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CUSTOMER-RELATED SKILLS AND CAPABILITIES IN KNOWLEDGE-INTENSIVE BUSINESS SERVICES

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ABSTRACT

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The roles of knowledge and customer involvement form distinct features in providing knowledge-intensive business services. The objective of this study was to investigate the customer-related skills and capabilities of knowledge-intensive business services.

The research was carried out as case study, involving two polar cases. The other case represented customized services, and the other standardized services. The research method was qualitative, and included focus group workshops, individual interviews and a survey.

The capabilities of business services have been mainly studied on organizational level. This study provides valuable insight into the role of individual skills as a part of capabilities of knowledge-intensive business services. According to this study, the most important capabilities are related to acquiring and integrating of knowledge, resource management, managing the customer's role as a co-producer of the service, and active and effective communication. The study indicates that the level of tacit knowledge is high in the needed individual skills. Based on the study, the needed capabilities and skills are affected by the level of customization of the service, the demand for customer knowledge, the demand for consultation and the stage of the service providing.

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Tietointensiivisten palveluyritysten merkittävimpiin ominaispiirteisiin kuuluvat tiedon sekä asiakkaan osallistumisen tärkeä rooli palvelun tuottamisessa. Tämän tutkimuksen tavoitteena oli selvittää, mitkä yksilön taidot ja organisaatiotason kyvykkyydet ovat tärkeitä tietointensiivisten yrityspalvelujen asiakasrajapinnassa.

Tutkimus on toteutettu kvalitatiivisena tapaustutkimuksena kahdessa yrityksessä. Toisessa kohdeyrityksessä tutkitut palvelutapaukset olivat räätälöityjä ja toisessa standardoituja. Tutkimuksen aineisto on kerätty työryhmätyöskentelyn, yksilöhaastattelujen ja kyselylomakkeen avulla.

Yrityspalvelujen osaamista on tutkittu pääasiassa organisaation tasolla. Tämä tutkimus tuo lisävalaistusta myös yksilön taitojen ja osaamisen rooliin osana tietointensiivisten yrityspalvelujen kyvykkyyksiä. Tutkimuksen mukaan tärkeimmät kyvykkyydet liittyvät tiedon hankintaan ja integrointiin, resurssien hallintaan, asiakkaan roolin hallintaan sekä aktiiviseen ja tehokkaaseen viestintään tietointensiivisiä palveluja tuotettaessa. Tutkimus osoittaa, että hiljaisen tiedon osuus yksilön tarvitsemissa taidoissa on suuri. Tarvittaviin kyvykkyyksiin ja taitoihin vaikuttavat tutkimuksen perusteella muun muassa tuotettavien palveluiden räätälöinnin taso, asiakkaalta tarvittavan tiedon määrä ja luonne, tarvittavan konsultaation määrä ja palveluprosessin vaihe.

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1 INTRODUCTION

This study focuses on the customer-related skills and capabilities in knowledge-intensive business services. The study is a part of a research project of service business capabilities and the related knowledge transfer mechanisms, carried out at the Technology and Business Research Center in Lappeenranta University of Technology.

1.1 Background

Buying business services is seen to be a growing trend in both manufacturing and in other service businesses (Eurostat, 2008; Freel, 2006). Business services can be classified according to their strategic importance to client organization. Non-strategic services, like cleaning and catering, are more likely not having critical importance in customer's business. Strategic services instead, are focused in developing customer's business, and can have a remarkable role in customer's daily operations and business. (Den Hertog & Bilderbeek, 1998; Plugge & Janssen, 2009.) Knowledge-intensive business services (KIBS) can be mainly considered to belong to this sort of strategic business services (Den Hertog & Bilderbeek, 1998) and they constitute a growing group of all the business services (Miles, 2005). Figure 1 describes well the relationship between KIBS and other services in the economy. KIBS can be further divided in new-technology-based KIBS (t-KIBS) and professional KIBS (p-KIBS) (Miles et al., 1995; Freel, 2006). According to this classification, IT and related services belong to t-KIBS along with architectural and engineering services. P-KIBS on the other hand, comprise of e.g. management consultancy, legal, accountancy and advertising services. Reasons for the growth of the KIBS can be found from the real demand of knowledge services, but also from the structural changes especially in manufacturing sector, as service functions are outsourced. (Leiponen, 2005, 186).

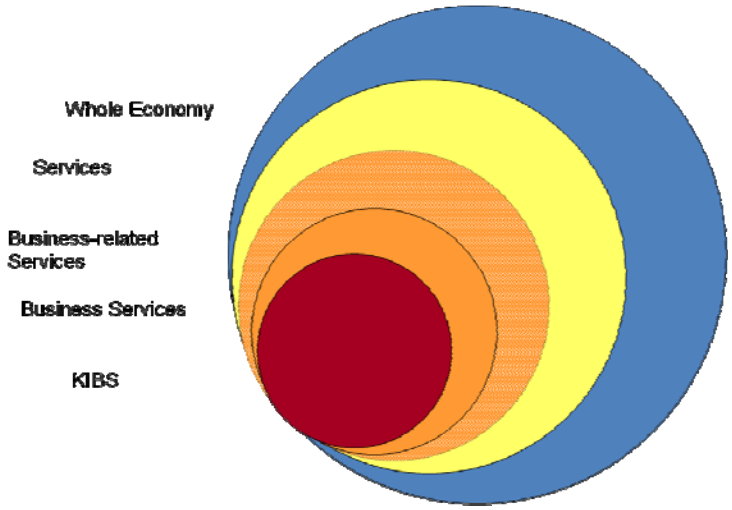

Figure 1: KIBS in relation to other services and whole economy (Miles, 2009, 2.)

While non-strategic business services can in most of the cases be outsourced without much interaction between a service provider and a customer, that is not the case within KIBS (Den Hertog & Bilderbeek, 1998). KIBS firms, and IT-service providers in particular, are characterized by close links with their customers during the joint projects, where knowledge-based service solutions are needed to solve customer's problems (Kim et al., 2010). The interface with customers is crucial for an organization's success, as each party needs the other party's knowledge in negotiation the exchange (Chesbrough & Spohrer, 2006, 37).

The co-producing nature of service brings new challenges to service provider. As customer involvement in the production and delivery processes of the service is high in KIBS, customers are also to some extent responsible for their own satisfaction (Bettencourt et al., 2002). However, unsuccessful service deliveries will probably damage the service provider's image, despite of the fact that some of the responsibility should belong to the customer as well. Thus, service provider should be able to manage also the customer's capabilities in co-production of service. This makes the service providing quite complex. Different customers with diverse capabilities make standardizing the customer interaction processes challenging if even possible. This can be one of the reasons for

the growing interest among IT-service providers to turn into so called “Cloud computing” or Software as a Service (Saas) –type of services. They are IT-services that are produced by rental principles for a larger target group of customers. These services have to be much more standardized than the more traditional it-service solutions to single customers. In KIBS, the involvement of a customer can differ depending on the type of service solution provided. In both cases though, the role of the service is essential in customer’s business.

In services, essential knowledge to support strategic choices can be acquired by looking closely to the dynamics of the interactions of the employee-customer interface (Batt, 2000, 542; Webb, 2002). Following the service-dominant logic (S-D logic) it is essential to identify both employees and customers as valuable resources of a firm (Vargo & Lusch, 2008, 33). As firm’s resources, intangible or tangible, are coordinated and deployed by firm’s organizational capabilities (Barney, 2002), the capabilities approach to investigate the dynamics of customer-provider interactions for service providing, seems justified. Capabilities’ perspective is appropriate in studying different knowledge processes, like acquiring and integrating knowledge, by different actors in specific contexts (Strambach, 2008, 156). Capabilities are widely studied at organizational level, and can be considered as macro-level concept. Recently, however, scholars have increasingly paid attention also to underlying components, ‘micro-foundations’ of capabilities on the level of individual action and interaction (Abell et al., 2008; Foss, 2010). Examination of capabilities as an organizational level phenomena does not sufficiently explain the dynamics of customer interface as the interactions involve individuals from both customer’s and service provider’s side. Individual skills are the major components of organizational capabilities (Grant, 1996), but on the other hand, no organizational capability can be created by a single person, nor is it a sum of a number of employees’ skills. Hence, considering the both levels seems reasoned.

The role of knowledge-intensive business services in economies as well as customer's role in service processes raise interest towards service provider's capabilities in customer interface, both on individual and organizational level. Despite of the wide research of customer relationships, co-creating or co-producing services with customer, in context of knowledge-intensive business services, is not widely studied.

1.2 The objectives, research questions and exclusions

As the field of services is extremely heterogeneous, the aim of this study is to shed light on the characteristics of one significant service sector. The KIBS research has so far strongly focused either in conceptualizing them as a business sector and determining their role in economies (Miles et al., 1995; Toivonen, 2004), or in their innovation patterns and role in innovation system (Strambach, 1992; Miles, 1995; Hipp, 1999; Tether & Hipp, 2002; Miozzo & Grimshaw, 2005; Leiponen, 2005; Freel, 2006; He & Wong, 2009; Kim et al., 2010). In this study, the focus is not in innovation activities of KIBS per se, but in capabilities, that are necessary for successful service providing in relation to the level of customer involvement. It is likely though, that those capabilities will be also linked in the sources of innovativeness, if not are those.

The research problem of this study is to understand how the levels of the knowledge-intensity and customer involvement affect to the need of capabilities in KIBS. The problem is aimed to be solved by investigating the customer-related capabilities both on organizational and individual level in new technology-based knowledge-intensive business services. This target can be fulfilled by first examining the nature and characteristics of these services and the meaning of both knowledge-intensity and the role of customer involvement in business services. The basic framework for the study is presented in Figure 2.

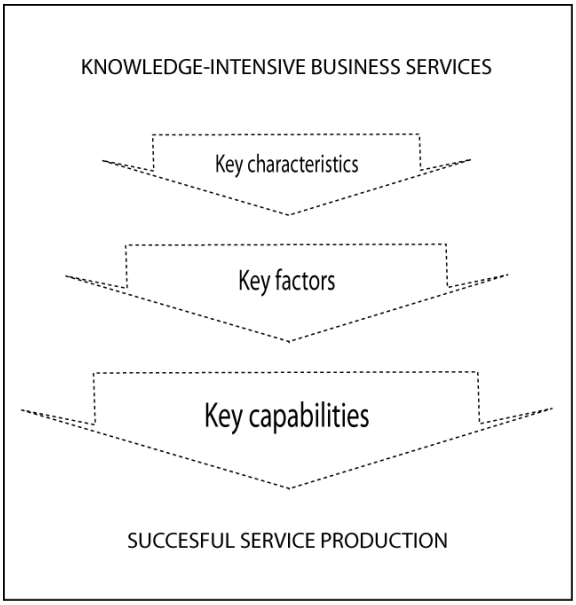

Figure 2: Framework for the study

The research question is: What are the key customer-related skills and capabilities in knowledge-intensive business services (KIBS)? The sub-questions are: 1) What is the role of knowledge-intensity in KIBS? 2) What is the role of customer involvement in KIBS 3) What factors have impact on the needed capabilities in KIBS? Research questions are collected in Table 1.

Table 1: Research questions

What are the key customer-related skills and capabilities in knowledge-intensive business services (KIBS)?		
1st sub-question: What is the role of knowledge-intensity in KIBS?	**2nd sub-question:** What is the role of customer involvement in KIBS?	**3rd sub-question:** What factors have impact on the needed capabilities in KIBS?

This study concentrates in mapping the skills and capabilities which are seen to be directly connected in providing the technology-based knowledge-intensive business services with and for the customer. The focus is in the interactions between service provider and the customer. Although the service provider might have several partners and collaborators in the service process, the relationships with them are not

deeply studied. Outlining the capabilities which are seen to belong to customer-related capabilities are discussed in chapter three. Other skills and capabilities that are affecting to the service providing only indirectly, are not deeply considered.

This study investigates the individual skills and organizational capabilities in the context of knowledge-intensive business services in general, and IT-services in particular.

1.3 The methodology and the structure of the study

The study is organized as follows: The theoretical part of the study involves first the literature review of the characteristics of KIBS, the knowledge-intensity and the customer intensity in this context, in chapter two. It is followed by the literature review of the capabilities in general, and customer-related capabilities in particular, the approach being in both individual skills and organizational capabilities, in chapter three.

As the subject in matter, i.e. customer-related capabilities and the nature of KIBS, includes several aspects that are not well defined and conceptually established so far, the empirical part of the study is carried out by qualitative methods (see e.g. Ritchie, 2003). The research is a comparative case study involving two polar cases providing IT-services. The multilevel approach to the capabilities will be realized by collecting the data by diverse means and in several stages, including workshops with focus groups, theme interviews, and a survey on the basis of the former two. The research method, data collection and analysis methods are presented in chapter 4. The findings of the empirical part are analyzed in chapter 5. The discussion is carried out in chapter 6. Finally, the conclusions as well the contribution of the study to the theoretical and managerial discussions are evaluated in chapter 7.

2 THE NATURE OF KIBS

The concept of knowledge-intensive business services (KIBS) has already been known in the literature for over 15 year, but has recently received increasingly interest. The remarkable amount of the KIBS research concentrates in the innovative nature of KIBS. (Muller & Doloreux, 2009.) KIBS are seen to play three roles in customer's innovation processes; acting as facilitator, carrier and source of innovation (Den Hertog and Bilderbeek, 1998). KIBS do not only contribute to the innovation competence of their customers though, but they can be recognised as innovators themselves, which can make the change both on behalf of and in cooperation with their customers (Muller & Doloreux, 2009). T-KIBS firms particularly have had clearly more innovation activities, than other services or manufacturing sector in average (Toivonen, 2007, 249). In this study, innovation is not in a key role though, but it is seen as an output of a successful service process.

2.1 KIBS defined

KIBS are determined to be expert firms that provide either traditional professional or new-technology-based knowledge-intensive services to satisfy the other companies' or organizations' needs (Hipp, 1999; Miles, 2005; Toivonen, 2007; Muller & Doloreux, 2009, 64). By traditional professional KIBS (p-KIBS) it is referred to e.g. accounting and management consulting services (Nählinder, 2005, 79; von Nordenflycht, 2010). New-technology-based or technology-related KIBS (t-KIBS) involve computer and related IT services, R&D services of private sector and architectural and engineering and related technical consultancy services (Skogli, 1998; Freel, 2006). These classifications are based on the European classification of economic activities (NACE), which is widely used scheme among KIBS research (Skogli, 1998, 1; Muller & Zenker, 2001; Freel, 2006). Although official industrial classification might give

good frames to recognize the sector, Hipp (1999) has argued that for empirical analysis the industrial classification is not the most useful and that industry-independent definitions are needed.

The industry-independent definitions emphasize strongly the role of knowledge in KIBS. Knowledge is seen both the main input and output in KIBS (Gallouj, 2002). The seminal work of Miles et al. (1995) have listed three fundamental characteristics of KIBS: they i) rely strongly on professional knowledge, ii) either are sources of knowledge or use their knowledge to produce value to their customers and iii) they serve primarily other businesses by creating competitive advantage to them. Den Hertog (2000, 505) describes KIBS quite similarly as private companies or organizations that rely on professional knowledge or expertise of certain discipline and supply intermediate knowledge-based services and products.

Competitive advance can be realized by providing knowledge-intensive inputs to customers' business processes and by solving their problems which need external knowledge to be acquired (Miles, 2005). KIBS firms are "characterized by the ability to receive information from outside the company and to transform this information together with firm-specific knowledge into useful services for their customers" (Hipp, 1999, 94; Tether & Hipp, 2002, 165). In KIBS, knowledge is seen as an input (Hipp, 1999; Strambach, 2008), but also, as an output (Strambach, 2008), the core activities being comprised of accumulation, creation and dissemination of knowledge to provide satisfying, and often highly customized solutions to customer's needs (Bettencourt et al., 2002).

KIBS are not only about outsourcing services. In fact, buying knowledge-intensive business services may change service functions significantly from those previously produced in-house. (Miles, 2003.) This is due to the new knowledge, co-created during the service production, as well as the consultative role of the service provider (Hipp, 1999, 104). The activity of

consulting can be understood as a process of problem solving, as KIBS firm adapts its knowledge base to meet the customer's needs (Strambach, 2008, 156). KIBS aim at the improvement of customer's performance and productivity, and contribute technological and structural change also on the level of society (Hipp, 1999, 104).

According to the literature, knowledge-intensity and customer-intensity can be seen as the most distinctive characteristics of KIBS. These concepts are examined deeper in the following.

2.2 Knowledge intensity

Broadly taken, knowledge-intensity means the relative importance of knowledge over other resources, in the production of the output of a firm (Starbuck, 1992). Knowledge-intensity has been pointed to simply refer to the amount of professional or highly educated employees (Miles et al., 1995; Tether & Hipp, 2002, 167), or to high investments in new information technology in an organization (Miles et al., 1995). Besides the input, also the output is considered as knowledge-intensive in KIBS (Starbuck, 1992; von Nordenflycht, 2010). Hipp (1999, 94) has high-lightened the process nature of services by defining knowledge intensity as a "capability to integrate different sources of information and knowledge into the intra-firm's innovation process". Also considering the service context, Hauknes (1999, 6) has presented the knowledge intensity as a function of the knowledge demands of both the service provider and the customer (Figure 3). It consists of the relation-specific requirements to emission, transmission and absorption capacity of the participants and the relation between them. The greater the dual knowledge demands, the more knowledge-intensive the service business. (Hauknes, 1999, 7.) Thus, it is central to understand that knowledge-intensity involves customer participation and the interplay of provider and customer knowledge (Freel, 2006). The level of consultation can also be seen as one of the main

features of KIBS. This means the degree of service provider's expertise and expert knowledge which is needed for solving the customer's problem and fulfilling the service providing. (Muller & Zenker, 2001, 5; Strambach, 2008, 156.)

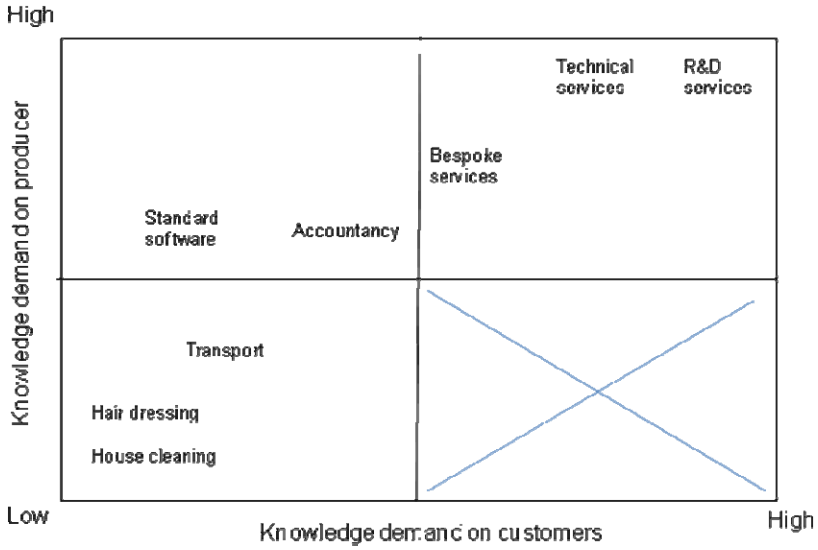

Figure 3: A two-dimensional conceptualization of knowledge-intensity (Hauknes, 1999)

To be able to understand the knowledge-intensive nature of business services, it is significant to have a deeper look at the nature of knowledge and knowledge processes.

