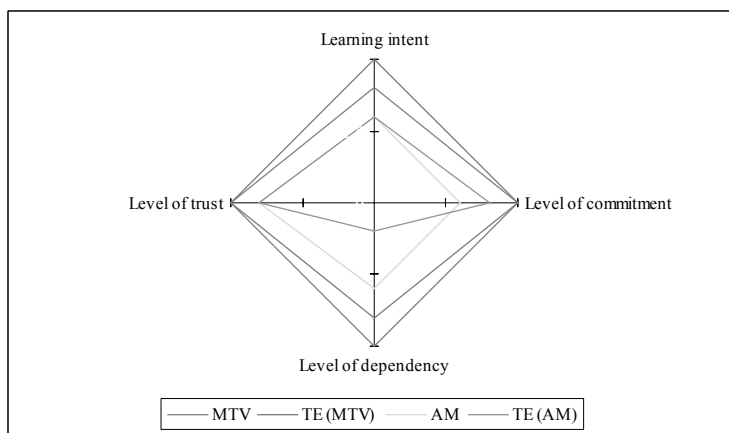
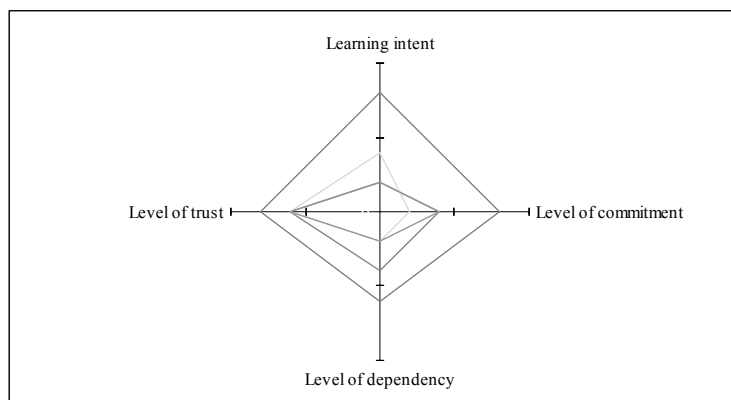


Figure 69: The Relationship Contexts in the TE Cases

The situation was more balanced in the two TE relationships, although that with AM seemed to offer limited potential in terms of MAS development. Perhaps more importantly, TE was extremely active in terms of learning efforts and commitment from the very beginning of its relationship with MTV. It was committed to it, and willing to invest in it in order to develop it further and to acquire industry-specific expertise. MTV was also able to commit to it afterwards, and in the long run, like AM, became increasingly dependent on

the solution provider. Yet, the level of commitment was more limited in the TE-AM relationship, and the cooperation was on a smaller scale.

In the end, the two areas in which the relationships differed - the levels of commitment and of inter-dependency - could be considered important in terms of the companies' relationship-development aims. The DE-KY and TE-MTV relationships were the two most extensively developed in terms of business as well as of the level of learning. The TE-AM relationship was also developing in terms of commitment, although the level of cooperation was not yet at the partnership level outside of the archive development.

8.4.2 The Development and Effects of Trust

The roles of trust and commitment are well acknowledged in the existing literature on companies' willingness to facilitate knowledge flows. There seemed to be fairly high initial levels of inter-organizational trust in the cases in question (c.f. Ford 1998, 35), and in the early stages the main fears concerned the partner's commitment and ability to perform rather than their opportunistic behavior.

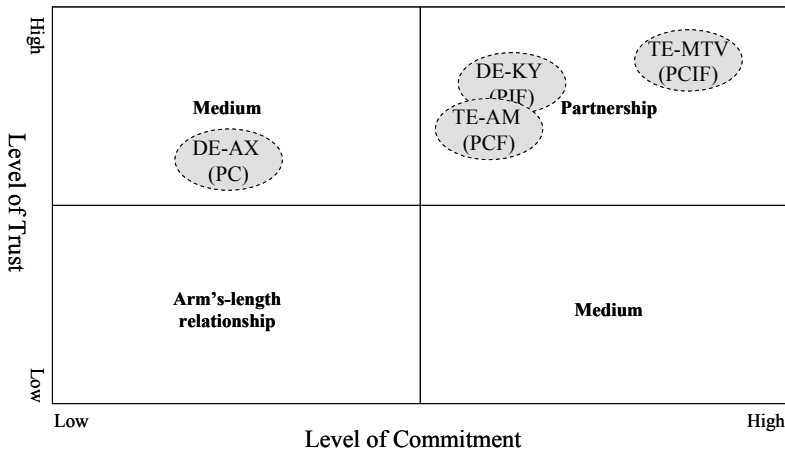


Figure 70: The Relation between the Levels of Trust and Commitment¹⁰⁹

The uncertainty regarding the partners' abilities and future aims in a high-technology environment was well adapted to in the case relationships (see Blomqvist 2002, 170-171; Parkhe 1998a, 222). The levels of both trust and

¹⁰⁹ In the figure, P = process-based trust, C = characteristics-based trust, I = institutional trust & F = trust based on future expectations.

commitment were closely related, but commitment was not necessarily dependent on trust. *There was a relationship between the two in the sense that without trust the companies would not be likely to commit to each other, but a high level of trust did not necessarily mean a high levels of commitment* (see Figure 70). Initially, DE's relationships were both quite moderate in terms of commitment, but there was a move towards closer cooperation in the one with KY. Of TE's relationships, on the other hand, the one with MTV was especially high in terms of both trust and commitment.

It is also worth noting that the basis of trust differed in the relationships, but in general it supported the existing literature (Parkhe 1998b; Zucker 1986). The partners' abilities and similar characteristics were emphasized, as expected, and good faith, implicit guarantees and contracting were used as safeguards (see Parkhe 1998b, 425-426). On the other hand, mutual hostages were mainly visible in the form of rising switching costs as a result of the learning efforts (see Parkhe 1998b, 425-426; Das – Rahman 2001, 53-54; Jones et al. 2002). There were really no significant relationship-specific investments in any of the cases. The emphasis in these partnerships was rather on the partner's abilities – the availability of appropriate human resources and the ability to acquire knowledge. Process-based trust seemed to be critical in DE's relationships in that small companies do not have similar credentials in terms of references and reputation, and trust is often based on individuals (see Blomqvist 2002, 169-170).

Characteristics-based trust was highlighted in the DE-AX relationship, whereas the more trusting and committed relationships had a more diversified basis. A fourth area, the *role of future expectations*, also emerged in the case relationships (c.f. Parkhe 1998b; Nielsen 2004): many of the interviewees emphasized the strategic role of the partnership in the long-term development of their company's business and competences. This is closely related to the concept of commitment in that, instead of only measuring short-term pros and cons companies may be willing to sacrifice short-term benefits on the basis of future expectations (see Dwyer et al. 1987, 16; Anderson – Weitz 1992, 19). Thus, the analysis results seem feasible as all the relationships highlighting future expectations were considered to be closer partnerships. In addition, the institutional basis for trust seemed to apply to the more committed companies, although relationship-specific investments were generally quite limited. Only in TE's relationships were there more noteworthy adaptation (e.g., training, systems) and organizing (e.g., support structures, outsourcing) efforts among the partners (see Anderson – Weitz 1992).

This highlights the importance of the initial conditions in the relationship development (Doz 1996, 75-76), as well as the role of fast trust (Blomqvist 2005). Network implications were also highlighted as a basis for initial trust

(Blomqvist 2005), consequently emphasizing the strategic role of the network (Gulati et al. 2000; Anderson et al. 1994). Furthermore, the results seemed to be in line with previous findings in the sense that process-based trust in particular was an essential factor in enhancing the acquisition of new knowledge that is tacit in nature (Levin – Cross 2004; Blomqvist 2002, 156-158; see Muthusamy – White 2005, 434). Reliance on the partner's abilities was especially notable during the early phases of the relationship, and also with regard to their future development. As far as the initial conditions were concerned, the companies' experience and resources were of high relevance in terms of limiting or enhancing their engagement in knowledge acquisition. Furthermore, the TE-MTV case was a good example of a working relationship with high tacit-knowledge acquisition, but it had taken a fairly long time to get to its current situation.

Table 21 shows the potential termination costs apart from the sunk costs. One could argue that knowledge-acquisition-related termination costs were relevant motivators for the companies to continue working together (c.f. Jones et al. 2002). Consequently, the level of knowledge-acquisition-related cognitive investment was considerable. *Furthermore, it was not only a question of the costs of teaching another partner: it would be difficult to reach a similar shared understanding in other relationships, and companies with similar experience and expertise were not easily available.*

The threat of opportunism was not considered relevant in any of the relationships (c.f. e.g., Williamsson 1986; Hamel 1991). This was partly due to the fact that the companies were from totally different industries and the knowledge bases were complementary than rather competing. Moreover, potential acts of opportunism would have been detrimental to the partnership in the long run as the markets were fairly small, and bad news traveled quickly within the network of industry actors (see Helleloid – Simonin 1994, 222; Barney – Ouchi 1986, 24-25; Gulati et al.). Thus, it was considered important to minimize the fear of opportunism, especially given the potential implications in the network context (Gulati et al. 2000). Furthermore, the secondary functions also played their part in limiting the fear of opportunism in this fairly small market (Anderson et al. 1994; Easton 1992).

The level of trust seemed high in all four cases, and the level of abilities and process-based trust were generally emphasized. This seems to support the argument put forward in the existing literature that trust in the partner's abilities is crucial when the task is highly complex and uncertain, as well as strategically important (Levin – Cross 2004; Blomqvist 2002, 156-158). Trust was initially derived from references and other similar projects, but was then further affected by mutual experience. This mutual experience seemed to have especially positive effects in all but the DE-AX relationship, in which there

were problems with the quality of the manufactured products despite the praise heaped upon the product-development project.

Table 21: Termination Costs

Type of termination cost	DE-AX	DE-KY	TE-MTV	TE-AM
Continuity costs	High shared identity, good result in the product development.	Limited shared identity, difficult to find similarly capable partners.	High levels of shared mindset, good results, difficult to find similarly capable partner for MTV.	Relatively high levels of shared mindset, good results, difficult to find similarly capable partner for AM.
Switching costs	Potentially high, difficult for DE to find good suppliers.	Potentially high, difficult for DE to find good suppliers.	Limited number of corresponding partners for both parties. TE committed to the industry.	Limited number of corresponding partners for both parties. TE committed to the industry. AM also in need of partners in other systems areas.
Learning costs	Extremely high for DE. AX had initially put in efforts to get to know the product, but had no “unrecovered” investments	Extremely high for DE, although a limited number of people. KY had made limited sacrifices.	Extremely high for MTV, the relationship was developed over a long time period. TE had also invested in learning the specifics. The development of a shared mindset a considerable investment.	Extremely high for AM, the relationship was developed over a long time period. TE had also invested in learning the specifics. The development of a shared mindset a considerable investment.
Strategic costs	Limited fear of opportunism. Potential implications in the network context considered a safeguard.	Limited fear of opportunism. Potential implications in the network context considered a safeguard.	Limited fear of opportunism. Potential implications in the network context considered a safeguard for both.	Limited fear of opportunism. Potential implications in the network context considered a safeguard for both.

Thus, a more active level of trust emerged (Huemer 2004, 255) in the TE-MTV relationship (as well as in the TE-AM and DE-KY cases), which went beyond the conducting of normal routines. However, it is arguable whether this was due to a more active level of trust: it is suggested that the increasing commitment and mutual learning intent had a more significant role in enhancing active knowledge-acquisition efforts (c.f. Hamel 1991).

Coming back to the role of trust, one could argue that it had only limited effects on the level of tacit-knowledge flows, and that further analysis, based on the existing literature, would reveal a close relationship between the levels of trust and shared identity in the case relationships (Figure 71). This should be especially true when the acquired knowledge was highly tacit. However, this close connection between high levels of shared identity, high levels of trust and high levels of tacit-knowledge acquisition was only partly established in the cases: the people involved in the MTV relationship interacted extensively, and the insourcing of MTV’s personnel further increased the levels of trust and shared identity. *Yet, here one should consider the development of the relationships and not the pure analysis of the described status.*

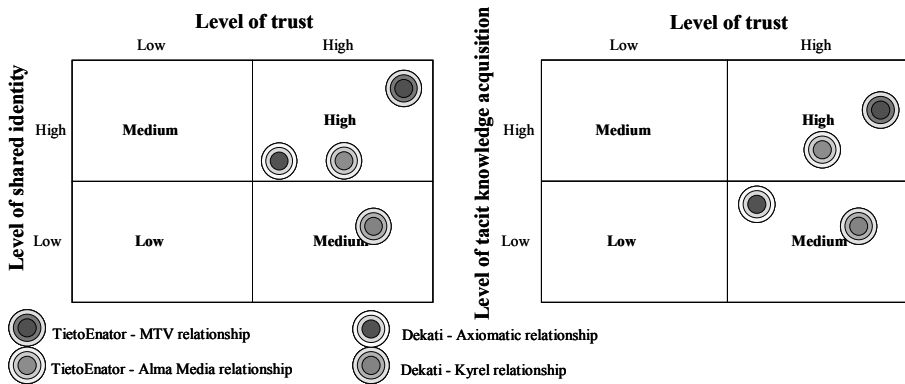


Figure 71: The Relations between a Shared Identity, Tacit-Knowledge Acquisition, and Trust

The TE-AM relationship was taken care of by a very limited number of people, but the level of shared identity between them was high. Yet, it was essentially developed during the relationship, as was the level of trust, although in this case trust was not the most important factor in the level of knowledge acquisition: it seemed to be more dependent on the mutual commitment, and on the subsequent level of cooperation. The DE-AX relationship, on the other hand, also had fairly high levels of shared identity, but the level of trust had suffered somewhat on account of the product deliveries – nothing to do with the actual project. The level of shared identity in the DE-KY relationship, on the other hand, was fairly limited, as was the level of interaction. However, the companies had a solid basis for trust, and mutual commitment was increasing. As part of this, the aim was to increase the use of working methods that would also have an effect on the shared identity, as well as on the acquisition of tacit knowledge. The level of trust did

not seem to have extensive implications on the level of learning in the relationships, and learning was rather a question of commitment and finding a mutual intent.

Trust was the basis for initiating the relationship rather than a reason for learning. The existing interaction prepared the ground for positive experiences and subsequent further commitment. As the companies did not need to worry about opportunism-related issues, they were able to initiate closer cooperation and interaction. In addition, the increasing dependencies required a certain level of trust (TE-MTV), otherwise the risk would have been dispersed more widely among other partners. Furthermore, the level of trust was an important consideration in the development of a shared identity. *Without existing inter-organizational trust, it would have been difficult to develop shared identity due to the absence of participatory and interactive working methods.* This was true in the later phases of the DE-AX relationship and in the early phases of the TE-AM relationship, for example. As the companies seemed to have problems with process-based (DE-AX & TE-AM), future-based (DE-AX & TE-AM) and, to some extent, characteristics-based (TE-AM) trust, the interaction was less frequent and less interactive. Besides that, higher levels of trust and commitment produced dedicated project personnel (DE-KY & TE-AM & TE-MTV), thereby increasing the numbers of people participating in the cooperation (DE-KY & TE-MTV) and contributing to increasing the levels of shared identity. *Thus, one could argue that trust was especially relevant as a mediator of commitment, more interactive learning methods, and a shared identity.*

There was a notably strong interplay between shared identity, trust and the amount of tacit-knowledge acquisition, although the linkages were not simple. Trust as such was not a reason for the companies to engage in learning efforts, although an initial level was required for them to initiate the interaction. *It could therefore be said that the role and the basis of trust were multifaceted in the relationships* (see Figure 72) (Nielsen 2004).

