



Jari Konttinen, Anssi Smedlund, Nina Rilla, Katri Kallio &
Robert van der Have

Knowledge Transfer in Service Business Development

| Transfer mechanisms and intermediaries in
| Finland

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in Finland**

Jari Konttinen, Anssi Smedlund, Nina Rilla,
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Keywords service, knowledge, capability, transfer, intermediary

Abstract

Service activities are important in most of today's businesses. For this reason, decision makers need to place emphasis on service-oriented development and service innovations, as well as knowledge transfer and the sharing of service business-related capabilities to increase their competitiveness. This study sheds light on the processes and dynamics of services business knowledge transfer by identifying and analysing different knowledge transfer mechanisms available for service businesses. The main focus was on knowledge transfer activities in intermediaries. The identified knowledge transfer mechanisms indicate that a majority of them concentrate on externalizing and combining knowledge, while we found fewer means to internalize or socialize knowledge. A successful transfer mechanism takes client expectations into account, is personalized and places emphasis on the type of knowledge it aims to transfer. Moreover, building a trustworthy transfer environment clearly facilitates successful knowledge diffusion. However, the results indicate that internalization of knowledge in the target organization as well as service resource and infrastructure development are often neglected. Due to the diverse nature of knowledge, different phases of service development process, the level of end-user engagement and contextualization of knowledge as well as related costs of knowledge transfer should be considered when designing knowledge transfer activities and policies targeted to service development. A stepwise approach from awareness raising to more specific knowledge transfer is recommended. Creation of regional facilities and forums with public subvention for firms to raise the awareness, co-create, design, test and productize their service activities would enhance learning between firms and service business experts and the creation of new service innovations.

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Tiivistelmä

Palvelutoiminnot ovat keskeisiä tämän päivän liiketoiminnassa. Päätöksentekijöiden tulisi huomioida palvelusuuntautunut kehitys ja palveluinnovaatiot sekä palveluliiketoiminnan kyvykkyyksien siirtäminen ja jakaminen yritysten kilpailukyvyen vahvistamiseksi. Tämä tutkimus lisää ymmärrystä palveluliiketoiminta-osaamisen siirron prosesseista ja dynamiikasta tunnistamalla ja analysoimalla erilaisia palveluyrityksille suunnattuja tiedonsiirtomekanismeja. Tutkimuksen pääkohde oli välittäjäorganisaatioiden tiedonsiirtomekanismit. Erilaisten tiedonsiirtomekanismien tunnistaminen osoitti, että suurin osa mekanismeista keskittyy tiedon ulkoistamiseen ja yhdistämiseen, jolloin tiedon sisäistäminen ja sosiaalisuus jää vähemmälle huomiolle. Onnistunut tiedonsiirtomekanismi ottaa asiakkaan toiveet huomioon, on omakohtainen ja huomioi tiedon luonteen, jota mekanismin avulla pyritään siirtämään. Näiden lisäksi luottamuksellinen ilmapiiri edesauttaa huomattavasti tiedon leviämistä. Tulokset osoittavat, että tiedon sisäistäminen ja palveluresurssien sekä -infrastruktuurin kehittäminen jäävät kuitenkin usein huomioimatta kohdeorganisaatioissa. Tiedon moninaisen luonteen vuoksi palvelukehitysprosessin eri vaiheet, loppukäyttäjien osallistaminen, tiedon kontekstualisointi sekä tiedonsiirron kustannukset tulisi ottaa huomioon kehitettäessä tiedonsiirron mekanismeja ja julkisia menettelytapoja uuden palveluliiketoiminnan luomiseksi. Tämän vuoksi asteittainen lähestymistapa tietoisuuden lisäämiseen kohti yksityiskohtaisempaa tiedonsiirtoa on suositeltavaa. Alueellisten julkisten tilojen ja foorumien rakentaminen tietoisuuden levittämiseen sekä palveluiden luomiseen yhdessä ja muotoiluun, testaamiseen ja tuotteistamiseen auttaisi yritysten ja palveluosaajien välistä oppimista ja uusien palveluinnovaatioiden kehittämistä.

Executive summary

Today service activities provide a significant share of the revenues for many traditional manufacturing and technology companies, and at the same time new innovative service firms are established. For this reason, decision makers need to place emphasis on service-oriented development and service innovations as well as knowledge transfer and the sharing of service business-related capabilities to increase the competitiveness. Effective service business knowledge creation and its transfer among local, national and international players are crucial in current global competition. More understanding on the processes and dynamics of knowledge transfer in service business development are needed to develop further regional and national policies and furthermore the capabilities of the Finnish service sector.

In light of these late developments in service sector, this study identified and analyzed the different knowledge transfer mechanisms available for service firms regionally and nationally. This study concentrates on the activities of intermediary organizations, which by definition work between other organizations and try to transform and moderate knowledge for a wider audience. The evidence to answer our research questions were gathered via two research phases: (1) interviews in public knowledge intermediaries, (2) survey to users of two intermediaries and six knowledge transfer case studies.

However, before data collection we carried out a literature review on service knowledge transfer. Theory highlighted the importance of tacit knowledge in service business, especially, the transformation of tacit knowledge to explicit knowledge. Nevertheless, it is agreed that this is possible only a certain extent. It was also stressed that social relations play an important role in the transfer, and knowledge transfer is largely learning from the individuals working on the service.

The first research phase aimed at identifying and categorizing knowledge transfer mechanisms. Based on the interviews in fifteen intermediary organiza-

tions and their clients in two regions (Helsinki and Oulu), we identified and constructed six categories of service capability knowledge transfer mechanisms. These categories are Media; Training; Project cooperation; Communities; Partnerships, and Infrastructures and Resources. In addition to the grouping, the identified mechanisms were divided into knowledge creation model (SECI model), which revealed that majority of mechanisms concentrate on externalizing and combining knowledge but less means are found to internalize or socialize knowledge.

In the second phase of the study, six service knowledge transfer mechanisms were selected for a closer analysis to gain more detailed information on their functioning and effectiveness. Based on the analysis, a successful transfer mechanism takes client expectations into account, is personalized and places emphasis on the type of knowledge it aims to transfer. Moreover, building a trustworthy transfer environment is clearly a positive aspect of successful knowledge diffusion. However, the results also indicate that internalization of knowledge in target organization as well as service resource and infrastructure development are often neglected.

Finally, this study created a model which stresses the roles of key stakeholders in service development process, i.e. customer or end-user, and the role of intermediaries in transferring service business knowledge. This model shows that end-user involvement gradually increases as service (innovation) development matures towards service implementation (commercialization). However, knowledge transfer activities that intermediaries and policy makers implement, becomes more costly as service development moves towards service implementation. This is due to the fact that more context specific knowledge is needed at the end of process, which by contrast means that extra resources are required to reach service firms. When designing knowledge transfer activities and policies targeted to service development, different phases of service development process, the level of end-user engagement and contextualization of knowledge as well as related costs of knowledge transfer should be considered.

As practical tips for creating service business we offer stepwise approach from awareness raising to more specific knowledge transfer. Design of both open and closed mechanisms is important. The latter are better for trust building and goal-oriented development but might not create 'radical' information or knowledge due to knowledge stickiness. Creation of regional facilities and forums with public subvention for firms to raise the awareness, co-create, design, test and productize their service activities would enhance learning between firms and

service business experts and the creation of service innovations. Support activities should also consider “ensuring“ the internalization of knowledge in knowledge transfer and ensure that top management and relevant staff members are committed to development activities in the organization.

Preface

This publication presents the results of research on knowledge transfer mechanisms of service business capabilities within the PASI project, which was carried out in cooperation with VTT and BIT Research Centre at Aalto University School of Science. The project was funded by Tekes, VTT and Aalto University.

The project team wishes to express their warmest gratitude to the project's steering group members for active participation and guidance during the project. We would especially like to thank Maarit Lahtonen from Tekes for her active participation, valuable comments and support during the project. The enlightening discussions with other members are also highly appreciated. The research was carried out in parallel with a closely related project at Lappeenranta University Technology Business Research Center (TBRC). We would like to thank our colleagues in Lappeenranta for the common seminars and workshops, as well as supporting research which provided perspectives for our own work. We express our thanks to Kirsimarja Blomqvist and Miia Kosonen at TBRC for their insights and collaboration.

Certainly, the results of this project would not have been possible to obtain without the case organisations' involvement. Therefore we own our gratitude to all interviewees and case organisations who warmly welcomed and spent time to discuss with us.

Espoo, December 2011

PASI-team

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1. Introduction

The role of knowledge in value creation will be highlighted in the Finnish economy in the future when the share of service business grows larger compared with manufacturing and agriculture. Despite the current trend in economic policy in Finland that highlights the use of physical resources, such as in the mining, forest and energy industries, knowledge and services continue to play a significant role in the growth of the economy. The share of private services in Finnish GDP is almost 50 percent, of which real estate and business services, logistics and storage and ICT services, as well as wholesale and retail forms the main service sectors (Statistics Finland, 2010). In addition, many of the companies that will benefit from an economy based on manufacturing or refining physical resources are knowledge and service intensive. They provide consulting, solutions, technologies and maintenance services for industries and consumers. Service activities provide a significant share of the revenues for many traditional manufacturing and technology companies. As the economic base of Finland has moved towards service production, national and regional policymakers have reformulated their industrial and innovation policy strategies. For example, half of the appropriations for the companies of the main Finnish public R&D funding organization Tekes (the Finnish Funding Agency for Technology and Innovation) were targeted to service sectors in 2009 (Tekes, 2010). Emphasis has been placed on service-oriented development and service innovations as well as knowledge transfer and the sharing of service business-related capabilities. Effective service business knowledge creation and its transfer among local, national and international players are crucial in current global competition. More knowledge on the processes and dynamics of knowledge transfer in service business development are needed to develop further regional and national policies and furthermore the capabilities of the Finnish service sector.

Thus, this study has focused on the phenomenon of knowledge transfer in service business development in Finland. The main objective of the study was to identify and analyze the different knowledge transfer mechanisms available for service firms regionally and nationally. More specifically, we aimed:

- to understand the nature of the knowledge that is transferred between service firms and service business developers and intermediaries;
- to discover how service firms can utilize external partners in developing their service business capabilities; and
- to define and analyze the mechanisms that Finnish service firms and intermediaries can use in service business development.

In this research project, the definition of service business knowledge and capabilities is theorized and the mechanisms to transfer service business-related knowledge are studied by using empirical analyses. This research project contributes to the theory of knowledge management, and more specifically on the research of knowledge transfer. Other areas of knowledge management are research on knowledge creation and retention (Argote et al., 2003). The viewpoint of the topic is the macro-level, and the focus of the study is on the inter-organizational transfer of knowledge, although oftentimes this inter-organizational transfer is based on individual and group processes.

We performed this study in the following way. Firstly, we carried out a literature review on the subject of knowledge transfer from the perspective of service business and service business developers. The research questions in the theory section were formulated to find definitions of knowledge and capabilities in service business, explicate the most common barriers in knowledge transfer between firms and provide strategies for successful knowledge transfer. The theory section served a purpose to justify the empirical research design. Secondly, we carried out an empirical investigation that had two phases. In the first phase, we utilized innovation intermediary organizations as “informants” of different knowledge transfer mechanisms. The second phase consisted of multiple case analyses, and the case selection was based on the knowledge transfer mechanisms and practices identified and categorized in the first phase. Empirical data in the study included interviews of service business experts and the results of a survey targeted to knowledge-intensive businesses services (KIBS). In addition, data were gathered and iterated with several expert workshops that were carried out during the study.

1. Introduction

The content of this report is organized as follows. In section 2, we present the findings of the literature review. In section 3, we present the results of the first empirical section of the study (intermediary activities and the identification and categorization of knowledge transfer mechanisms). In section 4, we present the six case studies carried out during the study. Finally, section 5 provides a summarization of the results, conclusions and recommendations for further research.

2. Evidence from the existing literature

Knowledge has long been argued to be one of the main sources of the competitive advantage of firms (Conner and Prahalad, 1996; Grant, 1996). It has been argued that firms exist because they share and transfer knowledge better than do markets (Kogut and Zander, 1992). A large share of the economic activity in a market can be considered knowledge intensive, where knowledge is both a resource and an outcome of business. KIBS combine various types of highly specialized knowledge to develop problem-specific solutions (Miles et al., 1995). Knowledge intensity and intangible assets are the opposite side of a service business, because services cannot be created without them. Services require a high amount of knowledge transfer between firms, since knowledge is mostly embodied in people, and providing services requires more adaptation than does producing products. Therefore, there must be more customization and more knowledge exchange between service firms and their clients (Lindsay et al., 2003).

According to van Wijk et al. (2008), strong evidence is accumulating in academia that transferring knowledge from external sources has become central to firm success. Studies show that knowledge transfer increases firm performance (Lyles and Salk, 1996; Steensma and Lyles, 2000; van Wijk et al., 2008) and innovativeness (Powell et al., 1996; Tsai, 2001; van Wijk et al., 2008). It is known that knowledge transfer matters even if there are ambiguous definitions of the concept of knowledge in the context of value creation in a firm (Spender, 1996).

The scholarly articles in the review were selected based on a database search at ISI web of knowledge using a keyword “knowledge transfer”. The search was refined to also include articles under the topic “management”. From this query, around 100 of the most cited articles were selected for further examination. The resulting articles were then manually classified according to their abstracts into whether they considered macro or micro aspects of knowledge transfer. At this point, the researchers rated the articles on whether they felt that the article was

2. Evidence from the existing literature

worth reading or not. After this process, 35 articles were selected as the basis of the theory section (see Appendix III). These 35 articles were most commonly used. The theory section was complemented by also other suitable articles as well as articles that were cited by the 35 key articles.

2.1 The nature of service business development

The growing body of service-focused research has made it clear that services have come to dominate economic activity by businesses across most industries. In other words, we need to understand what drives and renews the development of service business done by firms in both the service and manufacturing industries. In this report, we refer to “service business” as an organization’s activity aimed at selling services (i.e. service offerings) directly to customers. These customers may be end-users (consumers) or other firms and organizations as part of a larger value chain. This definition means that goods manufacturers can also perform service business, for example by creating a sub-division devoted to service provision or by providing services in conjunction with their product offerings. The nature of service business is fundamentally different from the traditional business of trading goods because services have a number of characteristics that affect both the production and trade of services. For example, Lillrank (2009) states:

“As services are promises of processes to be carried out, their quality can’t be confirmed at the point of purchase. Pricing can’t be based on the exchange of goods, but can be based on various proofs of service, such as time and resource consumption, access to a facility, or the change of a state of affairs. From this follow several types of risks. For example, if a customer is disappointed with a physical product or unable to pay for it, it can be taken back to the seller. An intangible service can’t be returned, spent resources can’t be recovered, services have no scrap value, and there is no aftermarket for second-hand services. Services require various contractual arrangements that do not include change in ownership.” See also Gadrey, 2000; Lovelock and Gummesson, 2004.)

This perspective highlights the intangible nature and process aspects of service business. The few conceptual models that exist for services all highlight the systemic nature and the interaction between supplier and customer in the value creation process (Edvardsson and Olsson, 1996; Gallouj and Weinstein, 1997;

den Hertog, 2000). Some scholars that have aimed at modeling the service product – or service offering – have implicitly discussed the issues of innovation from the viewpoint of what can be changed, i.e. the target of the renewal or innovative part in a service offering. One of the most detailed descriptions has been provided by Bo Edvardsson and Jan Olsson (Edvardsson and Olsson, 1996, Edvardsson, 1997), who approached the topic from a service marketing perspective. According to them, services consist of three basic components: the service concept, service process and service system. The service concept includes the basic idea of the service, as well as its basic content and structure. The service process describes the chain of activities to be carried out, as well the roles of the provider and the client. Finally, the service system constitutes the resources required, including sub-components such as the company's staff, the physical/technical environment and the organizational structure. Any one of these different components and their sub-components can be changed in the process of new service development, which in service marketing terminology corresponds to an innovation process.

We applied the service model of Edvardsson and Olsson (1996) in the present study of service business and found it functional in the analysis of the target of knowledge transfer in service renewal (the model was applied in designing the study and interviews as well as in formulating the conclusions). To understand renewal in services, and its relation to knowledge transfer, we provide here a concrete list of sub-components that can be renewed in each of the three categories. These components are illustrative, intended to enhance our understanding and are based on prior field research (Toivonen and Tuominen, 2006; Toivonen et al., 2006).

According to our view, the service concept includes not only the basic idea and structure of the service, but as a service development process advances also can include the basic prototype of the service process and the type of resources used. These factors provide customers with the benefit promised in the value proposition. It is important to note that the boundaries between the categories are not clear-cut in real development processes, and nor do they designate specific phases of an innovation process. In reality, the service development is fuzzy, iterative and cyclical, and the process may start in any part of a service (see Table 1).

2. Evidence from the existing literature

Table 1. Possible targets of renewal in a service product.

Service concept (basic structure and market qualities)	Service process	Service system (resources and infrastructure)
<ul style="list-style-type: none"> – the elements of the service – the status of different elements (core vs. supplementary elements) – discernible outcomes – the relationship of this service to the firm's other services – pricing – markets (customer groups) 	<ul style="list-style-type: none"> – stages of the process – roles and tasks of the service firm and the client – the nature of the client interface (e.g. personal vs. electronic delivery) – the nature of the service relationship (e.g. single transaction vs. partner relationship) 	<ul style="list-style-type: none"> – technology – non-technological tools, models etc. – organization – competences of the service firm and the client – sub-contractors – physical environment

Gallouj and Weinstein (1997) argue that the service's final characteristics are a combination of its multiple competencies and technical characteristics. According to them, service innovation is always an incremental change either in the competencies, technical characteristics or both. In the model by den Hertog (2000), a service consists of four dimensions: 1) service concept, 2) client interface, 3) service delivery system and 4) technology. These dimensions are sown together with organizational capabilities, Human Resource Management (HRM) capabilities and marketing and distribution capabilities. The service system describes the resources available for producing the service and is socio-technical by nature, where value creation is affected greatly by the competences and skills of staff as well as their motivation and well-being.

From these three major conceptual models of services, it becomes clear that creating, developing and offering services require service business capabilities that are not required for traditional goods-based businesses. When focusing on service business, and from a Service Dominant Logic (Vargo and Lusch, 2004), the appropriate unit of exchange is no longer the static and discrete tangible good, but more the application of capabilities, or specialized human knowledge and skills, for and to the benefit of the receiver. Vargo and Lusch (2004; 2008) describe how these capabilities are intangible, continuous and dynamic. In line with the above, they define the concept of "service" as the application of competences for the benefit of another entity.

According to Service Dominant Logic, a service innovation is the creation of an offering not previously available to a firm's customers that requires modification in the set of capabilities of the service provider and/or its customers (Menor and Roth, 2007; Ordanini and Parasuraman, 2011). Therefore, the creation of new or improved service business capabilities can be an important source of service innovation, and for this reason we want to explore knowledge transfer in services.