2.2.1 The nature of knowledge

Tacit and explicit knowledge

Knowledge is a function of certain stance or perspective and it is about action, factors that distinguish it from information (Nonaka & Takeuchi, 1995, 58). Polanyi's (1966) distinction between *tacit and explicit knowledge* is one of the seminal views as considering the nature of knowledge. Explicit, or codified, knowledge is identified also as 'knowing about' something (Grant, 1996, 111). More concretely, it can be oral or

written statements, documents, drawings, diagrams, technical specifications, computer programs or other, which can be codified (Den Hertog, 2000, 508; Sivula et al., 2006). Tacit, or uncodified, knowledge has also been referred as ‘know-how’ (Kogut & Zander, 1992), ‘knowing how’ (Grant, 1996, 111) or experiential (Tether & Hipp, 2002, 166). It is personal, context-specific and difficult to articulate (Polanyi, 1966).

An important distinction between tacit and explicit knowledge, is its transferability. Explicit knowledge is relatively easy to transfer, but tacit knowledge is seen as “sticky” (Von Hippel, 1994), its’ transferring can be slow, expensive and uncertain (Kogut & Zander, 1992). An important notion is though that tacit and explicit knowledge are not distinct categories, but more likely the extremes of a spectrum, and most of the knowledge exists in between the ends (Leonard & Sensiper, 1998,113).

Tacit knowledge can often be acquired only through practice, learning by doing and experience (den Hertog, 2000, 509). Tacit knowledge involves both cognitive and technical elements. Cognitive elements are kind of mental models which provide perspectives to perceive and define the world by individuals. Technical elements include concrete know-how and skills in specific contexts. (Nonaka, 1994, 16.)

In services like KIBS, where intangible and relational aspects are important, the amount of tacit knowledge is higher (Kianto et al, 2010; Muller & Doloreux, 2009, 64; Sundbo & Gallouj, 1998). This is due to the greater involvement of human capital (Chesbrough & Spohrer, 2006; Kianto et al., 2010), and the intangible nature of knowledge (Kianto et al., 2010; Sundbo & Gallouj, 1998). The knowledge is often collectively generated and/or applied (Leiponen, 2006) and the employees of service provider have direct contacts and high level involvement with customers in coproduction of services (Sampson and Froehle, 2006). The tacit forms of knowledge are in a central position in the knowledge flows between KIBS and their clients. KIBS help their customers to convert tacit knowledge into

explicit knowledge and vice versa. (den Hertog 2000, 511.) The nature of tacit knowledge complicates the services exchange and limits the ability of each party to fully comprehend the needs and abilities of the other. In IT-service deliveries especially, tacit knowledge plays a central role due to the inductive way of knowledge creation, based on learning by doing in interactive processes to solve customer's specific problems (Strambach, 2008). In customer contacts, an example of tacit knowledge is how to choose an appropriate way to approach a customer (Alavi & Leidner, 2001, 110).

The customers' co-production role in service providing of KIBS means that customers themselves possess much of the knowledge and skills that is needed for successful service providing. This includes codified knowledge, like existing technology solutions and tacit dimensions, like the knowledge about the key informants or how and why things are done as they are so far. Customers possess quite essential knowledge, like the objectives of the service project. (Bettencourt et al., 2002, 101.)

Analytical, synthetic and symbolic knowledge

In addition to the tacit – explicit continuum, also other dimensions of knowledge have been identified. Strambach (2008) analyses the role of analytical, synthetic and symbolic knowledge in the KIBS context. It is argued, that the knowledge processes differ depending on the knowledge bases. The analytical knowledge refers to formally organized processes, with tendency to documented outputs, like reports and electronic files. In KIBS, this sort of knowledge could dominate in R&D service firms. More important though, within KIBS is proposed to be the synthetic knowledge which refers to new combinations of existing knowledge based on experiences in learning by doing, and interactively solving customer's specific problems. (Strambach, 2008, 158.)

Non-specific and customer-specific knowledge

Opportunities of knowledge transfer and creation differs in different kinds of customer relations. In customer relationships the acquired knowledge can be classified to non-specific and customer-specific, depending on the degree of the specificity. Customer-specific knowledge improves understanding of clients, their goals, needs and processes, and is utilized mainly within the same customer. Non-specific knowledge refers to knowledge and skills which are general enough to be codified and utilized also in other relationships and services in future. (Sivula et al., 2006, 86.) Ballantyne (2004) proposes that relationship specific knowledge refers particularly to the mutual understanding which is based on the previous experiences, and is constantly updated and accumulated in dialogue between the parties.

Knowledge types in two levels of analysis

Knowledge is generally understood to be embodied either only in individuals (Grant, 1996; Alvesson, 2001) or on multi-levels, also embedded in organizational routines and processes (Nelson & Winter, 1982; Starbuck, 1992; Lowendahl et al., 2001; Fosstenlokken et al., 2003). The existing knowledge management literature has widely discussed whether the knowledge resides on individual or collective levels, and the both levels have been emphasized alternately (e.g. Lowendahl et al., 2001, 916-917), but it has appeared to be extremely difficult to discover which would be the prior; the intellectual human being creating a routine which leads to a process of institutionalization, or the achieved collective knowledge which forms the basis and meaning for individuals' actions (Spender, 1996).

Spender (1996) has extended the tacit – explicit continuum to a four-field, by considering also the individual and social (collective) levels where knowledge resides. As a result, conscious and automatic (individual) and

objectified and collective (social) types of knowledge are identified (Table 2). Lowendahl et al. (2001, 916-917) distinguishes knowledge characteristics between individual and collective levels in more pragmatic way. At individual level, the types of knowledge are 1) information-based, task-related knowledge, called also “know-what”, 2) experience-based, tacit, subjective, called also “know-how”, i.e. skills and 3) personal knowledge, involving talent, aptitudes, artistic abilities etc. At collective level the “know-what” knowledge refers to codified knowledge, like databases, “know-how” to routines, norms and best practices, and finally, collective organizational identity to shared culture and socialization mechanisms. According to Lowendahl et al. (2001, 918), knowledge appears at collective level as combination of skills, values developed and shared by at least two employees. Knowledge is dispersed, i.e. it is located in different places in a firm (and outside a firm) and no single person could possibly know of it all (Larsen, 2001, 84).

Table 2: Different types of knowledge in two levels
(Builds on Spender, 1996, 52 and Lowendahl et al., 2001, 918).

	Individual	**Collective (Social)**
Explicit Fact-based, ‘know-what’	Conscious Facts, expertise	Objectified Codified, databases, information of who knows what
Implicit Experience-based, ‘know-how’	Automatic personalized knowledge, skills	Collective Norms, routines, best practises
Dispositional/tacit knowledge, identity	Aptitudes, talents, intelligence etc.	Shared culture and language, socialization mechanisms

2.2.2 Knowledge processes

Knowledge processes are influenced by the specific knowledge bases of parties, and the context in which the processes take place (Strambach, 2008, 154). KIBS firms act as intermediates between technological and business expertise, and firm-specific knowledge and capabilities. Their pivotal activity is to provide complementary knowledge inputs to generate innovation (Muller & Zenker, 2001). As learned, the core activities in KIBS are comprised of acquiring, integrating, creating and disseminating knowledge. In the following, the role of different knowledge processes is investigated in the context of KIBS.

KIBS are seen to create new knowledge, especially every time the service is highly customized. According to Nonaka & Takeuchi (1995, 71) the knowledge creation takes place through four knowledge conversion processes, namely socialization, externalization, combination and internalization, which can be illustrated in the form of spiral as in Figure 4. In their tremendously referred model, the conversions of tacit and explicit knowledge play the key roles. Socialization describes the knowledge conversion from tacit to tacit, externalization from tacit to explicit, combination from explicit to explicit and internalization from explicit to tacit again. (Nonaka & Takeuchi, 1995, 62-73.)

Figure 4: Knowledge spiral
(Nonaka & Takeuchi, 1995, 71)

The knowledge conversion model of Nonaka & Takeuchi (1995) has been utilized by several authors also in the KIBS context (He & Wong, 2009; Hipp, 1999; Muller & Zenker, 2001; Sivula et al. 2001; Strambach, 2008). Muller & Zenker (2001, 1504) have presented, following Strambach (2001, 64), three stages of knowledge interaction between KIBS firms and customers: Knowledge acquisition, recombination and dissemination. A KIBS firm acquires knowledge in the interaction process with customers during planning and providing the service. The close communication is a channel to absorb knowledge from different customers from different fields (He & Wong, 2009, 266). The acquired knowledge is integrated with the existing knowledge stocks and new knowledge is generated through integration process. In this stage, tacit and customer-specific knowledge is integrated in the service provider's knowledge base (He & Wong, 2009, 267). Thus, KIBS acquire knowledge from their clients which allows them in turn to offer client-specific solutions, but also to enhance their own knowledge base (Muller & Zenker, 2001). Finally, knowledge dissemination takes place as KIBS firm applies new knowledge into service providing.

Sivula et al. (2001) describe the knowledge transfer and conversion processes in terms of codification, extension, absorption and sharing, depending on the locations of these processes, in Figure 5. First, tacit knowledge is converted to explicit through codification (arrow 1). Codification facilitates the service delivery either directly or through the use of problem solving tools (arrow 2). Arrow 3 describes the creation process of new, tacit knowledge through absorption of customer knowledge (like customer's preferences, unwritten rules and power structures) and task-oriented skills, absorbed by the employees of the service provider. Finally, this new knowledge is shared in the service provider's organization (arrow 4). In the codification and absorption processes (arrows 1+3), the nature of knowledge is converted. In the extension and sharing processes instead (arrows 2 + 4), knowledge transfer takes place. (Sivula et al, 2001, 81-82.)

1 = codification, 2 = extension, 3 = absorption, 4 = sharing

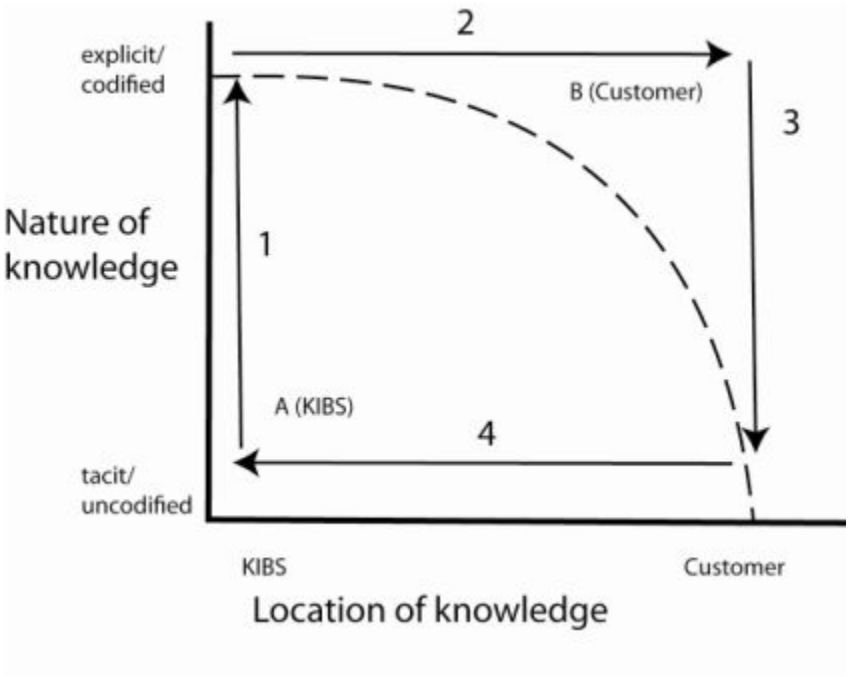

Figure 5: Knowledge conversion and processing
Adapted from Sivula et al., (2001). (Dash line = KIBS/Customer interface)

The degree of codification influences the transferability of knowledge between KIBS and customer. More codified, i.e. more explicit knowledge is more easily disseminated. As the transferability grows by codification, the richness of the knowledge might be reduced. (Sivula et al., 2001, 80) In other words, as knowledge "gains in utility, it loses in scarcity" (Boisot, 1995, 493). Utilizing knowledge requires dissemination and absorbtion. These two processes are quite difficult to clearly distinguish from each other. To be realized, they need interactivity and learning dialogue between the supplier and customer. (Skogli, 1998, 9.)

The service delivery in KIBS is characterized by the processes of acquiring, absorbing, integrating, creating and disseminating knowledge. The organizational capability is required to manage these knowledge processes (Nonaka & Takeuchi, 1995, 74). The levels of explicitness and

context-specificity determine the complexity of these processes. In the following, the role of customer-intensity is taken into consideration, as providing services in a KIBS firm.

2.3 Customer-intensity

The term customer-intensity is used here similarly to knowledge-intensity, to describe the role of customer relationship and involvement in KIBS. Nearly all service processes are inherently relationship-oriented (Grönroos, 2000; Vargo & Lusch, 2008). Customer participation in service production can be considered perhaps the most fundamental characteristics of knowledge-intensive business services (Strambach, 2008; Muller & Doloreux, 2009). Each service delivery can be considered as unique, if it is customized particularly to customer's needs, in interaction with customer. Interaction with customer does not involve only knowledge exchange, but also emotions, as well as verbal and gesture elements. (Sundbo & Gallouj, 1998, 2.)

The customer is often the source of the needed external knowledge (Sivula et al., 2001), and the innovation in services can be seen as a result of the collaboration between KIBS firm and the customer. The level of customer-intensity might vary though also in KIBS. In the following, the different classifications concerning customer relationships and involvement are presented, derived from KIBS literature.

2.3.1 Customer relationship types

There are several classifications of customer relationships which lay stress on slightly different factors. Tordoir (1993, 1994; in Miles, 2003) has paid attention to the consultative role of the service provider in customer relationships, and classified the types of relationships for three: sparring, jobbing and sales relations. In sparring relationships, deep interaction between service provider and customer is needed in both specification

and production stages. In jobbing relationships, the customer usually provides the specifications for the service, and is quite competent also doing that. Selling relationships mean simply selling predefined services which require neither preceding nor post-service consultation. (Tordoir, 1993, 1994; in Miles, 2003.)

In similar vein, also Rajala & Westerlund (2008) have emphasized the level of consultation of a service provider within software industry. They have proposed varying business models according to the degree of customer involvement and level of homogeneity of the service offering. Software tailoring involves highly customized and high involvement relationships between service provider and customer, since the service requires a high proportion of consultation in close collaboration. The extreme end is standard offering, which includes homogeneous offering and low level of customer involvement. This type of services is usually aimed at large group of customers with uniform core product, a modular product family or a standardized online service, like SaaS (Software as a Service) type of services. The type with high degree of involvement, but high homogeneity refers to service offerings which are based on uniform basic model, but which requires additional modular components, thus increasing the customer involvement and need for consultation again. Fourth type, resource provisioning, is characterized by low degree of both customer involvement and homogeneity in service offering. Typically, this type of model concerns semi-finished offerings, which are aimed at serving several customers' needs. (Rajala & Westerlund, 2008, 77-78).

The classification based on the level of consultation suits quite well to KIBS, where the problem solving can be more or less complicated and require different levels of consultation from the service provider. Sometimes, KIBS firm's role is to just implement the actual solution to the customer, but more often, to either propose a solution, or to even start with determining the actual problem (Miles, 2001, 12-17. Ref. Nählinder, 2005). As a KIBS firm and a customer co-operate to find a solution to specific

problems and challenges, the customer's knowledge base changes through the interactions. On the other hand, the KIBS provider learns about a specific industry, and about new business opportunities. Based on this, it can develop and differentiate the services offered and methods used. (Den Hertog & Bilderbeek, 1998.)

The relationships are often distinguished based on the transactional and co-operational (Sivula et al., 2001), or discrete and relational (O'Farrel & Moffat, 1991) exchanges between the service provider and customer. In cooperative relationships, it is typical that i) a customer does not know how to solve the problem in question, ii) exchange of resources (knowledge, skills) between a customer and service provider is needed, iii) organizational boundaries are somewhat blurred and iv) team work is utilized. In transactional relationships instead, the customer normally knows a solution to the problem in question, the relationship with customer remains quite distant, and the organizational boundaries clear. Furthermore, no cooperative teams are needed, and the exchange mainly considers the goods and services and money. The market efficiency and price dominate the relationship. (Sivula et al., 2001, 83.)

Another appropriate approach to KIBS relationships with their customers is presented by Mills & Margulies (1980). They have paid attention specifically to the need for personal decision making by service providers' employees in the customer interface, and classified the relationships in three categories accordingly: maintenance-interactive, task-interactive, personal-interactive. Maintenance-interactive refers to a cosmetic, continuous interaction between service provider and customer which aims at long, stable relationship, with quite standardized service delivery. In this type of interactions, the service provider's representatives do not have to make much judgmental decisions or they are of simple nature. Task-interactive refers to relatively concentrated interactions between employee and client where they concentrate in problem solving technics. The interaction involves abundant knowledge exchange, consultation and is

more complex. The personal- interactive type of relationship aims at direct wellbeing of a customer, e.g. in the case of legal or medical services. (Mills & Marqulies, 1980.) This approach is extended by O'Farrell & Moffat (1991) by paying attention to the complexity level of the knowledge demand from customer and the level of customer involvement at different stages of service creation.

Sivula et al. (2001, 83) have extended the classification of transactional and cooperative relationships by adding the aspect of the duration of relationships to the classification. This forms a typology of four, describing the interaction intensity: Loyal relationship, client partnership, market exchange relationship and co-makership, as presented in Figure 6. Longer duration and greater intensity of interactions offer better opportunities to observe customer's environment, and therefore, also enhance opportunities in absorption of tacit knowledge. (Sivula et al, 2001, 86.) According to the study of Hollyoake (2009), the value of good business performance is greater than the duration of a business relationship though.