Firstly, future expectations (which could also be seen as a basis for commitment) were identified as a further basis of trust in addition to the three (process- and characteristics-based, and institutional) presented in the literature (see Zucker 1986; Parkhe 1998b; Nielsen 2004, 241-242). This was also recognized by Parkhe (1998b, 422-423), but mainly stemming from expectations of a continuing relationship. Yet, in the cases future expectations were also related to the expansion of business opportunities (DE-KY, DE-AX, TE-MTV & TE-AM), the customers' reliance on their partners' own capacity for competence development (TE-MTV & DE-KY), and the future strategic importance of the relationship (TE-MTV & TE-AM). It should also be noted

that the use of mutual hostages was not considered relevant, although the termination costs were considered significantly high in all cases.

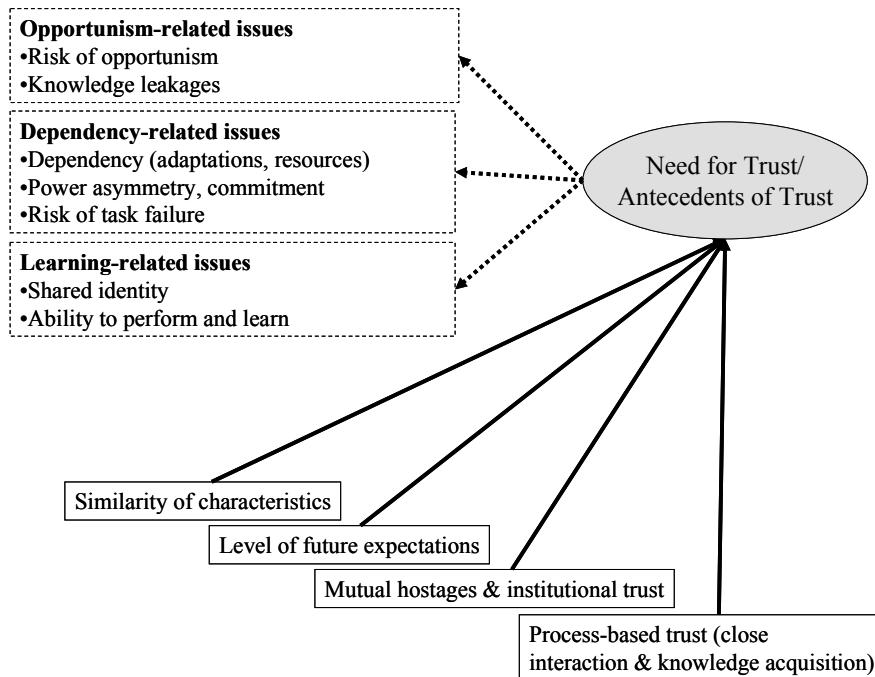


Figure 72: The Need for and the Antecedents of Trust in the Case Relationships

Secondly, the perceived benefits of trust were very similar to those proposed in the existing literature: trust is a way of lowering uncertainty and the related costs (Nielsen 2004, 244; MacMillan et al. 2000, 76; Das – Teng 2002a.). Opportunism- and dependency-related needs for trust closely resembled trust related to relational and performance risks (Das – Teng 1996; 2001). However, besides reducing the risk of conflict and uncertainty, as generally suggested, trust also had an essential role in the learning process in that it facilitated the open communication and the creation of a shared identity (e.g., Nahapiet – Ghoshal 1998). Thus, it could be seen mainly as a prerequisite for the initiation of knowledge acquisition. It could be argued that trust in the case relationships did what it was supposed to do, i.e. limit the level of uncertainty and minimize the negotiation costs (Zaheer et al. 1998; Powell 1990, 300-305). Still, it seemed to have only a background role in the further development of the case relationships as, irrespective of the level of trust, the development paths differed.

8.4.3 Developing Commitment and Mutual Learning Intent

The role of mutual intent was already touched upon in connection with the analysis of the knowledge-acquisition process. However, as mutual learning intent was undermined in DE's relationships, its effects and the dependency on commitment seemed to offer room for further analysis (see Figure 73).

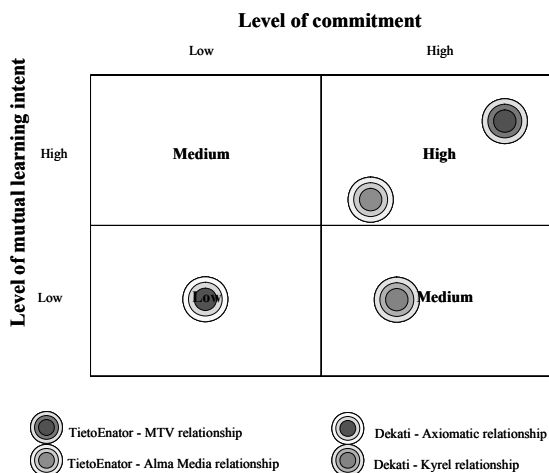


Figure 73: The Relationship between Commitment and Learning Intent

The important issue here is that learning intent and commitment went hand-in-hand in the case-development analyses. Furthermore, there seemed to be essential differences between the relationships in terms of learning intent. The situation was different in the DE-KY relationship in that the two parties had established development plans and commitment, but thus far had only limited mutual intent, activities, and relationship-specific investments. It was only after the first project that both understood the potential of the relationship. Consequently, they seemed to put more emphasis on mutual understanding and the level of interaction, and to considerably increase their level of commitment. At the same time, also the type of knowledge acquired changed from documented information to manufacturability-related issues (i.e. more tacit knowledge). *Thus, the development of learning intent was strongly related to the relationship contexts.*

The mutual learning intent was clearly higher in both of TE's relationships than in DE's relationships, but there was a long development path that had had major implications on the partners' learning efforts. *Consequently the dynamic development of the relationship contexts was a complex web of interrelated factors with identically complex implications on the knowledge-acquisition process (Table 22).*

Table 22: The Development of the Case-relationship Contexts

Relationship context	Initial stage	Development stage	Project implementation	Critical development stage	Future potential
DE-AX	AX increasing its dependence only slightly through its learning efforts. DE's dependency growing through higher learning and switching costs.	Both companies' dependence increasing as a result of knowledge acquisition. Trust in AX's abilities increasing as a result of increasing interaction.	More limited knowledge acquisition, long-term commitment concentrating on product deliveries.	Value of acquired tacit knowledge fairly limited. Diminishing learning efforts after the product-development phase. Relationship concentrating on the assembly & delivery of products to DE.	Further development projects considered possible from DE's perspective, but limited commitment. Low potential in terms of learning.
DE-KY	Initially strong inter-organizational trust. Limited mutual commitment, initially a "trial" project.	Knowledge flows highlighted during the early stages. Inter-personal trust and abilities established. Active dialog about how to make the products more manufacturable lowering DE's dependence.	KY's assembly efforts increasing DE's dependence.	Commitment increasing as a result of gained tacit knowledge. Subsequently, learning intent became more compelling and learning versatility & shared mindset actively developed.	High potential in terms of projects & learning. Trust (people & organizations) high, and commitment increasing. Limited dependence so far. DE's dependence likely to increase following increasing knowledge acquisition.
TE-MTV	TE's high commitment a basis for active learning efforts. TE's dependence increasing.	MTV committing to the relationship. As a result mutual learning intent and the versatility of methods increased.	MTV's dependence on TE increasing considerably. Active knowledge acquisition, increasing TE's commitment and adding to its responsibilities.	MTV's commitment to the relationship enabled more intense knowledge acquisition. High inter-dependence, and mutual intent to learn. Gaining tacit knowledge the key to TE's systems development.	High potential in terms of projects & learning. Mutual dependence increasing, but also allowing for new avenues of cooperation.
TE-AM	High levels of trust. Lack of mutual intent, difficulties in project management. Limited knowledge acquisition – project mainly outsourced of coding.	Re-organization of the relationship and concentration on the finalizing of the existing projects. Increase in commitment leading to a mutual aim to facilitate knowledge acquisition.	AM's dependency on TE increasing considerably as a result of knowledge flows. High trust, limited fear of opportunism. Knowledge acquisition increasing => new projects.	AM's conscious decision to commit and to develop mutual learning intent essential. AM's dependence high, TE's more limited. Tacit-knowledge acquisition the key to TE's systems development.	Limited potential in terms of large-scale projects in MAS development. High potential in terms of projects & learning in other areas of systems development.

The learning intent was especially high in the TE-MTV relationship, and clearly mutual as soon as MTV made a commitment to cooperate with TE. A clearly mutual learning intent also developed in the TE-AM relationship as the parties became better organized and committed to closer cooperation. *Thus, mutual intent should not be seen only as part of the relationship context: it also concerns the companies' willingness to develop, and to put emphasis on achieving a shared mindset and introducing versatile learning methods.* This lends support to the existing literature, which emphasizes the crucial role of management support and mutual learning intent in overcoming the unwillingness to unlearn and to accept outside opinions and change as part of the learning process (see Child – Rodrigues 2003). In fact, one could draw a more clear line between mutual learning intent and mutual strategic intent in terms of commitment. Furthermore, it seemed that the level of mutual learning intent, in that it represented a way of evaluating the level of the partners' commitment to each other, also affected their ability to further exploit and develop the acquired knowledge.

“It really was [that MTV would actively support TE's learning efforts], we made a conscious decision after we decided that TietoEnator would take control of these systems...”

Thus, it seems that the relationship context affects the competence-development process. In fact, TE's partners had all but irrelevant roles in its search for new opportunities in order to exploit the knowledge and expertise it had gained. The customers also considered this an essentially good thing from the systems-development perspective. As a learning process, competence development (the dissemination of knowledge and the unraveling of its tacit aspects) took place internally within TE and DE. Yet, the relationship context was relevant in the sense that it determined what kind of knowledge could be acquired and how, which in turn strongly affected its further development and exploitation.

8.4.4 The Implications of Interdependency between Partners

Upon closer inspection of the interdependencies in the case relationships, one could say that the power dependencies changed, partly as a result of the knowledge-acquisition efforts. *As discussed earlier, the bargaining power seemed to change during the most important developmental phases in the relationship.* It was a conscious decision by MTV to develop a close partnership with TE. Similarly, AM made a conscious decision to diminish its own systems-development resources, and to rely on TE's expertise in its search for solutions. On the one hand, the learning efforts required

considerable investments, which provided TE with additional projects, but on the other hand, industry-specific knowledge and even customer-specific experience could be exploited with other customers in the media sector. In the end, TE's dependency on its partners was significantly higher with MTV than with AM. *Thus, as a result of the acquisition of tacit knowledge, TE was becoming increasingly important to its partners as an expert in their systems development.*

The lack of long-term commitment and clear learning intent within DE's relationships also seemed to limit the level of knowledge flows and the role of ISK in the process. Moreover, the knowledge acquisition was less partner-specific, and consequently the relationship context was less significant than anticipated. Related to this, it also seemed that the changes in power dependence remained low due to the type and characteristics of the acquired knowledge (see Das – Rahman 2001).

On the other hand, the dependency changes in DE's relationships although more moderate, also seemed to affect the knowledge-acquisition process. The increase in interdependence seemed to be related to the developments in the learning efforts. However, the importance of learning efforts and their further development in particular should be considered concerning DE's relationships. The relationship contexts could not be characterized as strongly committed, but the KY relationship was developed extensively in terms of further commitment and learning efforts.

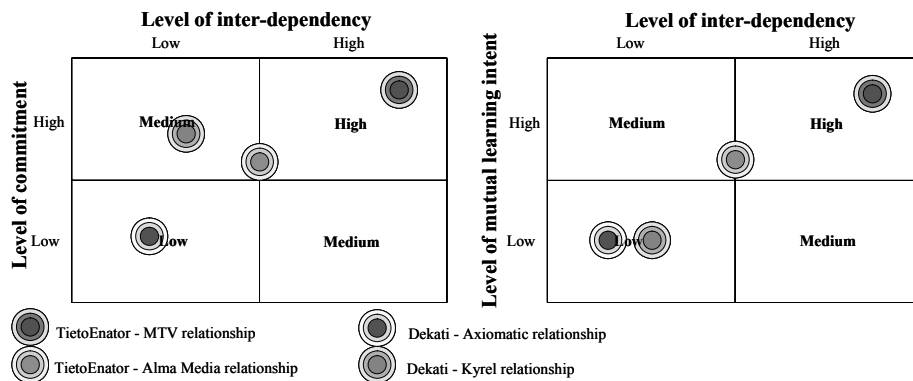


Figure 74: The Implications of Partners Interdependence

As Figure 74 shows, the importance of the interdependencies can be seen in their relation to the two key concepts (1) commitment within the relationship, and (2) the level of mutual learning intent. Firstly, high levels of commitment meant that dependence was likely to increase as a result (TE-MTV & DE-KY). Both commitment and interdependence were considered high in the

archiving project in the TE-AM relationship, but otherwise cooperation was more limited. On the other hand, when interdependence is high and the learning efforts do not pay off as expected, commitment and mutual learning intent are likely to decrease. This negative effect was somewhat evident in the DE-AX relationship, in which problems with trust and commitment resulted in efforts to decrease dependency and learning effort.

Furthermore, the increases in the amount of knowledge gained by DE and, especially, by TE seemed fairly consistent with the increase in dependence between the partners (see Chapters 7.2.3; 7.3.3; 7.6.6; 7.7.6). Furthermore, as suggested, the partners' resource bases were very different and the dependence was mainly interdependence (Das – Teng 2002b). *Thus, there was a need for a more comprehensive understanding of the relationship development. The increase in inter-organizational trust and commitment as a result of interplay and interdependence had implications on tacit-knowledge acquisition.* Similarly, the levels of shared identity and a shared mindset grew, which created more facilitative circumstances for acquiring tacit knowledge. Because the companies were committed to a long-term partnership, this also meant that the type of knowledge acquisition became more meaningful and tacit. On the other hand, as the relationships confronted problems in terms of increasing cooperation and commitment (DE-AX), the interdependence (termination costs) was considered especially problematic, although the initial lack of mutual learning intent in DE's relationships limited its increase.

One could also emphasize the role of commitment within the relationships: it seemed to drive their development and the knowledge flows. *An integral result of the analysis was that increasing interdependence between the partners and increasing knowledge acquisition seemed to result mainly from the increasing levels of commitment.* In praxis, the increasing focus on learning at TE made it possible to find new business possibilities, and similarly, TE's and MTV's interdependence increased along with the flow of tacit industry- and customer-specific expertise to TE. Increased dependence also meant that TE had a higher incentive and need to learn in order to carry out the project tasks, which further led to the accumulation of experience and tacit knowledge, and provided a stronger basis for helping the customer with emerging development needs and ideas. On the other hand, the commitment was more limited in the DE-AX and even in the TE-AM relationships.