2.2 Definitions of knowledge and knowledge transfer in services

Knowledge-based view (Grant, 1996) is a theoretical stream of the resource-based view of the firm (Barney, 1991). According to the resource-based view of the firm, the competitive advantage of a firm is based on the resources it utilizes to create new markets (Barney and Clark, 2007), and knowledge is considered among the key resources. This is different from the market-based view, where competitive advantage is based on studying the markets and responding to demand. It must be noted that the distinction between the two views are theoretical – in the real world the firm succeeds in competition by taking both market-based and resource-based views into account. However, taking the ideas of the resource-based view of the firm as underlying assumptions in this study provides a focus on capabilities and firm-level knowledge in value creation. The resource-based view also gives a freedom to presume that the firm that is able to manage its capabilities will also be able to create its own markets. Furthermore, the resource-based view works well for studying small, knowledge-intensive companies in their early stages and growth stages of lifespan. These companies do not yet have a legacy business model and inertia in the market, and thereby they do not study their markets. Instead, they enact the market by creating offerings that reveal hidden demands in the customer base (Chesbrough, 2011).

The knowledge-based view considers the firm as a body of knowledge even though the knowledge is inherently possessed by the individuals employed by the firm. Here, a firm is a collection of routines that is the aggregate of the individual's skills; therefore, the possession of knowledge is an attribute of the firm as a whole and the firm's aggregated knowledge base is not possessed by any single individual in the company (Nelson and Winter, 1982). This means that even if key individuals leave the organization, the knowledge base does not walk away at the same time. This definition of knowledge as embedded in different

2. Evidence from the existing literature

types of organizational depositories differs from other definitions of knowledge such as cognitive, situated and translational definitions (Patriotta, 2003), where the underlying theoretical assumptions are different and based on different streams of theory.

The definition of a firm's knowledge is broad: many phenomena, including routines, practices and technologies, qualify as knowledge (Rerup and Szulanski, 2004). Knowledge is being frequently divided into explicit and tacit dimensions (Nonaka and Takeuchi, 1995). Explicit knowledge is knowledge that can be codified in the written form as manuals, blueprints and books. Tacit knowledge cannot be codified; it is the internalized skill of performing activities, for example riding a bicycle. The knowledge-based view of the firm highlights the role of tacit knowledge, because it is fundamentally the source of innovation in Nonaka and Takeuchi's (1995) model of knowledge creation. Leiponen (2006) found out that in services, tacit knowledge is related to new service innovations and codified knowledge is related to improvements in existing services. This notion is plausible, because if all knowledge were explicit, then it would be available for everyone to use. This is not the case, so there is a need for knowledge intermediaries and knowledge transfer mechanisms in the market (Argote and Ingram, 2000).

Knowledge transfer is defined in this project along with most studies of knowledge transfer (e.g. Inkpen and Tsang, 2005; Kane et al., 2005; Easterby-Smith et al., 2008; van Wijk et al., 2008) as "the process through which one unit (e.g., group, department, or division) is affected by the experience of another" (Argote and Ingram, 2000, p. 151). This definition describes knowledge transfer as the creation of new context-specific knowledge through the learning of the parties and highlights the role of knowledge exchange between parties. The definition also includes an assumption that knowledge is "dynamic" not static (Spender, 1996) and is recreated and transformed when transferred from one context to another (Perrin, 2006).

The way the abovementioned learning between the parties takes place is defined as the "knowledge transfer mechanism" in this study. Examples of mechanisms that transfer knowledge from one service firm to another, or between intermediaries, universities and firms, are research projects, executive education, benchmarking workshops and individual knowledge brokers such as researcher consultants, as identified in the first empirical section of this project. Darr et al. (1995) define a knowledge transfer mechanism as a conduit or agent through which the transfer of knowledge takes place. They studied the effect of organiza-

tional learning in services by examining whether a franchise outlet was able to produce more units with decreased cost.

In manufacturing, knowledge transfer is often a synonym for technology transfer. According to Gopalakrishnan and Santoro (2004), knowledge transfer implies a broader, more inclusive construct that is directed towards understanding the antecedents for action in environment. Technology transfer is narrower and more targeted to knowledge that is embodied in tools for changing the environment. In technology transfer, the nature of interaction deals mostly with operational issues and how things work, whereas in knowledge transfer interactions deal more with strategic issues and why things work the way they do.

After studying service firms in advertising, commercial banking, computer software, hotels and management consulting, Grosse (1996) states that services can be considered products and when doing so, technologies can be categorized in the same manner as for industrial firms. The product technology in services equals knowledge and experience, the process technology can be defined as methodology and technical information and the management technology is management and financial skills. According to Grosse, even though services themselves are different from products in numerous ways, they can have a similar emphasis on technology. In services, the technology is applied to intangible services not physical goods.

2.3 Service business capabilities and underlying knowledge

In this study, emphasis is placed on studying the mechanisms of knowledge transfer instead of defining the specific sets of capabilities related to service business. However, it is important to define what is generally meant by capabilities and how they take form in the organization. Grant (1996) theorizes that the essence of any organizational capability is the integration of an individual's specialized knowledge. The flexible integration across multiple knowledge bases forms capabilities that are used as sources of competitive advantage. Therefore, according to Grant (1996), knowledge as such does not function as a source of competitive advantage for firms, but it is rather the use of the knowledge that matters. Also, if knowledge is only held at an individual level, then firms could transfer it simply by changing employees (Kogut and Zander, 1992). A notable insight in Grant's (1996) work is that each company in the market is different in terms of specialized knowledge. These differences have implications for a firm's

2. Evidence from the existing literature

innovation activities (Leiponen, 2006). Therefore, it is impossible to define the exact knowledge bases that are behind service business capabilities in an industry, not to speak of individual competencies. Even company executives are not aware of the exact capabilities that ensure the firm's success.

Instead of strictly defining key capabilities, it is possible to build hierarchies of capabilities to define certain higher order, integrated sets of knowledge that are common for all firms in the same industry. After all, even after explicating the higher order sets of knowledge bases, it is difficult to determine which knowledge related to these higher order categories is valuable and which is not because of technological and competitive uncertainties in the market (Grant, 1996). Therefore, the service business capability that matters is in fact a capability to integrate multiple knowledge bases related to the service business.

An everyday example of the challenge of defining the knowledge base behind a capability that results in competitive advantage is thinking about why some companies are better than others are. We know that a company that buys inputs cheaper than its competitors can and sells products or services in the market at a higher price, survives the best. Success may seem easy, but it is impossible to define and transfer the exact reasons behind it. However, it can be roughly defined that some companies have superior sourcing, sales or human resource functions compared with others. But the underlying reason for the success of the sales function in a company remains hidden. In other words, when defining the knowledge bases of service business capabilities, we have to rely on outcome measures and try to figure out which factors affect desirable outcomes. According to Argote and Ingram (2000), success in knowledge transfer can be measured by either changes in knowledge or changes in performance.

Despite the obvious hardships of defining and measuring the exact service business capabilities that lead to success, studies have stated the relevant knowledge bases in services. These state that if a company takes care of the knowledge related to these issues in the business, the outcome of the business will be better. These studies map the challenges related to the management of professional service firms and bring clarity to strategy formation.

Management consulting companies represent archetypal knowledge-intensive firms (Werr and Stjernberg, 2003), since their knowledge sold to clients is produced with knowledge, using knowledge as a resource. In management consulting, service capabilities are built on complementarities between explicit knowledge, in the form of methods, tools and cases, and personal tacit knowledge, in the form of the consultants' experience. After interviewing the

two largest multinational management consulting companies, Werr and Stjernberg (2003) conclude that there are three common interacting knowledge elements that constitute service capability in a management consulting firm: methods and tools, cases and the experience of individual consultants.

Empson (2001; see also Alvesson, 1993; Lowendahl, 2000) identified two types of knowledge in professional service firms: technical knowledge and client knowledge. Technical knowledge is related to a certain field, embedded in the organization or in an individual. Client knowledge is context-specific, namely the general understanding of the particular industry, detailed knowledge of a specific client firm and personal knowledge of key individuals within the client firm. Agarwal and Selen (2009) grouped service business (dynamic) capabilities into four groups: customer engagement, collaborative agility, entrepreneurial alertness and collaborative innovative capacity. It is notable that the distinguished higher order capabilities found in empirical studies differ based on the case companies and theoretical inclination of the authors, still finding the answer to the same question of what knowledge is competitive advantage based on. Table 2 summarizes some of the knowledge bases of service firms presented in the professional service literature.

2.4 Barriers of knowledge transfer between service firms

It has been noted that learning in services is slower compared with learning in manufacturing (Darr et al., 1995). This may be because in manufacturing, knowledge is embedded in technology, which is easier to transfer. In other words, knowledge embedded in technology is a mechanism for knowledge transfer.

In services, however, knowledge is largely embedded in individuals. Besides the characteristics of individuals (whether they are willing to share their knowledge), the factors that potentially make service knowledge transfer less efficient compared with technology transfer are related to the characteristics of the organization (whether the service is based on specialization or standardization) and the nature of the demand function (whether the demand is predictable or not). Furthermore, in manufacturing, the task of production is designed for a certain machine and it is possible to sequence the production to maximize productivity. Services need to be produced on demand (Darr et al., 1995).

2. Evidence from the existing literature

Table 2. Knowledge bases in services based on Werr and Stjernberg (2003) and Empson (2001).

Knowledge base	Description	Use
Methods and tools (Werr and Stjernberg, 2003)	General description of methods and how-to guides	Providing a common language and knowledge structure in planning and executing consulting projects
Cases (Werr and Stjernberg, 2003)	Documents produced in projects e.g. process maps and proposals	Carrying knowledge in a narrative form to obtain examples and inspiration from previous projects
Experience of individual consultants (Werr and Stjernberg, 2003)	Individuals' experience of previous consulting tasks	For the adaptation of methods, tools and cases to the specific consulting project
Technical knowledge (Empson, 2001)	Sectoral (generic), organizational (firm-specific) and individual (proprietary to each professional) forms of knowledge	Forms the prerequisites for value creation
Client knowledge (Empson, 2001)	Context-specific understanding of particular industry, detailed knowledge of a specific client firm, personal knowledge of key individuals in a client firm	Is used in implementing the technical knowledge for client projects
Customer engagement (Agarwal and Selen, 2009)	Loyal and committed customer base	New opportunities for innovation; resource for innovation
Collaborative agility (Agarwal and Selen, 2009)	Swift interactions with customer, orchestration of internal operations and use of external partners	Respond to changes and transform organization quickly
Entrepreneurial alertness (Agarwal and Selen, 2009)	Discovery of new opportunities	Explore the markets, detect current and future market threats and opportunities
Collaborative innovative capacity (Agarwal and Selen, 2009)	Ability to come up with innovative ideas	Capture ideas and execute them
Collaborative organizational learning (Agarwal and Selen, 2009)	Deliberate learning efforts in the organization	Articulate and codify collective knowledge

Although service business knowledge is not embedded in technology as much as in manufacturing, there are certain key technologies that drive knowledge transfer in services (Grosse, 1996). Service businesses such as advertising, banking,

computer software, hotels and consulting use certain key technologies, such as SAP. The knowledge in certain services may thus be related to the use of key technology – but then it might be wise to talk about the transfer of service technology instead of that of service knowledge (Gopalakrishnan and Santoro, 2004).

What hinders or even prevents knowledge transfer between service firms? One of the most used explanations relates to the capacity of the receiver of the knowledge to understand and assimilate external knowledge – the absorptive capacity of the receiver, a term popularized by Cohen and Levinthal (1990).

The idea behind absorptive capacity is that the ability of a firm to absorb new knowledge is affected by the stock of knowledge that it previously held. It is thus easier to learn new things when there is an existing knowledge base (Cohen and Levinthal, 1990). Lane et al. (2001) note that absorptive capacity is a broad concept that includes 1) understanding external knowledge, 2) assimilating it and 3) applying it commercially. Lane et al. (2001) further operationalize the three classes of absorptive capacity in their study on international joint ventures as described in Table 2. Easterby-Smith et al. (2008) note that absorptive capacity is also a factor in the knowledge source firm and affects the capability of the source firm to pass on the correct knowledge to the receiver.

According to Szulanski (2005), barriers are related to the hardships of exploiting existing knowledge. According to him, two factors affect the successful exploitation of knowledge: 1) causal ambiguity and 2) the stickiness of knowledge. Causal ambiguity is uncertainty related to whether a process or capability invented in one place and time can be successful in another place and time. The factors explaining why a capability works cannot be precisely determined, which makes it inherently ambiguous. According to Szulanski et al. (2004), causal ambiguity is related to many uncertainties on how the source of knowledge is able to produce superior results, but is unable to communicate the capability, or template as they call it, to the recipient. They note that factors affecting the level of causal ambiguity are, for example, the articulation of the rules that govern behavior, tacit nature of individual skills and partial knowledge of processes.

For von Hippel (1998), knowledge is context-dependent and thus is difficult (or sometimes impossible) to transfer (“sticky” knowledge). In professional services, knowledge used in problem solving is local and tied to the service process. Stickiness can also be related to the transfer process in addition to the quality of knowledge – certain units of knowledge may be easy to transfer in one situation but difficult in other. Reasons for stickiness in the transfer process relate to such things as the source (i) may have only partial or imperfect knowledge about what

2. Evidence from the existing literature

is being transferred and how it works, (ii) is unlikely to be able to teach the receiver how to implement the knowledge or (iii) may mistakenly think that the knowledge is correct (Rerup and Szulanski, 2004). Table 3 summarizes the barriers to knowledge transfer between service firms.

Table 3. Barriers to knowledge transfer between service firms (Lane et al., 2001; von Hippel, 1998; Rerup and Szulanski, 2004).

Barriers related to the absorptive capacity of the receiver	Description
Ability to understand external knowledge	Trust between the knowledge sources, cultural compatibility, prior knowledge about the source, source's relatedness to own business (Lane et al., 2001)
Ability to assimilate external knowledge	Flexibility and adaptability, management support, training, formed goals, specialization (Lane et al., 2001)
Ability to apply external knowledge commercially	Business strategy, training competence
Barriers related to transfer process or organization	Description
Knowledge is embedded in individuals, not technology	Skill levels and other personal characteristics of individuals determine how well knowledge is transferred
Organizational characteristics not same in source and receiver of knowledge	The same knowledge does not necessarily apply in both firms
Demand is not the same in source and receiver of knowledge	Market situation is different for each service firm, therefore the service capabilities also differs
Production of services cannot be sequenced	Knowledge about manufacturing machinery is easier to transfer since efficiency can be achieved with producing the products to warehouse
Barriers related to the nature of knowledge	Description
Knowledge is not task-specific	In the production of material goods, knowledge may relate to a specific task in the process. Service processes are more ambiguous, and thereby knowledge is rarely related to a certain task
Causal ambiguity of knowledge	Knowledge that produces value in one situation does not necessarily produce value in another situation. It is unclear how the knowledge produces value
Sticky information	Knowledge is strongly related to situational factors in one organization and some knowledge is impossible to transfer

It can be summarized that the barriers to knowledge transfer in service business are mostly related to the differences between products and services. There are factors related to the absorptive capacity of the receiving organization, nature of knowledge, transfer processes and organizations participating in the transfer.

2.5 Knowledge management strategies

Some of the barriers related to knowledge transfer between service firms can be overcome by relating them to the knowledge management strategy of the firm. The strategy must be identified, and then the prerequisites for knowledge transfer thought accordingly. Before transferring knowledge, it must be made clear what the knowledge will be used for. Then, it is easier to understand the contingencies of the specific receiver and adapt the unit of knowledge being transferred to the recipient's needs (Rerup and Szulanski, 2004).

According to Hansen et al. (1999), firms in management consulting generally rely either on personalization or codification for their knowledge management. A personalization strategy requires the constant tailoring of services to clients' needs, whereas a codification strategy relies on the efficient reproduction of services that have already been offered. Hansen et al. (1999) look at these strategies from an internal IT systems point of view; codification requires IT systems that are reliable and fast to reuse codified knowledge, whereas personalization requires IT systems that channel individual expertise to provide creative solutions to strategic problems.

In a personalization strategy, the main type of knowledge in value creation is tacit and embedded in individuals. This makes it possible to design new services for the needs of clients. In a codification strategy, the main knowledge resource is in a codified form and stored in IT systems. Then, inexperienced personnel can access the knowledge and utilize it during routine service.

March (1991) points out a similar issue in the management of firms in general. Firms need to balance between exploring and exploiting knowledge to survive in competition. This balance is a fundamental paradox in management. It is impossible to achieve both simultaneously – those firms that are good at efficient production are rarely innovative and innovative companies lack efficiency. In a personalization knowledge management strategy, exploration (search, variation, risk taking, experimentation, play, flexibility, discovery, innovation) is dominant, whereas in codification, exploitation (refinement, choice, production, efficiency, selection, implementation, execution) is highlighted. Table 4 further describes the personalization and codification of knowledge management strategies.

2. Evidence from the existing literature

Table 4. Personalization and codification of knowledge strategies in service firms.

	Personalization knowledge management strategy	Codification knowledge management strategy
Operation mode	Exploration: search, variation, risk taking, experimentation, play, flexibility, discovery, innovation	Exploitation: refinement, choice, production, efficiency, selection, implementation, execution
Services	Tailored according to clients' needs	Routinized one-size-fits-all
Main type of knowledge resource	Tacit, embedded in individuals	Codified, stored in IT systems
Personnel	Senior experts	Junior managers
The role of knowledge in value creation	Core asset. New knowledge tailored to the client produces most value	Complementary asset. Effective use of existing knowledge for the client produces most value
Core service capability	Knowledge and experience to design new service	Methodologies and technical information on how to produce service
Means to leverage inter-firm knowledge transfer with social networks	Highlight strong ties and closure	Highlight weak ties and reach

2.6 Successful knowledge transfer

Social network structures have important implications for knowledge transfer. There are two lines of thought in network theory on the optimal network structure. The stream of theory that highlights strong ties and closure that is suitable for refining tacit knowledge was first argued by Coleman (1988) and later refined to an argument on social embeddedness (Uzzi, 1996). The other stream of theory that highlights weak ties, sparse network structure and reach across boundaries of groups was introduced by Granovetter (1973) and later built to an argument on the role of brokers in innovativeness (Burt, 1992). However, it has been argued that the optimal network structure for a company combines these two network structures. There, the densely connected teams have ties to other teams in the organization (Reagans and McEvily, 2003). Decentralized struc-

tures have generally been considered to broaden communication channels and eventually improve the quality and quantity of knowledge and ideas that might be shared, but the firm should have a central position in the structure to benefit from knowledge (van Wijk et al., 2008).