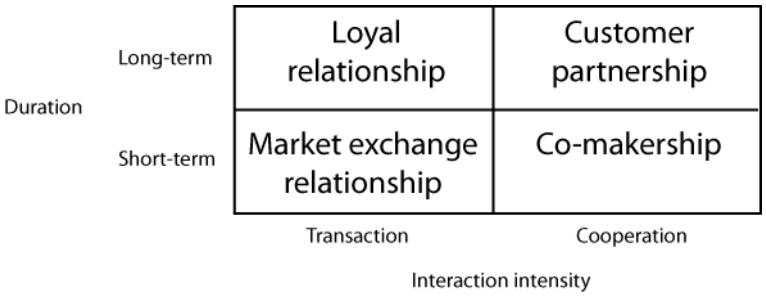

Figure 6: Customer relationship typology based on the interaction intensity and duration of the relationship (Sivula et al., 2001, 84)

2.3.2 Knowledge processes in different customer relationships

Figure 7 presents knowledge processes in the interface of two different KIBS relationships, according to the research of Sivula et al. (2001, 87-89). Case A, is classified as customer partnership. The positioning of knowledge processes (the lower arrows 1-4 in right corner) expresses that

the absorption and transfer of knowledge takes place often in tacit form and primarily in customer's processes. The process illustrates the creating of new knowledge, as a solution of customer's problem, when there were no pre-existing answers. Case B is categorized as market exchange relationship, and the location of knowledge processes is changed. The knowledge, in a form of compact software, is codified and transferred through market transactions (Arrow 1). The service providing requires some adjusting and learning about customer context, which is presented by Arrow 2. The knowledge is shared within the service provider and the absorbed knowledge transformed in developing the service. (Sivula et al., 2006, 87.)

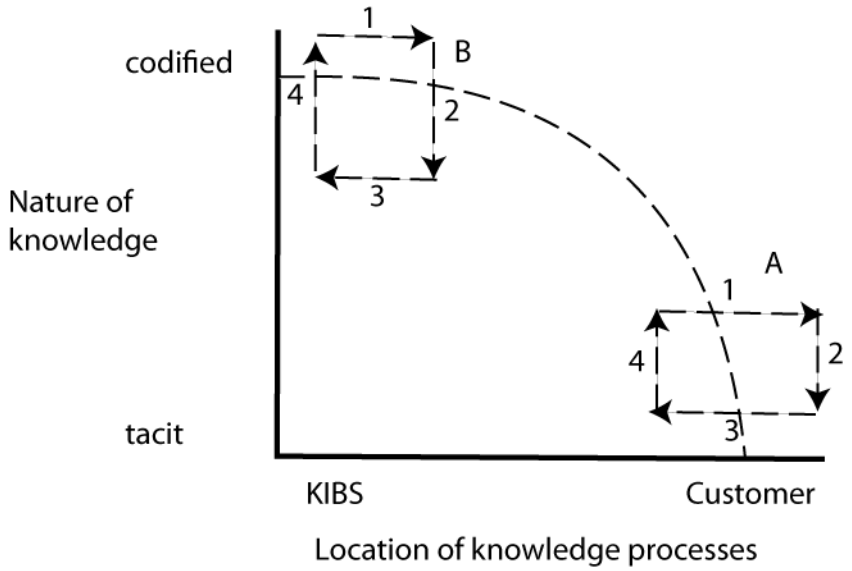

Figure 7: Knowledge processes in two types of t-KIBS relationships (adapted from Sivula et al., 2001, 89-90)

Customized service delivery, Case A (the lower arrows)

1 = auditing service delivery

2 = learning from customers

3 + 4 = problem solving in interaction

Standard service delivery, Case B (the upper arrows)

1 = compact software service delivery

2 = knowledge absorption in customer support

3 = knowledge dissemination

4 = development of new versions

The process of providing a certain knowledge-intensive service includes typically several stages. As the roles and the interaction varies in different stages of a service, O'Farrell & Moffat (1991, 212) have divided the different stages quite accurately in twelve, observing the service process from the point of view of both the service provider and the customer. These stages include recognition on need, design of terms of reference, supplier search, evaluation and selection, preparation, production, monitoring the production, presentation of results, implementation and post-implementation. For the purposes of this study, monitoring the different stages so in such a detailed way is probably not necessary, but it is necessary to be aware of the *heterogeneity* even inside the single service proving case.

KIBS firms proceed typically on a project-base. New knowledge is generated in ad hoc processes during the service at the interface with customer (Strambach, 2008, 160). Typical project management functions include also managing objectives, teams, customer expectations, budgets and schedules and identifying and solving project problems (Davenport & Prusak, 1998, 112). As the project type of work is typically not based on routines, the building of organizational capabilities is challenging (Strambach, 2008).

2.4 Summary

This chapter has highlighted the distinct characteristics of knowledge-intensive business services. The nature of KIBS corresponds quite directly to the service-dominant logic (S-D logic), presented by Vargo & Lusch (2004; 2008). The S-D logic emphasizes the distinctive characteristics of services compared to manufacturing. Services are seen as a process, an application of knowledge and skills, for the benefit of another party, assisting customers in their own value-creation processes. Customer is

seen as a resource, instead of a target. In services, the value creation takes place in collaborative processes between a service provider and a customer, and possible other parties. It is also essential to understand customers in the context of their own networks.

Knowledge is seen to be both the main input and output in KIBS, and their main activities to consist of different knowledge processes. Probably the most distinct feature though, is the customer's involvement in the processes of the service providing. The level of knowledge-intensity in KIBS can be determined according to the level of knowledge required from both a service provider and a customer. Besides the level of knowledge demands, the degree of service provider's consultation seems to be a distinguishing factor as well. This determines whether the level of customer relationship is looser or tighter, as well as the location of knowledge processes in providing the service. Furthermore, the levels of explicitness and customer-specificity of the knowledge, as well as the level of the needed customer knowledge affects to the location of these knowledge processes and the level of customer involvement. The key characteristics and key factors to be considered, as studying the capabilities of KIBS, are presented in Figure 8.

Both knowledge and customers have been seen as the essential resources of the knowledge-intensive business service firms. As stated by Strambach (2008, 170), the development of organizational capabilities for managing different knowledge processes and knowledge integration beyond firm boundaries are yet not well understood. In the following, the focus is directed in the intersections of capabilities in customer encounter.

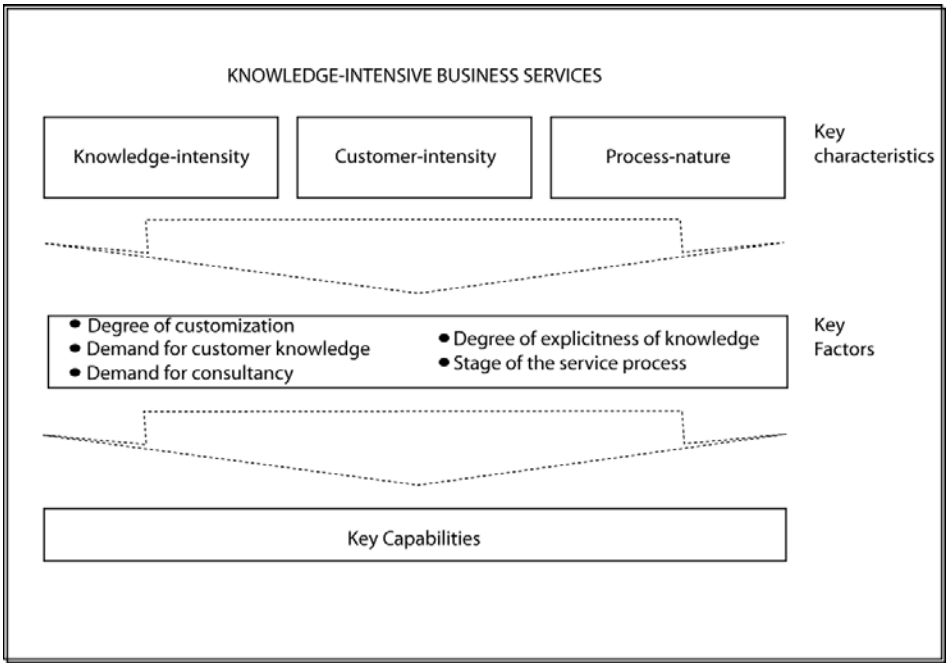

Figure 8: Key characteristics and factors

3 CUSTOMER-RELATED CAPABILITIES

“While knowledge and resources are considered essential ingredients to firm survival, capabilities are its raison d'être – they represent the firm's capacity to act” (Kaplan et al., 2001, 18).

It has been stated that KIBS firms are characterized with knowledge-intensity with the varying levels of customer intensity. The demand for customer’s knowledge and involvement, as well as the level of needed consultation determine the base for needed skills and capabilities in providing the service. In the following, the nature of capabilities is discussed on both organizational and individual levels generally, and specifically at customer interface, the service itself being the very core of the investigation.

3.1 Capabilities and the resource-based view of the firm (RBV)

The concept of capability is concerned to be one of the basic elements of the resource-based view (Barney, 1991). The roots of the RBV are stated to be in the research of Penrose (Barney, 1991), and further developed by Wernerfelt (1984) and Barney (1991). The central idea of RBV is that for sustaining competitive advance firms need to have the resources and capabilities, which are valuable, rare, inimitable and non-substitutable, so called VRIN –attributes (Barney, 1991). The capabilities are generally either described to be one of the resources (Barney, 1991), or more often treated as a special type of resource which deploys the other resources of a firm by using organizational processes to achieve its goals (Amin & Schoemaker, 1993; Helfat & Peteraf, 2003; Makadok, 2001). As resources have been seen as stable and transferable, the capabilities are described to be embedded in firm’s processes and routines (Makadok, 2001; Plakoyiannaki & Tzokas, 2001, 229), path dependent, influenced by firm’s history and actions of the decision makers (Amit & Schoemaker, 1993, 35;

Flynn et al., 2010, 2), and not easy to transfer or imitate (Makadok, 2001) which make them valuable to a firm.

There are several close or closely entwined concepts in the capability research. Capabilities are highly related to competencies (Kale et al., 2002), and generally there seems to be either only slight distinction between capabilities and competences (Plakoyiannaki & Tzokas, 2001, 229; Kale et al., 2002; Sanchez, 2001) or they have been used interchangeably (Dosi et al, 2008). Capabilities are sometimes paralleled also to routines. They have been determined as high-level routines (Winter, 2003), or routines have been considered as the 'building blocks' of capabilities (Dosi et al., 2000, 4). The evolution of the RBV has moved from the basic version, emphasizing more the unique resources of a firm, to more dynamic version of RBV, which considers also the ability to respond to the changing needs of the environment by reconfiguring the existing resources and capabilities (Den Hertog, 2010, 497).

3.2 Capabilities on organizational level

Capabilities are described to be firm-specific, their purpose being to enhance the productivity of the other resources (Amit & Schoemaker, 1993, 35), or to mobilize appropriate, e.g. social resources (Larsen, 2001, 84). They are described to 'fill the gap between intention and outcome' as recombining and integrating knowledge (resources) for the desired target (Dosi et al., 2000) or as "complex bundles of skills and collective learning", embedded in organizational processes that coordinate functional activities" (Day, 1994, 38).

Organizational capability raises from the experience, knowledge and skills of individuals (Eisenhardt & Martin, 2000), who act on behalf of the organization in interaction with each other (Evanschitzky et al, 2007, 266). Performed by individuals' skills, organizational capabilities consist of the

repetitive and context-dependent routines (Dosi, Faillo, Marengo, 2008). That means, that firm's systems and practices affect individual performance. "Capabilities are the outcome of micro-level knowledge-related behaviors, such as knowledge sharing and integration behaviors, but these are normally black-boxed in the capabilities" (Foss, 2010). As resources and knowledge can reside both inside and outside of the firm, capabilities are firm-specific and located inside the firm (Kaplan et al, 2001).

Former research distinguishes operational and dynamic capabilities (Helfat & Peteraf, 2003; Winter, 2003). The operational capabilities, also called first-order capabilities (Winter, 2003), describe "how you earn your living". The dynamic capabilities, referred also as second-order or higher-order capabilities, are concerned with change and are needed for changing firm's operational routines (Zollo & Winter, 2002; Winter, 2003). As operational capabilities refer to the functional activities of a firm, dynamic capabilities refer to capabilities which modify these operational capabilities, leading to change in firm's offerings and/or processes (Cepeda & Vera, 2007). In other words, dynamic capabilities do not have direct impact on the output of the firm, but they affect through operational capabilities.

3.3 Capabilities on individual level

Following the reasoning of Abell et al. (2008) and Foss (2010), no organizational, 'macro' level phenomenon can be explained solely on macro-level, directly connecting routines and capabilities to firm-level outcomes. Therefore, there is a growing trend in notifying that realizing of a single capability can require a complex set of underlying individual characteristics and skills, actions and interactions, so called micro-foundations (Abell et al., 2008). In this study, the individual level capabilities or micro-foundations, are referred as skills.

Organizational capability is strongly based on the actions and contributions of the individuals of an organization. Grant (1996) views the organizational capabilities as a hierarchy, where individual members with their specialized skills comprise the basement of it and when moved upwards, the span of specialized skills broadens, the former skills being integrated to the next level capabilities. Experience is important both at the individual and organizational level. New skills are learned faster, if there are common elements with the previously learned skills (Zander & Kogut, 1995).

Skills have been defined as “goal-directed, well-organized behavior that is acquired through practice and performance with economy of effort” (Proctor & Dutta, 1995, 18. Ref. Winterton et al., 2005, 12). But skill level is not dependent only on a person, but also on a context. People do not have skills independent of context (Fischer et al, 1993, 113). This has been proved by Groysberg et al. (2008) who had noticed that the star employees’ performance decline when they switch firm, particularly if the new firm provides lower support to them than the former. Interactions between individual skills and organizational capabilities can transform the strategic resources of a firm to valuable, rare, inimitable and non-substitutable, and as such, form the basis of sustainable competitive advantage. (Rothaermel & Hess, 2007, 902.)

3.4 Customer-related capabilities on organizational level

As the target of this study is to examine the dynamics of the customer interface in the context of knowledge-intensive business services, the focus is in those capabilities that involve any stage of providing the service in connection with the customer. These capabilities have been mainly studied in marketing and relationship marketing literature.

There exists quite a variety of different terms and slightly differing concepts referring to the capabilities related to market and customers, as discussed headline-level terms. Day (1994, 40-41) has presented useful classification by sorting the capabilities of a firm in three groups according to the orientation and focus of the defining processes: outside-in, inside-out and spanning processes. The outside-in capabilities take place in processes in connection to external environment, as anticipating the market requirements and in relationship building. Inside-out capabilities (e.g. human resource management, production, financial management) are activated by these market requirements, and spanning capabilities integrate knowledge preserved by the other two, for e.g. pricing, purchasing and service development purposes.

Several studies ever since, have discussed capabilities related to knowing the market and the customers in particular. In addition to Day's (1994) outside-in capabilities, the literature review raises up relational capabilities (Stank et al.,1999 Zhao & Stank, 2003), marketing capabilities (Hult & Ketchen, 2000; Foley & Fahy, 2004), market management capabilities (Srivastava et al., 2001, 788), customer relationship management capabilities (Plakoyiannaki & Tzokas, 2001), customer competence and market competence (Danneels, 2002), customer-relating capability (Day, 2003), customer knowledge competence (Campbell, 2003) and relational competence (Carter & Gray, 2007). Closely related terms in the field are also market orientation (Kohli & Jaworski, 1990; Narver & Slater, 1990), customer orientation (Theoharakis, 2009) and relational orientation (Dyer & Singh, 1998).

As thinking of the service delivery process that is investigated in this study, the term customer-related capabilities is used to refer to all the discussed capabilities at customer interface. The different types of the capabilities that comprise the customer-related capabilities are explained in the following. The types of customer-related capabilities and key authors are presented in Table 3.

3.4.1 Understanding customer needs

According to literature, there is a clear consensus that understanding of customer needs and customer's business environment is one of the most important capabilities in producing both services and goods. Service providers must understand customers', and also customers' customers', business processes and procedures, and have understanding of the competitive environment of customers and of the factors, which may affect to customer's needs also in the future. (Narver & Slater, 1990; Bettencourt et al., 2002.) Exceeding the expressed needs of the customer, a firm should be able to consider and find out the latent needs of a customer (Nasution & Mavondo; 2008; 482).

In services, it is more critical to understand customers' business environment than it traditionally is in manufacturing industry. This is due to the intangibility and involvement of complex tacit elements. (Chesbrough & Spohrer, 2006, 37.) This capability to identify and understand customer needs by constantly sensing the changes in market has been labeled as market sensing (Day, 1994; Morgan et al., 2009) or market intelligence (Kohli & Jaworsky, 1990; Battor et al., 2008). Market sensing allows the firm to identify those customer segments, which are underserved, and provides insight for managers to identify how the firm could expand their offerings to already existing customers (Morgan et al. 2009; Den Hertog, 2010).

To be able to constantly observe the often rapidly changing customer environment requires certainly organization-wide efforts. This refers to market orientation which is defined as "organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it" (Kohli & Jaworski, 1990). This conceptualization is also supported by Narver & Slater (1990), who have divided the concept to three behavioral components, namely customer

orientation, competitor orientation and inter-functional coordination. These components have been seen of equal importance (Narver & Slater, 1990), or customer orientation is stressed as the most important part of market-orientation (Theoharakis, 2009). Market orientation is defined to be one of the capabilities (Foley & Fahy, 2004; Hult & Ketchen, 2000), or a platform for leveraging capabilities (Saini & Johnson, 2005), or a business culture where everyone in a firm commits to customer centricity (Battor et al., 2008). The cultural perspective of market orientation (Narver & Slater, 1990) concentrates in norms and values that encourage market-oriented behavior in a firm. The behavioral perspective (Kohli & Jaworski, 1990) concentrates in organization-wide acquisition of market information, its dissemination, and the organizational responsiveness to this information to be able to adapt to the changing market conditions. (Korhonen & Sande, 2010.)

Often the best source of knowledge, in order to understand customer needs, is customers themselves. The capability of a firm to obtain customer information and knowledge, disseminate it to relevant interest groups, and utilize it to respond to customers' needs, can be seen as remarkable competitive advantage (Shi et al., 2007, 108; Day, 2003).

Besides market information and customer knowledge, understanding the customer needs requires organizational communication, organization system and learning orientation (Foley & Fahy, 2004, 224; Plakoyiannaki & Tzokas, 2002, 233-234; Day, 2003, 77), dialogues with lead users, joint experimentation and prototyping, account management systems, customer profiling, analysis of the use of current services and trends (den Hertog et al., 2010, 499). The components of learning orientation are commitment to learning, shared visions and open-mindedness. Organization system means decentralization of decision making, formalization of processes, reward systems and benchmarking. Finally, the organizational communication refers to the procedures to transfer the

customer-orientation values and norms through organization. (Foley & Fahy, 2004, 224; Battor et al., 2008.)