Consequently, the increasing interdependence did not always affect the level of mutual intent to learn so positively. The problem in DE's relationships was the limited commitment and the uncommunicated learning intent, and although the intent was strong in the TE-AM relationship, the companies seemed to be actively looking for further opportunities to extend the

cooperation. *Thus, the type of project and the specificity of the acquired knowledge also seemed to limit the dynamic effects of the relationship context.*

8.4.5 A Synthesis of the Implications of the Relationship Dynamics

In considering the level of knowledge acquisition within the relationships and the effect of the relationship context on learning, one should also look at their long-term development and management of the relationship. *One could state that the relationship context seemed to build a basis for inter-organizational knowledge acquisition in a number of ways.* These effects and dependencies are briefly reviewed in the following.

As discussed, the high levels of trust and commitment preceded the developments in the acquisition of knowledge, especially in the TE-MTV and DE-KY relationships. Thus, the relationship context could be considered a precondition for the initiation of learning (Hamel 1991), and it also seemed to build a basis for the further development of ISK. Thus, neither the knowledge acquisition nor the relationship context is a one-time event: they should be seen as dynamic and interrelated processes. *Furthermore, the relationship dynamics could be visualized as a combination of four key areas: trust, commitment, power dependence, and the level of mutual intent.*

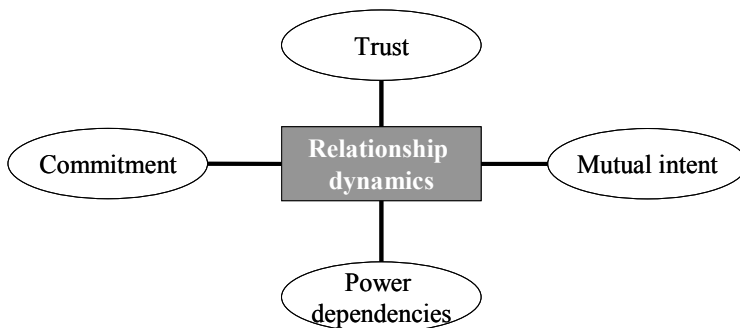


Figure 75: The Construct of Relationship Dynamics

The relationship context is highlighted here as a basic element affecting knowledge acquisition. *Its importance stems from the relationship dynamics¹¹⁰, which affect the knowledge-acquisition process.* Trust and commitment affect the level of learning (see Hamel 1991; Huemer 2004;

¹¹⁰ Dynamics could be described as a force that induces change or includes change within it (adapted from Halinen – Törnroos 1995, 499).

Barney – Hansen 1994). On the other hand, it has been argued that excessive trust may even hamper learning in the relationship (Selnes – Sallis 2003; c.f. Huemer 2004). Given these conflicting views in the existing literature, there is a need for a better understanding of the role of relationship dynamics in knowledge acquisition. *Partners need not only trust and close communication, but also a mutual intent to knowledge acquisition.* This is important as it could be argued that both the context of learning and the ability to acquire knowledge may be affected by the companies' activities. As Ariño & de la Torre (1998) argue, the relationship context (e.g., in terms of efficiency and power dependence) may be further affected by the partners' learning within it. In this case, the dynamic effects between the relationship context and the knowledge-acquisition process constructed a complex web of interrelations.

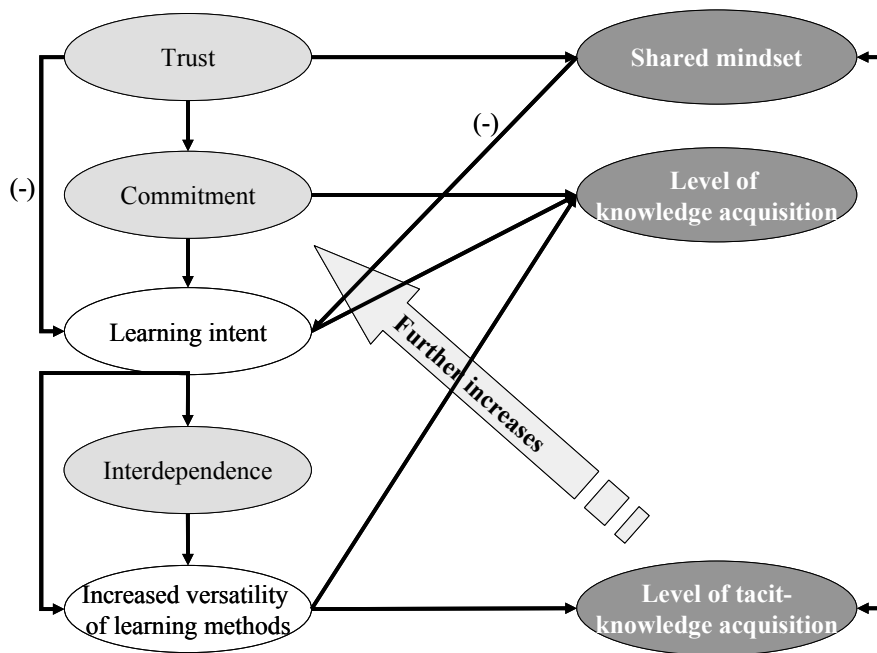


Figure 76: Implications of the Relationship Dynamics

Consequently, it could be argued that the nature of the relationship context and the existing power dependencies also affected the level and tacitness of the knowledge acquired (see Figure 76). The arm's-length relationships featured less tacit-knowledge acquisition and, consequently, limited competence development, whereas in the closer partnerships there was more intense knowledge acquisition, mutual learning intent, active ISK development, and clear strategic intent in terms of knowledge exploitation. Furthermore, a dynamic interplay seemed to prevail in the closer relationships,

suggesting that the relationship context and the level of knowledge flow were constantly evolving.

8.5 The Further Development and Exploitation of the Acquired Knowledge

There seemed to be limited further development of the acquired knowledge and competence in all of the four case relationships. However, apart from the TE-AM relationship, the partnerships were in the early stages of development. Even though TE and MTV had been working together for a long time, the establishment of a strongly cooperative partnership was more recent.

As shown in Table 23, the types of knowledge acquired were generally not highly critical for the partners. Some of the industry-specific issues were more critical in TE's relationships, but TE still had at least partial access to it. Although the acquired knowledge was not highly valuable to the partners it was to the main companies (DE & TE) (see e.g., Inkpen 2002, 269; Zeng – Hennart 2002). Furthermore, the level of tacitness of the acquired knowledge was essentially related to its value to the main companies.

Table 23: The Value of the Acquired Knowledge in the Case Relationships

Company & acquired knowledge type	Acquired knowledge tacitness	Acquired knowledge value for the company (DE&TE)	Acquired knowledge value for the partners
DE-AX			
Product-development and product-design-related knowledge	Moderate	Moderate	Low
Outsourcing-related knowledge	High	High	Low
DE-KY			
Project- and product-specific knowledge	Moderate	High	Low
Outsourcing-related knowledge	High	High	Low
TE-MTV			
System-specific knowledge	Moderate	Moderate	Low
Customer-specific knowledge	High	High	Moderate
Industry-specific knowledge	High	High	High
TE-AM			
System-specific knowledge	Moderate	Moderate	Low
Customer-specific knowledge	High	High	Moderate
Industry-specific knowledge	High	High	Moderate

Even though there had been limited efforts at competence development, the companies were aiming to exploit the potential. For both TE and DE their competence development depended on the types of knowledge acquired.

Knowledge acquisition was important for TE as the aim was to accumulate industry-specific expertise and to exploit it in other similar relationships, including international markets. Despite the specificity of the system- and customer-specific knowledge, the experience gained was exploitable outside the customer relationships. In DE's relationships on the other hand, the acquired knowledge was more general, but strongly connected to the specific products. DE was actively moving into industrial manufacturing, which meant outsourcing large parts of its manufacturing and assembly processes. Moreover, the acquired knowledge supported the company's competitive advantage as it enabled it to place more emphasis on its core competences: innovation and product development (see Porter 1985; See Batt – Purchase 2004; Miles – Snow 1986; 1992; see Brusoni et al. 2001). On the other hand, the types of knowledge were typically non-critical for the partners.

As mentioned, thus far there had been limited exploitation of the acquired knowledge at both TE and DE. As the problem did not seem to reside in the fear of opportunism or in high customer control, it seemed related to the limited knowledge dissemination. Thus, it could be argued that the level of dissemination affected the exploitability and was clearly dependent on the number of people involved in the relationships and the tacitness of the acquired knowledge (see Figure 77).

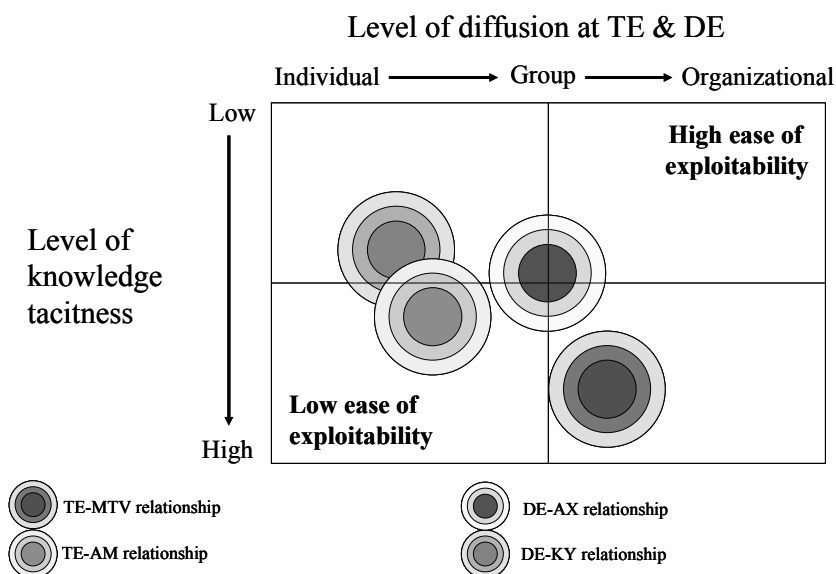


Figure 77: Differing Levels of Knowledge Exploitability

The further development of acquired knowledge was rather limited in DE's relationships. Outsourcing-related knowledge was highly tacit and thus

difficult to diffuse internally. Quite a limited number of people were involved in the relationships, and consequently DE's management was calling for more codification (concerning the outsourcing process: discussions, negotiations & decision-making), some of which had been lost as important personnel left the company. Given the difficulty of documenting highly tacit knowledge, *it would seem important to involve the personnel more comprehensively in the relationship, to disseminate the acquired knowledge more widely, and to secure the commitment of employees to the organization.* On the other hand, codification of the gained experience (e.g., best-practices and standardization/manufacturability analysis) would allow DE to share the knowledge more easily, but with regard to truly tacit knowledge, of more significance is the number of people involved and active dissemination efforts.

As far as TE was concerned, there was a higher level of diffusion in the MTV than in the AM relationship in that more people were involved with the projects. On the other hand, the lower levels of tacitness made the acquired knowledge more exploitable in DE's relationships: full exploitation though (DE-KY) would have needed an increase in the acquisition of tacit knowledge and in the level of shared mindset. In comparison, TE's relationships had higher shared-mindset levels, and had been better able to exploit the acquired knowledge outside the customer relationship. The problem was that the acquired knowledge was often highly customer-specific as well as tacit, and thus was only partially available for further exploitation.

On the other hand, the level of mutual learning intent also seemed to reflect the way in which TE could further exploit the acquired knowledge and thereby develop its industrial expertise. TE was also cooperating with its partners in industry-wide systems development, and its partners also considered further knowledge development beneficial. DE's relationships seemed more problematic in this respect. Establishing mutual learning intent is essential in motivating individuals' learning efforts and thereby strengthening commitment to the relationship (see Hamel 1991). Furthermore, knowledge acquisition in small companies is often very much dependent on specific individuals. In this case the diffusion of the acquired knowledge was limited, which led to limited utilization and development. This was significant, as DE's business idea is based to some extent on its ability to form partnerships with subcontractors.

The further development and exploitation of knowledge had varying potential in the relationships due to the extent of tacit-knowledge acquisition, and also due to their nature. TE had a natural basis for developing a mutual intent to learn with its customer in that the aim was to develop the customers' solutions. Still, the inter-organizational-relationship contexts seemed to have only limited effects on the further diffusion and development of the acquired

knowledge in the receiving organization. Both of DE's partnerships could be characterized as arm's-length relationships, and the competence development was very limited. However, this was mainly related to the limited level of knowledge flow and the limited number of people involved (and the consequently limited dissemination of knowledge). The further diffusion and exploitation of the acquired knowledge also seemed to be a challenge for TE, although the relationships were essentially more cooperative. Yet, the knowledge tacitness was high, and the opportunities for exploitation were more limited (see Figure 78).

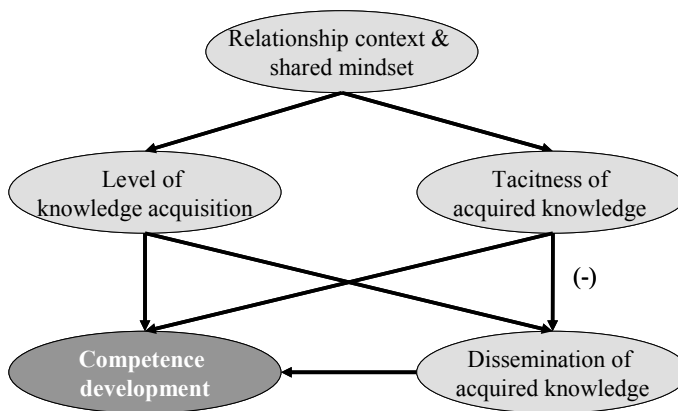


Figure 78: Implications on Competence Development

Competence development is essentially a company's internal process. Although TE's competence was in developing systems for other organizations, the basis lay in its ability to combine complementary areas of system-, customer-, and industry-specific experiences. In DE's relationships, on the other hand, competence development was mainly related to its internal processes and product development, and was part of its internal knowledge development. Thus, it could be argued that DE was lacking in both the further development and the dissemination of knowledge, whereas TE was actively striving for both.

Even though the relationships did not have a direct impact on competence development, the extent to which the knowledge was shared and developed was dependent on its acquisition from the partners. The partners may have offered opportunities for competence exploitation, but the development process was internal. *Consequently, the relatedness of knowledge acquisition and further competence development was essentially supported in all of the case relationships.* Thus, it could be concluded that as the relationship context created the propensity for knowledge acquisition, it also indirectly affected the level of competence development and exploitation.