Knowledge transfer between firms is related not only to the relationships between the source and the receiver of knowledge, but also to the organizational and regional environments. In their study of inter- and intra-firm networks and industrial districts, Inkpen and Tsang (2005) list facilitating conditions for successful knowledge transfer. In the firm, personnel transfer, decentralized authority, low turnover, shared visions and collective goals, accommodation of different cultures and clear and transparent reward criteria ensure the knowledge being transferred in the firm. In an industrial district, facilitating conditions are proximity to other members, boundary spanners between cliques, stable personal relationships, cooperative norms, informal relationships and social ties as prerequisites of commercial ties. These prerequisites then support repeated exchanges of knowledge, multiple knowledge connections, non-competitive approach on knowledge transfer, clear goals, cultural diversity and foresight in knowledge transfer between two firms. Dhanaraj et al. (2004) and McEvily and Marcus (2005) also argue for “relational embeddedness”, that is tie strength, trust and shared values and systems, as a promoter of knowledge transfer. This results in an accumulative learning of tacit knowledge that assists in explaining explicit knowledge (Uzzi and Lancaster, 2003).

According to von Hippel (1998), the stickiness of knowledge can be reduced by making tacit knowledge explicit with ICT systems, e.g. encoding information into more accessible forms in computer databases. The problem is, however, that the individual service business capability is not codified, and as described in the knowledge-based view of the firm capabilities can be defined only with higher order classes. Therefore, the tacit knowledge that cannot be codified can be transferred with routines as a way of embedding the knowledge in the organizational structure. In experiments where teams of students were told to perform simple group tasks, the teams that had developed a clear routine for the task were more capable of giving instructions to newcomers in teams (Rao and Argote, 2006).

Based on a case study on the joint venture between General Motors and Toyota, Inkpen (2008) names two factors as crucial for successful knowledge transfer: 1) the systematic implementation of a knowledge transfer mechanism and 2) a perspective of trial and error learning on the experimentation of the transfer outcome. This way General Motors was able to transfer some of the knowledge in

2. Evidence from the existing literature

Toyota to run their plants as efficiently as they were run in Japan. The case highlights the ongoing learning between the receiver and the source of knowledge. Similar insights were presented by Argote and Ingram (2000). They note that by embedding knowledge in interactions involving people, organizations can effect knowledge transfer between the source and the receiver and impede knowledge transfer outside of the two.

In their network study on inter-firm knowledge exchanges in a technological cluster, Sammarra and Biggiero (2008) note that there should be multiple knowledge transfer mechanisms between individuals and groups simultaneously, both formal and informal. This ensures that multiple types of knowledge (e.g. market knowledge and technological knowledge) are transferred.

Van Wijk et al. (2008) performed a meta-analytical study by combining 75 individual quantitative studies on knowledge transfer. From the 251 effects in 83 independent samples used in the study, the following factors resulted in an increase in both the performance and efficiency obtained from the knowledge transfer: focal company's centralized network position and trust, strong ties, shared visions, shared systems and low cultural distance between the receiver and the source as well as the good absorptive capacity of the receiver and unambiguity of knowledge. Larger organization size also had a small but significant effect. The factors that had no effect on knowledge transfer were the age of the organization, number of relations and decentralization. Therefore, according to this study, it seems that the strength of the relationships matters instead of the quantity of connections, and a centralized position matters instead of a decentralized structure.

2.7 Summary

Based on the knowledge-based view of the firm, service business capability can be defined as the capability of the organization to integrate multiple knowledge bases related to service business. According to the theory, it seems evident that successful knowledge transfer related to service business is highly dependent on the transfer of tacit knowledge. In the successful transfer of tacit knowledge, the circulation of staff in a service firm and communication among individuals from different firms are important factors. Knowledge transfer in services is largely learning from the individuals working on the service. This learning then can be observed in the increase in the knowledge of different knowledge bases in the service firm, which results in improved productivity, efficiency and novel ser-

vice concepts. In the learning process, knowledge is recreated, redefined, linked with other knowledge, shared and enriched (den Hertog, 2000). This increases the possibility for the service firm to offer more efficient routine services and more innovative tailored services to its clients.

The goal in service business should be the transformation of tacit knowledge to explicit knowledge. However, this is possible only to a certain extent. Therefore, mechanisms to transfer tacit knowledge will have to be introduced. The theory reviewed above agrees that social relations play an important role in the transfer. In this study, we concentrate on the activities of intermediary organizations, which by definition work between other organizations and try to transform and moderate knowledge for a wider audience. Intermediaries are knowledge transfer mechanisms as such, but their role is also to introduce and develop mechanisms where tacit knowledge is transformed to explicit knowledge and knowledge is transferred from organization to organization. The next chapter describes our approach and the results of the first phase of our study.

3. Identification and categorization of knowledge transfer mechanisms

In this section, we will present the main empirical results of the first phase of the study. The objective of the first phase was to utilize innovation intermediary organizations as “informants” of different knowledge transfer mechanisms. Intermediaries play an important role in transferring capabilities and knowledge about service business development between individual firms as well as within and between industrial sectors. Intermediary organizations (which are also often called ‘bridging’ or ‘broker’ organizations) in this study refer to a group of organizations that are units affiliated to research and education organizations and that carry out applied research projects and professional training such as public development agencies, industrial associations and KIBS. We refer to organizations that operate – and try to increase the interactions – between new knowledge creation (basic research) and socio-economic utilization of research results¹.

The importance of intermediaries in this context is based on two arguments. Firstly, the mission of intermediaries is to operate as knowledge transfer mechanisms in organizational networks². They should possess the relevant expertise

¹ The concept of an “intermediary organization” has different meanings in science, technology and innovation studies depending on the context. In some cases, intermediaries are defined as public agencies that operate between ministries and implementing public bodies; and in some cases they are strictly defined as technology transfer organizations that are involved with IP regulation, management and marketing in a university context.

² The role of intermediaries in innovation, see e.g. Howells (2006); the role of bridging institutions and organizations in a sectoral system of innovation, see Sapsed et al. (2007); the role of intermediaries in Triple Helix networks, see Suvinen et al. (2010); the roles of intermediaries in a regional knowledge system, see Smedlund (2006); the role and function of KIBS in knowledge transformation and diffusion in innovation networks, see Muller and Zenker (2001); the role of KIBS in the IC development of regional clusters, see Smedlund and Toivonen (2007).

and tools to efficiently moderate and transfer knowledge related to business development between organizations. Secondly, it is argued that the tacit component of knowledge is strongly involved in the exchange of services (e.g. Chesbrough and Spohrer, 2006). Our presumption is that operations in intermediaries lead to the collection and accumulation of experiences of tacit business knowledge and to the codification (moderation) of knowledge through the expertise of intermediary representatives, which consequently leads to enhanced communications and transferability. Based on these arguments, such organizations were expected to be an important knowledge source as well as the objects of the research in this study.

3.1 Research approach

We carried out interviews in 15 intermediary organizations and the total number of interviewees was 20. The organizations included nine research, education and training units, four regional development agencies and two industrial association organizations (the list of interviewees is presented in Appendix I). Perspectives on behalf of private KIBS were collected separately by using a survey (presented in Appendix II) and, therefore, we did not include KIBS in the interview round. We carried out interviews in two large (by population) Finnish regions: the Helsinki metropolitan area and the Oulu region. The duration of interviews was between one and two hours and all interviews were recorded and transcribed. It should be noted that the data represent only a sample of the total population. However, the sample was collected based on the experience and knowledge of the research team, meaning that the most potential intermediaries that have versatile activities in the service business development field were chosen to comprise the sample. The results of the study should not be interpreted in the sense that the sample is representative, but rather as an outcome of multiple limited case studies in two large Finnish regions.

After carrying out the interviews, we identified knowledge transfer mechanisms from the data and arranged an internal workshop (within the research team) to create a data-driven categorization of the mechanisms. This was necessary since the number of identified mechanisms was high and the variety of mechanisms was rather wide. The first categorization of the mechanisms was created following interactive discussions by the research team on the perspective of the network structure of the knowledge transfer parties and the role of intermediaries in the network. This exercise produced six knowledge transfer mecha-

3. Identification and categorization of knowledge transfer mechanisms

nism groups. The categorization was also further iterated during the writing of this report. Then, we arranged a second workshop where we invited external experts to analyze the mechanisms in a predetermined framework (there were 10 participants altogether including the research team). The second workshop was needed to include external experts for the further iteration of the previous results and observations. The framework we used was the SECI model³ developed by Nonaka and Takeuchi (1995). This framework was selected by the research team after several attempts to categorize the mechanisms in other frameworks. The selected framework had the most potential to differentiate the mechanisms. After the SECI exercise, we discussed what kind of implications could be drawn from the presented mechanisms and classifications and the results of this conversation are included in the following sections. In section 3.2, we will present general remarks based on the interviews and highlight regional differences. In section 3.3, we will present the identified mechanisms and the data-driven classification of the mechanisms. In section 3.4, we will present the outcome of the second workshop and the mechanisms based on Nonaka and Takeuchi's SECI model.

3.2 Remarks and regional perspectives about the first phase

As indicated before, we interviewed 20 representatives of intermediary organizations both in Helsinki and in Oulu. We were interested in the different activities of the organizations concerning service business capability development. For example, we discussed to what extent they collaborate with organizations developing service business, what kind of mechanisms they have for supporting the development of service business capabilities and to what kind of activities they draw their attention (e.g. the development of service concepts, the development of processes and/or service organizations and/or the development of infrastructures of the firm; Edvardsson and Olsson, 1996). We were also interested in their views about the key elements of successful knowledge transfer activities and the kinds of mechanisms the intermediaries had been using when they felt that capability development had been especially effective in customer organizations (see interview guide in Appendix IV).

³ The SECI model links tacit and explicit knowledge through four phases: socialization, externalization, combination and internalization (Andriessen, 2004).

3. Identification and categorization of knowledge transfer mechanisms

We firstly found that the concept of “developing and transferring service business capabilities” was challenging. We described in more detail how service know-how and exchange includes a fair amount of experiential, tacit knowledge and requires (an inborn) service-oriented attitude, especially from the service provider. It was argued that the transfer of service business capabilities requires a good, open dialogue among the parties. Under the circumstances, it was seen that the most efficient methods support open dialogue, participation and learning among the parties. The backgrounds of the interviewees affected where they placed emphasis, e.g. research organizations emphasized the importance of research and organizations offering more concrete services emphasized the importance of practicality. Overall, little attention was paid to how effective the methods used were viewed from the users’ perspectives or what kind of impact they had. The role of funding organizations such as Tekes (especially the SERVE program) were seen as important in spreading the knowledge and results from the projects funded.

Secondly, the object of development in knowledge transfer and capability building seemed to most often relate to either new service concepts or process development. As the most important role for intermediary organizations was most often described to be a network builder or provider’s role, we further described how to develop e.g. for new service concepts, companies need to establish a network of actors around them, who will be able to contribute, form and execute the new concept in real life. In particular, small and medium-sized enterprises (SMEs) rarely have the contacts or time to do this.

From the interview data, we also found clear differences between the Helsinki and Oulu regions. Firstly, differences regarding the basic knowledge background, input and attention invested to developing service business capabilities could be found. In Helsinki, it seemed that there were a number of different training programs, R&D projects, consultants and development organizations in the field of service business development. The development of services, service organizations and capabilities was also present. By contrast, in Oulu the basic knowledge and emphasis was placed on the development of IT, logistics or industry-driven products, concepts, processes and services. The offering related to training programs, research projects, consultants or other skilled professionals for firms seemed to be limited here. In addition, the emphasis of intermediaries on service development seemed to be relatively scarce. In one interview in Oulu, it was even questioned that to what extent it is wise to emphasize service development in the region. It was pondered whether knowledge and know-how should

3. Identification and categorization of knowledge transfer mechanisms

rather be on high-end technology and IT knowledge in the future. However, the need to build knowledge related to general business management, marketing and internationalization was seen as important.

Secondly, maybe because of the different emphasis between the Helsinki and Oulu regions, we found that in Helsinki, a shared (theory-driven) terminology and language was commonly used regarding services. In Oulu, by contrast, fewer organizations, such as VTT and Oulu University, used a similar terminology and language. In Oulu, development activities seemed to target a more concrete language and abstraction level and interviewees emphasized general business development instead of service business development challenges in firms. Here, the general cultural attitude, especially organizational culture, was seen as the most important obstacle for the development of service capabilities and for the further use and development of services in private businesses.

3.3 Knowledge transfer mechanisms and categorization

We identified 92 different knowledge transfer mechanisms altogether in the interviews and a few new mechanisms were co-created during the second workshop⁴. The first categorization revealed that mechanisms differ based on how many parties are involved and the roles of intermediaries (displayed in the form of an ellipse in the pictures below) in the network where knowledge transfer occurs. Six categories were formed based on the analysis of identified mechanisms, as presented below (Figures 1–6).

⁴ The full list of mechanisms and descriptions can be requested from the authors.

3. Identification and categorization of knowledge transfer mechanisms

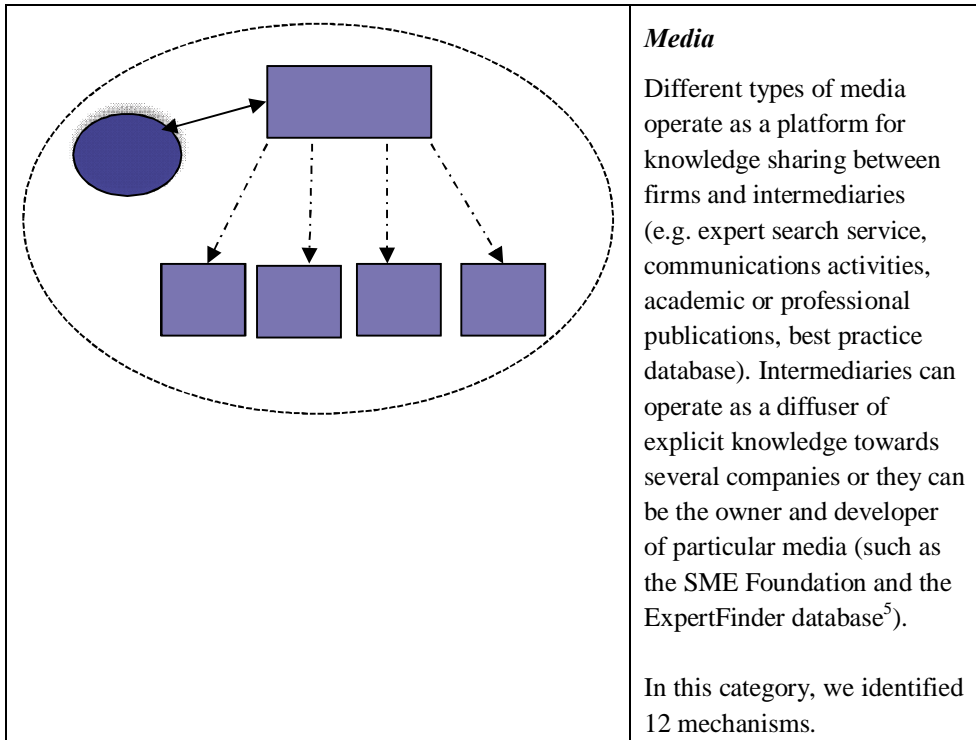


Figure 1. The media category.

⁵ The ExpertFinder case is presented in section 4.2.2.

3. Identification and categorization of knowledge transfer mechanisms

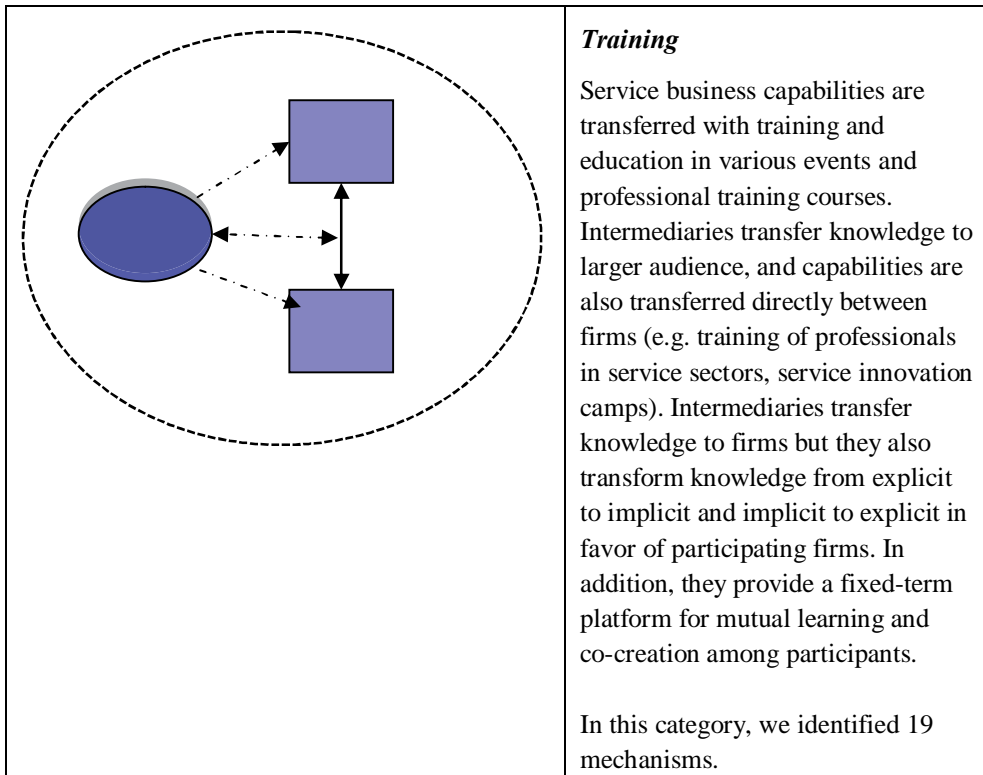


Figure 2. The training category.