In services, the traditional view of “making, selling and servicing” is not working, but the strategy must start by understanding customers’ value creating processes, the dominant logic being “listening, customizing and co-creating” (Payne et al., 2008, 89). Personal interactions with customers lead most likely to better understanding of customers’ conditions and behavior. While transactional data might be useful in identifying problems and preferences, the reasons for customer decisions can remain latent. With personal interactions firms can ask customers directly and have an idea of the source of problems, preferences, and needs. (Garcia-Murillo & Annabi, 2002)

Much of the knowledge that should be absorbed is tacit, and as such, difficult to communicate and possibly available only through sharing experiences. Understanding customers’ latent needs requires deep absorptive capacity. Absorptive capacity is defined as “the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends” (Cohen & Levinthal, 1990, 128). This requires also ability to dialogue (Sawhney & Prandelli, 2000).

3.4.2 Coordinating the service based on customer needs

Understanding the needs, preferences and purchasing procedures of customers requires the development of processes to fulfill them (Stank et al., 1999). That requires communication channels to access to customer knowledge, and distribution and sales channels (Danneels, 2002). Relevant communication networks are significant in collecting data from different sources, and also in facilitating the interactions between the service provider and the customer (Hipp, 1999, 104). The elements that enhance, for example committing personnel or information systems, to

facilitate frequent communication, enable suppliers to better understand their customer's business conditions (Campbell, 2003, 378). Customer knowledge processes and coordination capabilities enhance strongly the capability to respond to customer needs (Jayachandran et al., 2004) and are highly valued by the customer (Clulow et al., 2007).

One of the strategic capabilities of a firm is the ability to integrate knowledge (Grant, 1996). That is also within one of the basic processes of a knowledge-intensive business service firm. In KIBS, particularly the ability to integrate knowledge that resides both inside and outside the firm's boundaries can be considered as a distinctive capability (Evanschitzky et al., 2007; Lorenzoni & Lipparini, 1999, 317). The organizational processes and customer information are also raised up by Campbell (2003, 376), who explicitly distinguishes the processes that generate and integrate knowledge, from the plain and systemized collection of market information.

Tordoir (1993. Ref. Miles, 1995) has presented that KIBS act as intermediaries who integrate scientific and documented (explicit) knowledge and undocumented (tacit) knowledge of the routines and practical requirements of the firms. This requires a capability to facilitate customer's communication with their environment, reducing complexity and risk, co-ordination of tasks and routine standardization, adaptation and improvement.

As considering the process nature of many business services, the classification of service quality to procedural and interactional quality seems appropriate in the context of all KIBS, even though his study concentrated in creative business service relationships. The procedural quality rises from the service provider's norms, policies and decision-making routines. The interactional quality instead, is derived from interaction skills like knowledge sharing through personal relationships at customer interface. (Davies, 2009, 93.)

According to the notions above, *coordinating and organizing the service based on customer needs* form an important capability group at organizational level. That includes the processes of knowledge integration and dissemination, acting as an intermediator between the customer and the other service-related environment, and facilitating communication between the knowledge holding parties. Successful service firms perform well on both understanding customer's needs and expectations and having the ability to provide quality services to meet them in an efficient manner (Schlesinger and Heskett, 1991; Menor & Roth, 2008, 269).

3.4.3 Managing customer relationships

In the co-production process, the success of service outcome depends on the quality of the interaction between the service provider and the customer (den Hertog & Bilderbeek, 1998). Managing customer relationships is seen critical for superior performance of a firm (Battor, 2008, 47). It refers broadly taken to firm's ability to identify interesting customers and chances, and to build and maintain relationships with attractive customers to reach customer-level profits (Morgan et al., 2009). Customer relationship management, and access to customer's businesses is especially important in knowledge-intensive service businesses in general, and in customized software services in particular, since the service providing includes high involvement of a customer (Rajala & Westerlund, 2008, 83). As Den Hertog (2000, 496) points out, the way the service provider interacts with the customer, can be a source of innovation per se.

According to extensive range of literature, trust, commitment and communication have been identified as the key mediating variables of collaborative relationships (Blomqvist & Levy, 2006). Trust is "confidence in an exchange partner's reliability and integrity" (Morgan & Hunt, 1994,

23), which are manifested as competent, honest, fair, responsible, helpful and benevolent qualities (Sawhney & Prandelli, 2000, 261.). Due to the intangible nature of knowledge-intensive business services, the role of trust is particularly significant (Berry, 1995, 242; Palmatier, 2006, 141). The value of services is difficult to evaluate before they are produced, sometimes even afterwards (Berry, 1995, 242), and from customer's point of view, it can be seen as a risk (Karantinou & Hogg, 2009, 250). The more important role the service plays in customer's business, the more vulnerable and uncertain is the customer's position (Berry, 1995, 242.), and the more important is the role of trust. Therefore, building trust can be seen as a vital capability in services. Social interaction, open communication and customer orientation are seen vital antecedents of trust. Frequent interaction assures customers that the service provider looks after their best interests, and together with open communication, decreases uncertainty and increases mutual understanding. (Doney et al., 2007, 1110.)

Building and maintaining collaborative customer relationships, referred also as customer linking, include high level of communication, joint problem solving and coordinating activities (Day, 1994; Theoharakis, 2009). Producing services is basically fulfilling promises. To succeed, it requires realistic promises and keeping those promises by enabling the employees and service systems to deliver the service. (Grönroos, 2009.)

In customer relationship, it is a question about values, behavioral norms and mindsets, which influence to all interactions with the customer Sawhney & Prandelli (2000) discuss relationship orientation, according to which customers are valuable assets instead of targets. There are some preconditions needed for co-creation of knowledge with customers in services. Firms and customers must have common language and shared meanings to understand each other properly. Customers must also trust the firm and have motivation to be able to share knowledge. (Sawhney & Prandelli, 2000.)

3.4.4 Managing customer knowledge

Purchasing the services from outside, requires knowledge and know-how also from the customer (Toivonen, 2007, 249). Bettencourt et al. (2002) have studied customer capabilities, which in this case mean *the capabilities customers should have* in co-production of services. In co-production, also customers have responsibilities, which can be communications openness, shared problem solving, tolerance, accommodation, advocacy, involvement in project governance and personal dedication. It is up to service provider's capability to confirm that customer is aware of these expectations, that they have the motivation to engage in these behaviors and they have the necessary knowledge, skills and capabilities to fulfill these responsibilities. (Bettencourt et al., 2002.) Within IT business services for example, the customer has to install the new system, or train their employees to use it before the service performance can be considered satisfactory (Spohrer & Maglio, 2008, 240). Therefore, the co-creation of services requires understanding of the roles played by the both parties, at the different stages of the service (O'Farrell & Moffat, 1991, 209).

Another aspect is the possibilities to learn from the collaborative processes with the customer. Skjolsvik et al. (2007, 116-117) have paid attention to the role of 'knowledgeable' customers. Service provider is most likely to learn from customer assignments where customers possess good know-how of any particular area in case. (Sivula et al., 2001, 87; Skjolsvik et al., 2007, 116-117.) To be able to identify and utilize these possibilities seems essential.

3.4.5 Adapting the service to the customer needs

Changes in customer's environment require integration of different combinations of both tangible resources and intangible processes and relationships (Srivastava et al., 2001, 788). According to the research in fast food b-to-b services, Stank et al., (1999) have found out that flexibility of processes is one of the key capabilities to be able to respond to the identified customer needs and expectations. Adaptability can be seen a competitive and strategic capability in IT-services. Within IT-services, which are affected by constant technological development, the changes in customer's environments have often direct impacts on service providers. IT-service providers should be able to adapt to changing client circumstances by having procedures and routines to proactively monitor these changes. (Plugge & Janssen, 2009.)

As stated earlier, every service providing can be considered as unique, especially in the case of highly customized services (Sundbo & Gallouj, 1998, 2). Due to this heterogeneousity of customers, an ability to propose service variations that lead to improvements in customer's business, is seen as an adaptation capability. This includes a capability to utilize networks to acquiry new knowledge and skills, especially concerning technological and project management knowledge and methods. (Rajala & Westerlund, 2008, 79).

Customer selection and motivation play important role in co-creation. In business services, it would be essential to find those lead customers, whose current needs reflect the future needs of the target segment of a firm. (Sawhney & Prandelli, 2000.)

Table 3: Customer-related capabilities and the key authors

#	Type of Customer-Related capability	Key Authors
1	**Understanding customer needs**	Kohli & Jaworsky, 1990; Schlesinger & Heskett, 1991; Day, 1994; Stank et al., 1999; Danneels 2002; Day, 2003; Foley and Fahy, 2004; Chesbrough & Spohrer, 2006; Shi et al., 2007; Battor et al., 2008; Nasution and Mavondo, 2008; Rajala & Westerlund, 2008; Morgan et al., 2009; Den Hertog, 2010
2	**Coordinating the service based on customer needs**	Clulow et al., 2007; Danneels, 2002; Jayachandran et al., 2004; Srivastava et al., 2001; Campbell, 2003; Plakoyiannaki and Tzokas, 2002
3	**Managing customer knowledge**	Bettencourt et al., 2002; Skjolsvik et al., 2007; Spohrer & Maglio, 2008
4	**Relationship building**	Day, 1994; Danneels, 2002; Battor et al., 2008; Rajala and Westerlund, 2008; Morgan et al., 2009; Theoharakis et al., 2009
5	**Adapting the service to the customer needs**	Plugge and Janssen, 2009; Stank et al., 1999; Jayachandran et al., 2004

3.5 Customer-related skills

Previous research concerning individual level skills at customer interface, and/or in services, is scarce, as far as the reviewed literature for this study is concerned. The research of individual level skills in KIBS, has concentrated in formal skills, like education, which has been due to the research interest towards knowledge-intensity as such (Sjoholt, 1999). The rare findings might be due to the fact that skills are often considered quite task-related and context-specific, and not possible to generalize.

Davenport & Prusak (2000, 110-111) propose that knowledge workers should possess two-fold skills. First, technical skills involving structured knowledge, technical abilities and professional experience, and second, “softer” skills including cultural, political and personal skills. In similar vein, Ulrich & Smallwood (2004) discuss technical and social skills, as referring to individuals. This is also consistent with Nonaka’s (1994, 16) view of cognitive and technical elements, where cognitive refers to mental modes to perceive and define the world and technical refers to concrete context-specific skills. Furthermore, these all fit quite well on the classification of different types of knowledge by Lowendahl et al. (2001, 918). The technical skills could be paralleled to fact-based ‘know-what’ knowledge, and personal skills to i) experience-based ‘know-how’ and ii) to dispositional and identity-related skills like talents, intelligence etc. (Lowendahl et al., 2001, 918).

The technical skills could refer to any substance skill based on the position and tasks, whether in sales, business management, marketing, customer service, project management or any other. The research of Clulow et al. (2007) showed that the customers appreciated the most important source of value being the intellectual-based and process-based skills. Exceeding specialized technical and general socio-economic expertise, the value of intimate knowledge of a particular market is seen high. This expertise can basically be obtained only through long-term experience. (Larsen, 2001.)

Inter-personal skills of employees are of major importance in services, since they face a wide range of interpersonal situations with both internal staff and/or their inter-firm relationships, like with customers (Carter & Gray, 2007, 392). They state that, even though one could imagine that possessing all kinds of skills (interpersonal, technical, financial, sales, marketing, etc.) would lead to the best possible performance that is not necessarily the case. Having certain skills does not guarantee that they will be applied in an appropriate manner. An employee should be able to apply to a context-specific way of responding. (Carter & Gray, 2007, 392.)

Emotional intelligence plays a central role in inter-personal skills. It refers to the “ability to carry out accurate reasoning about emotions and the ability to use emotions and emotional knowledge to enhance thought” (Mayer et al., 2007, 507). An emotionally intelligent person can recognize, and utilize her/his or others’ emotional states to solve problems and regulate behavior (Huy, 1999, 325). Problem solving has been argued to be the most common application of tacit knowledge. It is stated that problem solving skills rely strongly on experience, which forms patterns working as a problem solving tools (Leonard & Sensiper, 1998, 112). Antony et al. (2007, 306) have pointed out that, human characteristics, such as friendliness, eagerness to help, etc. have a significant influence on service processes that determine the quality of service provided to customers.

Individual skills are often of tacit nature. The most tacit dimensions are probably insight and intuition, decisions based on feeling. E.g. negotiation skills and artistic visions are often of tacit nature. The common characteristic is the inability to wholly articulate this skill to others. (Leonard & Sensiper, 1998.) Physical Tacit knowledge embodied in physical skills can reside in nerves and muscles, as the tacit knowledge embodied in cognitive skills can be acquired through experience.

Garcıa-Murillo & Annabi (2002, 883) point out that tacit knowledge can be exchanged with customers through joint activities and interactions. It is important to create close relationships to be able to tap into customer's knowledge. The employees of customer interface should have the right techniques to help the customer, and appropriate practices and training to gather knowledge from the customer. It is important to identify the relevant pieces of knowledge that the customer can provide that will help the company improve its service. The employees of service provider should have skills to listen to and synthesize what the customer is saying in order to identify appropriate items. The circumstances of knowledge sharing between an employee and a customer differ clearly from those within the firm as there exits much less opportunities for interactions. This settles challenges for individuals to be able to take advantage of these rare situations (Garcia-Murillo & Annabi, 2002).

To sum up, the individual skills can be grouped in three types of skills; 1) personal, dispositional and identity related skills, 2) personal, but cognitive and experience-based skills and 3) technical, professional, task-related skills.

3.6 Summary

According to the literature, it seems that the relation between knowledge and capability is two-fold. A capability of an individual or a firm to act, was seen as a dynamic constitution of knowledge, but still, as a part of the knowledge. Or, knowledge is seen to be more like static resource, which requires capabilities to be utilized. In this study, the very essence of knowledge-intensive business services is seen to be in processing knowledge with looser or tighter co-production or relationship with a customer. The looser or tighter co-production or relationship was seen to depend on the type of knowledge, level of knowledge intensity, level of customer involvement, level of customization, demand for customer

knowledge, demand for consultancy from service provider, and the process stage of service providing. The customer-related capabilities were related to understanding customer needs, coordinating the service from the needs, managing customer's knowledge and role as a co-producer of service, managing customer relationship and adapting the service according to customer needs. On individual level, three groups could be formed; personal, dispositional skills, personal experience-based skills and technical skills. These key characteristics, factors, skills and capabilities are presented in Figure 9.

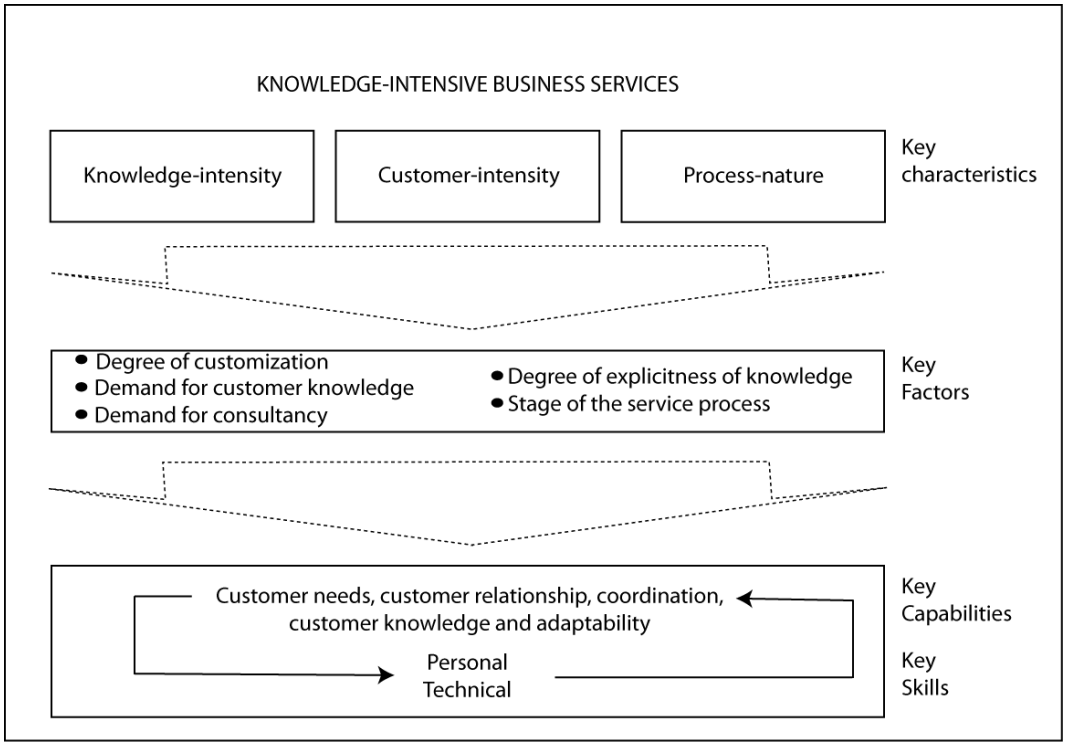

Figure 9: Key characteristics, key factors and key capabilities

4 RESEARCH METHOD AND DATA COLLECTION

4.1 Research method

The focus of this thesis was to map those capabilities and skills at customer interface, which are central when providing knowledge-intensive business services. The qualitative research design was employed for its distinct features which provide an in-depth and interpreted understanding of the researched theme by learning from the participants' experiences and perspectives (Snape & Spencer, 2003). For qualitative methods, it is typical that target group is chosen meaningfully, the observations are an important part of the research, analysis will be done inductively and the cases are unique (Hirsjärvi et al., 2003).

The research was carried out as a comparative case study, including two polar cases. Case research has been seen as a useful method for studying processes in firms (Gummesson, 1991, 75). The cases were heterogeneous samples, i.e. represented maximum variation (Patton, 2002, 237) estimated by the size, age and the type of their services. This allowed the comparing the role and emphasis of different capabilities and skills between the cases.

4.2 Case firms

The case firms were picked as representatives of the remarkable sector of knowledge-intensive business services, IT-services. The both cases were considered to be successful representatives of the particular business sector, based on the financial statements, reputation and growth in previous years.

Case Firm Alpha is a large globally operating firm, providing IT-, R&D and consulting services. Majority of the services are project type services, where the level of co-creation of services with customers (and partners as well) is high. Case Firm Beta is a small, globally acting firm, providing software consultancy and supply services. The core of the business is based on the web-based software service solution (software as a service, SaaS), where the level of co-creation of the service itself with customer is relatively lower than in case Alpha.

The criterion sampling (Patton, 2002, 238) was used when chosen the service cases inside the case firms. The particular service cases to be evaluated were chosen by participants of focus groups and interviewees, based on the given criteria. This was specifically important in Alpha, where the service cases might be quite heterogeneous. In Alpha, the criteria included the service providing –cases which had been in high-involvement co-creation with a customer.