9 CONCLUSIONS

9.1 Developing a Framework for Analyzing Inter-Organizational Knowledge Acquisition

Given the theoretical implications of this study, it would perhaps be relevant to concentrate first on the development of the theoretical framework for inter-organizational knowledge acquisition. All in all, the framework appeared to be well suited to the relationship settings as the essential factors were identified. Moreover, there was interplay between the sets of factors, as suggested in earlier research (see Hamel 1991; Goh 2002; Cummings – Teng 2003). *The following framework (Figure 79) synthesizes the key issues involved in inter-organizational knowledge acquisition¹¹¹.*

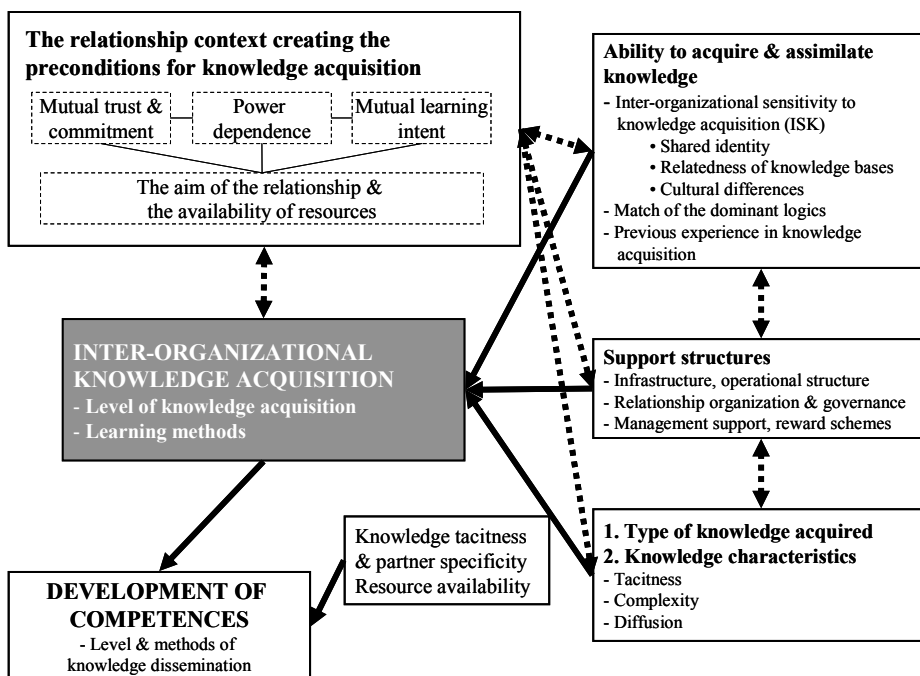


Figure 79: The Revised Theoretical Framework for Inter-Organizational Knowledge Acquisition

¹¹¹ In the figure, the arrows with continuous lines refer to one-directional relations between the factors, whereas as those with dotted lines refer to interrelations.

The initial framework (see Chapter 5.6) was modified based on the analysis of the case relationships. The interrelations are better highlighted in the current version, and some additions & adjustments were introduced to the factors as they were found to be relevant in the analysis.

The essential questions in all knowledge-acquisition contexts concern how knowledge acquisition is related to the aims of the relationship or project, and whether or not the acquired knowledge is related to the core competences of the transferor. With small companies in particular, the general aims and the availability of resources were highlighted in the case relationships. The processual aspects of the level & methods of knowledge acquisition were also included for reasons of specificity, together with the effects of the knowledge characteristics on the further exploitation of the acquired knowledge. Finally, previous experience of knowledge acquisition through inter-organizational relationships was added as a new factor. The role of organizational differences is not as important as in the initial framework, and the role of previous outcomes is manifest mainly through the evolution of trust and commitment.

Trust, commitment, mutual intent, and power dependencies thus comprise the relationship context, which creates the preconditions for knowledge acquisition. The inter-organizational relationship, and especially its dynamic effects, had major implications in terms of knowledge flows between the companies. *Thus, one could argue that the relationship context is a precondition of knowledge acquisition, and that the relation between these two is dynamic.*

Knowledge-specific issues, support structures and inter-organizational ability to acquire knowledge affected the knowledge-acquisition process. As in the initial framework, the knowledge characteristics had an effect, but the type of knowledge is also highlighted. In terms of further competence development, the learning process was quite similar to the acquisition process in the sense that tacitness was a major challenge and required a more participatory approach to become understood and disseminated. Of the original characteristics, partner specificity seemed to affect the further development and exploitation rather than the knowledge-acquisition process. The role of support structures, on the other hand, was related to both managing the relationship and to enhancing the acquisition of knowledge. Thus, it was taken into the framework as a separate set of factors rather than as an integrated part of relationship management. Besides that, the partners' ability to exchange and assimilate was a critical factor. The role of ISK was important, but it was also affected and further developed by the companies. Consequently, this seemed to be dependent on the relationship context and its development.

The analysis also clarified the interplay between the sets of factors. Knowledge characteristics affected the knowledge-acquisition process as well

as the significance of a shared identity. ISK and the relationship setting were also closely intertwined (see Nahapiet – Ghoshal 1998; Dyer – Singh 1998), and there was clear interplay between knowledge acquisition and the development of the relationship context (Hamel 1991; see Ariño – de la Torre 1998; c.f. Nielsen 2005; Cummings – Teng 2003) in that successful learning results essentially affected the further development (commitment, dependence and trust) of the relationship.

Consequently, the relationship context, knowledge-specific issues, support structures, inter-organizational learning ability, and the learning process (including the type and amount of knowledge) were inter-related, as were the specific factors. It also seemed that the inter-organizational relationship did not directly affect the further diffusion and development of the acquired knowledge into competences in the receiving organization. Rather, competence development was dependent on the level and type of knowledge acquisition, and on the continuity of the relationship.

9.2 Theoretical Conclusions

Within the wide range of knowledge-related research, this study makes contributions in a few key areas, some of which were discussed to some extent in Chapter 1.5. There have been similar attempts to capture the factors affecting knowledge exchange (see e.g., Goh 2002¹¹²; Hamel 1991; Cummings – Teng 2003; Nielsen 2005). However, the emphasis in this study is on the inter-organizational context of the knowledge-acquisition process, and on developing an *understanding of how and under what conditions a company can acquire knowledge from its partner in order to develop its competences*.

On the more general level of knowledge-related literature, the study brings the different perspectives of the KBV and IB literature closer together in the comprehensive contingency framework it offers. In addition, in emphasizing knowledge as a strongly contextual and social product, it supports the existing literature focusing on the multifaceted nature of tacit knowledge from a constructivist viewpoint (see Tsoukas – Vladimirou 2001, Cook – Brown 2002). It also promotes the synthesizing of the more positivist and the more interpretivist approaches to knowledge as something that can be possessed without losing its social and interactive character (see Schultze – Stabell 2004; Cook – Brown 2002). The types and characteristics of knowledge, and the

¹¹² Although Goh analyzes knowledge transfer in a fairly comprehensive manner, the emphasis of the analysis is on intra-organizational knowledge transfer, and consequently the implications of the relationship context are rather narrowly assessed (2002, 25-26).

inter-organizational knowledge-acquisition process & methods, are discussed in more detail in the following.

9.2.1 Inter-Organizational Knowledge Acquisition as a Learning Process

As such, the idea of successful knowledge acquisition through an inter-organizational relationship is far from simple, but it would be easier to grasp if its true nature were understood. This study has described and analyzed four different kinds of relationship setting in which highly valuable and even tacit knowledge was acquired from one context and integrated into another. In my view, knowledge acquisition should be seen as a process of learning, interpretation and reconstruction rather than as the transmission and reception or implantation of knowledge (Szulanski 2000, 23; See Cook – Brown 2002).

One of the main issues addressed in this study is encapsulated in the first sub-question: *how knowledge can be acquired from partners*. In simple terms, one could say that the process is very much like the one described in the theoretical discussion. It is argued here that it is possible to exchange both explicit and tacit knowledge between organizations. This is not to say that the tacit knowledge possessed by the transferor organization could simply be communicated to someone in the receiver organization (Weick 1979; Schein 1993; Sinkula 2002). *It was rather a complex social process, which seemed to support the developed concept of co-operational sense making*. There was also evidence of tacit-knowledge acquisition in the sense that knowledge is not tangible – a mere product to be exchanged and transplanted (Almeida et al. 2002; see Cook – Brown 2002; Child 2001b). The companies did not have a clearly defined idea about what kind of knowledge they were going to acquire from the relationships a priori, which supports the idea of knowledge ambiguity as a learning barrier (see Szulanski 1996; Simonin 2004; Barney 1991). They were only able to identify different knowledge types afterwards based on the acquired knowledge and gained experience. This highlights the manager's ability to sense and to be creative when choosing partners, i.e. the dynamic capabilities of the company (Penrose 1995; Teece et al. 1997).

Knowledge acquisition, on the other hand, is a process of understanding, integrating and re-building knowledge (Argyris 1993; Cook – Brown 2002; Kolb 1984, 38; Szulanski 2000; Almeida et al. 2002). *The relevance of the more interactive and participatory learning methods was evident in terms of cooperative sense making, thereby facilitating the processing and integration of tacit knowledge* (see Cook – Brown 2002; see Fang – Wu 2006; Vlaar et al. 2006). It could be argued that interaction (emailing, telephone calls, and

meetings) as such does not necessarily result in tacit-knowledge flow, and that participatory methods (group workshops, shared problem solving, personnel exchange, and learning-by-doing) are more effective in that they are more supportive of cooperative sense making (see Cook – Brown 2002; Lyles – Salk 2007, 13; c.f. Huber 1991; See Daft – Weick 1984; Daft – Huber 1987). External and complementary knowledge sources may also offer more learning opportunities as an understanding of the partner's knowledge base requires more intense interpretation and double-loop learning due to the differences in the companies' underlying causal maps (see Sinkula 2002, 255-262; Huber 1991; Powell 1990, 325). Therefore, it is not only the amount, but also the quality of the interaction that should be highlighted. At best, cooperative sense making could serve as a basis for competence development (see Dyer – Hatch 2006).

Proposition 1: Participatory learning methods, including cooperative sense making, facilitate the effective acquisition of tacit knowledge better than interactive learning methods.

The further development of the acquired knowledge into competences is not an easy process either. Competence development requires active efforts from the partners because the further dissemination and development of knowledge to fit the organizational context does not take place automatically. Yet, to a certain extent the case relationships showed that competence development was possible through inter-organizational knowledge acquisition. One further issue could be highlighted concerning the nature of the further development and exploitation of the acquired knowledge: although the knowledge was gained, *it was not integrated in the same format and structure as it existed in its original context* (see Kogut 1988, 323). The acquired knowledge was rather applied, further developed and, to a certain extent, re-created within the new organizational context. *This required learning abilities in the receiving organization, and the ability to develop a shared understanding of the basis of tacit knowledge.*

Proposition 2: Competence development is affected by the level of knowledge acquisition and the company's internal knowledge-dissemination efforts, which are hampered by the level of knowledge tacitness and customer specificity

Although tacitness makes knowledge acquisition difficult, it is possible to influence the process. The case results show that the main challenges in the acquisition of tacit knowledge lie in ISK and the development of a shared mindset (e.g., Child – Rodrigues 2003; Lane – Lubatkin 1998; Lane et al. 2001; Fiol 2001). However, as discussed in the literature (see Szulanski 2000, 21-24; Dyer – Singh 1998), the effects of knowledge tacitness can be softened. The unraveling of the causal ambiguity of tacit knowledge makes it more

understandable to the receiving organization. The process of developing a shared understanding of the acquired knowledge was highly cooperative in the case relationships. This development of learning abilities is discussed in more detail in the following.

9.2.2 Inter-Organizational Sensitivity to Knowledge Acquisition as a Dyadic-level Concept

In terms of the second sub-question of the research, *the ability of a company to acquire and assimilate knowledge*, inter-organizational sensitivity to knowledge acquisition was a relevant factor: the companies' ability to learn and to develop a sense of shared understanding had a crucial role in the relationships.

This was a major conclusion as most of the existing literature emphasizes the receiving organization's learning abilities (Hamel 1991; Cohen – Levinthal 1990). One of the most significant theoretical conclusions of the study is the clear support for the reasoning that learning ability and ISK in inter-organizational knowledge acquisition should be understood and analyzed as a dyadic concept (i.e. as an inter-organizational issue) (Lane- Lubatkin 1998; Cummings – Teng 2003, 57). *Furthermore, the concept of inter-organizational sensitivity to knowledge acquisition (ISK) could be considered highly relevant, and as the case studies strongly confirmed, companies can also actively affect the level of a shared mindset and ISK within their relationships.* Learning ability should not be taken as given: it is a dynamic process that may be affected by organizational activities and efforts. Clearly, this also supports Wilkinson & Young's suggestion that relationship management is really a two-way process and not something that one company does to another in a stimulus-response manner (2002, 116; Ford et al. 1998, 383).

Continuing this line of argumentation, one could also highlight the interrelation between the factors affecting both the relationship management and the inter-organizational learning process. As the companies developed a higher level of trust and commitment, as well as a mutual intent in terms of knowledge acquisition, the partners were better able to exchange contextually bound knowledge. Thus, it could be argued that the relationship dynamics are important in establishing the basis of mutual intent and the ability to learn.

The level of trust, mutual intent and shared identity appeared to mediate the supporting role of the relationship context in the inter-organizational learning process. As discussed, one aspect of inter-organizational knowledge acquisition is the fear of opportunistic behavior and the need for mutual

forbearance, which essentially enables the development of a trusting and committed atmosphere within the relationship (Buckley – Casson 1988; Håkansson 1989). The same factors that affect relationship development also appear to affect inter-organizational learning ability. In particular, the role of a shared identity was closely related to a trusting atmosphere, thereby forming a dual basis for stability (Huemer 2004). Thus, this study supports Child and Rodrigues (2003), who suggested that different types of acquired knowledge require different levels of shared identity. However, the role of a shared identity was also important in enabling the companies to develop more active trust (Huemer 2004) and thus to engage in the more uncertain activities of tacit-knowledge acquisition. Furthermore, mutual intent is an integral part of both processes (Hamel 1991; Lane – Lubatkin 1998; Johnson – Sohi 2003) in terms of the aims for the relationship, the development of ISK, and the learning process.

This highlights the importance of the relationship context in knowledge acquisition. As the learning process is highly complex and the value of the learning efforts is high, the level of mutual hostages is difficult to determine. Therefore, it could be concluded that the presence of mutual intent and mutual trust and commitment is crucial for the success of inter-organizational knowledge acquisition. At the same time, these issues are strongly related to the partners' ability to develop ISK. Indeed, close communication, social interaction, and adaptation appear to mediate a sense of trust and power dependence to the relationship atmosphere on the one hand, and on the other the interaction constitutes an essential part of the learning process.

It could therefore be suggested that mutual intent and mutual trust and commitment are crucial for the acquisition of knowledge, and for the development of a shared identity (Child – Rodrigues 2003; see Nahapiet – Ghoshal 1998; Hamel 1991; Lyles – Salk 2007). As mentioned in the theoretical discussion, the relationship context and the developed support structures form the structural basis of the relationship. Yet, it appears from the case studies that these issues are related also to the partners' ability to develop ISK, which represents the cognitive basis of gaining new knowledge. (see Lane et al. 2001.) Therefore, the need to affect and actively develop the ability to acquire knowledge should be emphasized (see Dyer – Singh 1998; Dyer – Hatch 2006; Lane- Lubatkin 1998; Cummings – Teng 2003).

Proposition 3: The development of inter-organizational sensitivity to knowledge acquisition requires active efforts from both partners and is dependent on their abilities and willingness.

The existing literature also highlights the role of previous experience in knowledge acquisition as prior experience in relationships has been found to help in developing them (Draulans 2003; Child 2001b; Powell et al. 1996), in

acquiring knowledge (Cummings – Teng 2003; Simonin 1999; Child 2001b), and in developing absorptive capacity or ISK (Gelbuda et al. 2003; Child 2001b). It has also been argued that the ability to learn is highly partner-specific (Draulans et al. 2003; Dyer – Singh 1998; Child 2001b). On the other hand, a balance between familiarity and learning intent is an essential challenge as the relationship-specific nature of ISK and shared identity may form a learning barrier if it becomes formalized and cannot be re-created for new knowledge-acquisition contexts (Child 2001b; Hamel 1991).