3. Identification and categorization of knowledge transfer mechanisms

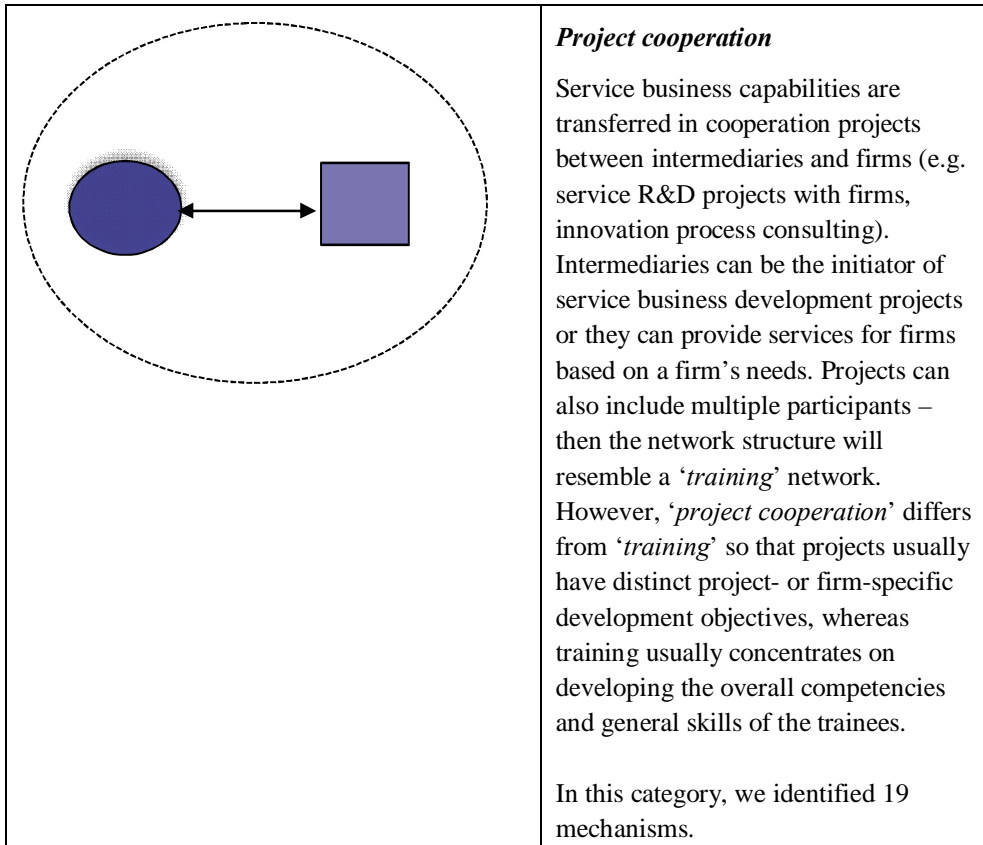


Figure 3. The project cooperation category.

3. Identification and categorization of knowledge transfer mechanisms

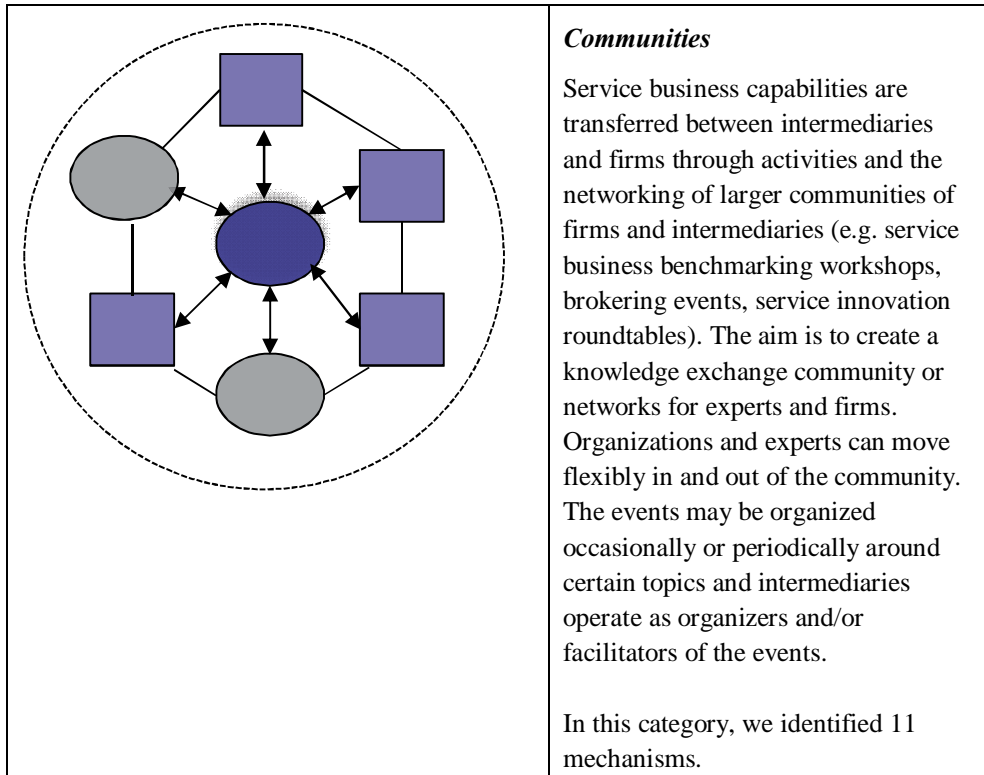


Figure 4. The communities category.

3. Identification and categorization of knowledge transfer mechanisms

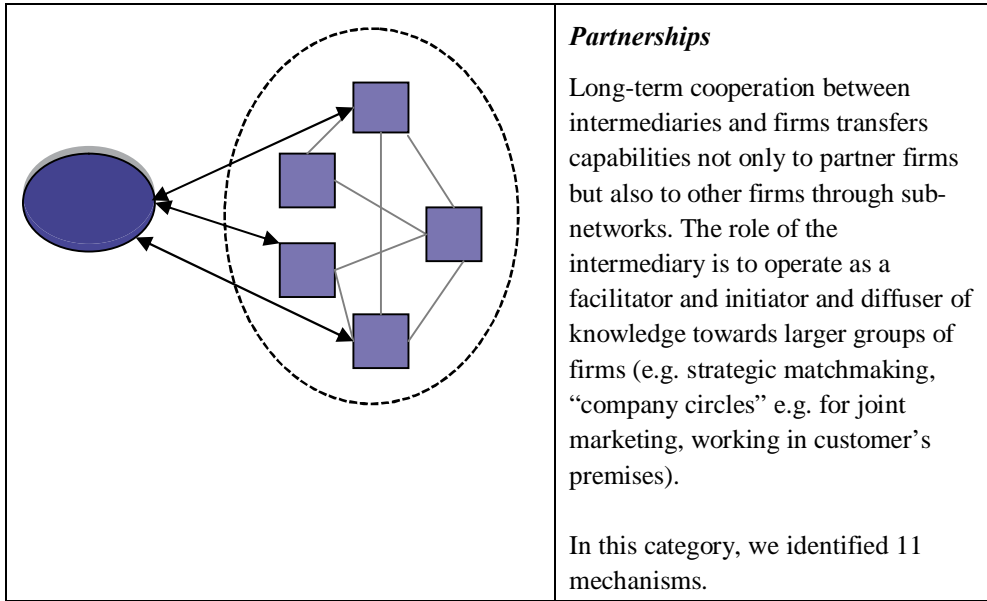


Figure 5. The partnerships category.

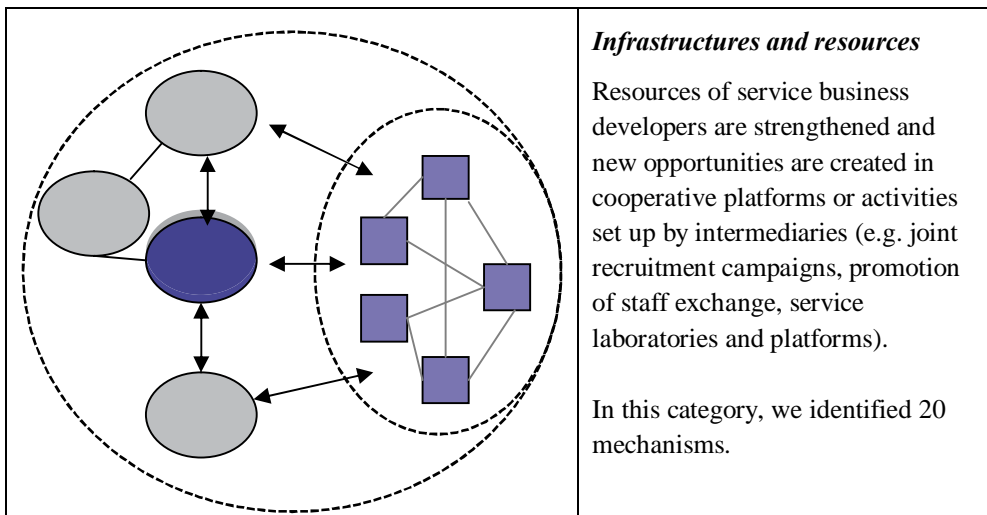


Figure 6. The infrastructures and resources category.

3. Identification and categorization of knowledge transfer mechanisms

The figures above present the categorization of the identified mechanisms. It should be noted though that these categories are not exclusive and many mechanisms have qualities that belong to several categories. Moreover, the way some methods are implemented can transform them. For example, a single development project may eventually transform into a community or a long-lasting partnership if different parties are committed to a continuous process of development. The number of identified mechanisms is also high since some of them are actually descriptions of how such mechanisms would be most effective in transferring knowledge to service business capabilities. Therefore, a summarization of each category is presented below.

In the '*media*' category, it is emphasized that Internet-based tools should be utilized to present "good cases" of service business development to larger audiences, e.g. through blogs and case databases. Traditional opinion columns in newspapers and professional journals can also be important mechanisms of raising awareness among firms. Different media should also aim to connect developers (intermediaries and KIBS) and firms that are seeking change in their organizations. So, the utilization of different media should be regarded as the initial phase of development activities, where raising awareness and identifying potential developers in the field is needed – before engaging in more concrete development activities (e.g. through training and projects).

The '*training*' category, by contrast, emphasizes the methodological and conceptual tutoring of service business (and service science) as a starting point for training. Service business studies are different from general business or innovation and technology-related studies and, therefore, training needs to concentrate first on changing the mindsets of trainees. In addition, the "hands-on" learning and contextualization (development needs are often firm-specific) of training is emphasized.

In '*Project cooperation*', the concept and process development of the service organizations is underlined and including customers in the development process is considered especially important. Moreover, visualization (e.g. through service blueprinting and design) is considered an effective tool in development projects. In the '*communities*' category, trust building and the creation of common development agendas are considered important. Such communities are also seen as an appropriate tool for regional development as well as an instrument for enhancing the development of certain topical areas of service business in large organizational networks.

Similar to communities, partnerships are also built on trust; therefore, trust building is also considered an important aspect in the '*partnerships*' category. Building partnerships is seen as an essential mechanism to steer development activities from individual projects towards more a holistic development approach. The successful development of a specific service or service process does not necessarily make a (financially) successful service company. Yet, partnerships can be utilized to co-create joint service products and offerings for a group of firms that operate in the same business.

Finally, in the '*infrastructures and re sources*' category, providing physical and technical platforms and test beds for enhancing interaction and facilitating service design processes in the development of services is considered valuable. Experimenting and concrete prototyping is seen as an effective method to increase the capabilities of service firms. In addition, strengthening the resources of the firms by providing opportunities for staff exchange and co-creation between organizations is considered an important aspect of knowledge transfer.

3.4 Knowledge transfer mechanisms from the perspective of creating new knowledge (SECI model)

In addition to the grouping of transfer mechanisms, we carried out an exercise to categorize mechanisms with the help of an established model. For this purpose, we selected Nonaka and Takeuchi's (1995) SECI model, which provided us a mental map to group our 92 mechanisms according to the nature of vital knowledge. The core behavioral assumption in the model, which appeared in the early 1990s, is that knowledge-creating companies continually encourage the flow of knowledge between individuals and staff groups to improve both tacit and explicit knowledge stocks. The critical knowledge management assumption of the SECI process is that knowledge is created and improved as it flows through different levels of the organization and between individuals and groups. Thus, knowledge value is created through synergies between knowledge holders (both individuals and groups) within a supportive and developmental organizational context (Rice and Rice, 2005). The model includes a 'knowledge spiral' where tacit and explicit knowledge interact in a continuous process. The SECI model links tacit and explicit knowledge through four phases: socialization, externalization, combination and internalization (Andriessen, 2004).

3. Identification and categorization of knowledge transfer mechanisms

Socialization

Socialization of knowledge: from ‘tacit’ to tacit’. Examples of this type of transfer are conversation, direct interaction, and customer and supplier contacts.

Externalization

Externalization of knowledge: from ‘tacit’ to ‘explicit’. Examples of this type are formal presentations to peers, writing down events, directives and procedures.

Combination

Combination of knowledge: from ‘explicit’ to ‘explicit’. Examples of this type are combining different sources into a new one.

Internalization

Internalization of knowledge: from ‘explicit’ to ‘tacit’. Examples of this type are learning by doing, reading, courses and practice.

Although the SECI model is a theory for the creation of new knowledge within organizations, the results of the exercise showed that this particular theory could be applied to inter-organizational knowledge transfers. With this exercise, we wanted to highlight how different knowledge transfer mechanisms are targeted to different aspects of knowledge creation. The research team and external experts positioned the identified mechanisms in the following way (see Figure 7). Each mechanism was briefly described on a piece of card and workshop participants positioned the cards on a large sheet presenting the SECI model. The principles of the SECI model were presented for workshop participants before the exercise started.

Although the presented exercise was carried out rather quickly (in approximately one hour) and, therefore, cannot be regarded as an in-depth analysis, it did bring out some interesting findings. In addition, conversations among workshop participants after the exercise (which was documented by the researchers) brought up some general observations related to the theme. The most central observation of the exercise was that the mechanisms mostly aim at the ‘externalization’ and ‘combination’ of knowledge and less often at ‘socialization’ and

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‘internalization’. In addition, many mechanisms are situated in the borderline of the four dimensions – aiming both at socialization and at externalization, or at externalization and at combination. There were also no major differences between how mechanisms were positioned on the framework based on the initial categorization of the mechanisms.

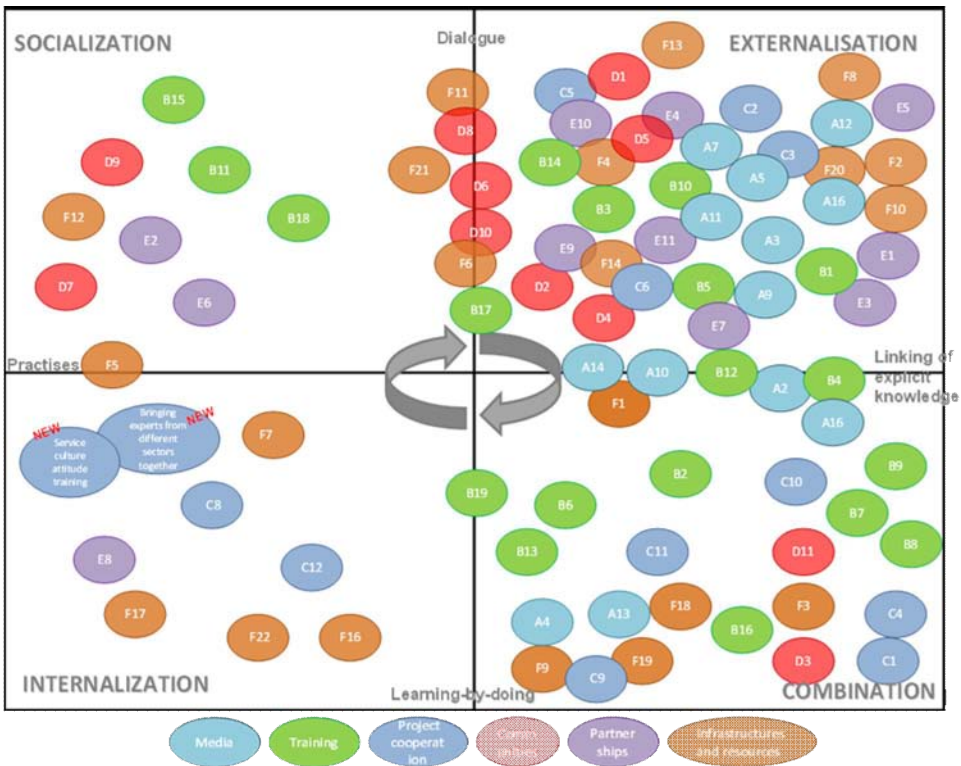


Figure 7. Knowledge transfer mechanisms and the SECI model.

In the concluding discussion of the workshop, the following observations were highlighted by the experts. Firstly, there are many knowledge transfer mechanisms for the dissemination of knowledge (this refers to the high number of mechanisms in the ‘externalization’ category), but little attention is paid to how the information is internalized in firms, meaning how explicit knowledge is turned into tacit knowledge in order to be concrete and useful for the employees and the firm. It was proposed that the internalization of knowledge should be measured and verified more often so that the success of knowledge transfer activities and mechanisms could be evaluated. Currently, it is difficult to assess

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what available services that intermediaries offer are effective for service firms. A potential approach, as suggested in the workshop, for this could be a retrospective analysis of successfully internalized knowledge, namely how, and through what kind of process, the socialization, externalization and combination of knowledge leads to the internalization of service business capabilities in the firm.

Secondly, it was discussed that knowledge transfer in service business development is a matter of organizational culture, which is often a barrier to knowledge transfer activities. Service business development requires that the “human factor” is included more systematically in the development processes, instead of only concentrating on business processes and immediate gains. Thirdly, there seemed to be a shortage of mechanisms that try to incorporate customers and end-users of firms in development processes. Moreover, innovative methods that utilize large masses of people (e.g. peer assessment and communication) in development processes are few. Fourthly, it was discussed that the exercise did not take into account what kinds of knowledge or capabilities of service business are transferred or the target of development in each case. It was proposed that this should be determined and clarified further in the later stage of the study or in further studies. However, these initial results have some practical implications. It seems that intermediaries should develop their services and mechanisms to incorporate more systematically end-users and the human factor in development processes. In addition, attention should be paid to assessing the success of knowledge transfer by verifying the level of the internalization of knowledge in firms.

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4.1 Case selection criteria in the second phase

The objective of second phase analysis was to gain more detailed information on the functioning and effectiveness of different service business knowledge transfer mechanisms. Moreover, the case method emphasizes the context dependency in analysis (Stake, 1995), which we considered highly important in light of our first round analysis. In this second phase, we applied the multiple case study method. We carried out six service knowledge transfer cases in total, and case selection was based on the results of the first round analysis. The objective was to select an interesting case from each of these six service knowledge transfer categories. However, as we have noted, one mechanism can have characteristics from different categories, and our knowledge transfer mechanism grouping is by no means intended to be unalterable and strict; therefore, cases are not exclusive to only one category. In addition, mechanisms vary within categories. For example, both Laurea's Service Innovation and Design (SID) program and Gym of MIND (Table 5) can be considered training types of mechanisms, but they differ markedly from each other. Laurea's program is a long-term professional training program, whereas Gym of MIND is a short workshop. These cases were selected to provide a holistic view of the variety of mechanisms and to show the importance of selecting transfer mechanisms best suited to the need, type and target of transferred knowledge.

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Table 5. Cases and respective knowledge transfer categories.