4.3 Data Collection

Data was collected by using multiple sources. Using multiple sources allows to perceive several facts and also allows the triangulation (Yin, 2003; in Koskinen et al., 2005). Written documents, like annual reports and company brochures, were collected, and preliminary interviews to both polar companies were made and recorded, for background information. This information was necessary to be able to understand the distinctive features of their services, and to concentrate in proper types of service cases. The actual data collection took place in three phases, focus groups, individual interviews and survey. The number of informants in different phases is presented in Table 4. The data collection took place as follows.

4.3.1 Focus groups

In the first phase, two focus groups from both polar firms were organized. Focus groups can be particularly useful in orienting to a topic, diagnosing problems and/or success factors and extending the understanding of a particular phenomenon. The advantages of focus groups are rich data, with participants' own expressions and reactions, and method's flexibility and time-saving. (Ghauri & Gronhaug, 2010.)

Both focus groups consisted of four key informants with different positions, having wide experience on the specific type of service business in question. In Case Firm Alpha, two experts came from sales, one from consulting and one from HRM. In Case Firm Beta, the participants were the CEO, the sales director, one from customer service and one from marketing. In the focus groups, the data was collected by the help of a computer-supported group brainstorming platform.

The participants of firm Alpha were asked to concentrate in particular service providing case which had been built in intense co-creation with the customer. Defining the case exactly was important while there could have been several types of cases in Alpha, differing from each other perhaps significantly in relation to the needed capabilities. In firm Beta, the service providing type is always the same.

The participants were first asked to list the most relevant customer-related capabilities that were needed in providing the service. According to the literature review, capability clusters were formed to guide the data collection, but the participants were free to list any relevant capabilities also outside of them. These categories were related customer relationships, understanding customer needs and business environment, coordination of service production from customer needs, management the knowledge and skills held by the customer and adaptability. This way, it could be tested by the focus groups, whether the chosen capability

clusters provide working categories in mapping the capabilities or whether some other sort of capabilities would arise. Secondly, they were asked to emphasize the listed manifestations on scale 1 to 7 depending on their importance both as an individual skill and an organizational capability.

4.3.2 Interviews

The second phase included altogether nine (9) theme interviews to the key informants of both the service providers and their customers, being more or less responsible for the service project and operating in the customer interface. The interview frames differed between service provider's employees and customers representatives. In theme interviews of service provider's employees, only the theme(s) was predefined (Appendix 2), but there were no exact questionnaire to follow (Eskola & Suoranta, 2008, 86). The interviews were carried out by utilizing the causal map –technic (Ambrosini & Bowman, 2001). The interviewees were first asked to describe the most important skills of a service provider's representative in the service project, and secondly, why these skills were seen essential, and thirdly, how these had been absorbed, or could be learned. Afterwards, also the skills referring to capability clusters from literature were discussed. As the interviewee from customer's side had typically a wider perspective towards the service provider, the appreciated skills were asked following the different stages of the service process, namely planning, producing, implementing and maintaining. In customers' interviews, the questionnaire was more formal (Appendix 3). Four different service providing cases were under loop, two in Alpha and two in Beta. The organizational level capabilities raised up along the interviews, as mapped the causality factors of the individual skills. For the customer interviewees, the questions concerning also organizational capabilities were settled more directly.

4.3.3 Electronic survey

In the third phase, an electronic survey (Appendix 4) was built on the basis of the results of the interviews. The questions concerned both the skills and capabilities identified on the basis of the focus groups and interviews. The target of the survey was to receive a broader sample to support the validity of the results. The survey was sent to altogether fifty (50) employees of service providers and their customers, working at the customer interface in the same service cases as during the interviews. Altogether 24 responses were received, the response rate being 48 %. The respondents had different positions in management, sales, project management and as technical experts.

Table 4: The number of participants in three phases

Focus groups		Theme interview		Survey	
Alpha	Beta	Alpha	Beta	Alpha	Beta
4	4	5	4	18	6

4.4 Data analysis

There are basically two approaches in research analysis; induction and deduction. Inductive analysis draws conclusions from empirical findings whereas deduction is based on drawing conclusions from rational and logic principles (Ghauri & Gronhaug, 2010, 15; Lee & Lings, 2008, 6-7). The analysis strategy rarely follows strictly only one method though, but includes often both approaches (Lee & Lings, 2008, 6-7). This was the situation in this study, as the literature-based capability clusters loosely guided the data collection and analysis through the three phases, but the skills and capabilities were inductively analyzed inside the clusters.

For qualitative analysis, it is typical that collection and analysis of the data take place partly simultaneously (Hirsjärvi et al., 2005, 211). As the

empirical data of this study was collected in three phases, the analysis started right after each stage. The results of the focus groups were two-fold. First, the computer-supported group brainstorming platform was used to collect the results. The results contained the capabilities that the participants had written down during the focus group session, and also, the importance of these capabilities, both on individual and organizational level, emphasized on scale from 1 to 7. The results were grouped according to the capability clusters raised up from the literature review. Second, the discussion parts of the focus groups had been recorded and transcripted. The discussion parts involved explanations for the written answers, and opened the answers in a valuable way.

In the analyzing the interviews, both the individual and organizational level capabilities were first mapped and marked as reading the transcriptions for several times. Second, they were sorted according to themes to the existing capability clusters. Third, the skills and capabilities were further summarized and classified inside the literature-based clusters, and the main sub-categories were established both on individual and organizational level. The results of the firms were this far proceeded separately. For the survey, the results of the both firms were joined together. However, the original results of the interviews were saved and used in analyzing the survey results.

The results of the survey were analyzed according to the given scores (from 1 to 7), but also, according to respondents position (which firm / provider or customer / which position / involvement in service providing stages). The analysis was done according to the results of the all three phases, focus groups, interviews and finally the survey, considering the effecting factors.

4.5 Reliability and validity

The concepts reliability and validity are originally established in quantitative research (Hirsjärvi et al., 1997, 217). Although there exist several schools that doubt their relevance in a qualitative research (see e.g. Koskinen et al., 2005, 256; Lewis & Richie, 2003, 270), it is stated that the evaluation of reliability and validity to some extent is also necessary in qualitative research (Hirsjärvi et al., 1997, 216).

Reliability means broadly taken the 'sustainability' of a research; the replicability of the research results, if another author would repeat the research using the same or similar methods (Lewis & Richie, 2003, 270). Replicability is extremely strict requirement in social sciences, where e.g. firms and key informants change, and it should not be taken literally (Koskinen et al., 2005, 258). Accurate reporting of the research methods enhances the reliability of a research, as the reader is able to receive enough information to evaluate how the data is collected and transformed into interpretation (Hirsjärvi et al., 1997, 217; Koskinen et al., 2005, 257).

Validity on the other hand, refers to correctness of a research. It is often divided in internal and external validity. The internal validity concerns how well the research methods are able to measure what they were supposed to measure, reflecting the logicality and consistency of the conclusions (Lewis & Richie, 2003, 273; Koskinen et al., 2005, 254). The external validity refers to the extent which the results can be generalized also to other contexts beside the one under investigation (Koskinen et al., 2005, 254). The internal validity can be improved e.g. by triangulation. Triangulation can involve using multi-methods, other researches, multi-theories, or different data sets (Hirsjärvi et al., 1997, 218). Another commonly used method is respondent validation, where the early results are checked by the respondents (Lee & Lings, 2008, 239).

In this study, the different phases of data collection, the participants, the firms, the service providing in question, and the analysis process have been thoroughly reported, in order to enhance the reliability of the study. Also, the evaluation of the critical factors is presented to support the conclusions. The method triangulation was carried out in this study by using focus groups, individual interviews and survey in data collection. All the imaginable key informants in customer were contacted, in order to cover the different approaches to needed skills and capabilities as well as possible.

5 FINDINGS

In the following sections the results of the empirical part are presented. The main interest in this study was to examine which are the key customer-related capabilities both on organizational and individual level in a KIBS firm. As the service offerings of the case firms represent quite extreme ends, as estimated by the level of co-creation and customer involvement, the results are cross-analyzed. The empirical part involved focus groups, individual interviews and finally, based on these results, the survey, and the stages can be seen in the analysis. The results of the survey included also data about respondents' role in different phases of the service, whether they were involved in planning, building, implementing or maintaining the service, and to which extent. This information is brought up also in the analysis, if there could be detected any major differences. As the organizational level and individual level data was partly collected within the frames of customer-related capability clusters from the literature, both the capabilities and skills are analysed under these headlines. The citations of the key informants are in *italics.*

5.1 Organizational level capabilities

In the first stage, focus groups listed capabilities according to given clusters (Appendix 1). After that, these capabilities or components were emphasized in accordance to their importance both as individual skill and as organizational capability. Generally taken, most of the capabilities were quite equally important both as individual and organizational level. This was particularly seen in Beta. One possible reason for this would be the size and age of the firm. In a small sized, less than 10 years young firm, the significance of especially key employees can be high and the skills of them might be seen to represent the whole company.

5.1.1 Managing customer relationships

Customer relationship management was identified clearly the most important capability group in both firms. Focus group of Alpha evaluated that a capability to build long-term relationships, to carry out targeted marketing and to exploit the existing value promise of the brand, simultaneously renewing it, could be considered as institutionalized, organizational level capabilities. In Beta, the corresponding institutionalized capabilities were seen to reside in the form of clear and targeted communication and systemized, organization-wide brand building from the very beginning.

As complemented these results with the interviews and survey, two capability groups could be formed: communication and trust building.

Communication capabilities

Related to communication in Alpha, the capabilities were focused on facilitating the active communication and having proper, context-dependent channels to communicate. Furthermore, having a limited amount of contact persons, who are named to be responsible for the customer contacts during the service providing, was seen as a working method to run the customer relationship. This was especially stressed by the customer's side; they appreciated the *"easiness of communication"*, which included one named, responsible contact person. The easiness of communication was also growing from common language and mutual understanding, as well as from the prompt responding to questions and problems.

In Beta, communication played central role in building customer relationships. Focus group listed clear communication channels, segmenting the communication, as well as open and honest communication to be the most important components. The informants of

Beta referred basically to ‘promise making’ as they spoke of open and honest communication. The communication has to be clear enough, not to create false expectations to customers. The clear communication channels include electronic channels to e.g. demonstrate the service in web. Beta stressed the unified communication procedures in customer interface which also, included identifying needs for diverse communication. As Beta had quite clear customer niches and quite standardized service product, they had been able to also develop and standardize their way to communicate. Beta used technology-enabled communication as much as possible. But still, even within niches, the customers seemed to be unique. The customer rose up the need for customer-specific communication also. As the customer was highly competent in software business too, they did not need training for “the basics”. The brand building was principally based on the way to communicate as it has been done by the employees of the customer interface from the very beginning, creating a trustworthy image for the company.

Trust building capabilities

Being able to build trust within customers and ensuring the mutual understanding were seen the most important capabilities within all respondents. These were seen as critical preconditions to be able to build lasting relationships. The intangible nature of the services was seen challenging in Alpha. The employee of sales commented, *“both of us (the service provider and the customer) leave towards unknown…they have to choose somebody they can trust”.* The less there is something concrete to present, the greater is the role of trust.

Customer-orientation rose up in several contexts during the focus groups sessions and interviews in Alpha, but mainly by the sales and management people. The customer-orientation culture was found to support the trust building capability, and consist of the following

components: the desire to benefit the customer's business, thinking of customer's interest first, efforts for building common vision with customer, aligning the giving and keeping the promises (expectations management), encouraging the free sharing of knowledge and ideas, and finally, documented indicators which are measured. Despite of the fact, that in Alpha the role of responsible contact persons in service projects were highlighted, the organization was simultaneously seen as a customer-oriented, where all the employees work at customer interface. The significance of leadership was emphasized, but also the knowledge flows from bottom to up.

Promise keeping was strongly emphasized several times in the focus group, and by both the employees and customers in Alpha's case. This was seen as a vital prerequisite for trust building. Despite of the fact that promises are principally made by individuals, the guidelines for promise making are mainly settled by the organization and the management. Especially in Alpha, which is a large organization with a lot of dispersed knowledge, the promise making is not a matter of a single employee. The brand and reputation management is important because they create expectations to the customer and can explain partly the possible gaps in experiencing the promised and its fulfillment.

In Beta, the demand for transparent and open behavior was emphasized especially by the employees. Also the customer side of Beta brought up the importance of trustful image of the service provider, as the features of the service product is impossible to be presented extensively beforehand, contacts are rare and service delivery processes generally quite short. According to customers, Beta had succeeded quite well in that; customers appreciated clear and informative web-pages with demo-version, as well as informative company profile with employee pictures. According to an interviewee, Beta had made a service concept change lately, which could be seen as a proof of customer-oriented policy.

5.1.2 Understanding customer needs

The capabilities to understand customer needs concentrated in building expertise of customer's business environment and integration of knowledge and skills.

Expertise on customer's business field

In Alpha, it was important to know customer's business area, their market, competitors and customers. This involved understanding terms, concepts and processes that took place in customer's environment. This competency was seen as one of the most important criteria why Alpha was chosen to be the service provider in both of the two service providing cases. The other customer appreciated the knowledge Alpha had about their end customers and about doing the particular sort of business with them. The other customer stressed the industry-specific knowledge which they believed Alpha would have, based on their reputation. This raised the consultative role of Alpha quite high and was quite well recognized by the service provider also. On the other hand, it can be risky too. As an informant of the focus group put it, *"It is dangerous to think we know their* (customers') *business better than they do"*. Also the customers were a bit skeptical concerning the service provider's role as a general business consultant. At least they did not seem to expect that, only to provide the service as agreed. Still, in a long run, the customers expected updating of service, proposals and views, how to develop the service for customer's benefit. Alpha had identified these needs and saw this essential as well. As the service provider's understanding about customer's activities must be strong, to be able to see new opportunities and propose new ideas, the line between "general business consulting" and "consulting of the particular IT-services", is probably somewhat blurred. It is worth noticing that there was clear deviation between technical experts vs. sales and project/general management as considering these capabilities. The technical experts did not see that much value in acquiring and absorbing

customer knowledge. In sales and management instead, the constant sensing of information that might benefit the customer was seen essential. This was supported by strong customer-oriented leadership. If looked beyond the particular service cases under investigation, the market-oriented culture in Alpha was disseminated and enhanced by master-student –training systems as well as group training systems which aimed at wide-range understanding of the future customer needs.

In Beta, the importance of multi-industrial expertise of both customers' business areas, and general business expertise were seen important, to be able to understand customer's needs on organizational level. General business expertise was seen to support the ability to have wider sight to the challenges of their own business field to develop the service providing. Multi-industrial expertise instead, broadens the understanding the industry-specific characteristics and challenges within customers. The straight and honest behavior was raised up again in this context. It referred to considering the customer's best interest beyond the distinct wishes customers might have. Beta stressed especially the capability to learn from customers. They had developed functioning processes in collecting, saving and utilizing the customer knowledge on the basis of customer feedback, but also, on the basis of those observations, the employees made at customer interface.

Cross-boundary cooperation

In Alpha, gathering the cross-departmental and cross-boundary expertise around the same table, as planning the service, were seen probably the most important capability in understanding the customer needs. It was seen essential to ensure that all the facets that affect to the service providing, most often the sales, marketing, IT and customer service, as well as the relevant parties from customer's side, understand things similarly, discuss the same thing and "*believe in common dream*". This is related also to another capability, coordination of IT and business. In

Alpha, it was stated that there is still a gap between IT and business thinking. An interviewee brought up that quite often, the customers' representatives are from business management, and does not necessarily see the importance to have IT-representatives *from their side* involved in planning phase, but sees them *"finding only problems"*. So, it is a vital capability of a service provider to recognize the needed *parties from both sides*, and bring them around the same table during the planning phase.

In Beta, this type of integration of knowledge and skills did not play as large role as in Alpha. This is likely because the service concept already exists, and the main challenge is to contact the potential customers and identify the factors which are valuable to this particular customer. However, this required effective sales work, sales process capability, to first locate the relevant key problems, to be able to offer a value proposal, and second, to locate the key decision makers on customers side.

5.1.3 Coordinating the service

As considering the capabilities in coordinating the services, two types of capabilities could be identified: knowledge resources management and process coordination.

Managing the knowledge resources

In Alpha, managing the internal knowledge resources and locating the necessary, often dispersed, knowledge and skills via internal and external networks were seen essential. The service cases in Alpha were built from the very beginning, so the needed knowledge and skills could not really been known in detail until rich communication through active interaction between the parties had taken place. The focus group of Alpha named the collecting the right service elements together, building a response team and internal network utilization as important part of resource management

in coordination stage. These require a lot of integration and combining of own resources; right service elements and right people and their skills. As stated in focus group, *"we have so many employees that it is not self-evident to find the right skills, one has to be able to look for them*". The internal network was noted also by interviewees: It seems logical that first identifying and combining these resources in response to customer needs and then, having named team to be responsible for the service providing, supports both decision making and delivery capability. Managing the knowledge resources were highly appreciated by the sales and project management, but the technical experts did not see it as significant capability.

In Beta, the resource management did not have that remarkable role. The focus group brought up though the importance of managing the partnerships which in Beta's case mainly focused on training partners.

Process coordination

The process nature of business services was strongly emphasized in the responds of both firms. In Alpha, the focus group brought up quality assurance, decision making capability and delivery capability. The decision making capability referred to the organizational structures which allow the decisions to be made at right time by right person. The decisions should be made by those who have got the relevant knowledge, not by those who are formally positioned to make them. The interviews complemented these results by emphasizing the cooperation between the business sections and IT, as well as active interplay between the sales and project engineers. These relationships correspond quite well to the relationship between 'promise making' and 'promise keeping' and was referred as 'delivery capability' in focus groups. The both service cases had a steering group, which represented the 'promise makers' and on the other hand, the project manager represented the 'promise keepers'. The possible problems, e.g. *"customer's project groups expects something*

else than our project group thought they should be doing", should be forwarded to the owners of the project, i.e. service provider's and customer's promise makers. A person from sales emphasized that *"it is important that the project team is able to communicate actively to the sales person, who has given the promises, and who probably knows the customer, and manages the relationship*".

The importance of traditional project management like realistic project plan, accurate follow-up, schedules and cost control, was unanimously accepted. In Alpha, the project management was considered as routinized procedure with standardized, technology-enabled activities. As the service providing was integrated in customer's daily operations, the value of prompt decision making, accurate scheduling, and proactive and reactive problem solving were especially appreciated by the customers. The more there are strategic functions involved, the lower is likely the tolerance for mistakes.