Proposition 4: Previous experience in knowledge acquisition, existing resources, and the type of knowledge being acquired affect the development of inter-organizational sensitivity to knowledge acquisition.

However, here it was emphasized that the development of alliance capabilities did not refer to previous knowledge per se, but was rather a question of the experience gained and the consequent ability to interpret and adapt to similar situations (see Cohen – Levinthal 1990; c.f. Gelbuda et al. 2003). The case relationships support the argument that experience is a major factor contributing to the ability to adapt to the context-specific challenges of tacit-knowledge acquisition. However, the analysis of the contributing mechanisms went further (see Blomqvist – Levy 2006, 44) to consider how and why experience was utilized. Experience mattered mainly in terms of (1) managing the relationship and being able to develop (2) support structures for the companies' interaction, and the companies' ability to (3) deploy more participatory and interactive learning methods when required.

Proposition 5: Previous experience of knowledge acquisition, the availability of resources for knowledge acquisition, and the type of knowledge being acquired affect how it is acquired (learning versatility and relationship management).

In addition, experience of knowledge acquisition and the allocation of resources are significant in terms of enhancing the level of mutual intent. In the absence of the required skills and resources for knowledge exchange, the results of the learning process may be severely undermined. Knowledge acquisition and further exploitation were based on procedures that were better established in TE than in DE. A big corporation is able to offer more variety in terms of procedures and interaction methods on account of its previous experience and established procedures.

Proposition 6: Previous experience of knowledge acquisition is helpful for inter-organizational learning mainly in terms of facilitating the development of support structures and the deployment of appropriate learning methods.

All in all, together with relationship-specific investments and developed interaction, the set of tacit and difficult-to-imitate social ties and a shared identity as a basis for understanding could be developed into an asset that yields competitive advantage (Child 2001b; Dyer – Singh 1998; see Fiol 2001; Dyer – Hatch 2006). Thus, this study reiterates the emphasis on institutionalizing and developing alliance capability in previous studies (e.g., Draulans et al. 2003; Blomqvist – Levy 2006, 43; Miles et al. 2000, 303-304). In addition to developing alliance databases and management routines (Duysters et al. 2003, 9-10), for example, companies would do well to institute procedures (e.g., for personnel exchange & systems review, and personnel-ability databases) for knowledge sharing.

Alliance capability has been found to support the ability of larger companies in particular to deal with the ambiguity of knowledge (Simonin 1999, 484-485). This could be partly related to the availability of resources (Hagedoorn – Schakenraad 1994, 300; Simonin 2002, 246). In the case studies the experience of learning and relationships was more plentiful, better organized and managed, and therefore, more readily available in the larger companies. They were therefore able to set up learning methods and support structures for the relationship. Analyzing and comparing partnerships could thus be considered a major source of new relationship-management capabilities (see Simonin 2002, 240-244), and a basis for finding and establishing effective methods for acquiring knowledge (and subsequently the development of a shared mindset). Furthermore, not only is there a need for the more structured learning of relationship management, there is also a call for the structured development of knowledge-acquisition capabilities.

Proposition 7: Previous experience, the availability of resources and more established learning and relationship-management procedures allow larger high-technology companies to acquire knowledge more effectively than small high-technology companies.

On the other hand, other relationships may benefit from some of the results of the partnership, but it would be very difficult to copy the ISK of the partners and their shared social identity and capability in order to develop a shared understanding. Dyer & Singh (1998, 663) argue that inter-organizational competitive advantage as a result of knowledge-sharing routines is related in particular to the development of partner-specific learning ability and transparency incentives. This appears to apply to the present findings, as they seem to allow for the acquisition of tacit knowledge. Thus, developing competitive advantage through partnerships is based on relationship-specific investments and the combining of complimentary knowledge sources at less cost than the competition (see Dyer – Singh 1998; Dyer – Hatch 2006). *Moreover, it would be equally difficult to copy the sense*

of inter-organizational trust, not to mention the dynamic development of commitment and power dependence and the related mutual intent to learn within the relationship. Thus, the relationship context provides the basis for the knowledge acquisition, and also for developing competitive advantage, as suggested by proponents of the relational view.

Consequently, this study supports and furthers the argument put forward by Dyer and Hatch (2006) that knowledge acquisition through the company's relationship and network context can build the basis for its competitive advantage, by extending the analysis to the development of the relationship dynamics. The aim was to move this argumentation forward by revealing how the dynamics of the relationship context affect the process. These issues related to the relationship context and ISK are discussed in more detail below.

9.2.3 The Implications of Relationship Dynamics on Knowledge Acquisition

This study contributed in several ways *to our understanding of how to create supportive preconditions for inter-organizational knowledge acquisition*, which was the third sub-question addressed in the research. One can hardly deny the value of Hamel's article (1991) on inter-organizational knowledge acquisition. He took the relationship context into consideration and discussed the role of power dependence, but the current study has advanced our understanding of relationship dynamics and their implications on the knowledge-acquisition process.

As discussed, organizational learning through knowledge acquisition requires the opportunity, the intent, and the ability to learn. It has been strongly suggested in the literature that, in terms of learning opportunity, the relationship context and trust are key preconditions for inter-organizational learning (Hamel 1991, 93; see Madhok 2006, 32-34; Muthusamy – White 2005, 433-434; Nielsen 2005). Furthermore, as Hamel (1991) posits, transparency can be influenced through the development of the relationship context and inter-organizational support structures. *On the basis of this study, it could be further argued that the dynamics of the relationship context affect the level of inter-organizational knowledge acquisition and provide a basis for building up mutual intent and developing the partners' ability to learn.*

Proposition 8: Trust coupled with a high level of partner commitment affects the level of tacit-knowledge acquisition through increasing the partners' mutual learning intent.

This study partly contradicts and partly supports existing arguments about the partner's learning intent being a reason for the focal company to protect its

knowledge and that inter-organizational knowledge acquisition leads to a learning race (Norman 2002; Hamel 1991; Nielsen 2005). In the analysis of the relation between the dynamics of the relationship and the knowledge-acquisition process it also furthers the argument that the learning efforts within the relationship affect the relationship context (see Möller – Wilson 1995; Ariño – de la Torre 1998),

Trust was considered an important basis on which the partnerships were built, and as a result of which they were willing to initiate knowledge acquisition. All the relationships enjoyed a high level of trust, and this was a key element in reducing the role of uncertainty and even the fear of opportunism (Zaheer et al. 1998; Parkhe 1996; Das – Rahman 2001). However, trust could be considered an inadequate reason for effective knowledge acquisition (c.f. Huemer 2004; Barney – Hansen 1994), which also required mutual commitment and intent to exist.

This study is in conflict with some of the existing literature suggesting that too much trust may lead to an inability to learn (e.g., Selnes – Sallis 2003). One could rather argue that a high level of trust is important (e.g., Huemer 2004), but not enough for learning to take place (see Hamel 1991). This seems logical enough as trust is referred to as a basis for inter-organizational transparency (Hamel 1991, 93), which does not entail any active efforts as such. Similarly, it could be argued that the development of a shared mindset is essential in inter-organizational knowledge acquisition because the bases of understanding may be very different. On the other hand, relationship-specific absorptive capacity could form a learning barrier if it becomes formalized and cannot be re-created for new knowledge-acquisition contexts, as the processes of learning and developing a shared identity are strongly relationship-specific (Child 2001b; see Weick 1979, 215-218; Leonard-Barton 1992). *Consequently, the findings of this study contradict existing understanding that high levels of trust or a shared mindset lead to a sense of stability, and consequently to an unwillingness and inability to change and unlearn.*

Instead, it is argued here that the inability to learn and change lies in the lack of intent, incentives and motivation, not in the level of trust. Therefore, in addition to high levels of trust and a shared mindset, partners need to have mutual intent and a commitment to learning. Learning may be leveraged even against higher levels of trust (see Huemer 2004) and a shared identity as long as the partners find new learning opportunities and remain motivated. Furthermore, the existence of power dependence forms a basis on which the partners can develop their commitment and the mutual intent to learn. Nevertheless, it could be argued that a variety of partners means a more diverse knowledge base, but it also means that sharing knowledge with new partners becomes increasingly challenging as finding a shared basis for

interpretation is more complex (Draulans et al. 2003, 156; see Child 2001b; Dyer – Singh 1998). This further emphasizes the need to manage and coordinate the company's partnerships.

Proposition 9: High levels of trust or a shared mindset may lead to lowered levels of tacit-knowledge acquisition if mutual commitment and learning intent do not prevail.

It has been emphasized (Sako 1998; Nielsen 2004, 246) that the dynamic and cyclical nature of trust enables the reciprocal exchange of information, which when successful makes the partners even more open to each other and thus inclines them to learn and explore new collaboration opportunities. Here this analogy is expressed in terms of the *interplay between trust, mutual aims, and dependence* in order to gain a fuller understanding of the knowledge-acquisition process. This furthers the arguments put forward by Inkpen & Beamish (1997), who claimed that power dependence resulting from learning was the main reason for the failure of strategic alliances. It also adds emphasis and understanding to arguments put forward in previous literature suggesting that conflict and dependency also provide a basis for inter-organizational learning (see Phan – Peridis 2000, 211-212; Das – Teng 2002b, 738). Moreover, as Hamel argued, learning within the relationship affects the dependence of the companies, and this was supported in the cases (Hamel 1991; see Das – Teng 2002a; Das – Rahman 2001).

However, as the companies were not direct competitors they could see that gaining knowledge from external sources was a way of developing their own business as well as the relationship's value, regardless of the dependence (c.f. Hamel 1991). Furthermore, knowledge acquisition mainly concerned knowledge that was not competitively valuable to the transferors, but was highly valuable to the receivers. As the relationships were essentially cooperative, knowledge protectiveness did not hinder the learning process to any great extent (see Zeng – Hennart 2002; c.f. Hamel 1991; Inkpen 1998, 73-74). Nevertheless, the development of the relationship context, together with the knowledge characteristics and the partners' learning abilities, still had a major effect on the success of knowledge acquisition.

It has been argued that experience in a network of inter-organizational relationships helps companies to initiate a learning cycle (Powell et al. 1996, 138). Here, the increase in the companies' involvement with each other enabled them to see the potential and benefits of the relationship (Möller – Wilson 1995, 45), which further affected the mutual learning intent (see Figure 80). It should be emphasized that a certain level of trust is required for tacit knowledge to become exchanged, but the relationship dynamics also have more comprehensive implications.

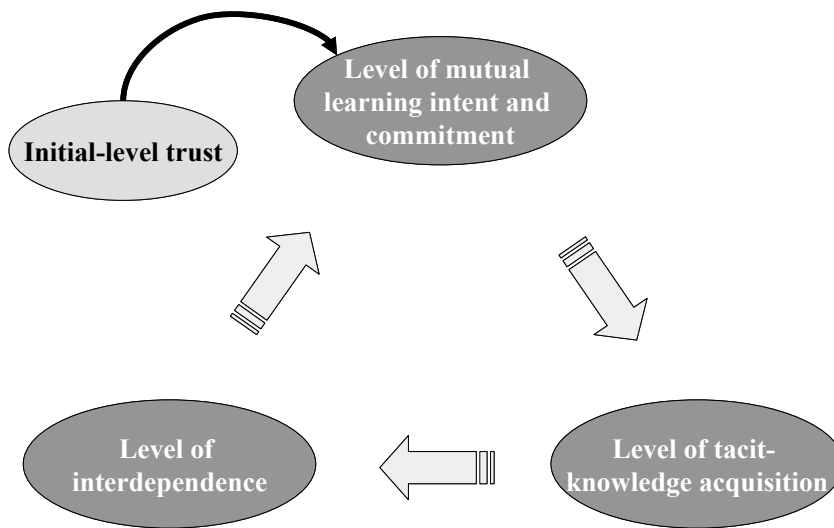


Figure 80: The Dynamics of the Relationship Context in Inter-Organizational Knowledge Acquisition

Learning intent and commitment to the partnership derive from a number of issues, including success in knowledge acquisition and the increasing potential of the relationship. Moreover, increasing commitment & interdependence (resulting in deeper embeddedness of the companies within the relationship) could be seen as the underlying forces driving companies to identify new opportunities and potential (resulting in an increased willingness to invest and commit), on which mutual intent can be developed (see Madhok – Tallman 1998; Dyer – Singh 1998; Möller – Wilson 1995). Thus, the relationship dynamics should be highlighted as a key determinant of knowledge acquisition through inter-organizational relationships.

Proposition 10: High commitment together with increasing interdependence allow for an increasing amount of tacit-knowledge acquisition within the relationship if mutual trust prevails.

Increasing interdependence not only carries the risk of increasing opportunism, it also has positive effects on inter-organizational learning and the development of mutual intent. Thus, the role of relationship management in acquiring knowledge through inter-organizational relationships is paramount. It is also important to recognize the role of cooperative sense making in building a basis for understanding the partner's potential contribution to the focal company's processes or products. As companies understand each other better they also understand their abilities to help each other more profoundly. This study therefore combines the strategic and social views of inter-organizational knowledge acquisition (see Powell et al. 1996, 117-118) in a novel way.

9.3 Managerial Conclusions

The managerial conclusions reached in this study are also highly relevant. According to the RBV, companies can analyze their competitiveness based on the knowledge and competences they possess, what they are developing, and what they have access to. Thus, this analysis should also include their partnerships (adapted from Osland – Yaprak 1994, 54-55; von Krogh et al. 2001) in that relationships are an essential source of new knowledge and competences (Kogut – Zander 1997; Choi – Lee 1997; Eisenhardt – Schoonhoven 1996, 136; Gran – Baden-Fuller 2004; Madhok – Tallman 1998, 328-329; Dyer – Singh 1998; Dyer – Hatch 2006; c.f. Almeida et al. 2002). The managerial contributions of this study are particularly strong in terms of organizing inter-organizational learning, and managing the relationship context. These are discussed in more detail in the following.

Relationships provide an essential source of new knowledge, and consequently facilitate the development of strategic insight (Teece et al. 1997; Teece 2000a; Mintzberg – Walters 1985; Mintzberg 1987a; Powell 1990, 325). External knowledge sources provide complementary knowledge that is considered relevant by competitors, suppliers and customers, and allows for the combining of high-level competences from totally different industries in a novel and creative way. They are also essential in developing the company's knowledge and innovativeness in that they are not bound to the organization's existing causal maps. Furthermore, external complementary knowledge may facilitate the creation of a new kind of value for customers. It is especially important for a network organization to utilize external knowledge sources in that the aim is to rely on partners in the development of products and services. It thus needs to understand how to integrate new external innovations and knowledge.

As such, the framework developed in this study offers managers ways of analyzing their respective relationship contexts. One of the key aims was to further understanding of the different types of acquired knowledge. As stated earlier, it is argued that it is possible to analyze and acquire tacit knowledge to a certain extent. Thus, from the managerial perspective it could be argued that, in order to lead the company effectively and in order to develop successful organizational strategies, managers need to analyze and understand their own and their partners' knowledge bases and their future competitiveness. After all, knowledge is considered the most important resource in promoting competitive advantage.

However, companies face a number of challenges in the acquisition and integration of external knowledge. Acquiring tacit knowledge requires more than adaptive organizational changes. It may be difficult to clearly identify in

advance the types of knowledge to be acquired, and that requires a sense of insight from the manager. Moreover, tacit knowledge cannot be simply transplanted, and it requires extensive efforts in order to develop a true understanding of the acquired knowledge. Thus, companies need to develop learning methods and abilities to match the challenge.