Knowledge transfer category	Case
Training	Laurea SID Program
Media	ExpertFinder database
Training	Gym of MIND
Project cooperation	SINCO – Service innovation corner
Partnerships/infrastructure and resources	VERCCO
Communities	BestServ Forum

The interviews were carried out during fall 2010 except the BestServ Forum interviews, which took place in January 2011. For data collection, we used semi-structured interviews to gather similar information because of the involvement of multiple researchers in case studies. Interviews took place in pairs and lasted from 1–1.5 hours. Interviews were recorded and afterwards transcribed by an external service provider. The aim of the interviews was to cover both service provider and customer perspectives; however, in two cases, the customer perspective was substituted with survey responses (see interview themes in Appendix V). The validity of this research was greatly enhanced by the involvement of multiple researchers as we were able to discuss and compare ideas, as well as read and comment on case transcripts during the case analysis process (Gibbert et al., 2008). The main data for case studies were gathered via interviews, and less emphasis was placed on data triangulation since only restricted amounts of secondary data sources were used. Ready case descriptions were handed over to interviewees for comments and final approval to guarantee research reliability.

4.2 Case descriptions in the second phase

4.2.1 Laurea SID Program

Interviewees

Katri Ojasalo, Principal lecturer, Laurea University of Applied Sciences

Leena Alakoski, Project coordinator, Laurea University of Applied Sciences

Other

A survey on service knowledge transfer to Laurea students on the Service Business and SID programs. The survey was carried out in October 2010⁶.

Summary of the mechanism

The Master's degree program in SID is a 90-credit professional program aimed at students who have already completed Bachelor's or Master's degrees and acquired at least three years of relevant work experience after graduation. The program can be completed alongside a full-time job and takes 1.5–2.5 years. This program is taught in English and is the equivalent of the Finnish Service Business program.

SID program

This degree program aims to provide students with multidisciplinary knowledge in SID through a well-structured curriculum with three broader study modules and thesis. The module themes include business and leadership competencies in service innovation, value-creating competences and user-centric service design competences. The ways students learn to use and process information and convert it as new operating methods and models are highlighted in teaching. Therefore, competence development is also a priority in the program.

The SID program is relatively new (only the second group of students started in January 2011). The program has an annual intake of 20–25 domestic and foreign students. The Finnish-taught Service Business program has been available

⁶ The survey received 35 responses, of which 32 participated in the Service Business program taught in Finnish and three had started the SID program.

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longer, since 2006. Besides the newness, the SID program is also novel as it is the first Master's program in SID provided by the University of Applied Sciences in Finland. Since the start of SID, some service-related study programs have been introduced into a couple of other Finnish Universities of Applied Sciences.

The introduction of a SID program was a result of an enthusiastic and interested group of teachers and other Laurea staff that first developed the idea of launching a program aimed at students already in work. During these years, they studied the service design field themselves, became involved in international networks (such as the International Service Design Network), partnered domestic actors (such as the Aalto University School of Art and Design), received internal approval for designing the program and finally was granted Ministry of Education's permission to launch the program in 2009.

As mentioned, the requirement for enrolling on the program is at least three years of work experience, but in practice students tend to have longer, on average eight years of experience often in expert or management positions. The program is aimed at students, or the customers in this case, who currently work in or have experience of SMEs, but it is not restricted to this group. Many students, especially in the Service Business program represent larger companies. Moreover, although the program is primarily aimed at private sector companies, there are students from public organizations as well. In practice we can talk about rather heterogenic group of students, as neither industry nor field students work at are restricted.

SID program as a knowledge transfer mechanism

The SID program is designed so that there are approximately three days of intensive training per month and on the rest of the days students do individual exercises via the Internet such as study groups, learning diaries and other kinds of interactive tools for education. It has also seen important to agree the intensive days in advance for the whole calendar year but even more important is to adhere to the agreed days, both for students and teachers. The teaching methods vary between Bachelor's and Master's methods, as they need to take into account the professional expertise of students and try to use mechanisms that allow tacit knowledge sharing, i.e. learning from each other. This is organized so that students are involved in various group exercises. The combination of groups is designed in advance to prevent a firm's competitors belonging to the same group, which could evidently hinder efficient and open knowledge sharing.

During the intensive training days, students take part in seminars, workshops, group discussions, group presentations and any other interactive events that allow personal knowledge sharing. Traditional teaching methods such as lectures are also in use, although these events are kept to a minimum and, if held, external speakers from companies or foreign universities are often invited to lecture. Overall, Laurea has agreed to comply to the ‘learning by developing’ method of teaching, which stresses the importance of developmental exercises. Thus the exercises are chiefly related to students’ own institutions to involve them and to transfer and diffuse knowledge in the organization.

The SID program concentrates firstly on service process and concept development – that is designing of service, and provides comprehensive courses on these themes. However, elements specifically relating to the development of service resources are also found. For instance, courses on service innovation development, service culture and strategic management offer a profound understanding and design of service business. Moreover, the physical environment of service delivery is a crucial element of service design – an element also included in the curriculum.

The professional education and training in terms of its SECI categorization falls into ‘externalization’, which stresses the transformation of knowledge from a tacit to an explicit form. When analyzing education and training, many mechanisms belong to this group; however, as we assess the interactive knowledge transfer mechanisms in education, such as group work, we move closer to socialization in which main element is to share tacit knowledge among each other. In fact, when assessing education as an individual knowledge transfer mechanism, all four SECI stages (socialization, externalization, combination and internalization) should be fulfilled for education/training to be successful. However, if we look beyond students and assess the internalization of knowledge in companies, we found out that it is difficult to evaluate the effectiveness of knowledge internalization in practice, since in this case service knowledge is transferred mainly via individuals. By contrast, the internalization of students’ individual knowledge is less complicated to assess as many forms (e.g. learning diaries, exams, theses) indicate the level of learning.

Customer experiences and concluding comments

The needs of education providers and students meet as we investigate the importance or motivation of partaking in education programs. The need to develop

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or strengthen service processes was mentioned as the main problem area to which students searched for solutions. In addition, developing service organization, management and service business, and interestingly the development of the physical service environment, were seen as important factors. Nonetheless, the individual motivation to increase know-how on service business was comprehensively the most important factor to participate.

As in so many other knowledge transfer mechanisms, the impact and effectiveness of education is not easily observed in the short-term. This holds especially true in the case of firm-level investigation. However, concrete indicators can be attached to education, such as the number of completed degrees or the career movement of students. The latter one is an important indicator as many students signaled personal development as the motivator for taking part in the program.

The main element of organizing and designing SID training was the interaction between participants, which seems to be both the success and hindering factor when evaluating the effectiveness of education. Students have evaluated the interaction and learning from each other as the best success feature in the internalization of knowledge and learning. However, this was exactly the same issue most often brought up as the hindering factor when evaluating the implementation of education. Some respondents felt that education concentrated too much on developmental exercises without providing a proper theoretical background. In addition, concerns were raised that group work was not as efficient as it could have been because of the composition of the groups. The formation of groups should have been more thoroughly planned and regularly changed. This clearly shows that a balance and good combination of various kinds of learning mechanisms is important to achieve efficient knowledge transfer. Besides, individuals have different needs and abilities to learn to start with.

According to the interviewees, strengthening the link between private firms and the University of Applied Sciences is clearly one of the main challenges and needs improvement. It is difficult to assess the impact of education in private companies, but it was felt that stronger relationships between actors would help service knowledge diffuse in firms. Given that degree education is often initiated from a person's own desire to develop, advance or change career, in the case of service business knowledge the involvement of a background organization is highly important. Sadly, it could be seen from the survey responses that firms rarely urge students to start the program. In fact, respondents indicated a negative attitude towards change as one of the main challenges in diffusing service

knowledge in organizations. The service attitude training should not only be aimed at managers, but also personnel's and even customers' ability to adopt new business logic is important. This raises the question of whether the program should increase study components on organizational issues in service business and concentrate on creating methods to activate firm and institution involvement in student education.

4.2.2 ExpertFinder database

Interviewees

Juha Saapunki, Managing Director, SME Foundation

Jusa Susia, Director, SME Foundation

Other

Survey to experts in the database, 248 responses

Summary of the mechanism

ExpertFinder (“asiantuntijahaku” in Finnish) is a database of experts (including consultants) that is owned by the SME Foundation (“PKT-Säätiö”). The SME Foundation is a not-for-profit intermediary organization founded to develop and promote business management skills, principally for SMEs in Finland. The ExpertFinder database includes contact information for over 1400 business development and management experts and the number of experts is increasing every week. Independent databases of experts are not available elsewhere in Finland. ExpertFinder has only recently been launched and marketed towards SMEs (a few months before carrying out this case study). The main purpose of the database is to give SMEs an opportunity to find suitable experts and consultants for different development needs. The database is freely accessible on the Internet. The address of the database is www.expertfinder.fi or www.asiantuntijahaku.fi. Experts need to register and give descriptions of themselves on the service. However, for SMEs seeking experts, there is no need to register⁷. In this way, the threshold for SMEs using the service is very low.

⁷ Registration is only required for SMEs when they want to put out a tender for experts. Then, so-called strong electronic identification is applied to avoid misuse.

ExpertFinder

ExpertFinder is based on the notion that SMEs do not necessarily have the relevant competencies or staff to develop their activities and services and that a neutral expert database is needed to assist companies find suitable experts for their development needs. The core of the service is the search engine and the expertise descriptions given by individual experts. SMEs may seek a suitable expert on the following terms: search word(s); geographical location; expertise (e.g. intellectual property rights (IPR), management, product and service development), country of expertise; industry knowledge (NACE classification); language skills; certification; and memberships in associations and networks. In addition, the website provides a bulletin board and newsletters for users. The description of experts' competencies and knowledge are based on their own subjective assessments. Although the service also provides the possibility to give recommendations and customer feedback to experts, so far this option has not been used widely.

Some web analytics on the use of the database was available during the study. For example, during the period of 1.1.2010 to 2.9.2010, the ExpertFinder website received 19,155 visits, the average session duration was 5:57 minutes and the bounce rate (the percentage of visits where the visitor enters and exits at the same page without visiting any other pages on the site) was 36.86%. Therefore, there is a clear need to find outside expertise for SMEs and majority of visits to the website do not happen by mistake. According to user statistics, the most common expertise fields that SMEs seek help are strategic business planning, marketing, entrepreneurship, management and organization and sales. Whether users are service firms or seeking help for developing their activities is not known. However, some indication to this is given by the use of the industry knowledge category: the most common search criteria relate to ICT-related activities, social and healthcare services, construction and accommodation services. Therefore, based on this notion SMEs often use the database to seek experts that have industry knowledge about a certain service sector.

ExpertFinder as a knowledge transfer mechanism

ExpertFinder differs from the other presented cases in this study. Firstly, it is not a knowledge transfer mechanism targeted specifically to service business development. Secondly, as such, it does not offer the opportunity for change and development in organizations; rather it gives a list for organizations that seek new

knowledge and outside expertise. Whether this search process ends in purchasing consulting services and development activities goes beyond the “control” of the database. However, the SME Foundation has ambitious plans to develop ExpertFinder. Its vision is to develop the service to tackle better the whole negotiation, contracting and project management process between expert service providers and clients. For example, through ExpertFinder SMEs could put out invitations for tenders and the whole bidding process would be handled within the service. Moreover, after project completion the client could handle billing through the service and give feedback and a rating for the service provider, which would be also visible for other users.

This type of database operates not only as a “matchmaking” tool between experts and SMEs in development needs, but also as a knowledge transfer mechanism between the intermediary and experts. By collecting and categorizing information on the consultancy sector, the SME Foundation has the ability to communicate with large groups of experts (e.g. through newsletters) and carry out inquiries of the development or training needs that experts may have. Another user group of ExpertFinder are other business development intermediaries that utilize the database to identify and find service providers for their customers. In this way, the group of potential beneficiaries (i.e. SMEs) might grow significantly. For example, the network of Finnish family firm experts (www.perheyritysasiantuntijat.fi) has a link to ExpertFinder on its own webpage with predetermined search criteria based on its own needs. In addition, if the service is developed further, as described above, it will raise the level of buyer competencies of SMEs (in the service sector as well as in other sectors) and the desirability of using expert services. Therefore, it can potentially increase and deepen knowledge transfer activities between consultancies and companies for the benefit of whole industries.

ExpertFinder customer’s experience

To gain a better understanding of the customer experience of ExpertFinder, we carried out a web survey, which was sent to listed experts in the database with the help of the SME Foundation⁸. Because no record of companies using the

⁸ The survey had two purposes: to gain feedback about ExpertFinder from experts and to gather opinions and views from experts on the issue of knowledge transfer in service business development. The results of the latter and the detailed description of the survey are presented in Appendix II.

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database to find experts was available (since the expert seekers need not to register), we could not ascertain information about the functionality of ExpertFinder from a “knowledge recipient” perspective⁹. Consequently, the customer experience in this case description is based only on the opinions and experiences of the registered experts.

The experts were asked, using structured and open-ended questions, to assess whether they have received contacts (and consequently new clients) through ExpertFinder and how successful they considered the implementation of the ExpertFinder service. Of the 248 respondents, 17 percent had received contacts through the service and 7 percent had received an assignment through the service. Although for the majority of the experts (in this sample) ExpertFinder had provided no new contacts, the contacts seemed to result in actual assignments often since 42 percent of the contacted experts had received an assignment. The technical implementation of ExpertFinder was also considered to have been successful by the experts. For example, 80 percent of the respondents considered that the user interface, making one’s own profile and maintaining the profile in the service is either ‘very good’, ‘good’ or ‘moderate’. Most critical assessments were targeted towards the search engine and the appropriateness of the searches to find one’s own profile. In addition, the value-adding services (bulletin board and newsletters) were unfamiliar and thereby poorly received.

From the open-ended answers, many respondents pointed out that expertise and industry knowledge classifications are too rigid and based on administrative categorizations (such as TOL) and not on actual customer needs. Moreover, searches based on existing classifications do not bring out an expert’s own profile and competence, and it was considered difficult to fill out the profile in a way that you could be found or distinguished from other experts. In addition, many respondents felt that ExpertFinder did not have sufficient visibility among potential clients because the active marketing of the service towards SMEs had been started only recently.

The pros and cons of this mechanism from the perspective of knowledge transfer can be summarized as follows: the strength of ExpertFinder (or any similar information database) is its accessibility and cost-effectiveness. Setting up and maintaining such a database causes some costs for the owner and it also

⁹ However, we tried to gain some feedback from the visitors (potential users) of the website by placing an open link to the survey questionnaire on the front page. However, this only resulted in few responses that are not reported here.

takes effort for experts to setup and maintain their profiles. However, the costs per unit (in this case, SMEs seeking outside expertise) are low when there are thousands of database users. The main weakness of the mechanism is its ability to address the different and often context-specific development needs of SMEs. The codified information of the experts and their services as well as the search engine of the database may not provide the best possible match for users straight away.

4.2.3 Gym of MIND

Interviewees

Anssi Tuulenmäki, MIND

Dan Rosenqvist, MIND

Mari Rauhala, Customer, Aalto Executive Education

Summary of the mechanism

MIND is a research group at the Aalto University BIT Research Centre that is based at the Design Factory in Otaniemi, Espoo, Finland. MIND is an abbreviation of “Managing Industry-Changing Innovations”. The group has been active since 2009, and its operation has been funded by several Tekes projects and individual projects with client companies. In terms of the transfer of service business capabilities, the MIND group has created a unique workshop method titled “management gym”, where individuals from a participating company work to develop a part of their service according to a methodology that is a metaphor for weight training at a gym.

MIND

MIND can be thought of as an intermediary organization that transfers knowledge between universities and private companies and from one company to another. The main tools for knowledge transfer at MIND are workshops organized for companies, but scientific research and methodology development is also performed in the group. The MIND group has gained popularity since its founding as a part of the Aalto University’s Design Factory. The group has appeared in the Finnish media, such as Talouselämä, Helsingin Sanomat and Radio Rock, which is unusual for normal research groups at the BIT Research Centre.

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Therefore, it can be said that the MIND group breaks traditional research boundaries.

The general goal of MIND is to increase the potential of new ideas and to lower the barriers to experimental ideas. This should lead to the creation of new strategically radical innovations. Besides companies, MIND customers include government agencies, universities, non-governmental organizations and political parties. The MIND group differs from consultants in that it does not deliver a predefined outcome. Instead, it creates experimental elements to its work with its customers and does things that consultants would not normally do.

Anssi Tuulenmäki, the director of the MIND group, highlights the role of breaking conventional thinking with successful innovation stories. The MIND group has gathered a number of interesting innovation stories from Finland and abroad that represent, in its opinion, breaks from conventional paradigms. An example of such a story, according to Tuulenmäki, is the concept of representing a business model by a sports arena: “the conventional thinking in sports is that the arena will be emptied as soon as the game ends, but nobody seems to have thought of arranging an extra program after the game for people that have arrived there. After all, you typically have 5000 consumers inside the arena and you are letting them go right after the game.” Stories and examples such as these open people’s minds to think about their businesses differently. Related to this, one mechanism MIND uses to encourage people to think outside of the box is to grant “license to act differently” badges for people.

Stories of innovation with out-of-the-box thinking provide grounds for the second goal of the MIND group, which is to lower the barriers for experimentation. This goal is fulfilled by creating environments (physical and social) to encourage positive feedback among participants and chances for experimenting new ideas. The academic environment in universities as well as competitive environment in business life is often overly negative, where feedback for new ideas is not given in a constructive manner. The popular phrase “fail often, succeed sooner” has been a guiding principle in the creation of MIND’s innovation environments. The environments at MIND are operationalized in different types of working methods, and when combined form a series of practices to leverage innovativeness in the participating organization. Next, the gym of MIND method is described in more detail.

Gym of MIND concept as a knowledge transfer mechanism

'Gym of MIND' is a term that the MIND group uses to describe its workshop method that includes different pieces of equipment arranged in one space as one might see in a workout gym. Here, the equipment is not weights or machines, but exercises designed for the customer's needs. Gym of MIND is constantly transforming and each session is tailored for customers from a set of predesigned modules. The gym concept includes different levels. A "business fun" gym is a general introduction to the available techniques for idea generation. The deeper the customer wishes to delve into a specific subject, the more tailored and in-depth exercises are gathered to the gym. The more detailed gyms are designed to develop a customer's services or change its business strategy. By fall 2010, gym of MIND had 10 customers, and by spring 2011 over 20 customers will have exercised their innovation muscles at the gym.

The modules in the gym are constantly updated. The usual way to create an exercise module is to have MIND group members read scientific articles and write summaries of them. Based on the articles, exercise modules are then created. In these modules, the creation of new value is at the centre of development. The modules have been designed to develop, for example, business models and strategies related to the creation of new value. In service development, the topics for modules include exercises to map customer experiences, service paths and service designs. According to Dan Rosenqvist, who has actively developed the modules in the gym, service processes are mostly developed, although exercises also generate ideas for the development of service concepts and organization: "The customer does not usually say that they would like to develop their service processes, but when we start working on their business model, the development is quickly directed towards the process of how the customers are served."