In Beta the project capabilities were highly appreciated in coordinating and organizing the service. Scheduling, managing the human resources, communication and technical competence were seen important. Also, productizing, i.e. unifying procedures and processes were seen essential to this type of service providing. The strong effort to standardize all the processes related to their business and single service providing cases came clear in focus groups. They stressed the importance of productizing also the sales process. Their service process was already strongly technology-enabled. Also the customers appreciated the short service delivery process and electronic communication channels. Both customers had been very well aware of their needs. The other customer especially were described to be quite close to the optimal service case, since they knew what they needed, they were initiative and received the needed information from web-pages, the decision was made promptly and the project was short and taken into use. The consultation was not needed.

5.1.4 Managing the customer's role as a service provider

Some of the knowledge for the required service was needed also from the customer. Customers' role was in both cases to bring the business expertise in service building, and to tell which the relevant things are to be considered, produce information for the service, and on the level of steering group, to lead the service to the desired direction together with the service provider. The capabilities concerning managing customer's resources could be divided in two: managing the customer's responsibilities and absorbing the knowledge held by the customer.

Role responsibilities management

In Alpha, managing the customer's role arose in the interviews. Both the employees and the customers identified the sharing of the responsibilities, and naming the responsible teams or individuals, and the mutual understanding concerning them, are essential for successful service providing. Engaging the relevant parties from customer's side to the targets of the service was again emphasized here. In Alpha's case, the relevant parties concerned stakeholders from business and IT units.

Regardless of the fact that this capability was arisen only in Alpha's interviews, also Beta found these to be of high importance to them, as asked in survey. It seems understandable that despite of the quite standard service offering of Beta, it has a quite a strategic role in customers' business. Customer's business environment and procedures are always diverse, and integrating of a new service means new ways to proceed, and customers need to be aware of the roles and responsibilities in this deployment.

Customer knowledge management

The output of a service can be quite invisible for both of the parties in the beginning. In Alpha, this was especially true in service case where a web-based service solution was created, as stated by the focus group. To be able to go further, the coming service providing needed to be visualized somehow. It was up Alpha as a service provider to start the visualization by proposing and idea generation. As the member of the focus group put it, *"we cannot go with empty slideshow to ask what they (customers) want. If we did, the development would stop right there*". As soon as there are proposals to start with, the service building goes on as an iterative process, customers are able to provide their opinions and knowledge to visualize the service further, and simultaneously the vision becomes mutual. This requires active communication in this stage. Principally, it was mentioned that there is a governance-model to support the knowledge sharing between the service provider and the customer. But the informal facilitator for knowledge sharing was also seen important. As the interviewee brought up,: *"if you have trust, you are able to hear and see more".*

Another listed capability was to get the customer out of the box to see the end user's needs. The end users might be quite unfamiliar to the customer, and it is up to the service provider to provide this knowledge to the service. This is related to another mentioned capability, connecting the customer and acting as a catalyst for knowledge sharing. In Alpha's case, they orchestrate the dispersed knowledge flows and determinate which knowledge is relevant.

In Beta, the customer knowledge absorption did not play that major role. Quite often, however, the service providing was not that optimal as with the interviewed customer. In Beta, the effort in managing the customer's role was basically in facilitating active communication, locating the right informants, and understanding the decision making processes of the

customer. Also, the service was developed constantly on the basis of customer and employee feedback though. This required effective processes in collecting the customer's development ideas.

5.1.5 Adapting the service to the customer needs

Two capability groups could be formed on the basis of the results: renewing capabilities and responding capabilities.

Renewal capability

It became clear during the data collection that any service process requires preparedness to change the plan. Especially in Alpha, where the service building proceeds iteratively as knowledge accumulates. This requires basically the on-time awareness of the available resources. As the representative of human resources in focus group stated, "*we have to know our own organization and people so well that in case of additions and changes, the right people are with us. We have to be prepared that the chosen resources will not be enough*". Supporting the renewal and innovativeness of the personnel was highly appreciated within all of the employees of Alpha and their customers. The service provider has to be aware of the changes in customer's needs; they might change during the single service producing case, based on changes in external or internal environment of the customer. As the service cases are typically long lasting, as was the case in both of the services cases in Alpha, the customers expect any new information and knowledge concerning the service that might benefit them.

In Beta, the adaptability was seen to be linked to the earlier mentioned constant service and product development on the basis of customer feedback. Wide experience of different sized firms in different industries, as well as an ability to see the customers' business, beyond their own,

was seen to support the adaptability. Also, among the most important, scalability of the service was brought up. It comprises of productizing and modularity of the service, and the options for integrating the service with other systems in market. As in Alpha, the customers stressed the service provider's capability to keep their customers informed about the latest news and trends concerning their service offering.

Responding capability

Responding capability refers mainly to the phase where the service is already in use. In the interviews, it came clear that unexpected issues and problems arise in every service providing. It is not question about how to avoid those but how to handle them. Quite equally, the opinions of both Alpha's employees and their customers were that problems have to be openly told and discussed, and the problems have to be handled on non-personalized level. A customer stressed the robust grasp in case of problems.

Managing with the problems arose also within Beta's interviews. The high importance of managing the problems could reflect the importance and level of dependency of business services in customers' everyday operations that might be even critical. Beta's customers mainly emphasized the prompt responding to their requests. Also, both the customer service and customer side brought up the different procedures in customer interactions. The service provider should consider how competent the customer is, and proceed accordingly with the service. In Beta's case, this concerned particularly the training.

5.2 Individual skills

On the basis of the focus groups, there were only few capabilities that were considered more individual skills than organizational level

capabilities. This describes quite well the fuzzy line as considering where the knowledge resides in an organization. The empathy related issues, quite obviously, were seen to be clearly more individual level skills. Regarding to the customer relationship building, these were the ability to listen to the customer and the real desire to help. As considering the adapting the service to changing customer needs, discretion, i.e. the ability to make circumspect decisions, and ability to step in different roles in planning the service, were high-lightened. Besides these, asking the right questions was emphasized as an individual level skill. This is understandable, as it included sense making and interpretation in interactions with customer's representatives. The results of the focus group were complemented with interviews and the survey. The interviews offered both support to results of the workshops and also supplemented them remarkably. In survey, there were of course slight differences between the answers of the respondents, depending on their positions, but only one which should be notified as analyzing the results. With few exceptions, some of the technical experts found the skills listed in survey to be less important than all the others including also the customers' representatives. Following the main categorizing of the customer-related capabilities, results are presented accordingly in the following, starting with the most important personal characteristics.

5.2.1 Personal characteristics

The respondents of the survey were first asked to evaluate the most important personal characteristics they needed in their work. The results are listed in Table 5. In Alpha, the most important personal characteristics were being systematic, problems solving skills, sense of responsibility, openness and honesty. In Beta, the scores were more evenly spread between several characteristics. They were honesty, problem solving skills, negotiation skills, patience, openness, prioritizing skills and being systematic. The most appreciated characteristics are listed in the Table 5.

Table 5: The most appreciated personal characteristics

Personal characteristics:	
Alpha	*Beta*
1) Being systematic (11) 2) Problem solving skills (9) 3) Sense of responsibility (8) 4) Openness (7) 5) Honesty (6)	1) Honesty (4) 2) Problem solving skills (3) 3) Negotiation skills (3) 4) Patience (2) 5) Openness (2) 6) Prioritizing skills (2) 7) Being systematic (2)

5.2.2 Skills in managing customer relationships

The skills related to customer relationship building and management were identified clearly the most important customer-related capability in both firms. Four capability groups could be formed according to the employees' responses: social interaction, communication, problem solving and renewal skills.

Social interaction skills

The social interaction skills in both firms were seen to include mind-reading, building personal relationships, empathy, understanding of how to create and earn trust, openness, honesty, giving 100% effort, genuineness, real desire to help the customer, thinking of customer's best interest, discretion, promise keeping and ability to work with different types of people. The more strategic the position of the respondent was, the more all of these skills were emphasized. Being able to build trust in customers and ensuring the mutual understanding were seen the most important skills within all respondents. Most of the variation appeared in building personal relationships, which were appreciated the most in strategic positions, in sales and in project management. Patience and an ability to

see things through customer's eyes were emphasized by the Alpha's customers, as well as professional ways to interact. Beta's customers instead, barely brought up any social interaction skills.

Communication skills

In Alpha's service providing, the active and regular communication and negotiation skills were raised up by Alpha's employees. The customers' side emphasized the activity, but also the easiness and clarity of the communication. One named, responsible face towards the customer was seen to bring this easiness to customer. It seemed to be difficult for customer to describe the inner meaning of "easiness", but as read between the lines, it could be interpreted to refer to the common language and mutual understanding between the parties. Besides these, the feeling of easiness comes along the prompt responding to the questions and problems.

In Beta, the communication skills were highly appreciated. As their business sector is quite narrow, and service providing quite simple, the opportunities to convince the customers are rare, and should be done in a short time. Thus, the communication has to be clear and systematic. The ability to discuss in business terms familiar to customer was seen as a valuable skill. It supports both the credibility and the possibility to acquire customer knowledge. In Beta, the customers expected that they are actively informed about the latest trends and development stages concerning the service.

Problem solving skills

In the interviews, it came clear that unexpected issues and problems arise in every service providing. It is not question about how to avoid those but how to handle them. Quite equally, the opinions of both Alpha's employees and their customers were that problems have to be openly told

and discussed, and the problems have to be handled in non-personalized level. The way to handle the problem situations was seen a significant evidence of the service quality and service provider credibility, and certainly an important factor in building trust.

In Beta, the problem solving was more concentrated in responding the customer feedback and the user problems. This was brought up by both the employees and the customers during the interviews. The customers especially appreciated the most the contact person's ability to quickly understand their problems, *"it is important that the contact person is able to find the clue also from quite unclear questions…that he/she is able to ask the right question to have right answers*".

Renewal skills

This skill group includes employees' skills to renew themselves in relation to customers. This involves constant updating of their knowledge to be able to serve customers better and find any possible new knowledge that might interest the customers. Renewing skills arose especially in maintaining stages of both services in Alpha's case. The service providing requires that the contact person in customer interface has "something to give", the real advantage for customer's business. The employees found the circulation of key account employees necessary to be able to be creative and maintain the innovativeness. These skills were emphasized the most by the employees in strategic positions as well as by the customers.

5.2.3 Skills in understanding customer needs

The skills related to understanding customer needs and business environment could be classified in three: knowing the customer's business field, knowledge acquiring and networking skills.

Knowing the customer's business field

In case Alpha, the knowing of customer's business field included picturing often long production chains and the nature and role of end users. An employee has to know the terms and concepts of customers' branch, which can be mainly achieved by experience*. "They might talk about some occasion, e.g. some reception, and we have to understand what kinds of issues are related to that. It is not only to mark in the checkpoint that the reception is done, but (to understand) that the information might be needed in several places…"*. To be able to utilize the earlier experiences and accumulated knowledge about the customer was seen important within all the respondents. Acquiring external knowledge of customers' business field, however, was seen important only within management and sales. *"You have to understand what their business is about, and what would really benefit the customer….and one has to go around to look for anything which might be of help…"*. A significant skill was to know and understand the concrete activities in customer's business which should be helped with their service system: *"…have to know, what it is that somebody tries to do with the service, and also to understand how it should be done with our system…of course we have to know how to use our tools, but that is no problem"*.

Beta's service was aimed principally at other knowledge-intensive business services, and mainly to professional business services. The employees stated that knowledge about customers' business field was mainly accumulated through experience, and will be accumulating similarly in the future. At the time of interviews, the sales persons were all quite experienced, but the new employees would probably develop their skills with the help of colleagues, as well as learning from documented reference cases, which were already started to be documented by that time. Furthermore, understanding of the terms and concepts, used by

customers, helped to understand the customer's needs. Also in Beta, the continuous learning from customers was strongly emphasized.

Knowledge acquiring skills

The focus group of Alpha listed *'asking the right questions'* as an important skill of an employee. This manifestation referred to combination of situational sensitivity and deep understanding of what is relevant, as acquired knowledge in intensive interaction with the customer. Quite corresponding manifestation was Beta's *'consultative listening'*, which referred to an employee's skill to first encourage the customer to open dialogue and knowledge sharing, and to iteratively dig needed knowledge by making proposals and guiding customer's choices. Some of the needed knowledge was codified and easy to receive, but the knowledge related to complex linkages in customer's business or decision making were seen more difficult to acquire. In Beta, knowledge about customers is actively collected in interactions and processes with the customer. This differs from Alpha, probably because the simpler service they have got; to develop the one and only service offering they have. The knowledge was acquired in Beta by listening and observing the customers (patience), by asking the customers, by analyzing the customer's processes by modeling them and by utilizing the documented reference cases.

Networking skills

In Alpha, skills related to utilizing different networks for acquiring knowledge needed for service providing were highly appreciated by the general management and sales. These involve skills to utilize the internal networks, personal relationships and partners to acquire knowledge for customer's benefit. Furthermore, acting as a link between the customer and own networks was seen to be an important skill. As stated by an employee responsible for the service designing stage *"Documented information is secondary issue. It is essential to locate the person who*

knows the best, and to bring this knowledge up and appropriate for the service providing." Within technical experts, these skills were mainly not seen important though. Networking skills were not emphasized as much in Beta, probably due to not having many partners or other external networks at that point.

5.2.4 Skills in coordinating the service

The skills related to coordinating and organizing the service from customer needs comprises of three groups: seeing the big picture, knowledge processing and project management skills.

Seeing the big picture

One of the most significant skills in Alpha was to gather the most relevant knowledge and skills together, as soon as the needs of the customer had been clarified. Furthermore, an ability to understand the interfaces of own service providing in customers' business, and to see the whole service providing with all its' implications, were seen essential in both firms. This is probably due to the strategic importance of the service in customer's business. The employees of the service provider have to understand the interfaces to draw right conclusions.

Knowledge processing

Coordination and organization of the service from customer needs was seen principally as organizational level capability in focus group. In interviews, the individuals' role in coordinating the service was more highlighted. In Alpha, the collecting the needed knowledge and skills was seen important also on individual level. Alpha has got quite developed technology-supported systems to store information about their human

resources. In Beta, knowledge acquiring was done mainly from customers. The employees collected piece of information by observation and from customer feedback. Also Beta had working processes to disseminate the customer information to be proceeded further in the firm. Knowledge integration instead, was not playing a major role in Beta, since the service providing is standardized, and simpler as such.

Project management

The project nature of ICT service providing was clearly seen in the answers. The skills in scheduling, technical implementation, sticking to the accepted service definitions, on-time follow-up and prompt respond to any, even only potential, problems, were seen significant. The project management skills were even more emphasized by the customers. The project management was seen *"well planned at our house…projects are taken care according to quite a similar formula*". As asked the most important characteristics of an employee in survey, the systematic way of working, was seen as the most important skill among the Alpha's employees.

Beta saw the project skills also very important. They were interested in "*standardizing also these skills*". In Beta, the service projects were basically shorter than in Alpha. The customers seemed to be extremely satisfied with projects.

5.2.5 Skills in managing the customer's role as a service provider

The skills related to managing the knowledge and skills of the customers were divided in two groups: determining the customer roles and acquiring the knowledge from the customer.

Sharing the responsibilities

In Alpha, sharing the responsibilities clearly was seen essential for successful service providing also on individual level. The respondents from both the provider's and customer's side emphasized the skills to document the needed information, to demand the needed information and resources, to share the responsibilities clearly and to demand the naming of responsible employees. Customer's especially emphasized the role of the contact persons and project managers to be systematic and robust.

These skills did not arise during the focus groups and interviews in Beta, but as asked in the survey, they were seen important. During the previous phases it became clear though, that there are several things also in standard software deliveries the customer should consider: the way to use the software might differ, how to use the different application characters particularly in their business, how to train their own people and so on.

Knowledge acquiring from the customer

In Alpha, the focus group listed the asking the right questions as an important capability. Despite of the simple sounding phrase, the content is rich, as it was discussed with the key informants. First, it included sense making and interpretation of spoken words in intensive interaction with the customer. It also includes integration of knowledge to be able to imagine the customer needs in the future. From service provider's side, it was evident that employees at customer interface must convince the customers to engage all the needed employees and teams to the service project. Customers do not always understand the need for experts from also other departments than ICT. Active communication was seen to be the key for knowledge acquiring. Employees have to be able to ask and demand for answers, and also to propose different alternatives.

The intangible nature of input, process and output of the knowledge-intensive services was found challenging in both firms, and was especially seen in the results of Alpha. Vital knowledge, for the service to be built, was held by the customers. Knowledge acquiring from customer and absorbing by Alpha was needed to generate it then further. From service provider's side, it was brought up that the employees in customer interface must convince the customers to engage all needed employees and teams to the service project. Customers do not always understand the need for the experts from also other departments than ICT. Active and relevant communication was seen to facilitate the knowledge acquiring.

The experts of firm Beta emphasized strongly the "consultative listening" of a customer. The core of this capability is that despite of the quite standardized service providing for a target group which included mainly other KIBS firms with quite similar needs, every customer is always unique. According to Beta, there cannot be totally standard manners either in negotiating, mapping the needs or training to use of the service. Different customers have diverse procedures and the need for services appear in different forms and customers discuss the same sort of problems in distinct ways. There are always needs that are differently emphasized in customer's end. Experience and an ability to "see the forest for the trees" were seen as essential ingredients for the consultative listening. Other extremely significant capability was the processing of customers' ideas and development proposals, i.e. exploiting customer knowledge and experiences of the service. This involved processes of documentation, evaluation, acceptation and prioritization.

5.2.6 Skills related to adaptability

In Alpha, the adapting skills were related to empathy and creativity and decision making. Empathy is related to the ability to step in different roles as planning the service, and discretion, i.e. sensitivity in customer

interactions. Creativity refers to constant updating of their knowledge to be able to serve customers better and find any possible new knowledge that might interest the customers. The service providing requires that the contact person in customer interface has “something to give”, the real advantage for customer’s business. These skills were emphasized the most by the employees in strategic positions as well as by the customers. The adaptability in individual level was also seen in adapting the behavior according to different types of customers.

In Beta, the need for individual level adaptability was seen mainly in intense and short customer contacts. A contact person must quite quickly to be able to adapt to discuss with different people. That requires good sense making and discretion.

Table 6: The main categories of skills and capabilities

	SKILLS	CAPABILITIES
Building customer relationships	Social interaction Communication Problem solving Renewal	Communication Trust building
Understanding customer needs	Expertise on customer’s business field Knowledge acquiring Networking	Expertise on customer’s business field Cross-boundary cooperation
Coordinating the service from customer needs	Seeing the big picture Knowledge processing Project management	Managing the knowledge resources Process coordination
Managing the customer’s role as a service provide	Sharing the responsibilities Knowledge acquiring from the customer	Role responsibilities management Customer knowledge management
Adapting the service to the customer needs	Renewal skills Circumspect responding	Renewal capability Responding capability

6 DISCUSSION

The focus of this study was to map the key customer-related capabilities both on organizational and individual level in knowledge-intensive business services. In this chapter, the main objectives are discussed by reflecting them in the previous literature, and the research questions are answered.