The acquisition of tacit knowledge requires extensive interaction and communication, and the development of a shared mindset. *Given the versatility of the learning process, there is a need to distinguish between the qualities of interactive and participatory learning methods.* Thus, it is not only the amount but also the quality of interaction that matters as tacit knowledge is acquired and re-built. Close interaction, and learning-by-doing in close participatory cooperation allow individuals to make better sense of their understanding and interpretations – which is a requirement for them to be able to acquire tacit knowledge in different kinds of environmental and industrial contexts. More participatory learning methods (allowing for better understanding of tacit knowledge) include workshops, product/system reviews, and personnel exchange. Relatedness in the partners' knowledge bases and the development of a shared identity are important aspects of developing the ability to assimilate knowledge, and organizational and national cultures may pose additional challenges. Thus, specific care should be taken in the selection of the team members involved in knowledge acquisition to ensure that they possess a wide range of competences as well as good social skills. Previous experience in relationships and knowledge acquisition, and in the cultural context, may also be beneficial. It is necessary to recognize that learning abilities can be actively developed through intense social interaction.

The nature of the acquisition and sharing of tacit knowledge should also be recognized when ICT solutions are being developed for these purposes. The traditional sense of media richness is relevant, but could be further complemented by allowing for group interaction and participation in the sense-making process (e.g., interaction, commenting, storytelling, VoIP). Furthermore, systems can only support the sense-making process, and participatory working methods and situations need to be introduced and utilized.

The study also highlights the need for managers to learn from relationships and their management. Relationship-specific management efforts, adaptations or ISK may not be directly applicable to other relationships, but the ability to deal with these problems is essential in the development of business relationships. Thus, different tools ranging from best practices and internal workshops to mentoring could help to leverage experiences in both knowledge acquisition as well as relationship management. Furthermore, the importance of developing a shared learning intent and management support were

highlighted in all of the four case relationships. The organizational learning intent needs to be supported and well communicated in order for the individuals to learn. Managers need to set explicit learning aims, support the process, and provide the resources. Internal competence development does not take place by default, and needs management support and organization. Thus, following its acquisition, specific attention should be paid to the further development and dissemination of knowledge within the organization. This requires managerial support and resources, and the development of procedures if the organization is to take advantage of the gained knowledge and to introduce change into the existing processes.

Finally, relationship management is essentially challenging. Admittedly, co-operational relationships cannot provide the same security as internalized activities. However, they may be able to offer many of the same advantages through mutual adjustment, and through the development of mutual learning intent and abilities as well as trust and commitment, while still allowing for more flexibility in terms of combining knowledge sources in a novel way. At the same time, they have their advantages in terms of risk avoidance, organizational flexibility, and comprehensive competence development with fewer fixed resources. The essential problems to overcome include the lack of security caused by the fear of opportunism, and the need to create opportunities for the individuals to share their knowledge openly.

It is open to question whether the role of relationships in the development of competitive advantage is based on the heterogeneity of the relationship or on the processes/products that are results of the cooperation. One could argue that the resulting products could be imitated in time by competitors, who are able to see and study the end result. However, the specific relationship context (due to the developed interaction mechanisms, the learning culture and learning abilities, for example) may continuously provide the partners with new solutions in that the partner-specific learning abilities and processes within the dyad are not available to the competition and thus imitation is more difficult.

The relationship context of knowledge acquisition needs to be essentially trusting. *Trust is a prerequisite of knowledge acquisition, but more importantly, companies need to develop a mutual intent and commitment to learn in order to develop a partnership that effectively facilitates and encourages the acquisition of tacit knowledge.* Process- and characteristics-based trust may be further supported by contractual means or mutual hostages in order to minimize opportunistic behavior. Furthermore, it is crucial to find a partner with the right kind of attitude.

In order for both parties to be committed to learning and to the mutual intent, they need to discuss their knowledge-development aims in advance. As

a result, companies will be better prepared to engage in the knowledge acquisition and to facilitate their partner's learning efforts. Furthermore, they should be encouraged to make adaptations and to invest in their relationships in terms of learning, as this will enhance their understanding of their partner's knowledge base and its potential, and of how it could be acquired, developed and utilized. Most importantly, this is not something that one company could do without the consent and shared intent of its partner: the acquisition of tacit knowledge should be a co-operational effort.

Furthermore, close partnerships, and even the resulting inter-dependencies, have several advantages from the learning perspective. As discussed, one of the main findings was the interplay and dynamics between the relationship context, interdependence, commitment, and the level of knowledge acquisition. Increasing commitment and interdependence may lead to a deeper understanding of further knowledge-acquisition possibilities, which as such would provide a richer environment for inter-organizational learning. Furthermore, if the learning intent is mutually developed, it allows for more effective cooperative sense making. On the other hand, a committed relationship is less likely to lead to problems of too much trust or shared identity, and a consequent deterioration of learning abilities.

9.4 Methodological Conclusions

Apart from the theoretical and managerial contributions, the study offered a few methodologically relevant conclusions. The main emphasis in the knowledge-related literature has been on conceptual and more positivistic research, whereas interpretivist case studies are fewer in number (Spender 1996, 47). The development of a more comprehensive framework for inter-organizational knowledge acquisition required a more interpretivist view of relationship dynamics and learning, however (see Parkhe 1993; Inkpen 2002, 274-277, 285). *Thus, this was methodologically a fairly novel study in this area of research.*

Furthermore, the developed understanding of the underlying epistemological and ontological assumptions and of the way in which knowledge was understood formed a basis for studying the knowledge-acquisition process in praxis (see Schultze – Stabell 2004, 552). The methodological choices made were closely related to the ontological and epistemological assumptions.

Developing an understanding of the different types of acquired knowledge was another challenge in the study. Given the social and partly unconscious nature of knowledge (see Inkpen 2002, 273-74), there are very few researchers

(Ambrosini 2003) who have attempted to understand tacit-knowledge resources within a company. There were no existing studies from which the researcher could have directly adopted a methodology for use here. Yet, if tacit knowledge flow between organizations can be enabled, surely we need to understand how it takes place (Choi – Lee 1997, 43). *Thus this study also makes a valuable methodological contribution.*

The types and characteristics of knowledge were analyzed by means of cognitive mapping, which enabled a view of the respondents' reality to emerge. This method was well suited, but required considerable care and consistency from the researcher in carrying it out. There were problems in that not everyone in the organizations agreed on other people's views and perceptions about the areas of acquired knowledge. It was not easy, either, to assess the different kinds of acquired knowledge (i.e. what was worth mentioning and what was not). These issues were eventually resolved through re-checking, discussing and negotiating with the respondents in order to arrive at the final knowledge maps. The method utilized here required social skills from the researcher, and the ability to relate to the companies' businesses, the utilized technologies, and the case-relationship contexts. Thus, the researcher's previous experience of conducting case studies, and of high-technology industries and software development, was considered an advantage.

The use of cognitive (e.g., Eden 1992) or causal (Ambrosini 2003; Ambrosini – Bowman 2001; Eden – Ackermann 1992) mapping turned out to be a viable way of studying tacit-knowledge resources in organizations. However, this type of knowledge mapping may not be applicable in quantitative studies because the maps are highly context-specific, and require idiographic analysis. Still, the developed framework would benefit from large-scale quantitative testing in different kinds of settings. This presents a dilemma, since the use of the framework would require a deep understanding of the relationship context, and thus might not suit a strictly positivistic study.

An important point regarding inter-organizational learning and the acquisition of tacit knowledge is that these types of studies require a comprehensive perspective. Thus, the case-study approach and processual analysis were particularly suitable in this research setting. One could say that the case study as a research strategy facilitated a rich and deep understanding of the researched phenomenon within its contextual environment. There were a number of factors included, and the inter-relations and dependencies required a holistic analytical framework. It could thus be concluded that the decision to choose the case study as the research strategy was the right one.

9.5 Suggestions for Future Research

Given the developed propositions and the original research questions, there are several areas for future research. Firstly, there is a definite need for more empirical research on the acquisition / development of tacit knowledge. Studying knowledge is complex and problematic, but this should not limit our aspirations to understand and analyze what is considered to be the most valuable of an organization's resources.

Within the relationship context, the process of finding a suitable partner was beyond the scope of this research, and is therefore ripe for future development. Moreover, one essential thing about the case settings was that none of the relationships were between directly competing companies. Understanding the dynamics within a competitive or coopetitional relationship would be one way of extending the area of knowledge-related research – and of evaluating the usability and scope of the framework within a different kind of relationship setting.

The limitations of the study are mostly related to the nature of case-study research. First and foremost, this affects the generalisability of the findings, which cannot be directly applied to any other empirical setting (Yin 1991). However, the results and conclusions could be considered to offer good opportunities for theoretical generalization. The researcher is fully aware that in a research setting such as this one, in other words in trying to develop a contingency framework through idiographic analysis, there may be unrecognized factors affecting the process. The aim in developing a theoretical framework was to identify unexpected factors, but this reference to potential bias here concerns issues that could not be captured in the interviews (such as those that were not conscious, or not recognized by the interviewees). Thus, it could be argued that the interactions between the recognized factors were not straightforward either. However, the factors were the main focus of the research in that they were the most relevant in terms of knowledge acquisition, and they were the ones that managers are able to coordinate. Not everything within a specific context can be controlled and captured in a research setting – without acceptance of these deficiencies it would be difficult to conduct any kind of research on a respectful level of trustworthiness. Indeed, the aim was to limit such bias by focusing on multiple case studies within two different kinds of organization. Interviewing a number of people involved in the partnership and taking the partners' views into consideration can also be considered to have limited the possible bias.

In the end, it is important to remember that the empirical study was based on only four real-life relationships. Consequently, there should be further evaluation and testing of the framework in new empirical environments, for

example, which could provide more empirical evidence (see Yin 1991, 44). It is noted that qualitative research cannot be used to test the causality of factors, but the analysis presented here should allow for theoretical extension (Whetten 1989, 492-493). Furthermore, more comprehensive testing of the developed framework and the developed propositions through quantitative research would be a major step forward.

10 SUMMARY

This was a study of an organization's acquisition of knowledge through inter-organizational relationships. The competitive landscape has changed in recent years, especially in high-technology industries in which companies are forced to concentrate on their core competences. Thus, the role of the organization's abilities and knowledge has assumed major significance in gaining competitive advantage. Relationships, on the other hand, offer companies the possibility to develop more comprehensive and complete solutions for their customers. This may require them to acquire and assimilate knowledge in order to be able to combine their expertise successfully.

The aim of this research was to analyze and understand how and under what conditions a company can acquire knowledge from its partner in order to develop its competences. The research problem was addressed through the following sub-problems:

- How can knowledge be acquired from partners?
- How can a company's ability to acquire and assimilate knowledge be developed?
- How can supportive preconditions for inter-organizational knowledge acquisition be created?

The literature on knowledge acquisition frequently refers to three basic determinants of effective learning: the intent to learn, the transparency of the target company, and the receptivity (or the absorptive capacity) of the receiving company. It also emphasizes the characteristics of knowledge and their implications regarding the ease of knowledge acquisition. Tacitness has been widely recognized as a major barrier to sharing knowledge in that the learning process includes the integration of knowledge into its new organizational context. In the end, the beginning of successful competence development can be traced to the nature of the relationship context, which creates the preconditions for companies to work together. Thus, one also needs to consider the challenges facing relationship management.

Given the importance of interdependence and potential opportunistic behavior in the context of knowledge exchange, there is a need to consider the role of relationship management and the level of switching costs. Power dependencies affect the development of inter-company relationships, and thus may have implications on the inter-organizational learning process. As the process includes the acquisition of difficult-to-imitate, intangible and valuable

resources, the inter-organizational dependence is likely to shift during the relationship, and as knowledge is absorbed by the receiver, the transferor becomes increasingly dependent on the receiver's willingness not to behave opportunistically.

The development of a trusting relationship is another critical aspect. Trust is essential in terms of allowing the partners to cooperate and communicate openly. In the context of tacit knowledge, the role of open communication and the partners' ability to acquire and assimilate knowledge was another essential area for analysis. It was further highlighted that knowledge acquisition and integration is only possible if the individuals from different organizational contexts are able to develop a shared understanding of the acquired knowledge based on their level of shared identity and the relatedness of their prior knowledge. Moreover, the development of the ability to acquire knowledge was closely related to the development of the relationship context.

The empirical research took the form of a multiple case study. The aim was to understand the specific phenomenon in different contexts, and then to develop a theoretical framework for analyzing knowledge acquisition in terms of the relevant factors involved and their inter-relations. Given the processual nature of knowledge acquisition and competence development, there were three dynamic areas of research to be addressed in the framework: the context, the content and the process. These were all incorporated into the case studies through an analysis of the type of knowledge being acquired, the knowledge-acquisition process, and the relationship contexts in which the acquisition took place. The case study as a research strategy supported the further understanding of processual and contextual phenomena, e.g., organizational behavior and change in dyadic relationships. Furthermore, the use of a multiple-case study provided a better basis on which to develop explanations within the specific theoretical context

The results of the four case studies supported the existing literature, but also produced new findings and conclusions. The relationship contexts were different in the sense that two were related to a small high-technology company (Dekati), which was acquiring knowledge from its partners during outsourcing projects, and the other two involved a big software-development company (TietoEnator) that was acquiring knowledge from two of its customers in order to develop tailored systems. The knowledge-acquisition process was slightly different, but the use of more participatory and interactive learning methods was more extensive in the latter case. Knowledge tacitness was a major factor in making the acquisition processes more difficult and obscure. However, the organizations involved were able to make it easier by developing their inter-organizational sensitivity to knowledge acquisition. Thus, the partners' commitment to the relationships and the implications of the

relationship contexts on the knowledge-acquisition process were critical in both sets of relationships.

In conclusion, inter-organizational learning is not a simple process to study. The knowledge was essentially acquired by the companies from their partners, but the process was a very complex combination of interactive and participatory learning methods, which affected the level of acquisition. The relationship context was also considered to represent an important basis for inter-organizational learning. Trust was essentially high in the relationships, and opportunism was not considered relevant by any of the participating companies. Indeed, the roles of the companies' commitment and of the inter-dependencies were highlighted in the case relationships. Furthermore, the relationship dynamics had an important role in driving the knowledge acquisition further. From a managerial perspective, this puts emphasis on the way in which relationships could be regarded as sources of highly valuable tacit knowledge. The results also highlighted the need for active efforts in terms of enhancing inter-organizational sensitivity to knowledge acquisition, and of developing and coordinating the relationship context.