In a typical service development case, the gym is utilized to describe the actions related to service with the customer. The process is described from the beginning to end to define the end-user's process in the service. The key question here is what the end-user does in each of the phases of the service and what the provider of the service offers in each of the phases. The service development gym is a systematic description of the end-user's experience of consuming the service and service operations that aims to understand the composition of the service.

After the gym, the MIND instructors condense the key learning points in each of the exercise modules for the participants to take away with them. Each exer-

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cise module along with the key learning points is written on a small card and participants can continue to do the exercises in their own organizations after the gym. Sometimes, participants are asked to write their own key learning points of the gym. Those participants, who wish to join the MIND group's "license to act differently" program, sign an agreement and they are given a credit card-sized license. In the agreement, the participant pledges to take action in his or her organization to think out of the box and commits to report these actions back to the MIND group. This playful mechanism serves as a feedback method and encourages participants not to forget what they learned in the gym.

The Gym of MIND customer's experience

The Aalto Executive Education (EE) centre participated in a two-day gym session in 2009. The centre functions as a part of the Aalto University and offers executive education classes for Finnish companies. Aalto EE participated in two separate gyms. The first one was a more general idea generation and encouragement for out-of-the box thinking and the second offered a more detailed development of customers' processes at the centre's services.

In the first gym, different exercise modules were arranged around the conference rooms and participants were divided into groups to perform each of the exercises. After 20 minutes, participants rotated to the next exercise module. The centre has two general types of customers: 1) those studying for an MBA degree and 2) those coming to participate for only one class at a time. During the second gym, participants were divided into two groups by customer segment. Then, both groups worked on a same task and reported the results of the task to each other.

According to Mari Rauhala, who works as a human resources manager at Aalto EE, customer relationship competence is the primary competence in the service knowledge of the adult education centre. In her opinion, this includes the idea of how the organization treats the customer in the different phases of the education process. This customer process was the main topic of development at the gym.

Rauhala mentions examples of innovation from different industries as a creative way to induce idea generation among participants. At the gym, participants started to think of their own service processes using a gym metaphor – what happens after the customer arrives at the gym and what the customer gets afterwards. Thinking of your own business through a new lens is a good method to

develop processes, Rauhala says. The MIND group's approach differs from other consultants in that the gym approach is not a tiresome, process-oriented approach. Rather, the gym makes people think about their own work and what they can do to improve service by themselves.

The concrete benefits that Aalto EE received from the gyms were a new way of thinking about physical space during education. The ideas started at the gym developed after the sessions in the day-to-day work of participants. Some individuals even lost sleep after the gym sessions because they were not able to stop thinking about improvements for their work. As feedback to the organizers of the gym, the ideas generated during the sessions could be more systematically documented by the instructors because sometimes it was difficult to remember and capture all the good ideas thrown around during intensive exercises.

The pros and cons of this mechanism from the perspective of knowledge transfer can be summarized as follows: the strength of the gym of MIND is its strong connection to scientific research on business management. The exercises organized during gym workshops are based on existing theory and empirical research. The gym thereby translates scientific knowledge into practice. During the gym, participants are encouraged to think differently and thereby the mechanism helps generate novel ideas. The main weakness of the mechanism is that it stays in the front-end phase of the innovation process and that the ideas generated are not usually developed further. The success of the mechanism is also highly dependent on the motivation of the participants and the articulation of the company's need. Before going to the gym, the participating company should have clear targets for its workout.

4.2.4 Service innovation corner (SINCO)

Interviewees

Simo Rontti, University of Lapland, project manager of SINCO

Kimmo Lehtonen, CEO, KL-Kopio

Tommi Hinno, CEO, Ranua Zoo

Other

Insight's from Mikko Sääksilähti's presentation about SINCO at VTT's Service Science and Business network event (20th Nov 2009).

Summary of the mechanism

SINCO is an abbreviation of a method called Service Innovation Corner, which was developed at the University of Lapland (Faculty of Arts, department of Industrial Design) Rovaniemi, Finland. SINCO is a physical lab space at the university where designers, researchers and students develop and utilize knowledge and tools in the areas of Service Design and Prototyping. The design and development of the method itself, including building and piloting the service prototyping lab, has been the main goal of the SINCO project. The project is financed by the EU and individual companies, such as Nokia, KL-Kopio, Lappset, Ranua Zoo and the city of Rovaniemi. The abovementioned companies and Rovaniemi University of Applied Sciences piloted the project, which took place from August 2009 until May 2011.

SINCO

The development of the SINCO method finds its inspiration and tools in product and service design approaches. At the product design stage, one normally drafts quick and concrete early phase mock-ups, which can be evaluated based on their appearances. Their functionalities can be further tested by drafting quick prototypes of the product, for example from Styrofoam. In addition, virtual prototypes are used to test and analyze the product's durability. These phases and prototypes enable the design of user experience; one needs concrete visualizations and elements from the products to test them. They enable cost savings because development decisions can be made before any expensive investment. The method has its roots in the so-called "rapid prototyping" approach, which has been considered a powerful means to facilitate organizational development and change.

The idea of service design is that the product design phases and methods are applied to the context of developing immaterial services. This will enable the visualization, prototyping and experimentation of different service paths and concepts already in their early phases. Similarly, the aim of the SINCO method is to visualize and concretize abstract services by using service design tools (see Figure 8). Other senses than visual such as hearing or smelling can also be used to demonstrate service situations. Different service situations, paths and concepts are designed and tested together with customers, researchers and students. Simo Rontti, the project manager of SINCO, described how the SINCO process typically consists of the following phases:

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- Firstly, discussing the current state, needs and visions for service development together with the customer(s), project team members and students. During the first phase, students and researchers analyze the customer's environment and get to know the services and development targets. Afterwards, the project group will create a loose definition from the object of development. Often this touches on the development of the physical space, materials and artefacts used in service situations.
- Secondly, the students and project group will sketch and visualize their ideas as new, optional service processes and concepts. These are then represented to the customer. The most desired ones are chosen for further development together with the customer.
- Thirdly, the options chosen will be realized and demonstrated as physical mock-ups by the project team by stimulating different senses of seeing, hearing and feeling in the SINCO environment. For example, interactive whiteboards, spotlights, a playing cabinet, back projection screens and speakers can be used for producing a rough simulation of service moment landscapes. Based on the experiences of these, one service concept including its service process for further development and realization will be chosen.
- The final tasks include prototyping the chosen concept and executing a presentation from this in the SINCO environment for the customer. The concept can also be presented to the company's representatives with the same method in their own premises depending on what kind of equipment the customer has available.

4. Cases of successful knowledge transfer mechanisms

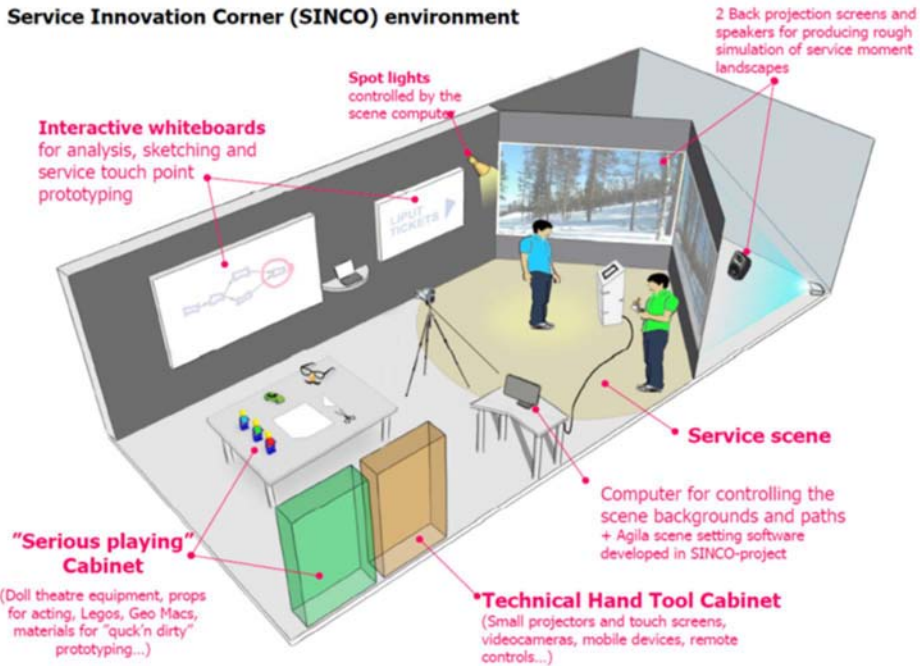


Figure 8. A visualization of the SINCO environment.

SINCO methods – customers' experience

The method has already been piloted in different companies and contexts, such as Nokia, the city of Rovaniemi, Lappset, Ranua Zoo and KL-Kopio. We interviewed two company representatives from the piloting cases, Kimmo Lehtonen from KL-Kopio and Tommi Hinno from Ranua Zoo. KL-Kopio is a micro-company (around seven employees) offering digital printing and copying services, whereas Ranua Zoo, a wildlife park (operated by Ranuan Seudun Matkailu Oy), is an SME operating in the tourism and travelling industry. The method has proven to be suitable in these different organizational service contexts.

Kimmo Lehtonen describes the benefits of the process, including how it was useful to ponder with researchers and students their services process and concept from fresh perspectives. Together they created a loose working definition to "develop new or improved services for the digital print business". Kimmo describes that: *"Since we started to offer printing services, not just digital ones, for a broad customer base and our customer c all rate here at the store has mul ti-*

plied, we decided to start working on the customers' service situation, how we meet and confront our customers... There were room for other improvements too but I saw that this would create an immediate improvement to our service here at the store and the business would improve."

Kimmo's overall experience of developing the company's services with SINCO was very positive. As the most important results, Kimmo describes the increased understanding of the attention paid to customer service situations, how customers are confronted and in what kinds of environments. He wants the company to serve customers with high quality, but with help of the method they could make new, concrete development actions to their customer process and physical environment that will correspond to a changed business strategy. With the SINCO process, they transformed the physical customer space to function more efficiently and they even drilled a hole in the wall to create immediate, close customer contact. As a result, Kimmo feels that both the effectiveness and atmosphere in their ways of working at the store have improved and they have received positive feedback from customers. Kimmo describes: *"Now we can immediately wave to the customer when s/he enters to the store and say hello. The customer will see if we are working with something else and that we are coming in a minute. I think our working atmosphere has improved since we feel that we can now serve the customer as good as we know how to."* A summarization of the KL-Kopio development process is presented in Figure 9.

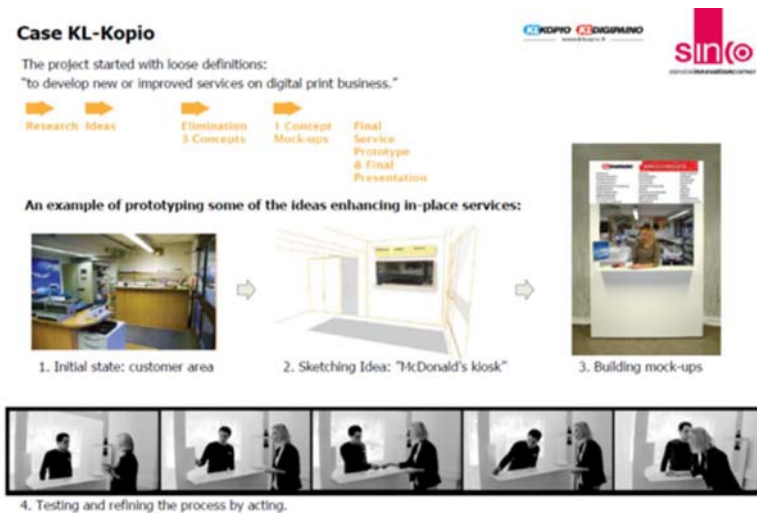


Figure 9. Summarization of SINCO and the case of KL-Kopio.

4. Cases of successful knowledge transfer mechanisms

Tommi Hinno from RanuaZoo, also describes how he has positive experiences of the SINCO project. At the beginning of the project, they designed a “Christmas fantasy experience concept and path for British tourists”. After getting to know the development target and its background, researchers and students drafted the fantasy concept in a storyboard. The customer experience process was identified and elaborated, starting from the initial customer contact at a travel agency and ending with the customers returning home. Within this process, the researchers and students designed new prototypes of the physical environment (e.g. the zoo’s entrance and signboards) as well as physical prototypes of new marketing materials and accessories including leaflets, costumes and restaurant decorations. For example, new prototypes of the customer’s outfits and signboards for the zoo’s potential fantasy paths were prototyped e.g. using normal print paper or fabric to gain an actual feeling of the new service moments and related artefacts.

Most importantly, Tommi describes how illustrative presentations are an effective way to internalize the novel service concept and they could be used as a tool for communicating the concept to the staff as well as to different stakeholders, such as company’s members of the board, sub-contractors and travel agencies. He describes: *“For a company’s staff, subcontractors and others, this is the best tool to get people to understand the concept... we also did a presentation of the new fantasy concept in Ranua. There were people from the company’s board and also snow and ice sculptors and artists (important sub-contractors for the zoo) and it was an excellent method to present the idea to experts in different areas and to tell what kind of concept this is, what we need and what we are going to do. You couldn’t possibly present the idea in a different way”*.

Therefore, such a method can be an effective tool in strategic decision-making and communicating the desired strategy to stakeholders. In addition, the customer could implement the new fantasy concept in parts, by starting from the most important or urgent elements while still having the whole concept in their possession. Then, the rest of the elements of the concept could be implemented later. A summarization of the Ranua Zoo development process is presented in Figure 10.

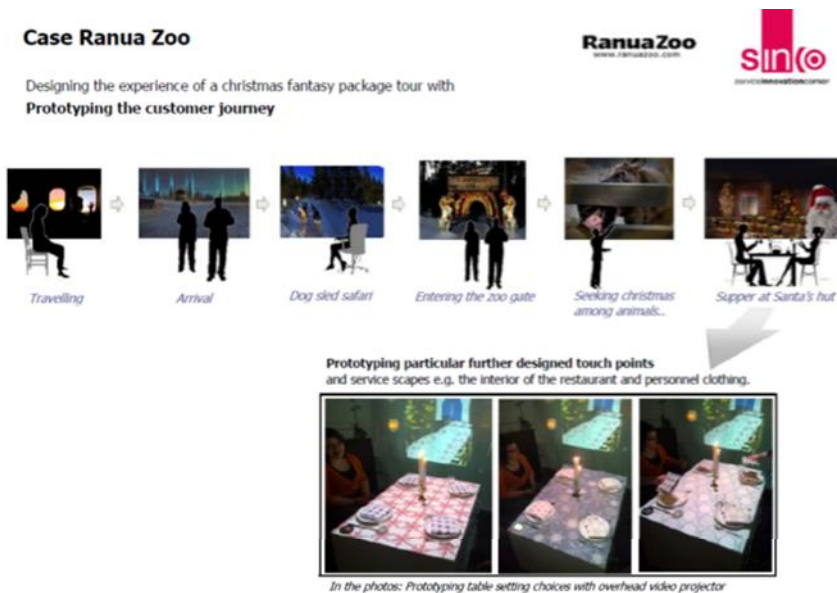


Figure 10. Summarization of SINCO and the case of Ranua Zoo.

The concept as a knowledge transfer mechanism and the potential benefits of the process

The whole SINCO process will enable the communication, testing and further developing of optional services before launching them. Knowledge transfer from service business experts (researchers and students in the University of Lapland) to knowledge recipients (partner companies) occurs in the context of co-creation. What is different in SINCO compared with many other mechanisms is the systematic and thorough usage of different tools for enabling communication, testing and learning, for example the use of visualization and creating sounds and feelings from different service situations. Researchers and students also provide concrete, physical objects for service moments and environments. The method also requires analytical thinking since it develops novel concepts and processes; however, analytical thinking, reading and writing are not the only tools for developing options and desired results. Extensive technical requirements and related investments are not needed in the method. For creating a quick prototype environment for a demonstration, a laptop (with PowerPoint or similar software), video projector(s), one or two projector screens and speakers are all that is needed.

In SINCO, the development and testing of a new process is performed in a concrete prototyping environment at the University of Lapland together with the

4. Cases of successful knowledge transfer mechanisms

project's researchers, students and customers. The project group will get to know to the customer's operational environment and have a tight relationship with them throughout the process. The results are implemented in the customer's environment. Both of the interviewed company representatives described how mutual learning, dialogue and internalization happen in the project group because of the collaborative development style and different tools used. They also fully understood the novel concepts and processes developed by the group since they internalized them.

Simo Rontti highlights how the SINCO process enables the project group and customers involved to get a rapid feeling and "taste" about the new service ideas. The idea is to develop in the first phase many optional ideas. The idea is that this prevents the group from becoming trapped in the first presented development idea and can thereby increase the likelihood of innovation. Mikko Säski-lahti further highlights how through testing and piloting the method can also improve the quality and minimize potential risks related to new services before launching them. It can also speed up service development by quick, early phase visualizations and prototypes, which help gain distance over competitors.

In addition, Simo describes how he sees potential in using the method for tacit knowledge transferring situations, for example helping companies preparing to risk full situations such as expensive machines breaking down. With SINCO, they could demonstrate and in a way build the risk full situation and simulate it by e.g. by playing sounds from the situation. In this way, for example, mentors who are retiring could be exposed to the situations that would be helpful for newcomers to get to know and help them prepare for situations.

The pros and cons of this mechanism from the perspective of knowledge transfer can be summarized as follows. The main strength is that it combines different methods and tools (visualization, service design and prototyping of physical artefacts) and uses mutual learning and co-creation for the development of novel service concepts and processes for service firms. One of the downsides of this is that it requires multiple competencies, resources and long development time to reach its full potential. Every concept created in the process is also highly firm-specific and unique. The full implementation of the SINCO method in competitive markets without EU or other public funding may not be feasible.

4.2.5 VERCCO

Interviewees

Aila Postareff-Jurvelin, Regional Manager, Itella Oyj

Olli Lukkari, Program Manager, Oulu Innovation Oy

Summary of the mechanism

The Virtual Electronic Retail and Commerce Center of Oulu (VERCCO) is an ongoing project that aims at building knowledge concentration for e-commerce actors and creating an infrastructure for companies to do business on e-commerce, especially in the Oulu region but also in other parts of Finland. The main knowledge transfer mechanisms in VERCCO are networking, seminars and other training sessions organized either by Oulu Innovation Oy or by Itella Oyj, the two main players of VERCCO.

VERCCO

The idea to establish VERCCO was initiated in fall 2009, partly from the need to attract new investment into the Oulu region and partly from Itella Oyj's motivation to create new business concepts in the area of e-commerce services. The reason was that Itella had recently established a new logistics centre in Oulu in the Taka-Laanila district, and had agreed with the city of Oulu that the district should be developed into an area where e-commerce firms could operate and to centralize services aimed at e-commerce firms into the same area next to Itella's logistics centre. These initiatives quickly caught wider interest, for example in the Oulu Regional Business Agency, which was at the same time organizing courses on e-commerce, and VERCCO was soon created. Another key actor in VERCCO is Oulu Innovation Oy, which was responsible for designing the concept. They now maintain the service network but also have a strong role in designing future e-commerce, particularly initiating future projects in the local area.