6.1 Role of customer involvement

As considered the type of services that were under investigation in this study, the customer relationships of Alpha can be described to be sparring (Tordoir, 1993, 1994; in Miles, 2003), cooperative, or partnership, if also considered the long duration of the relationship (Sivula et al., 2001). If considered the classification according to the need for personal judgment of an employee in decision making (Mills & Margulies, 1980), Alpha would be sitting on two chairs. In planning and building the need for abundant knowledge exchange and consultation is bigger, and complex problem solving is needed, which refers to task-interactive relationship. As the service is in use, and the interactions involve mainly maintaining the service, the relationship transforms to more maintenance-interactive, the emphasis on capabilities being a bit different.

Beta's relationships do not seem to fit perfectly in the classification of Tordoir (1993, 1994; in Miles, 2003), since the relationships are neither totally selling type with no need for any consultation, nor is it a jobbing type, since the customer's cannot really do any specifications to the service. The customization of the service is possible, but not according to the principal concept. Beta's service corresponds principally the "standard software" -business model presented by Rajala & Westerlund (2008). The level of homogeneity of the service is high and customer involvement low. As the relationships are typically long-term, Beta can be seen having 'loyal

relationships' with low interaction intensity, according to the classification of Sivula et al. (2001, 84). The results show however, that it is not that simple. The sales and the management of Beta brought clearly up, that the initiative stages of customer relationship require more contact with customers than it could be concluded according to the classes found from literature. It is likely due to the central role of Beta's service in customer's daily business and role as a tool which is directly in connection with customer's strategic activities. Despite of the clearly simpler nature of the service providing of Beta, they still found that they did not have transactional relationships with customers, but they had to clear out the need in customer's language, to locate the right decision makers and stakeholders, and to convince with their solution. This was perhaps dependent on the competency of the customer. Interviewed customers found the service providing process quite easy and clear. But as brought up by Beta, especially the other case could be determined as 'optimal case', where the customer was competent, knew what they wanted and saw the Beta's service as a perfect match. It could be concluded that the more competent the customer is in determining their needs and also the solution, the more easy is the service process. This is probably true also with Alpha, with the difference that the customized type of service has no possibility to turn into transactional service, no matter how competent the customer is.

6.2 Role of knowledge-intensity and other critical factors

According to the previous literature, KIBS are characterized with high-level knowledge-intensity. Knowledge-intensity involves the aspects of different types of knowledge, knowledge as an input and output, and several knowledge processes, which are proposed to locate differently depending on the type of service providing. In this study, several knowledge processes were seen significant in different stages of the service. The

knowledge-intensity is well seen in capabilities, so the other critical factors are evaluated in the following.

Documenting the customer needs, integrating knowledge from diverse sources to fit for the customer's needs, and disseminating and sharing of knowledge, especially the knowledge learned from customer, were of high importance in case Alpha. Vital knowledge, for the service to be built, was held by the customers. Knowledge acquiring from customer and absorbing by Alpha was needed to generate it then further. The more customized the service, the more there seemed to be difficulties in determining also the internal resources, knowledge and skills needed. This was clearly more emphasized in Alphas case.

6.3 Customer-related capabilities

The capabilities have been observed through the entire study following the five capability clusters. These clusters have appeared to be quite covering, although partly overlapping. The results of both organizational and individual level capabilities are presented in Table 6 (please see page 75). These sub-capabilities are suitable for both of the case firms, but they are often valued in different ways.

Communication and trust building capabilities in building customer relationships

According to the previous literature, trust, commitment and communication have been identified as critical factors in collaborating relationships (Blomqvist & Levy, 2006), as in Alpha. Communication played a central role in both case firms. In Alpha the emphasis was more in facilitating the active and relevant communication through proper, context-dependent channels to communicate. Communication was a critical capability in Beta. The clear, technology-enabled communication channels and segmenting

facilitated the effectiveness of the communication which was needed to convince the customers.

The role of trust was stated to be higher due to the intangible nature of services (Berry, 1995, 242; Palmatier, 2006, 141), which makes them difficult to evaluate before they are used (Berry, 1995, 242). This was especially true in Alpha where the service cases were built from the very beginning. The several manifestations were presented to support the trust building: customer-orientation culture, enhanced by leadership, building common vision, enhanced by communication, and expectations management. Grönroos (2009) has stated that service production is basically fulfilling promises. The central theme in expectations management is the alignment between promise making and promise keeping. Also imago building was raised in this context. The promise given by the public imago must be fulfilled as well. The intangible nature of Beta's service was not as complex as Alpha's. They had succeeded to visualize the service providing with demo-version, available free of charge. The trustworthy image had been built deliberately through honest and open policies. The commitment did not have particular attention in the results. The service cases of both Alpha and Beta usually automatically lead to a long-term cooperation, as was the case in this study.

Understanding customer needs

The previous literature emphasizes the organization-wide market-orientation in order to understand customers' needs (Kohli & Jaworski, 1990; Narver & Slater, 1990). The cultural perspective (Narver & Slater, 1990) was seen especially in Alpha where the role of leadership and special master programs were brought up. The behavioral perspective (Kohli & Jaworski, 1990) instead, including market knowledge acquiring was seen in both firms. In Alpha the knowledge was acquired from several sources including customer. In Beta, the knowledge was systematically acquired mainly from customers.

In Alpha, understanding of customer needs was partly based on already existing, strong expertise on customer's field, and partly on the knowledge acquiring and absorbing by the time the service building was actually started. Referring to the Table 1, the expertise can reside in different forms on individual or organizational level (Spender, 1996, 52; Lowendahl et al., 2001, 918) The strong expertise consisted of knowledge that had been accumulated during the years, and can be considered as collective knowledge which resides both in explicit form in Alpha's databases, and also in implicit and tacit forms in organizations routines and culture. From service provider's side, it was raised up that the employees at customer interface must convince the customers to engage all the needed employees and teams in the service project. Active and relevant communication was seen to facilitate the knowledge acquiring.

Coordinating the service from customer needs

Grant (1996) has stated that knowledge integration is a distinctive capability in any industry. Especially central it surely is in KIBS, which are even characterized by the ability to acquire and integrate knowledge and deliver it into services to their customers (Hipp, 1999, 94). These features were highlighted in Alpha as the services were built according to customers' needs. It required effective management of knowledge resources. Besides the integration of the technical knowledge and skills, it required building a responsible team, and utilizing both internal and external networks. Davies (2009) discusses the procedural and interactional service quality. This type of two-fold approach could be observed in the results of Alpha. Besides the emphasis on networking and communication, the classical project management capabilities, like realistic schedules and constant follow-up, were highly appreciated especially by the customers.

Managing customer's role as a service provider

The distinct feature of the co-creation services is managing the customers' role as a service provider (Bettencourt et al., 2002). This study shows that the level of involvement does not necessarily have to be very high. Even though the role responsibilities were brought up by Alpha's informants, stressed strongly also by the customers, they were found important also by Beta in survey. In Beta's case, the service had strategic importance in customer's daily life though, and after the training sessions, customers took care of the deployment. If the training were insufficient, because customer's skills were not enough taken into consideration, the full deployment would perhaps have failed. Or, if the customers did not understand their role in implementing the service, the deployment would have failed again. In each case, the customer would have ended up being unsatisfied with the service, despite that it was customer's task to take care of that part of the service. Hence, it is service provider's, often complex, interest to ensure that the responsibility areas are clear. Quite obviously, in the more complex and long-lasting service providing, as in Alpha, much more interfaces must be considered.

In this connection, the roles of intangibility of the service providing, and tacit forms of knowledge were also risen up. The conversion of tacit knowledge into explicit, and vice versa, (Nonaka & Takeuchi, 1995, 62-73.) is already identified also in the KIBS literature. KIBS firms are seen to help their customers to convert tacit knowledge into explicit knowledge and vice versa (den Hertog, 2000, 511). The efforts to visualize the service providing in Alpha required knowledge conversion. Both parties might have had some sort of vision about the output of the service, but it did not have any explicit form. The new knowledge started to generate, as the service provider, innovatively started proposing different alternatives. The customer could identify whether any of the proposals would please or not please them. To sum up, the intangible nature of the service, seems to be more complex in customized services like in Alpha.

Adapting the service to customer needs

Knowledge-intensive business services, and IT-services in particular, are affected by constant technological changes (Plugge & Janssen, 2009). The technological change opens new opportunities, and customers of both firms expected that the service provider keeps them informed about any new developments related to service provider's business area, which would benefit them. As this is often the very core of the work of the contact and sales persons of the service provider, they emphasized the organization's support for renewal and innovativeness. In Beta, the adaptability was related to the constant development of their software on the basis of customer feedback. This was supported by the effective organizational processes in customer knowledge acquiring.

6.4 Customer-related skills

The individual level skills were first evaluated according to the results of the focus groups. As told previously, the informants of the focus groups first identified the key capabilities, and secondly, whether they could be seen more important as individual or organizational level skills/capabilities. It appeared that it was not easy to make the difference between the levels, and most of the manifested capabilities were seen equally important on both levels.

Individual skills are often of tacit nature. The level of explicitness can alternate, insight and intuition being perhaps the most tacit dimensions (Leonard & Sensiper, 1998). The previous literature lists also emotional intelligence and problem solving skills to represent the most tacit dimensions of skills, the former supporting the latter (Huy, 1999, 325). The individual level skills were collected and analyzed according to their appearance within the capability clusters. It was needed to be able to

simultaneously mirror the organizational level capabilities. To understand the different types of skills in more general level, the skills were classified into dispositional, experience-based and technical based on the classifications of Lowendahl et al. (2001, 918) and Davenport & Prusak (2000, 110-111), and are presented in Table 7.

As evaluated the diverse set of skills that arose from this study, the most tacit dimensions have been regarded as the most important. As the focus of this study was at customer interface, and the knowledge work is done in connection with colleagues, customers and partners, the emphasis is inherently turned to social interaction and emotional skills. As the employee of Alpha stated, there hardly exists a position which could proceed separately, as “a lonely cowboy”. Social interaction skills can be considered the most important skills in both firms.

Communication skills formed another major group. There were more differences between the firms in relation to communication skills. In Alpha, the communication was in many cases precondition to acquire, absorb, integrate, and exchange knowledge to build the customized service. It was also a significant prerequisite to be able to build mutual understanding with the customer, or to solve problems. In Beta, the emphasis was in effective, clear and systematic communication, utilizing as much as possible the available technology channels. In Beta, communication skills involved though ‘consultative listening’, which required cognitive and problem solving elements as acquiring knowledge from the customer.

Expertise was also seen as an individual level skill, which consisted from explicit and implicit / tacit elements. The interviewees told that much of their understanding is based on experience from the field. The education seemed to have some influence in understanding the general business terms, but mainly the field specific concepts were learned by doing.

Problem solving skills were needed throughout the service providing. In Alpha, their role was significant already in the planning stage, since the service needed to be built from the beginning, and several details had to be solved. In the planning phase, the problem solving refers mainly to ‘solution finding’, but later on, solving problems is also literally needed. The importance of problem solving skills on individual level is consistent with Garcia-Murillo & Annabi (2002) who proposed the personal interactions facilitate the direct communication, and getting an idea of the source of problems, preferences, and needs.

KIBS firms proceed typically on a project-base, including schedules, budgets and deadlines (Davenport & Prusak, 1998, 112). The most technical dimension of skills involved project management skills, like accurate documenting and following the timetables. As seen from Table 5 (page 66), the personal characteristics that were seen the most important in survey, involved being systematic, sense of responsibility and problems solving. These characteristics belong to more tacit categories, but were originally brought up in the context of project management skills.

Table 7: Individual skills classified

Personal dispositional skills	**Personal, cognitive, experience based skills**	**Technical skills**
Social interaction skills • sensemaking • trust building • openness • honesty • thinking of customer's best interest • discretion • patience • sense of responsibility • ability to build personal relationships • empathy • professional vs. personalized way of proceeding • Being systematic	**Communication** • negotiation skills • ability to speak customer's language • consultative listening • networking **Problem solving** • situational sensitivity • sense of relevance • creativity • ability to prioritize **Industry expertise** • Learning by doing • Learning from customers • Learning from other external sources **Understanding the interfaces between own service and customer's business**	**Project management** • Prompt responding • Sharing the responsibilities • accurate documenting • accurate follow-up • knowledge disseminating • Technical competence **Knowledge acquiring** • how to use different tools and channels

7 CONCLUSION

The main target of this study was to examine success factors of knowledge-intensive business services by looking closely the individual level skills and organizational level capabilities at customer interface. On the way to the main target, the distinctive characteristics of knowledge-intensive business services were studied on the basis of previous literature. Also, according to the literature review, those factors that were seen to have some effect on the capabilities of KIBS were evaluated. It seems obvious that there are no black and white customer-related capability or skill categories, as different types of services, and different types of firms are concerned. It is all about levels and degrees.

7.1 Theoretical contribution

In this study, the main theoretical contribution is two-fold. First, it rises from the integration of knowledge management and relationship management with capabilities' approach. Second, the capabilities approach involves two levels of analysis, considering both the individual level skills and organizational level capabilities.

Due to the remarkable growth in service sector, also the research of services has increased dramatically during the last years. So far, the main interest of KIBS research has been in classifying their role as a service sector, and in their innovative performance (Muller & Doloreux, 2009). The previous research has been founded on the classification of KIBS into professional and technology-based KIBS (see e.g. Miles, 1995; Hipp, 1999; Miles, 2005; Toivonen, 2007; Muller & Doloreux, 2009). The empirical part of this study focused on two technology-based knowledge-intensive business service firms. According to this study, the role of technology-based service itself is not a dominating factor in evaluating the key capabilities, but there exist several critical factors that should be

considered instead, like the level of customization of the service, level of customer involvement, type of knowledge, and level of consultation needed. Although the knowledge-intensity and customer-intensity of KIBS have been clearly recognized in literature (see e.g. Strambach, 2008), the previous studies do not deeply deal with their meaning and importance in relation to firm's capabilities, which is done in this study.

The results of this study show that several factors that originate from those main characteristics, direct the needed capabilities. The degree of customization in the service directs the need for customer knowledge. The degree of explicitness of customer knowledge directs the level and form of customer involvement. The demand for consultancy arises from the customer's competence level. If the customer does not identify their needs, or the possible solution alternatives, even a standardized service requires the service provider's consultative efforts, as was seen in the results of Beta. This indicates that the level of customization does not be the only factor as considered the needed knowledge processes and capabilities at customer interface. The level of consultation has to be considered as well.

Organizational capability has been recognized to rise from the micro-level knowledge, skills, actions and behaviors already for some time now (Starbuck, 1992; Grant, 1996). Recently, interest towards the underlying components of organizational capabilities has been strongly growing. It has been argued that organizational capabilities cannot be directly connected to firm's outcomes, but the individual characteristics, skills and actions, so called micro-foundations have to be considered (Abell et al, 2008; Foss, 2010). The importance of individual skills has been recognized in several studies, and e.g. social interaction skills (Carter & Gray, 2007), problem solving skills (Leonard & Sensiper, 1998; Huy, 1999), but in KIBS research, the focused research of skills appeared to be scarce and it was concentrated mainly in the educational issues (Sjoholt, 1999).

In this study, the micro-level approach was carried out by investigating the individual skills at the customer interface, simultaneously with the capabilities. The results show that it is not easy to evaluate, on which level the capabilities reside exactly as looking from the management's point of view. For this reason, the needed skills were investigated by asking from the employees and customer's representatives at the customer interface. The classification according to personal dispositional, personal cognitive and technical skills is quite consistent with the level of tacitness in skills. The study proves the importance of social interaction skills, and is consistent with the previous studies (Carter & Gray, 2007). Social interaction skills can be seen to represent the most tacit extreme of the skills, difficult or impossible to transfer or teach. Problem solving, communication skills and industry-related expertise instead, might involve more explicit elements, like direct instructions, but are obviously based on the previous experiences of an employee. Therefore, they can be considered tacit, but possible to share e.g. by the help of mentoring systems, which were used in Alpha. According to the study, the least tacit forms of skills were related to project management skills. Also the knowledge acquiring can be partly very directed and simple, e.g. collecting customer feedback to databases. Very often the knowledge acquiring is not that easy though, and could be classified as personal skills.

Thus, the results show that most of the individual skills recognized in this study, are of tacit nature. This is consistent with previous literature where the level of tacit knowledge is argued to be higher in services due to the greater involvement of human capital and the intangible nature of knowledge (Kianto et al, 2010).

The importance of managing customer's role as a co-producer of services had already been recognized by some authors (O'Farrell & Moffat, 1991; Bettencourt et al., 2002; Toivonen, 2007; Spohrer & Maglio, 2008), and was supported by this study. According to the results of this study the role

management is especially significant in customized services. The highly customized service raises the level of customer involvement in building the service, which again directs the need for role responsibilities management. Role responsibilities were seen important also in the case of standardized service, but the interfaces were naturally simpler to determine.

This study provides insight on the interfaces between individual and organizational knowledge. It also combines the effect of an external factor – the customer, and their knowledge. Furthermore, as this study has compared the skills and capabilities between two very extreme types of services, the results are informative for service business firms that evaluate and reconsider their business concepts. This study provides the requirements and factors to consider for those purposes.

7.2 Managerial implications

Managing and developing the skills and capabilities of their organization, is most likely one of the central interests of management. In the following, the findings of this study are observed through managerial lens, and important issues based on the results of this study are brought up.

Communication

In case of customized services, the planning plays an essential role in service providing. It is extremely important to gather the relevant parties around the same table to be able to create mutual understanding and common vision. Facilitating the face-to-face contacts is needed during the planning stage and in case of difficult problems arising or changes to be made. Customers do not expect that there would be no problems. They do expect, that any problems are honestly brought up, and solved without delays.

In standardized services, the effectiveness of communication is important. As the service product itself is already ready-made, the challenge is located in convincing the potential customer in buying the service. The communication channels have to be clear, simple and technology-enabled. The role of individual sales persons is vital. They should be able to map the central points that are relevant to any unique customer in a quite a short time, e.g. during one phone call. This requires high social interaction skills, which are not easily developed by managerial actions. It can be possible through knowledge sharing with colleagues, observing the competent colleagues, and also having written instructions or framework to follow. Knowledge acquiring from customers is often based purely on communication. To be able to ask the right questions is not always easy. To be able to collect the experiences of the employees in straight customer contacts is a valuable capability.