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APPENDIX 1: OPERATIONALIZATION OF THE THEORETICAL FRAMEWORK

<i>The research question</i>	<i>The sub-questions</i>	<i>The operational equivalents</i>	<i>The main themes of the interviews</i>
<p><i>How and under what conditions can a company acquire knowledge from its partner in order to develop competences?</i></p>	<p>How can supportive preconditions for inter-organizational knowledge acquisition be created?</p>	<p>How are the preconditions for learning affected by the development of the business relationship?</p>	<p>Interaction processes (exchange, adaptations, coordination)</p> <p>Development of the atmosphere (trust and commitment)</p> <p>Basis of trust (abilities, characteristics & institutional?)</p> <p>Effects of trust on relationship (opport.) and learning</p> <p>Development of the commitment to the partner and the project?</p>
		<p>How are the conditions affected by the environment?</p>	<p>Previous outcomes (project results/opportunism)</p> <p>Industry structure and closest relationships</p> <p>Network dynamics</p> <p>Network identity (strategic affects)</p>
		<p>How are the conditions affected by the power asymmetry within the relationship and the changes in the bargaining power of the partners?</p>	<p>Power asymmetry – changes & management</p> <p>Termination costs (continuity, sunk, switching, learning & strategic costs)</p> <p>Governance mode</p> <p>Operational structures</p> <p>Reward systems</p> <p>Communication systems</p> <p>Developed infrastructure</p>
		<p>How are the conditions affected by the support structures of the relationship?</p>	<p>Controlling of the partner for opportunism (knowledge protection)?</p> <p>Tacitness</p> <p>Complexity</p> <p>Specificity & Value</p> <p>Diffusion</p>
	<p>How can knowledge be acquired from a partner?</p>	<p>How is the acquisition process affected by the characteristics of knowledge?</p>	<p>Identification (finding and deciding)</p> <p>Transmission (communication)</p> <p>Processing (understanding and unlearning)</p> <p>Storage (further development)</p>
		<p>What is the acquisition process like?</p>	

		<p>What was the nature of the integration process?</p> <p>How were the competences developed?</p> <p>What is the role of inter-organizational sensitivity to knowledge acquisition?</p> <p>Effects of the similarity of organizational characteristics?</p> <p>How can the process be motivated?</p>	<p>Activities within the transferor's context?</p> <p>Learning-by-doing</p> <p>Mentoring, storytelling</p> <p>Exchange of personnel</p> <p>Internal further development and dissemination?</p> <p>Exploitation in other projects/relationships?</p> <p>Effects on the competitive advantage?</p> <p>Level of rarity and immobility?</p> <p>Relatedness of prior knowledge bases (level of complementarity)</p> <p>Shared identity (social, professional and national)</p> <p>Effects on relationship and learning</p> <p>Organizational learning culture</p> <p>Organizational culture for cooperation</p> <p>National cultures (compatibility)</p> <p>Size & organizational structure</p> <p>Dominant logic (both companies)</p> <p>Mutuality of intent</p> <p>Rewards and incentives</p>
<p>How can the companies' ability to acquire and assimilate knowledge be developed?</p>			

APPENDIX 2: CRITERIA FOR THE CASE SELECTION

	Case relationships related to Company #1	Case relationships related to Company #2 (network organization)
Company characteristics	<ul style="list-style-type: none"> -At least two plausible relationships -Companies both with their own value chains developing their own business -Independent entities, not a joint venture, intra-organizational cooperation or post-merger integration 	<ul style="list-style-type: none"> -At least two plausible relationships -The main company not a traditionally organized company => partners take care of parts of the company's operations in the value chain -Independent entities (not JV, intra-MNC or merger)
Nature of the relationship	<ul style="list-style-type: none"> -Cooperational (contract-based) relationship -On-going relationships -Potential changes in the power asymmetry during the process 	<ul style="list-style-type: none"> -Cooperational (contract-based) relationship -On-going relationships -Potential changes in the power asymmetry during the process
Characteristics of the acquired knowledge	<ul style="list-style-type: none"> -Tacitness – knowledge at least partly tacit in nature -Knowledge truly valuable for the company and partners (potential for opportunism) 	<ul style="list-style-type: none"> -Tacitness – knowledge at least partly tacit in nature -Knowledge truly valuable for the company and partners (potential for opportunism)
Nature of the knowledge-acquisition process	<ul style="list-style-type: none"> -The main company as the receiving party, partners as transferors -Learning conducted in cooperation -Acquired knowledge further utilized in competence development 	<ul style="list-style-type: none"> -The main company as the receiving party, partners as transferors -Knowledge about the value-chain operations acquired & utilized in the main company -Learning conducted in cooperation -Acquired knowledge further utilized in competence development
Other qualitative criteria	<ul style="list-style-type: none"> -Relationship significant to the companies involved -At least four people available for interview -People from both companies available for interview 	<ul style="list-style-type: none"> -Relationship significant to the companies involved -At least four people available for interview -People from both companies available for interview

APPENDIX 3: EXAMPLES OF THE LETTERS ABOUT THE MAIN THEMES SENT TO THE INTERVIEWEES

AN EXAMPLE (IN ENGLISH) OF THE LETTER ABOUT THE MAIN THEMES SENT TO THE INTERVIEWEES

The main themes of the interview are briefly introduced in the following. Some of the main issues and questions related to the themes are also presented.

- **What has been done during the relationship and what kind of learning has taken place (relationship phases, critical events)?**
 - What has been the aim of the relationship and what types of knowledge have been acquired?
 - How was tacit knowledge (i.e. the kind of knowledge that is highly difficult to write and codify accurately) acquired and absorbed?

- **How did the organizations' characteristics affect the knowledge flows between the companies?**
 - How well have the companies been able to absorb new knowledge and what factors affected their abilities?
 - How did the companies and the people involved try to find "a common tune" for cooperation?

- **What is the inter-firm relationship like and what kind of a basis does it provide for knowledge acquisition (relationship phases, critical events)?**
 - What have been the most important events during the relationship?
 - What is the nature of the relationship and how have the companies committed to each other and developed it? What is trust based on?

- **How have core competences been developed internally after the knowledge acquisition, and utilized in other relationships, for example?**
 - How has the acquired knowledge been developed internally?
 - How has the acquired knowledge been utilized in other relationships?

AN EXAMPLE (IN FINNISH) OF THE LETTER ABOUT THE MAIN THEMES SENT TO THE INTERVIEWEES¹¹³

Seuraavassa läpikäytynä haastattelun pääteemat, joiden ympärille keskustelun on tarkoitus keskittyä. Teemojen alla on lisäksi tuotu esille joitakin tarkempia asiakokonaisuuksia ja kysymyksiä.

- **Mitä yhteistyöprojektissa on tehty ja millaista oppimista on tapahtunut (vaiheet, kriittiset hetket)?**
 - Mitä yhteistyöprojektissa on oikeastaan tehty ja minkälaista osaamista yritysten välillä on siirtynyt?
 - Kuinka hiljaista tietoa (ts. sellaista tietämystä tai osaamista, jota on erittäin vaikea tarkasti kirjoittaa auki) siirrettiin ja omaksuttiin?

- **Kuinka organisaatioiden ominaisuudet edesauttoivat tietämyksen/osaamisen siirtämistä yritysten välillä**
 - Kuinka hyvin organisaatiot ovat pystyneet omaksumaan uutta osaamista ja minkälaiset asiat tähän vaikuttivat?
 - Kuinka yritykset ja mukana olleet ihmiset pyrkivät löytämään ”yhteisen sävelen”?

- **Minkälainen on yritysten välinen yhteistyösuhde ja millaisen perustan se luo osaamisen siirtämiselle (vaiheet, kriittiset hetket)?**
 - Mitkä ovat olleet yhteistyön aikana tärkeimmät tapahtumat?
 - Millainen on yhteistyösuhde luonteeltaan ja kuinka yritykset ovat sitoutuneet toisiinsa ja yhteistyön kehittämiseen? Mihin luottamus perustuu?

- **Kuinka ydinosaamista on siirron jälkeen sisäisesti kehitetty ja hyödynnetty esimerkiksi muissa yhteistyösuhteissa?**
 - Kuinka osaamista on kehitetty omassa organisaatiossa?
 - Kuinka osaamista on hyödynnetty myös muiden yhteistyösuhteiden piirissä?

¹¹³ The letter was originally sent only in Finnish as all the respondents were native Finnish speakers.

APPENDIX 4: THE INTERVIEWEES IN THE CASE STUDIES

<i>Company</i> ¹¹⁴	<i>Name</i>	<i>Case</i>	<i>Status</i>	<i>Role in the partnership</i>	<i>Background</i>
Dekati Ltd.	J. Tikkanen*	DE-AX & DE-KY	CEO	Initiated the partnership with KY.	One of the founders of the company. Graduated from the technical university
	P. Mikkonen	DE-AX	Business Director	Responsible for the business development and contract negotiations with AX.	With the company since 2000. PhD in physics. Recruited from the forest industry.
	T. Rusanen	DE-KY	Production Specialist	Responsible for the outsourcing project with KY. Extensive experience with the product itself.	With the company since 2002. Experiences in manufacturing and assembly.
	M. Hölttä	DE-KY & DE-AX	Electronics engineer	Mainly involved in the Kyrel relationship and outsourcing projects.	With the company since 2000 with an engineer's degree.
	A. Kekki	DE-KY	Product manager	Product manager with KY concerning future outsourcing projects	Employed by Dekati since 2006. Previous experience of e.g., quality, product and human-resource management.
	J. Enroth	DE-AX	Software designer	Involved with the specification of the functionalities in the project.	One of the founders of the company. Graduated from the technical university
	T. Kauppinen*	DE-AX	CEO	Responsible for the business development with DE	One of the founders of the company. Graduated from the technical university
	J. Kauppinen	DE-AX	R&D Manager	Responsible for the HW development in the project	With the company since 2000. Studied at the technical university
Axiomatic Ltd.	M. Paakkinen	DE-AX	Principal Engineer	Responsible for the software development in the project	One of the founders of the company. Graduated from the technical university
	S. Parhankangas* V.-M.	DE-KY	CEO	Initiated the partnership, responsible for the business development	Long-term CEO of the company, son of the founder. Regained control of the company in 2004.
Kyrel Ltd.	Suuhkonen	DE-KY	Product manager	Responsible for the manufacturing and assembly team at KY.	Long experience with the company.
TietoEnator	V. A. Väinö*	TE-MTV & TE-AM	Development director	Previously responsible for the management of key accounts such as the TE-AM relationship, currently holds responsibilities in various key accounts and strategy processes.	Long experience at TE (since the year 1980 in several business areas) as well as the T&M sector.

¹¹⁴ The interviewees were grouped here into their respective organizations with a note on which case relationship was discussed in the interviews. The interviewees marked with "*", were considered part of the corporate elite, which meant that more specific consideration was given to the conduct of interview. As the table shows, all the interviewees had central roles in the case relationships. Most were well educated and had extensive experience in their organization as well as in the relationship in question. Symbols used in the table: DE-KY = Dekati – Kyrel; DE-AX = Dekati – Axiomatic; TE-MTV = TietoEnator – MTV; TE-AM = TietoEnator – MTV; TE-AM = TietoEnator – AlmaMedia; T&M = Telecom&Media sector.

	S. Jukkara	TE-MTV	Department manager	Responsible currently for the customer relationship and the various development projects with MTV.	Long experience at TE's T&M sector (since the late 90s), but also employed by MTV previously in the 80s. Responsible for the relationship since 2001.
	J. Juntila	TE-AM	Senior Enterprise Consultant	Owner of the project, responsible for the customer relationship regarding the media archiving system.	Long experience in the media industry, with TE's Telecom & Media since 2000. Previously involved with projects with several of the biggest print media companies in Finland.
	V-M Huhtiala	TE-MTV	Project Manager	Project manager, took care of the coordination and management of projects and human resources.	Extensive background at TE in developing customer-tailored solutions and systems, and involved with MTV since 2001.
	V. Inkinen	TE-AM	Senior Consultant	Mainly responsible for the development of the system for AM since 2000. Main developer of MIR.	With TE since 1998, when he graduated from university. Main area of expertise in search technologies.
	S. Järvinen*	TE-MTV	Director	The director of the Media unit during the time the relationships started.	With TE since 1992, previously in charge of the Media unit. Extensive experience in the media sector.
	K. Suominen	TE-MTV	Project Manager	Employed by MTV as a project manager between 2000-2005. Main responsibilities in MTV's Intranet development.	Employed by TE since 2005, one of the key people outsourced from MTV. More than 15 years of experience in IT project management.
	M.-L. Juntila*	TE-MTV & TE-AM	Vice President, Media	Director of the Media unit, of which both relationships are part. An important background contributor in customer relationships when needed.	Employed by TE since 1999, and extensive experience in several business areas (e.g., energy and retail). Director of the Media unit since 2004.
	M. Räisänen*	TE-MTV	Executive Vice President, COO	Chief Operating Officer of the company, mainly responsible for e.g., IT systems and production.	Employed by MTV since 2001 as an Executive Vice President. Previous experience (for around 20 years) in software development.
MTV	V. Laasonen*	TE-MTV	Vice President, IT	Responsibility areas in the relationship: selection of the solution provider, contracting and the coordination of service & solution development.	Extensive experience in working at MTV (Vice President, IT). Responsible for ICT and solution development at the organization.
	P. Haverinen	TE-MTV	Development Manager, IT	Responsible for the relationship with TE concerning the development of the MASS.	Employed by MTV for over 10 years, previous experience in the pharmaceutical industry. Main negotiator with TE since partner selection (2005).
	J. Punnonen*	TE-AM	Director, ICT	Responsible for finding corporate-wide synergies especially in IT-related development projects within AM.	With the AM Group in various positions since 1978, after a spell in another company, came back in 1992.
Alma Media	K. Hurtola	TE-AM	Development Manager	Responsible for the coordination of the relationship with TE and the development of the media archiving system at AM (for the whole group).	With the AM Group since 2000. Previous experience in the newspaper business for almost 20 years in various positions (editor, development manager etc.)
	T. Kiviniemi	TE-AM	System Analyst	Responsible for the development of the media archiving system at AM since 2002.	With the AM Group since 1995, extensive experience in various IT projects (media related).

APPENDIX 5: A DETAILED LIST OF THE SUPPORT QUESTIONS USED IN THE INTERVIEWS

Acquired knowledge

- **WHAT HAS BEEN DONE?**
 - What was the aim of the project and what have been the most crucial events?
 - What kinds of future plans or development needs are there?
- **WHAT KINDS OF ISSUES HAVE BEEN LEARNED?**
 - What types of knowledge has been acquired / What types of issues have been learned during the partnership? Why was the knowledge acquired?
 - What kinds of learning-related challenges and problems have there been? How were these challenges resolved?
 - How conscious a decision was knowledge acquisition within the partnership?
 - How mutual was the aim to exchange/acquire knowledge within the partnership?

How are the conditions affected by the support structures of the relationship?

- **OPERATIONAL STRUCTURES, INFRASTRUCTURE AND DEVELOPED PROCESSES?**
 - Infrastructure, processes, procedures and methods
 - How did the companies interact and communicate in praxis? How were meetings utilized compared to phone calls/emails?
 - Other communication methods, reporting procedures?
 - Rewards & incentives?
- **HOW WAS THE RELATIONSHIP ORGANIZED?**
 - How was the relationship organized (governance form)?
 - How did this affect the nature of the relationship?
 - How did this affect the nature of the learning process?
 - How did the threat of opportunism affect the governance of the relationship and how was potential opportunism prepared for?
 - Why was opportunism experienced to be so high/low?

What was the acquisition process like?