The VERCCO concept constitutes three elements: (1) service network, (2) e-commerce infrastructure and (3) future e-commerce. Participants in the service network create and develop the e-commerce infrastructure to perform profitable e-commerce business. The role of intermediaries, such as Oulu Innovation Oy, is to create facilities for VERCCO to develop and help e-commerce entrepreneurs by providing assistance, for example to set up business. VERCCO is a brand

4. Cases of successful knowledge transfer mechanisms

name for the three elements currently under development: service network, e-commerce infrastructure and future e-commerce.

Service network

Currently, the most advanced of the three building blocks is the service network, which was set in 2009 and has since extended with new actors. The main actors are e-commerce entrepreneurs, locally from Oulu and other parts of Finland. Besides the e-commerce operators, building the service network has required technical and technological expertise from several local actors. For instance, VTT Technical Research Centre of Finland and Oulu University have provided Mobile Enterprise Factory expertise and a few small local software companies have also been involved in developing the technological side of the e-commerce infrastructure. In addition, Lindorff Oy has been active in developing the e-commerce payment services. Altogether, 10–15 actors have been involved in setting up the service network. This seemed to be quite ideal size at this initiation phase. At the end of the project, some 80 companies are hoped to be involved in the network. The main goal of setting up the service network was to gather information and experience from e-commerce firms about how to develop a suitable infrastructure for e-commerce and what e-commerce would look like in the future. Partly, the need to create a service network was initiated by the e-commerce entrepreneurs themselves, who felt that visibility was difficult to achieve by acting alone. Moreover, the need to develop and share a common technological platform was seen as an important factor for acting together in a network.

E-commerce infrastructure

The infrastructure for e-commerce is to develop services for e-commerce businesses and to provide a physical district to locate their storage facilities and offices. An actual district enables them to create a common environment, in addition to the virtual environment, where actors could easily meet each other and find the services they need. One focal actor in developing the infrastructure is Itella Oyj, which is able to provide, for example, its logistics, packaging, and mailing and marketing services to e-commerce businesses. Itella is also a key actor in maintaining the service network and attracting new actors into the network to allow current e-commerce to flourish and future e-commerce business to be created.

Future e-commerce

The need to create a platform for future e-commerce was initiated from the realization that the current form of doing e-commerce on the Internet was outdated. The e-commerce marketplaces, i.e. the shops, can be made more appealing by applying ideas and technology from the games industry and 3D Internet. This building block is seen as “dream e-commerce” that holds the characteristics of e-commerce that are not yet achievable but towards which this project is aiming.

A similar e-commerce concentration with a strong focus on future e-commerce environment and on viable infrastructure cannot be found anywhere else in Finland. The benefits to private firms include providing assistance to develop business plans, setting up e-commerce businesses or providing access to networks of other entrepreneurs. In addition to these short-term impacts, VERCCO is designed so that firms interested in doing business in e-commerce can be engaged in the network for longer periods of time. They would then also benefit in the long run when the future e-commerce environment is opened.

This project is co-financed by private companies (Itella Oyj and Kaleva Oy) and several public regional actors, such as Oulu Innovation Oy, the Oulu Regional Business Agency and the Council of Oulu Region. In addition, EU funding has been received for building the service firm network.

VERCCO as a knowledge transfer mechanism

The main mechanisms of the VERCCO concept for transferring service knowledge are networking in formal and informal occasions and other traditional mechanisms, such as training, seminars and workshops. The service network, which has been created to be a stable long-running network, enables companies to share and transfer tacit knowledge and build partnerships. Synergies and even mergers within partners are hoped to take place. Seminars and workshops are organized for e-commerce (and other business) firms two to four times a year. Usually seminars are organized by Oulu Innovation or Itella Oyj, however some seminars have been organized by the Association for Entrepreneurs in Northern Ostrobothnia. The main objective of these occasions is to spread the word on service business and e-commerce and in particular to inform people about the possibilities VERCCO provides to e-commerce in the Oulu region. In general, the seminars are organized around specific themes that rise from the needs and suggestions of e-commerce entrepreneurs. Secondly, training sessions specific to

4. Cases of successful knowledge transfer mechanisms

guidance to create an e-commerce service business plan is available at Oulu Innovation.

In the second building block of VERCCO, i.e. e-commerce infrastructure, the same types of mechanisms for transferring knowledge are in use. The key actors are e-commerce service providers, e.g. software and technology firms in addition to the organizing parties Itella and Oulu Innovation. The knowledge gained from the e-commerce infrastructure is aimed at developing or building technical systems; therefore, the available knowledge is more technological or technical compared with the type of knowledge shared in the service business network. Technological knowledge is an important aspect not only of service process or concept creation but also of developing service organizations, which in the e-commerce context is largely web-based and reliant on technology. The strength of networking as a service knowledge channel in VERCCO lays in the heterogeneity of participants in that the service providers, intermediaries and entrepreneurs build the network together.

Additional knowledge transfer mechanisms in use have been research projects carried out among others at the University of Applied Sciences. These have greatly enhanced the understanding of e-commerce and provided a basis for structuring and developing VERCCO. The VERCCO website has likewise been launched, where interested entrepreneurs can find services related to e-commerce business. The above mechanisms are useful tools to disseminate service knowledge.

Private firms can gain different kinds of knowledge on service business from each one of the elements of the concept. Tacit knowledge is channelled via the service network, when service firms are able to learn from each other. This serves as a socialization channel in the SECI knowledge creation model. In addition, the intermediaries involved in this network are able to give guidance to e-commerce firms to create or develop further their business plans. Technical and other kinds of practical knowledge for setting up the e-commerce service system are available in the infrastructure network. These could be assessed as the externalization and combination phases in the knowledge creation model. Future e-commerce, by contrast, forecasts the prospects of e-commerce business in the future.

In VERCCO's case, no customer perceptions were gathered mainly because concept creation was still in progress. However, certain general comments on the effectiveness of the concept can be made. VERCCO takes into account all three dimensions of service: concept, process and resources. The service concept can be developed with the help of the VERCCO service, which gives guidance to

developing an e-commerce business plan. Various consultants and experts in Oulu intermediaries (e.g. Oulu Innovation) can aid firms with concept creation. On the other hand, the e-commerce infrastructure provides tools, connections and expertise for shaping the whole service process. Moreover, future e-commerce also tackles service process creation by providing views on how e-commerce might look in coming years. Future e-commerce seems to be a test base for firms to design and develop their future e-commerce services in cooperation with partners possessing different expertise. However, it seems that the creation of a service organization is clearly the less supported area in VERCCO even though the resources and physical environment of an e-commerce provider are tackled in the business plan as well as in infrastructure and future e-commerce dimensions. These two building blocks deal with developing the e-commerce business environment and naturally affect how operations are organized in individual service firms.

VERCCO contains several knowledge transfer mechanisms. However, if we investigate the VERCCO project as a single mechanism, it has been most effective in raising awareness about service business in general and e-commerce in particular. Effectiveness, by contrast, is based on the structure – the three different elements that relate to future e-commerce. Participants work together to build the infrastructure and future e-commerce. The project has also generated an understanding of the challenges e-commerce entrepreneurs encounter during the firm's lifecycle. Moreover, the project has been able to create new e-commerce entrepreneurs, which was one of the original targets. At the moment, concept creation relies on leaders' (i.e. Itella Oyj and Oulu Innovation) networks and the ability to push the concept development forward. However, this also creates a challenge as the project ends – who takes ownership of the network, infrastructure and future e-commerce development? It could be that the network is not strong enough to be self-generating and develop the required facilities for future e-commerce.

4.2.6 BestServ Forum

Interviewees

Iiro Salkari, Technology Manager, VTT Technical Research Centre of Finland, Coordinator of the BestServ Forum

Juha Hulkkonen, Business Development Leader, IBM, Chairman of the Best-Serv Forum

Other

Salkari, Iiro. Open innovation forum for developing industrial service business – a case study. Paper presented in ISPIM Innovation Symposium, 7–9 December 2009, New York, USA.

Summary of the mechanism

BestServ (www.bestserv.fi) is an R&D forum for industrial service business firms. It was established to support change in traditional industry in Finland, especially with the aim of transforming manufacturing firms into service companies that apply service-oriented thinking and development in their activities. The main purpose of the BestServ Forum is to operate as a knowledge sharing and learning network for exchanging knowledge and experiences between industrial firms, and industry and research. The forum was established in 2004 as a project supported by Tekes. Since then it has been operated thanks to the support of member companies and the Federation of Finnish Technology Industries. In addition, fees from annual events are used to finance forum activities. The owner of the forum is the Federation of Finnish Technology Industries, and VTT Technical Research Centre is the coordinating body. At the beginning, members of the forum included mostly machinery and manufacturing firms (e.g. Fastems, Tamglass, Rocla, Sandvik), but since then the member base has included a variety of different service firms, including Tieto, Elisa, IBM, Nokia and Nokia Siemens Networks. The steering group of the forum consists of the Federation, VTT, 4–5 member companies and Tekes. One of the company members acts as the chairperson of the forum and the steering group, and the coordinator acts as secretary. Throughout its history, over 35 different firms have been members of the forum. In addition, the annual Industrial Service Business Day (ISBD) is open to all firms and organizations. Similar types of service business development networking forums in Finland include the KIBS Forum and the ServTek Forum, but no other continuous network activities targeted to industrial service development have existed in Finland. The forum also has its own intranet where all seminar presentations and results are housed and which is administrated with user rights. In the future, an alumni network for current and former members is planned to be established, e.g. around LinkedIn group.

BestServ as a knowledge transfer mechanism

The main (knowledge transfer) activities of the forum are: (1) roundtables, which run 6–9 topics per year, (2) forum meetings three to four times a year and (3) the ISBD once a year. The main activities, frequency of the events, participants, focus/content and the level of confidentiality are presented in Table 6.

Table 6. Characteristics of the main activities of the BestServ Forum (Salkari, 2009).

Activity	Frequency	Participants	Focus / content	Confidentiality
[1] Forum meeting	3–4 per year	All forum members are allowed to participate, typically 30–40 people per meeting	A mini-seminar containing presentations and workshops	Within the forum member organizations
[2] Roundtable	4–8 roundtables running constantly, total 3–6 meetings/ roundtable	5–10 non-competing forum member companies, a researcher and/or a consultant are allowed to participate	Benchmarking and sharing best practices; solving a practical problem or working on a real case; visionary working; service value network integration	Within the roundtable participants. The generalized results are reported in a forum meeting
[3] ISBD	Once a year	Open to everyone who has registered and paid the fee	Industry-oriented seminar involving company cases and research results	Public

These different activities represent the different levels of knowledge transfer. For example, roundtables have a more personalized and firm-specific focus and aim for the socialization and transfer of tacit knowledge with face-to-face discussions, whereas annual ISBD seminars aim for the diffusion of explicit research findings and practical models to a wider audience. The roundtables have been industry-driven in the past. They are set around a specific theme by a group of companies that are interested in the theme in more detail and each roundtable is chaired by one of the company's members. The work in the roundtable group

4. Cases of successful knowledge transfer mechanisms

can be very practical and contain real-life examples and data. In addition, the level of confidentiality is determined beforehand explicitly in the roundtables either with an NDA (Non-Disclosure Agreement) or in the minutes of the meetings. This has allowed trustful knowledge sharing among members and no misuse of confidential information has occurred so far.

The forum meetings and roundtables can also include participants other than member firms. Meetings can include researchers and consultants or other experts and suitable people can be invited to discussions if needed. This allows member firms to interact with a greater variety of organizations than they would normally do. In addition, forum meetings are held in different environments, including the premises of firms or research organizations. Usually, more participants come from the hosting organization, which means that knowledge is diffused to a larger group compared with the situation where meetings would always be hosted by one organization. The current chairman of the forum, Juha Hulkkonen from IBM, describes it as “a peer network”. For example, the themes to be discussed are determined mutually by member firms. The development objectives in roundtables can vary from finding specific problem-based solutions to visionary working, e.g. what are the future competence requirements in service business. According to the coordinator of the forum Iiro Salkari, the roundtables have covered different issues related to customers, offerings, delivery and management in service business. Salkari gave a few examples of the roundtable work: *“A Finnish-based firm that had a global business had acquired a foreign firm. The acquired firm had a similar type of products but they were not completely compatible with the service offering of the acquirer. In the roundtable, solutions were sought to incorporate the local services of the acquired firm to the global service offering of the acquirer... A few years ago we created an Excel-based tool in the roundtable to evaluate the level of the maturity of the service business strategy in firms. This tool allows firms to assess in what areas they should concentrate their activities”*.

The forum and its activities utilize different aspects of knowledge creation from the SECI model. There is a constant process of knowledge transformation from explicit to tacit and from tacit to explicit. For example, results from the roundtables (where knowledge is generated with socialization and face-to-face discussions) are generalized and presented in forum meetings to other members. By contrast, topics and themes that are presented in the more open forum meetings are further iterated and discussed in working groups (held during the meetings) or can end up on roundtable agendas. Moreover, ISBD meetings combine

different cases and results to be communicated to a larger audience. Juha Hulkonen describes the knowledge transfer process in the following way: *“The roundtable group I participated in held meetings approximately once a month. The obligation of the roundtable was to report the experiences of the group work to the whole forum – meaning that the whole roundtable process and the gained experiences in the process were described. In this way, the operational model of the roundtable was transferred to be used by other members”*. According to Salkari, the practical utilization of results (i.e. internalization of knowledge) is achieved most effectively when forum meetings, workgroup discussions and roundtables are thematically well aligned.

Customer experiences and the benefits of the BestServ Forum

The experiences and benefits of forum activities are monitored systematically through annual member surveys. The roundtables are considered the most beneficial activity in the history of the forum. The concreteness of the approach and materials are the greatest advantages. In the 2008 and 2009 member surveys, firms reported that the forum helped them in (Salkari, 2009):

- moving towards service dominant logic;
- developing service business (instead of only providing favours to customers);
- changing the culture in their value networks;
- understanding the current state of service business and development in Finland;
- learning about academic results and understanding a good mix of theory and practice;
- developing personal competence;
- overall learning about the service business (shortening of the learning curve);
- sharing knowledge and challenges on service business; and
- making good contacts and networking with service-minded colleagues and professionals.

4. Cases of successful knowledge transfer mechanisms

Another convincing proxy of the benefits of the forum is that member companies are willing to pay for unsubsidized forum membership after six years. Juha Hulkkonen also mentions that the forum has been noted internationally, for example the model has been benchmarked by IBM's unit in California. According to Hulkkonen, "*BestServ distinguishes itself as a group that has a common language and concepts for service business*". Moreover, Hulkkonen mentions that trust building among members has been possible because of the long-lasting operation of the network and that such trust cannot often be obtained with usual R&D projects that last one or two years.

A set of factors has been identified as being behind the success of the forum: systematic working models and processes that make collaboration efficient and easy; that companies can select a feasible set of activities depending on the resources (i.e. working hours) they put in; that there are clearly defined levels of confidentiality and rules supported by legal agreements that foster openness and trust building; that the activities are company-led, which keeps the focus on innovation instead of R&D and ensures the relevance and concreteness of the attending companies; and that the activities are based on the interaction and co-innovation of companies from different industrial domains, which emphasizes out-of-the-box thinking (Salkari, 2009).

Some challenges have also been identified during the six years of the operation of the forum. For example, roundtable work takes a lot of effort from firms in steering, promoting and reporting. The challenge regarding the ISBD meetings has been how to distinguish them from the many other similar seminars. The weak point in forum meetings has been that there are too many presentations and no time to digest and analyze the message in discussions or workgroups. According to Salkari, one general barrier to knowledge transfer is that service business in practice ("in the real world") is often different from that discussed in the forum. Thus, there may not be a common language at the beginning of a new roundtable. By contrast, mixing industries may also help break traditional industry recipes and enable confidential discussions in the first place. According to Salkari, keeping the forum open for all industrial sectors is probably more useful and beneficial for members. Hulkkonen also highlights that the forum needs to be constantly renewed (with themes and participants) or otherwise it will end up being an ordinary discussion group with no clear objectives.

The pros and cons of this mechanism from the perspective of knowledge transfer can be summarized as follows. The main strength of the BestServ Forum is that it is industry-driven and can generate trust between organizational bound-

4. Cases of successful knowledge transfer mechanisms

aries for knowledge transfer. In addition, through its distinctive activities (roundtables, forum meetings, ISBD) and operational model, knowledge is converted effectively from explicit to tacit and vice versa. One potential challenge with this type of mechanism is that over time the circle of active members may remain too stable and so-called ‘cultural lock-ins’ may occur if activities are not renewed. In addition, there is a constant need to keep the information flow manageable and concrete enough to be attractive to firms.

A summary of all the cases is provided in Table 7.

Table 7. Overview of the cases.

	Management Gym (MIND)	SINCO	VERCCO	Laurea's SID program	ExpertFinder	BestServForum
Knowledge transfer class	Training	Project	Partnership	Training	Media	
SECI model	Socialization, externalization (if documented)	Socialization, externalization, internalization	Socialization, externalization.	Externalization	Externalization, combination	Socialization, externalization, combination
Short description of the mechanism	Workshop method that is based on a workout gym metaphor.	Service design process based on rapid prototyping.	Firm and knowledge concentration for e-commerce business.	A professional education program offered by Laurea's University of Applied Sciences.	Free access web database of experts and consultants.	Knowledge sharing and learning network/forum for exchanging knowledge and experiences between industry and research.

Goals	To have participants think outside the box. Lower the threshold for experimentation.	To quickly get a concrete feeling and “taste” about new service ideas.	To increase the number of viable e-commerce businesses. To create professional network for e-commerce entrepreneurs. To build facilities for future e-commerce.	Education of service business, SID.	To operate as a “matchmaker” between business development experts and SMEs with development needs.	To support change in traditional industry in Finland; especially with the aim of transforming manufacturing firms into service companies that apply service-oriented thinking and development in their activities.
Short- and long-term effectiveness	Long-term effectiveness through educating for innovativeness. Short-term effectiveness if target defined.	Short-term effectiveness, visualize and concretize abstract services defined in the project. Long-term effectiveness is to develop competencies in service business development.	Objectives are set for long-term but also short-term effectiveness.	Short-term to students, long-term to companies and institutions.	Effectiveness indirect.	Roundtables aim for short-term effectiveness with concrete problem solution; long-term effectiveness with other activities.