Customer in the study emphasized the easiness of communication. This means basically the easy way of contacting the service provider's representative, and also, the contact person's skills to understand what the customer's needs. The one, responsible contact person, who is able to "speak customer's language" was valued by the customers. In practice, this means the skills to understand the terms and concepts the customer uses, and also, to be able to understand their meaning in customer's context.

Internal communication forms a valuable basis also for the customer-oriented culture. The attitudes and values of the company must be communicated by management to every single employee in the firm. The results of the study indicate that individuals desire to think of customer's best interest rises partly from their character, but also from the leadership.

Visualizing the invisible

The challenging characteristic of knowledge-intensive business services is the intangibility of the service output. The service output should be made visible somehow, or otherwise the customer relationship must involve a great deal of trust. In co-produced or co-created services, the visualization can be proceed through iterative idea generation. Service provider must be able to propose some alternatives and visions. It is always easier for the customer, to figure out what they might want, if there is something to compare. Reference lists of similar or quite similar cases are always good. Possibility to test the service somehow, would be important. Also in customized services, there should be a possibility to test the service a long before the final version, to make changes to the plan. In standardized services, as in this study case Beta, the demo-version of the software was seen an important factor from customer's point of view, to test, and to be able to trust the unknown service provider.

Promise management

As Grönroos (2009) has put it, to succeed, the promises have to be realistic and the employees and service systems have to be enabled to deliver the service, and keep the promise. The results of this study indicate that promise keeping is not self-evidence. It requires common vision of the target, participation of all the relevant parties, accurate sharing of responsibilities and constant communication between the promise makers and promise keepers. In practice, the promise keeping has to be monitored by the promise makers, or a group of promises makers. This has been realized by steering groups that involve the experts from both customer's and service provider's side. To be able to keep promises, can be seen as a vital precondition in building trust and lasting relationships.

Decision making

In business services, service provider has to understand also the customer's decision making process. In the beginning of relationship, it is important to locate the relevant decision makers in customer's side. The own decision making process should be flexible and sensible. As different parties and business areas might participate in producing the service, there should always be somebody, who sees the 'big picture' and has got enough knowledge to make the decision.

Expertise on customer's business field

To understand customer's needs and to be able to communicate with them in a convincing way requires expertise on customer's business environment. According to study, the expertise was mainly possible to obtain through experiences. There is a plenty what management can do though: arrange training, arrange mentors, store references, facilitate formal and informal knowledge sharing concerning previous cases, and circulate employees in different jobs to learn more and renew their skills.

Resource management

According to this study, the resource management is especially important in customized services due to the greater complexity and several participants. If the firm is large, the resource management requires strong internal and external networks to locate the necessary knowledge and skills. Electronic databases which include knowledge about the available skills and competence can be very useful.

In this study, the individuals skills were classified in three groups, mainly based on the classification of Lowendahl et al. (2001, 918). It is important to consider their meaning from managerial point of view: First group, the personal, dispositional skills are the most tacit form of skills, including

mainly personal characters, values and emotional and intelligence based issues. It is likely, that these types of skills are not easily managed, at least not directly. The second group, personal, experience-based skills like problem solving and negotiation skills, require a combination of general and context-specific knowledge. These skills are likely to be developed by facilitating the opportunities to experience and learn by doing. The third group, technical skills involve the highest level of explicit knowledge, and could be acquired through education, internal training, and perhaps also with the help of technological tools.

7.3 Limitations

The survey proceeded as giving a broader sample of views to already identified capabilities based on the result from focus groups and interviews, and to either support them or disagree with them. It also gave new data in the form of some differentiation between the different respondent groups, like technical experts, sales and project management. Furthermore, the possible effect of diverse process stages on the emphasis on different capabilities could be checked. However, if the results were analyzed only on the basis of the survey, the differences between the two polar firms would have been scarce. This could be due to the quite wide theme where the same statements could fit in several situations in providing the service, and there might have been some equalizing effect by using this method. As compared the results based on the focus groups and the interviews, there were differences as the firms brought up different issues. In this level of study, it might have been good to carry on more interviews, and based on those results, to proceed a survey in another stage and study.

7.4 Future research

This study has drawn a quite detailed picture of the key characteristics and key capabilities and skills at the customer interface, comparing the two types of knowledge-intensive business services. Both the capabilities on organizational level, and the skills on individual level were identified, and the interplay between the two levels was recognized. However, further research is needed to focus exclusively to the interplay of the two levels. This could be carried out by focusing on a narrower sector of capabilities, like communication. The framework of this study was too wide for deeper examination.

It has been learned that there are several factors that have relational effect on the needed capabilities and skills. The level of needed consultation describes how knowledgeable and competent the customers are in understanding their own needs, figuring the possible solutions, deploying the new services and making decisions. The uniqueness of customers and the needed level of consultation seem to form a notable factor as evaluating the complexity of a service providing. Hence, the research related to capability to determine the competency level of customers and development of services accordingly, would profit the service business providers in a significant manner. Also related to this issue, a capability to manage the intangibility of services would be worth further research.

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Appendix 1: The results of the focus groups

	CASE Alpha	CASE Beta
Building customer relationships	**Listening the customer**○ **Real desire to help**○ Reliability in doing the promised Building long-term relationships* Seeing through others eyes Activity *Targeted marketing** Exploitation the existing value promise of the brand, in building new service, simultaneously renewing it.* Managing the reputation*	Transparent and honest behavior towards customers *Clear communication** *Targeted communication** Effective sales contacts Media contacts Purposeful imago-building The esthetic appearance of the service elements *Organization-wide brand building from the very beginning**
Understanding Customer needs	Expertise on customer's business *General business expertise** Creativity Expertise in customer's market Expertise in customer's customers	Continuous learning *Multi-industrial expertise** Thinking of customer's best interest General business expertise
Coordinating and organizing the service from customer needs	*Delivery capability** Quality assurance *Decision making capability** Adapting the firm resources with the customer needs *Clear responsibilities and decision making procedures, "responsible teams"**	Technical project capabilities Scheduling the projects *Productizing the project procedures** HR management in projects Communication in projects Partnership management
Managing the knowledge and competences held by the customer	**Asking the right questions**○ Activating the customer to see the end users needs Linking the customer to the knowledge sharing procedures *Managing resistance movements** Visualization the final output	**Consultative Listening**○ Identifying the most relevant needs Collecting the development ideas *Developing the service on ground of the customer feedback**
Adapting the service to the heterogeneous customer needs	**Discretion**○ Creativity *Right people making decisions** **Ability to step in different roles at personal level when planning the service**○	Wide horizontal expertise Customer-driven R&D *Agility** Technically integrative service **Sight beyond own service to customer's business**○

* Institutionalized / More important as organizational capability ° Dispersed within individuals / More important as individual skil

Appendix 2: Pre-Interview for two key informants of Alpha

Alpha 22.3.2010

1. Which service sectors have got the biggest volume?
2. Can different types of services be divided in core businesses and support businesses?
3. Which are older, which newer services?
4. What sort of trends can be seen? The role of cloud computing? On which services do they want to put effort? Which services are expected to grow the most? Why?
5. Which services are the most productized?
6. Which services require the most external resources? What are these external resources?
7. In which services the role of customer in co-producing the services is the highest? How does the customer involve? Challenges?
8. Do customers participate in product development? In which service?
9. What sort of requirements the customer involvement settles to their firm? How about to the personnel?
10. What kind of customer relationship can be classified as good one, when the customer's role in service producing is high?
11. How does the nature of customer relationship change in highly productized services?

Appendix 3: Interview frame for employees

Introduction

This is a deepening interview focusing especially on the skills needed in your work in customer-interface. Pre-info has been sent by e-mail to both interviewees about the project and theme. The service case should be successfully delivered for already some time.

- The position in the company?
- How long have been working in the company?

Describing the type of the service in question:

- when
- what
- who were involved
- how long did last
- customer's role
- the relationship with the customer (new/old, strategic/not)

Applied causal mapping will be used to dig in also those skills that can be tacit. For one person, I might not do the drawing. If there would be a focus group, the drawing would be needed to the participants to follow.

- What was your role in this service process?
- Which skills would you describe to have been the most important in that service project?
  - Writing down the answers (there might be several, the most important should be picked up for further evaluation)
    i. In which situations were these skills especially needed?
    ii. Why were they needed?
    iii. How did you acquire these skills?
    iv. Is it difficult/easy to do that
    v. Do you need that skill repeatedly?
    vi. Was there enough time and room to practice that skill?
    vii. Does everybody in the company behave same way?
    viii. Are there some instructions concerning that?
    ix. Can it be trained?
    x. Is it trained?
    xi. How can this skill be facilitated?

- Depending on what was answered, the extra questions based on the results of the previous workshop:
  => Which would be the skills needed for
  - ❖ Building customer relationships
  - ❖ Understanding customer needs
  - ❖ Managing the customer knowledge
  - ❖ Coordinating the creating of new knowledge for the service
- So the question is, which are the most important skills needed to build customer relationships, understand customer needs etc.
  i. In which situations were these skills especially needed?
  ii. Why were they needed?
  iii. How did you acquire these skills?
  iv. Is it difficult/easy to do that
  v. Do you need that skill repeatedly?
  vi. Was there enough time and room to practice that skill?
  vii. Does everybody in the company behave same way?
  viii. Are there some instructions concerning that?
  ix. Can it be trained?
  x. Is it trained?
  xi. How can this skill be facilitated?
- Metaphors

Appendix 4: Interview frame for customer

About the interviewee:

- What is your position in your company?
- How long have you been working in this position?
- How long have you co-operated with this supplier?

Case:

- Would you please describe the target of this service project?
- What was your role in the projects?
- What was the supplier's role in the projects?
- How did your company participate in building of the service?
- What kind of knowledge was needed from your company to build the service?

On your mind

(Understanding customer needs and business environment)

- did the Supplier understand the needs of your company?
  - How could that be seen?
- did the Supplier understand your business environment?
  - How could that be seen?

(Relationship related)

- How did the Supplier keep contact with you (which ways were there)?
- Which features did you appreciate the most in their ways to interact?
- Did the cooperation with the Supplier work well?
  - How could that be seen?
- What kind of qualities and skills do you appreciate in the contact persons?

(process approach)

- What kinds of capabilities are needed from the Supplier in planning (in early stages) the service?
  - And from the contact person/employee? (if doesn't appear from the previous answer)
- What kinds of capabilities are needed from the Supplier in building (in second stages) the service?

- And from the contact person/employee? (if doesn't appear from the previous answer)

- What kinds of capabilities are needed from the Supplier in implementing (in early stages) the service?
  - And from the contact person/employee? (if doesn't appear from the previous answer)
- What kinds of capabilities are needed from the Supplier in maintaining (in early stages) the service?
  - And from the contact person/employee? (if doesn't appear from the previous answer)
- Did the procedures of the Supplier suit you well?
  - Why?

(Adaptability)

- Were there any unexpected situations during the service building process?
  - How was the situation handled?

(For closing)

- How would you describe the capabilities of the Supplier company as a service provider?
- Does the performance of the Supplier vary depending on the representatives?
  - If yes, how, please describe some situation
- In which segments the activities/behavior of the Supplier was particularly good?
  - How (skills/capabilities)?
- In which segments the activities/behavior of the Supplier could be developed?
  - How?

Appendix 5: Survey questionnaire

The original was made in finnish with Webropol online survey and analysis tool. The link for responding was sent by e-mail to respondents.

This version was for service provider's employees. For customers, the same questionnaire was modified so that the questions concerned "contact persons" of service provider. Also some questions were modified be better understood from customer's point of view. But mainly, the questions were exactly the same.

Service business capabilities

Basic information
Your position in the firm:
a) general management
b) sales
c) project management
d) technical expert in project
b) other expert in project
b) customer's contact person in the project

Your role in different phases? How large was your role in different stages?

	Not at all	Minor	Large	Responsible
Planning stage				
Building stage				
Implementing stage				
Maintaining stage				

I participated in the following projects:
Case A Case B

INDIVIDUAL LEVEL

Evaluate the importance of the following individual skills on scale 1 - 7, where 1 = not at all, and 7 = very important
How important are the following characteristics and skills at customer interface in this project.
Please mark also the 5 (five) most important.

	1	2	3	4	5	6	7
Friendliness							
Patience							

Openness							
Honesty							
Genuiness							
Giving 100 % effort							
sense making							
verbal talent							
robustness							
problem solving							
being systematic							
Stress resistance							
Discipline							
Professionality							
sense of responsibility							
Flexibility							
Innovativeness							
Renewal skills							
Creativity							

HOW IMPORTANT ARE THE FOLLOWING SKILLS, RELATED TO CUSTOMER RELATIONSHIP, <u>IN YOUR OWN WORK</u>?

1 = not at all important, 7 = very important	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Building customer's trust							
Confirming mutual understanding with the customer							
Real desire to help							
Keeping promises							
An ability to build personal relationships							
Descretion							
Active interaction							
Considering the customer's diversity							
An ability to use terms and concepts that are familiar to customer's business							
Choosing a relevant communication channel (e.g. f2f, electric)							
Avoiding to bring up potential problems							
The openness in problem situations							
Fast proceeding of customer feedback							
Ability to handle issues professionally							
Active knowledge acquiring for development of customer's business							
Keeping the customer updated of latest trends							

Would you like to clarify your replies, or can you think of any other central skills concerning the question?

HOW IMPORTANT ARE THE FOLLOWING SKILLS, RELATED TO UNDERSTANDING CUSTOMER NEEDS, IN YOUR OWN WORK?							
1 = not at all important, 7 = very important	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Multi-industry expertise							
An ability to understand the role of own service in customer's business							
Understanding the terms and concepts used in customer's business							
Knowing the customer's production chain							
Knowing the customer's customers							
Utilizing the previous business cases							
Acquiring knowledge about customer's business from market							
Acquiring knowledge about customer's business by observing them							
Acquiring knowledge about customer's business by asking them							
Modelling customer's processes to enhance understanding							
An ability to utilize the internal databases to acquire knowledge							
An ability to utilize the internal networks to acquire knowledge							
An ability to utilize personal relationships to acquire knowledge							
An ability to utilize partners to acquire knowledge							
An ability to act as a hub between own and customer's networks							

Would you like to clarify your replies, or can you think of any other central skills concerning the question?

HOW IMPORTANT ARE THE FOLLOWING SKILLS, RELATED TO COORDINATING THE SERVICE PRODUCTION, IN YOUR OWN WORK?							
1 = not at all important, 7 = very important	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Gathering needed knowledge and skills together							
An ability to understand the interfaces between own service and customer's business							
Ability to understand the whole service providing							
Sharing the lesson learned from the customer inside the house							
Accurate documenting of the needs							
Integrating knowledge from different sources to apply to customer							
Disseminating and sharing knoledge between different parties							
Keep up with schedules							
Strong technical know-how related to the service							
Holding up with the agreed procedure							

On-time follow up in the project							
Flexibility							
Courage to take over any problematic situations in time							

Would you like to clarify your replies, or can you think of any other central skills concerning the question?

HOW IMPORTANT ARE THE FOLLOWING SKILLS, RELATED TO THE MANAGEMENT OF KNOWLEDGE HELD BY THE CUSTOMER, <u>IN YOUR OWN WORK</u>?	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1 = not at all important, 7 = very important							
Making drafts for knowledge acquiring from the customer							
Agreeing about the roles and responsibilites of the customer							
Naming the responsible employees from customer's side							
Active communication							
Common language with the customer							
Consultative listening of the customer							
Asking right questions							
An ability to get the customer to communicate openly							
An ability to get the customer to see the end users's needs							
Proposing different alternatives to customer							
Clearing out the decision making process of a customer							
Documenting and storing the lessons learned from the customer							

Would you like to clarify your replies, or can you think of any other central skills concerning the question?

FIRM LEVEL

HOW IMPORTANT ARE THE FOLLOWING CAPABILITIES, RELATED TO CUSTOMER RELATIONSHIP, IN <u>YOUR FIRM</u>?	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1 = not at all important, 7 = very important							
Clear communication channels							
Different communication procedures to different customers							
Good electric channels to communicate with the customer							
Only one contact person from service provider's side, who transmit knowledge between the customer and the provider							
The customer is able to get direct contact with each expert							
Uniform procedures at customer interface							
Regular communication							
Trustworthy imago							
Personal customer service							

Customer-orientation culture (to look after customer's best interest)							
Constant following the customer satisfaction							
Mutual vision with the customer							
Open and transparent behavior towards customers							
Prompt promise keeping							
Knowledge- and idea sharing culture							

Would you like to clarify your replies, or can you think of any other central skills concerning the question?

HOW IMPORTANT ARE THE FOLLOWING CAPABILITIES, RELATED TO UNDERSTANDING CUSTOMER NEEDS, IN <u>YOUR FIRM</u>?	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1 = not at all important, 7 = very important							
Building expertise on customer's business environment							
Acquiring market knowledge from customer's branch							
Modelling and documentig the customer's processes							
Working methods and systems to collect, store and utilize customer knowledge							
Sales process capabilities							
Integrating skills from different areas during the planning stage							
Integrating IT and business							
General business expertise							

Would you like to clarify your replies, or can you think of any other central skills concerning the question?

HOW IMPORTANT ARE THE FOLLOWING CAPABILITIES, RELATED TO COORDINATING THE SERVICE FROM CUSTOMER NEEDS, IN <u>YOUR FIRM</u>?							
1 = not at all important, 7 = very important	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Locationg the needed knowledge and skills through internal network							
Building partnership network							
Building responsible teams							
Building co-operation between IT and business							
Active interaction between the sales and the operative sector							
Flexibility of the decision making							
Keeping the service concept simple							
Project management							
Ensuring the delivery capability							
Quality assurance							
Supporting the renewal and innovativeness of the employees							
Developing the service from customer feedback							

Ensuring that the service is possible to integrate to customer's business processes							
Building the service modular							
Different procedures to different customer in delivering the service							
Constant readiness for changes							
Fast responsing in problem situations							
Fast responsing to customer demands							
Developing new ideas and proposals for development of customer's business							

Would you like to clarify your replies, or can you think of any other central skills concerning the question?

HOW IMPORTANT ARE THE FOLLOWING CAPABILITIES, RELATED TO THE MANAGEMENT OF KNOWLEDGE HELD BY THE CUSTOMER, IN YOUR FIRM?

1 = not at all important, 7 = very important	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Clear sharing of the roles with customer							
Determining the customer's responsibilities							
Committing the different parties from customer's side to the service targets							
Informing the customer about new opportunities							
Facilitating active communication							
Proper procedure for customer's development ideas							
Modelling the customer's service-related processes							
Undertanding the decision making processes of the customer							
Common face-to-face problem solving							

Would you like to clarify your replies, or can you think of any other central skills concerning the question?