- IDENTIFICATION
 - How and why was it decided that knowledge would be acquired instead of internal development?
 - How was the relevant acquired knowledge identified within the partner's organization?
- TRANSMISSION
 - How was knowledge acquired and communication implemented – what was the process like (phases, critical events)?
 - How was the partner's knowledge and experience, including tacit knowledge, gained?
 - How did the knowledge characteristics affect the acquisition, and how were the characteristics taken into account during the acquisition process?
 - What kind of people were involved and how were they chosen for the relationship? Why?
 - How was the acquisition organized, and how were the people allowed/made to interact with each other? Why?
- PROCESSING
 - How was the acquired knowledge bound to its new context and utilized? How was learning visible (changes, new working methods etc.)?
 - How were old competences unlearned (changes)? How was the acquired knowledge rebuilt within the organization? Why?
 - Working methods and procedures during the integration:
 - Learning-by-doing, mentoring, storytelling? Why?
 - How did the knowledge characteristics affect the acquisition, and how were the characteristics taken into account during the acquisition process?
 - What kind of people were involved and how were they chosen for the relationship? Why?
 - How was the acquisition organized, and how were the people allowed/made to interact with each other? Why?
- STORAGE
 - How was the acquired knowledge bound to its new context and utilized?
 - How was the acquired knowledge developed and rebuilt for the organization-specific needs?
- RETRIEVAL
 - How was the acquired knowledge utilized in other projects?
 - How was the acquired knowledge utilized in other customer relationships?
 - How was the acquired knowledge disseminated within the organization? Challenges related to dissemination?
 - How was the acquired knowledge developed into competences? What kinds of challenges were related?

How can the acquired knowledge be developed into core competences?

- HOW HAVE COMPETENCIES BEEN DEVELOPED?
 - How was the knowledge developed internally? Was the knowledge utilized in other relationships as such, and for what purposes?
 - What kinds of challenges were related to further developing the acquired knowledge? How were these resolved?
- WHAT IS COMPETITIVE ADVANTAGE BASED ON?
- HOW WAS COMPETITIVE ADVANTAGE AFFECTED BY THE DEVELOPED COMEPETENCES?

How is the acquisition affected by the characteristics of knowledge?

- Tacitness (Could the knowledge be fully codified/explained? Was there tacit knowledge involved? How was it identifiable? How could tacit knowledge be expressed and acquired?)
- Complexity (How many different technologies were mixed in the project, how well could one person cope with the different areas of knowledge?)
- Specificity (How was the knowledge customer-specific? Did it require specific investments? Could it be utilized for other purposes?)
- Value (How valuable was the knowledge to the partners? How essentially was the acquired knowledge related to the partners' competitive advantages?)
- Diffusion (How well was the knowledge disseminated within the transferor's organization?)

- How did these characteristics affect the relationship development?
- How did these characteristics affect the learning process?

How can the companies' ability to acquire and assimilate knowledge be developed?

- CHALLENGES RELATED TO THE COMPANIES' LEARNING ABILITY?
- INTER-ORGANIZATIONAL SENSITIVITY TO KNOWLEDGE ACQUISITION
 - Role of prior knowledge in the learning process? (strength/weakness)
 - How varied was the background of the individuals?
 - How has prior knowledge affected the individuals' learning?
 - National-culture-related challenges? (strength/weakness)
 - Organizational-culture-related challenges? (strength/weakness)
 - Organizations' ability and culture to cooperate
 - Organizations' ability and culture to learn

- How did the differences and similarities affect the level of learning/knowledge acquisition?
 - Shared identity? (strength/weakness)
 - How was social identity (COMMON TUNE FOR COOPERATION) created and what was it based on?
- HOW WAS THE LEARNING PROCESS MOTIVATED?
 - Motivation and shared goals for cooperation?
 - Motivation and shared goals for learning?
- CHALLENGES CAUSED BY THE SIMILARITIES/DIFFERENCES BETWEEN THE ORGANIZATIONS (PRO OR CON)?
 - The role and importance of differences & similarities regarding the size, organizational structure and business logic of the companies?

Supportive preconditions for inter-organizational knowledge acquisition










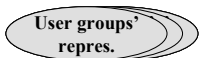
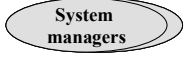

- ENVIRONMENTAL AND NETWORK EFFECTS
 - Who are the essential actors within the most approximate network (companies, people, resources)? What is the position of the partners in relation to other customers/competitors?
 - How has the network and other environmental factors affected the relationship development? Why?
 - How is the industry structured – who are the strong and weak players and why?
 - How has the companies' position changed due to the relationship and learning within it?
- RELATIONSHIP MANAGEMENT
 - What challenges have been related to the relationship development? Future challenges?
 - How are individuals interacting? Why?
 - Adaptations (have there been any – how could they be utilized)? Why?
 - Coordination (has there been any – how could it be utilized)? Why?
- TRUST AND LEARNING
 - How has trust affected the relationship development and management?
 - How challenging was the opportunism experienced? Why?
 - How strong is the level of trust and what is it based on?
 - How have trust and commitment developed during the different phases of the relationship? Why?
 - How have trust and commitment affected the learning process? Why?
- POWER DEPENDENCIES BETWEEN THE COMPANIES
 - What are the power dependencies between the companies? Have the positions changed during the relationship? Why?
 - How important is the relationship and what kinds of costs are related to its termination? Why?

APPENDIX 7: THE MAIN THEMES USED IN THE ANALYSIS

- The role and effect of the relationship context and relationship development/management
- The role and effect of the network context
- Power dependencies and termination costs
- The role and effect of the support structures
- The role and effect of the characteristics of knowledge
- The knowledge-acquisition process
- The knowledge-integration process
- The role and effect of inter-organizational sensitivity to knowledge acquisition
- The role and effect of the organizational characteristics
- Motivation- and intent-related issues
- The further development of knowledge into competences

APPENDIX 8: AN OUTLINE OF THE COOPERATIVE STRUCTURE OF THE TE-MTV RELATIONSHIP

The relationship was organized through three main management groups: *strategic, tactical and operative (business & IT)*.

	Participants from TE	Tasks	Participants from MTV
Strategic level		<ul style="list-style-type: none"> • Approximately twice a year • Strategic level considerations & management of IT and the relationship 	
Tactical level	 	<ul style="list-style-type: none"> • Once a month • Strategic planning & management of IT development and business-related issues • Interest also in the development of the relationship & procedures 	 
Operative level	 	<ul style="list-style-type: none"> • Approximately four times a year • Discussion on the business related development needs, operative guidance & follow-up • Interest in systems' development (emphasis on business-related needs) <ul style="list-style-type: none"> • Once a week • Operative planning, prioritising development needs • Interest in the development paths of the main operative systems (emphasis on IT and support services) 	   

On the operative level there were two groups focusing on systems development from their own perspectives. The TE project manager discussed matters with the MTV system managers and user groups' representatives in order to manage the systems and the support services, and to address the development needs arising from the customer's business operations (operative business group). In addition, business-related issues and development needs were discussed and coordinated on this level. In the IT-focused operative-level group the MTV system managers (at times including the development managers) met TE's project management in order to discuss and prioritize the up-coming development needs. The main interest here was in IT, and the long-term coordination of the systems development. The development of the support services and structures, as well as project-management-related issues were also discussed.

The companies also interacted on a *tactical level* approximately once a month, which brought a more strategic & coordinative perspective to the relationship. This involved the IT manager (together with the development managers at times) from MTV and the department manager (responsible for the customer relationship) from TE. The aim was to discuss the long-term development of the relationship, as well as the long-term technological development of the systems and business development at MTV. These discussions usually had a specific theme, but mainly concentrated on the IT perspective. The purpose was to rise above the daily interaction and problems in order to gain a mutual long-term understanding of the up-coming challenges, and also to find ways of improving the project outcomes and cooperative procedures.

The co-operational structure also had a strategic level on which the business-development people from both TE and MTV interacted. A strategic-level forum for discussing industry-level changes and developments was being developed¹¹⁵ in order to enhance the partnership's ability to meet the customer's needs on a more long-term basis. The companies discussed these issues approximately twice a year, but the group's role was not as well established. The lack of meetings on this level was attributed to the recent big changes within the relationship, the dramatically increased workloads of the personnel, and the introduction of new working methods and procedures.

¹¹⁵ The participants of that forum would be similar to those in the strategic-level discussions, with the addition of the Executive Vice President from MTV and some business development people, the department manager, and possibly other consultants from TE.

APPENDIX 9: AN OUTLINE OF THE KNOWLEDGE TYPES GAINED BY AXIOMATIC

Essentially, it seemed that Axiomatic was mainly gaining knowledge from Dekati about the device – i.e. what it was all about, what it was supposed to do. More specifically, details of how to read the charges of the particles coming from the sensors were mentioned. This ability to measure weak signals was one of the aspects that were utilized in projects afterwards. Although AX had a lot of experience in providing its customers with tailored solutions, this was considered its most complex project so far, and differed from previous ones in many respects. Signal handling was one thing that was mentioned in that the requirements covering the purity and measurement of low-level signals were considerably higher than in previous projects. In addition, AX was able to gain knowledge about the role of documentation and the level of cooperation required in product-development projects. AX also introduced some new systems and learned to use new components, although this was related more to the detail and not so much to the specific project.

<i>Type of knowledge</i>	<i>More specific areas of knowledge</i>	<i>High tacitness</i>	<i>High complexity</i>	<i>High partner specificity</i>	<i>Knowledge extensively diffused</i>
Measuring-related knowledge	measuring and sensor reading		X		X
	signal handling (purity & low-level signals)	X	X		X
	analogy techniques used		X		X
Knowledge related to product-development projects	the critical nature of documentation in complex product-development projects		X		
	close cooperation needed with the partner in complex product-development projects (e.g., specification)	X	X		

The knowledge gained by Axiomatic was generally fairly low in tacitness and more complex in nature. It mainly concerned specific details or methods that were taken into use or developed further during the process. Measuring-related knowledge could be considered well diffused within DE, but knowledge related to the development project was rather scattered, and mutually learned to some extent by the organizations during the project. From Dekati's perspective these issues were not the target of active knowledge exchange but were rather learned by AX as part of the process.

APPENDIX 10: AN OUTLINE OF THE KNOWLEDGE TYPES GAINED BY KYREL

Knowledge gained by Kyrel was project-specific, mainly covering details about the assembly of the product. Yet, some of the knowledge was at least partly tacit and concerned the criticality of some specific parts and how carefully they needed to be cleaned and assembled for the whole product to work properly. These issues were not documented due to their complexity, but it was a major challenge for the outsourcing process.

<i>Type of knowledge</i>	<i>More specific areas of knowledge</i>	<i>High tacitness</i>	<i>High complexity</i>	<i>High partner specificity</i>	<i>Knowledge extensively diffused</i>
Project-specific knowledge	assembly instructions (product-specific critical details)	X	X	X	
KY's own process / business	new manufacturing methods and techniques		X	X	
	manufacturing of more complex product entities		X		

More generally, from KY's point of view the learning also covered issues related to the manufacturing of more complex product entities, and some new manufacturing techniques and methods had been taken into use. However, these last two areas of knowledge were more a question of organizational learning than active knowledge acquisition from DE. The new working methods were mainly implemented in the relationship with DE, or at least there was no active further utilization of the lessons learned. The knowledge gained about manufacturing bigger and more complex entities, on the other hand, was something KY was actively trying to utilize with other customers.

APPENDIX 11: AN OUTLINE OF THE KNOWLEDGE TYPES GAINED BY MTV

The main areas of knowledge gained by MTV were partner-specific and outsourcing-related. *Partner-specific knowledge* was mainly related to the social relations and networks within the partnership, as well as to outsourcing-related partnering abilities. As far as social relations were concerned, it was a question of learning how to communicate and work with the partner's personnel. The companies also developed specific communication methods and structures within the partnership, and MTV needed to learn how to work with a big solutions provider like TE. Another important area of MTV's learning concerned the development of *outsourcing-related knowledge*. The company was able to develop its abilities to coordinate and manage system-development projects more consistently and formally. Although the development work was done outside of the organization, the management and coordination of the projects remained in-house. This was related to the fact that they needed to learn how to work more consistently with a partner who was outside the organizational borders.

"... in a way taking notice of different kinds of needs in the way that they're really documented.. Things get specified better, more accurately..."

<i>Type of knowledge</i>	<i>More specific areas of knowledge</i>	<i>High tacitness</i>	<i>High complexity</i>	<i>High partner specificity</i>	<i>Knowledge extensively diffused</i>
Partner-specific knowledge	Social relations and network	X		X	X
	Partnering abilities and working methods		X	X	X
Outsourcing-related knowledge	How to coordinate projects and systems development	X	X		X
	Coordinating of emerging development needs		X		X
	Technological insight into the systems development	X	X		

Finally, MTV was, to a certain extent, also able to gain technological insight from TE into how and on what basis to develop the systems further. This specifically concerned finding optimal solutions to different kinds of problems that TE was supposed to implement.

The knowledge gained by MTV could be characterized as rather complex in general. Knowledge about social relations and how to interact with different actors was always at least partially tacit, but the working methods were more complex than tacit in nature in that the different procedures could be documented quite meticulously if necessary. These were both very much partner-specific issues and really only diffused within the community that was interacting closely with TE. The outsourcing-related knowledge, on the other hand, was more tacit– as it was based on the experiences that MTV had during the relationship. This was less partner-specific, however, and could be utilized in other relationships as well. Outsourcing-related knowledge was not diffused extensively either, but remained mainly within the IT department.

APPENDIX 12: AN OUTLINE OF THE KNOWLEDGE TYPES GAINED BY ALMA MEDIA

The main areas of knowledge gained by AM were relationship-specific and project-management-related. Firstly, the *relationship-specific knowledge* was related to the tasks and was gained during the system-development projects. Social relations were considered important in the sense that people thus knew who to contact and how when things needed to get done. AM also gained some knowledge related to the technical implementation of the system. The main user built an understanding about small development tasks, updating, and maintenance tasks. The idea was that AM would not have to contact TE about every small problem that arose, and that TE would have time for development work if AM handled the day-to-day problems. Similarly, AM gained knowledge related to the development of the system in terms of learning about and identifying issues connected with its internal processes in a more orderly fashion. These issues were complex and not especially partner-specific.

<i>Type of knowledge</i>	<i>More specific areas of knowledge</i>	<i>High tacitness</i>	<i>High complexity</i>	<i>High partner specificity</i>	<i>Knowledge extensively diffused</i>
Relationship-specific knowledge	Social relations	X		X	X
	Understanding the user needs, processes and working methods	X	X		
	Technical-implementation-related issues		X	X	
Project-management-related knowledge	Contracting in subcontracting systems development		X		
	Project management and coordination, prioritizing	X	X	X	X

Secondly, AM gained *knowledge related to project management*, which concerned the more formalized way of working in subcontracting. AM gained the necessary understanding to turn all the development ideas into clear projects, and to make clear contracts with its partner covering the projects, their prioritizing, the expected development tasks, the timetables and the costs. This also included knowledge about documenting the development needs and coordinating and managing the development projects.

“... indeed, a certain kind of view on how it’s... it’s good to like formalize and document things and find such specific, even slightly

rigid forms of operation... [TE] is good at documenting and in a certain kind of systematic and organized approach..."

It was emphasized that this kind of knowledge about project-management and working practices/methods and standards of systems development was tacit in nature. It was not considered something that could be fully documented, but it was learned through experience. It was also somewhat partner-specific in the sense that the standards and practices were discussed with TE although they could be adapted to other solution providers. AM considered this to be the most important thing they had learned, and the agreed practices were actively promoted within the organization so that everyone would understand on what the clear project plans and specifications, and the realistic costs and timetables, were based.

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