Pros	Scientific background. Inducing the generation of novel ideas.	Combining different methods and tools for novel service concept and process creation.	Wide and well-working network in which service firms are able to learn from each other. Combination of current and future service infra development.	Good reputation in service business education. Effective mutual tacit knowledge exchange.	Accessibility and cost-effectiveness (costs per unit).	Industrial- (i.e. customer-) driven development, trust building, parallel use of tacit and explicit knowledge.
Cons	Development is rarely taken any further than the idea generation phase. The success of the mechanism is highly client-dependent.	Full-scale implementation without public funding may not be feasible.	Ownership of the network unclear when the current project ends.	Involvement of student's background organization to diffuse the service knowledge.	Codified information and the search engine do not directly match the practical- and context-specific needs of SMEs.	May cause cultural lock-ins and saturation if activities are not renewed constantly.
Cons	Development is rarely taken any further than the idea generation phase. The success of the mechanism is highly client-dependent.	Full-scale implementation without public funding may not be feasible.	Ownership of the network unclear when the current project ends.	Involvement of student's background organization to diffuse the service knowledge.	Codified information and the search engine do not directly match the practical- and context-specific needs of SMEs.	May cause cultural lock-ins and saturation if activities are not renewed constantly.

4.3 Key results and remarks in the second phase

In the section above, we provided descriptions of six knowledge transfer mechanism cases. In addition, we gained the views and opinions of 248 KIBS companies on the subject of knowledge transfer activities in service business development (see Appendix I). Below, we discuss the main findings derived from the cases and the surveys based on the existing theoretical perspectives on knowledge transfer presented in section 2. The findings of this analysis are also summarized in Table 9.

Knowledge bases

The results of the empirical analysis and the existing literature emphasize the role of customers/clients in knowledge transfer and service business development. Client-specific knowledge constitutes the key knowledge base for transfer agents. The role and importance of customers in the context of this study is two-fold. Firstly, understanding the customer's or client's expectations, absorptive capacity and individual characteristics is crucial for knowledge transfer intermediaries (consultants, research organizations, agencies etc.) when providing business development services to clients (target organizations). Secondly, customer orientation and customer perspective is important in the development of the activities of service firms. Thus, development activities should consider how service firms interact with their customers and what added value their services are generating for customers, and thereby change their behaviour accordingly. This customer orientation in the case mechanisms can materialize in different ways. For development projects, such as SINCO, the customer orientation of the mechanism itself is ensured with interactive discussions and experimentation with the client throughout the process, and the output of the process is a new service concept tailored for the client and its customers' needs. In Laurea's training program, trainees bring their own expertise and concrete cases from their own organizations so that the training is as customer-oriented as possible. In the ExpertFinder database, the core is the search engine and the customer orientation of the engine and added value services evolve gradually through feedback from experts and firms seeking expertise. In the case of the BestServ Forum, member firms decide mutually the development agenda. Client-specific knowledge is the most important knowledge base for transfer agents when ensuring the success of knowledge transfers. However, depending on the objectives of the mechanisms,

4. Cases of successful knowledge transfer mechanisms

client-specific knowledge may not be the key knowledge base in every case. For example, the gym of MIND approach highlights the role of unconventional cases and examples as well as out-of-the-box thinking, and the objective is to make target organizations seek solutions that are not in their comfort zones. In this case, models, scientific findings and case examples form the crucial knowledge base for the transfer agent.

In Table 8, illustrative quotations of how interviewees understood the concept of ‘service business capability’ are presented. The quotations show how customer understanding is considered the key aspect.

Table 8. Service business capabilities according to case study interviewees.

Organization	Definition
Intermediary	“It’s the ability to make customers and users focus on business operations and understand service orientation as a competitive advantage. Business thinking needs to be “servitized” and it needs to be adopted throughout the organization (strategies, top management), not just in the customer interface.”
Intermediary	“It’s the ability to structure customers’ service experiments and to understand the functional, emotional and social implications related to the service and service process.”
Intermediary customer	“It’s the ability to comprehensively approach customers and understand customers in interaction situations.”
Intermediary customer	“It is about making a customer’s life easier and respecting a customer’s needs. Service providers should also have the patience and courage to find out the real needs of the customer, not just carry out services based on a customer’s initial request.”
Intermediary customer	“It’s the ability to anticipate customer needs and also surprise customers by providing something extra that creates added value to the service experience.”
Intermediary	“It’s the ability to manage the information of the service delivery process on all aspects that are important from the perspective of customers.”

Knowledge management strategies

The customer perspective of the mechanisms is strongly related to the chosen knowledge management strategy. In particular, the level of personalization seems to go hand-in-hand with the level of customer orientation. More or less, all mechanisms implement both the personalization and codification knowledge management strategies, although the level of customer orientation or personalization differs from case to case. All mechanisms seek some level of personalization, since it is clearly recognized as an effective means to transfer knowledge. Even though ExpertFinder has chosen a highly codified strategy, it is constantly searching for possibilities to provide more personalized services for matchmaking. If we consider the case of the Laurea training, the mechanism provides continuous interplay between personalization and codification through its learning diaries, seminars, group discussions and through formal and informal discussions between trainees as well as between trainees and trainers. The level of personalization and customer orientation is also highly related to the level of available resources and time. For example, in the SINCO case, the target organizations are involved with the project during the whole project period and the process results in a new tailored service concept for the participant organization; likewise, in the Laurea training, trainees are involved with the education which takes 1.5–2.5 years. Long development time and/or sufficient resources will further guarantee that client-specific aspects and the client's customers' aspects can be taken into account in knowledge transfer and the development of a service firm's activities.

Barriers of knowledge transfer

In the knowledge management literature, barriers to knowledge transfer are related to the absorptive capacity of the receiver, uniqueness or organizational differentiation of the transfer processes or organizations and the nature of knowledge, such as causal ambiguity. More or less, all mechanisms have to overcome these barriers. The target organizations of the mechanisms can differ – none of the case mechanisms are especially sector-specific. However, the findings in the BestServ Forum case suggest that the relationship between sector-specific and non-sector-specific development is less straightforward, meaning that sector- (or industry field-) specific knowledge transfer activities would always be a better choice. Although sector-specific development activities may speed up the process of knowledge transfer, non-sector-specific activities may

4. Cases of successful knowledge transfer mechanisms

provide more beneficial (or radical) results for firms. Many responses in the expert survey addressed the point that knowledge is always firm-specific and cannot be transferred to other organizations. Besides the causal ambiguity of knowledge, confidentiality issues and IP protection are other practical barriers in knowledge transfer between organizations. In a highly codified mechanism, such as ExpertFinder, both the receiver and service-providing organization can differ extensively from each other. This makes the codification task challenging. Many of the experts in the database indicated that their profiles and competencies were hard to find with the search engine and that current search options did not match the practical development needs that SMEs often have in their operations. One specific barrier, which was also highlighted in the survey responses, is the (low) level of involvement and commitment of target organizations. In most cases, only individual staff members are involved with projects, training and seminars but effective knowledge transfer requires that several people from the target organizations are involved in the development processes. The internalization and practical implementation of new knowledge and consequent new service concepts and processes require commitment from the whole organization. Another practical barrier, which is also related to the chosen knowledge management strategy, is that mechanisms may require the use of multiple competencies and an extensive amount of labor to be functional, such as in the case of SINCO. In this case, the barrier could be an insufficient resource pool, but cultural differences can also arise when managing development activities and people from different professional or educational backgrounds.

Qualities of successful knowledge transfer

Each of the case mechanisms has qualities of successful knowledge transfer, which more or less mirror the barriers. For example, academic competence and reputation (e.g. the gym of MIND and Laurea training) can operate as a “trust-building mechanism” between transfer agents and target organizations and, therefore, can enhance knowledge transfer between the parties. Moreover, the BestServ Forum case shows that explicit rules and contracts in networking forums can enhance the creation of a trustful knowledge transfer environment for inter-firm interaction. One important aspect of successful knowledge transfer – which is also a knowledge creation phase in the SECI model – is the process of the internalization of knowledge. If new knowledge is not internalized by individuals and not fed into the organization through socialization, the transfer pro-

cess will remain somewhat incomplete. During the first and second phases of the study, it became evident that intermediaries rarely evaluate how their target organizations have internalized new knowledge or how development activities have been put into practice. One significant method to speed up the process of internalization – identified in the SINCO case – was the visualization and prototyping of concrete artefacts. The creation of visual and experimental elements of the development target (e.g. new service concept) clearly helps an organization's staff and its stakeholders grasp the idea of a new potential concept. The case mechanisms and survey results indicated that development activities are usually targeted towards the creation or improvement of new service concepts and processes, whereas the resources and infrastructures of the service provision are seldom the object of development. An exception is VERCCO since it provides technical assistance, physical infrastructure and logistics services for e-commerce entrepreneurs through its network. Another important aspect related to the success (or cost-effectiveness) of the knowledge transfer is the reduction of the stickiness of knowledge by converting tacit knowledge to explicit by using ICT. The ExpertFinder case represents this aspect in our case pool. Although there were challenges in the codification and categorization of the database, it is still free-of-charge, accessible to anyone at any time and the threshold for utilization is low. The potential impact and related cost-effectiveness ratio of the service is significant, e.g. at an industrial sector level if the service is utilized widely and knowledge seekers and providers find suitable matches. Yet another proposed activity to reduce the tacitness of service business-related knowledge is the productization of services. Many survey responses indicated that the productization of services is a way to make them more understandable within and between organizations for learning or benchmarking purposes.

Table 9. Knowledge transfer theories in our case studies.

	Gym of MIND	SINCO	VERCCO	Laurea SID program	ExpertFinder	BestServ Forum
Knowledge bases	Use of groundbreaking and unconventional cases, and examples and thinking to produce new ideas for service concepts, processes and infrastructures.	Use of service design and rapid prototyping methods to produce service processes, service moments descriptions and prototypes of physical artefacts. Use of generic knowledge of service business processes and specific knowledge of client firm.	Technical- and client-specific knowledge within the network is used for the provision of a platform for e-commerce activities for entrepreneurs.	Use of ‘learning by developing’ tools, academic knowledge and experience of other students to increase multiple competencies in service business-related activities.	Provision of common language and knowledge IT structure for the matchmaking of knowledge seekers and knowledge providers.	Provision of common language, concepts, cases and clearly defined objectives to an industry-driven development agenda.
Knowledge management strategies	Moderately personalized knowledge management strategy; effective exploitation of existing knowledge.	Personalized knowledge management strategy; variation, experimentation, tailored approach.	Personalized knowledge management strategy for new e-commerce entrepreneurs; exploitation of existing knowledge in seminars and workshops.	Interplay between personalization and codification knowledge management strategies throughout training.	Highly codified knowledge management strategy, stored in an IT system.	Interplay between personalization and codification knowledge management strategies utilizing different types of activities (roundtables, forum meetings, seminars).

Knowledge transfer barriers	Attitudes and the absorptive capacity of receivers; implementation and application are up to the customer.	Requires multiple competencies (organizational, business, arts, multimedia) and labor (e.g. students); target organizations can vary great deal.	Target organizations (e-commerce merchants) can vary; ownership of service network maintenance and development after project ends.	Management support and absorptive capacity of receiving organizations.	Knowledge needs and offerings difficult to categorize and operationalize in an IT system; target and service provider organizations vary great deal.	Actual service business can be different from what was discussed in the forum; Cultural lock-ins may form boundaries to development agendas.
Qualities of successful knowledge transfer	Academic competence, mechanism is based on research on management and innovation. License to act differently; concept facilitates “out of the box” thinking.	Visual approach helps internalize new service concepts quickly; minimizes the risk before investing in actual development. Helps communication and decision making.	Mechanism is good for awareness raising for e-commerce through network activities; strong infrastructure-providing network, which has active service entrepreneurs.	Academic competence, reputation of Laurea as a service business developer.	Accessibility and low threshold for utilization, conversion of tacit knowledge to explicit with an IT system.	Trustful knowledge sharing environment and network created with explicit rules and long-lasting development.

5. Conclusions, recommendations and further research

In this final chapter, we present a summarization of the main findings and draw conclusions about the perspective of public policy and service business intermediaries based on the analysis of the service innovation process. In addition, through some practical tips, we recommend how to enhance knowledge transfer in service business development. Finally, we use examples to illustrate how to study the topic further.

5.1 Summarization of the main findings

In this study, we examined the process of knowledge transfer in service business development from the perspective of intermediary organizations and knowledge transfer mechanisms in Finland. We gathered the main findings from the existing literature, identified and categorized different knowledge transfer mechanisms and carried out six case studies. The main findings of the KIBS survey are also included below. A summarization of the results is presented in this section.

Existing literature and theory base

- Service business capability can be defined as the capability of the organization to integrate multiple knowledge bases related to service business.
- Successful knowledge transfer related to service business is highly dependent on the transfer of tacit knowledge.
- Knowledge transfer in services is largely the learning of individuals working on the service. For the successful transfer of tacit knowledge, the circulation of staff in a service firm and communication among individuals from different firms are important factors.

- Learning can then be observed in the accumulation of knowledge in the different knowledge bases in the service firm and from the results such as improved productivity, efficiency and novel service concepts.
- In the learning process, knowledge is recreated, redefined, linked with other knowledge, shared and enriched (den Hertog, 2000). This increases the possibility for the service firm to offer more efficient routine services and more innovative tailored services to its clients.
- The goal in service business should be the transformation of tacit knowledge to explicit knowledge. However, this is possible only to a certain extent. Therefore, mechanisms to transfer tacit knowledge will have to be introduced. Social relations play an important role in this transfer.

Identification of knowledge transfer mechanisms

- In our analysis, we classified transfer mechanisms based on how many parties are involved and the role intermediaries play in the network where the knowledge transfer process occurs. The six categories were media, training, project cooperation, communities, partnerships and infrastructures and resources. At their best, each typical mechanism should:
 - provide descriptions of “good cases”, raise awareness, identify service business developers and partners (*media*);
 - provide methodological and conceptual tutoring on service science and service business, offer hands-on learning and contextualization (*training*);
 - aim for visualization (e.g. through service blueprinting and service design), include customers in the development processes (*project cooperation*);
 - aim for trust building and the creation of common development agendas and regional development in service sectors (*communities*);
 - aim for trust building and the use of a holistic development approach as well as the co-creation of joint service products and offerings (*partnerships*); and

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- provide physical and technical platforms and test beds for enhancing interaction and facilitating service design processes, strengthen the resources of the firms by providing opportunities of staff exchange and co-creation between organizations (*infrastructures and resources*).
- Little attention is paid to how effective the mechanisms have been from the users' (knowledge receiver's) perspective and what kind of knowledge transfer impact they have had:
 - Little emphasis is placed on how the information is internalized in firms, meaning how explicit knowledge is turned into tacit knowledge to become concrete and useful for the employees and the firm.
 - However, compared with other intermediaries, private consultants seem to pay more attention to the knowledge internalization process with their customers.
 - The internalization of knowledge should be measured and verified more often, so that the success of the knowledge transfer activities and mechanisms can be evaluated, e.g. with a retrospective analysis of successfully internalized knowledge.
- There is also a shortage of mechanisms that try to incorporate customers and end-users into the development processes. Moreover, innovative methods that utilize large masses of people (e.g. peer assessment and communication) in development processes are few.
- There are regional differences in adopting service-oriented development processes and thinking because of the industrial base of the regions, and the forums and methods offered and applied in service business.

Analysis of case mechanisms

- Client-specific knowledge constitutes the key knowledge base for transfer agents and intermediaries. It is important to understand the client's expectations, added value for customers, client's absorptive capacity and individual characteristics as well as how clients interact with their own customers and what added value their services generate for customers – and change their behaviour accordingly.

5. Conclusions, recommendations and further research

- However, if the objective is to make target organizations seek solutions that are not in their comfort zones, models, scientific findings and case examples form the crucial knowledge base for the transfer agent.
- All case mechanisms seek some level of personalization knowledge management strategy, since it is clearly recognized as an effective means to transfer knowledge.
- Service business development requires that the “human factor” is included more systematically in the development processes and mechanisms, instead of only concentrating on business processes and immediate gains (profits).
- The level of personalization used in the mechanism seems to go hand-in-hand with the level of customer orientation. More or less, all mechanisms implement both personalization and codification knowledge management strategies, although the level of customer orientation differs from case to case.
- Long development time and/or sufficient resources will further guarantee that client-specific aspects and client’s customers’ aspects can be taken into account in knowledge transfer and the development of a service firm’s activities.
- The target organizations of the mechanisms can differ depending on the sector in which they operate – none of the case mechanisms was especially sector-specific. The causal ambiguity of knowledge makes knowledge transfer highly challenging.
- Competition, confidentiality issues and IP protection hinder knowledge transfer between organizations.
- One specific barrier is the (low) level of involvement and commitment of target organizations. The successful internalization and practical implementation of new knowledge and consequent new service concepts and processes require the commitment of the whole organization.
- Academic competence and reputation, as well as explicit agreements (e.g. NDAs) can operate as a “trust-building mechanism” between transfer agents and service firms and thereby enhance knowledge transfer between the parties.

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- One approach to speed up the process of internalization is the visualization and prototyping of concrete artefacts. The creation of visual and experimental elements of the development target (e.g. new service concept) clearly helps an organization's staff and its stakeholders grasp the idea of a new potential concept.
- Development activities are usually targeted to the creation or improvement of new service concepts and processes, whereas the resources and infrastructures of the service provision are rarely the object of development.
 - However, mechanisms do exist (such as in the VERCCO case) that provide technical assistance, physical infrastructure and choices for subcontractors.
- The reduction of the “stickiness of knowledge” is possible by converting tacit knowledge into explicit by using ICT. Although the codification and categorization of service business-related competencies and knowledge is difficult, ICT-enhanced knowledge transfer mechanisms can provide better accessibility and cost-effectiveness for target organizations and industries.
- The productization of services reduces the tacitness of service business-related knowledge, which is a way to make them more understandable within and between organizations for learning or benchmarking purposes.
- Discussions on service business development, knowledge transfer and learning should not become “too scientific”. Practical and real-life examples should be used more extensively to improve knowledge transfer between developers and service firms.

5.2 Conclusions from the perspective of public policy and service business intermediaries

This section concludes from the perspectives of both service business intermediaries and public policymakers based on the service innovation process approach. Based on the results of this study, we can identify the policy approaches and development activities (carried by intermediaries) that are better suited for the

distinctive phases of the service development process. We roughly separate service innovation process in the idea generation, development and commercialization phases that relate to common models of new product development (NPD) (Koen et al., 2001). The selected method is not supposed to be a robust theoretical approach to the subject but rather a heuristic model for designing different policies and development paths for varying needs in service business development. This means that, for example, in certain national as well as regional or sectoral contexts emphasis should be targeted to facilitate idea generation among service firms. In another context, emphasis should be targeted, for example, towards supporting the creation of the service system through organizational or supply chain management development¹⁰. The main conclusions of the study are illustrated in Figure 11.

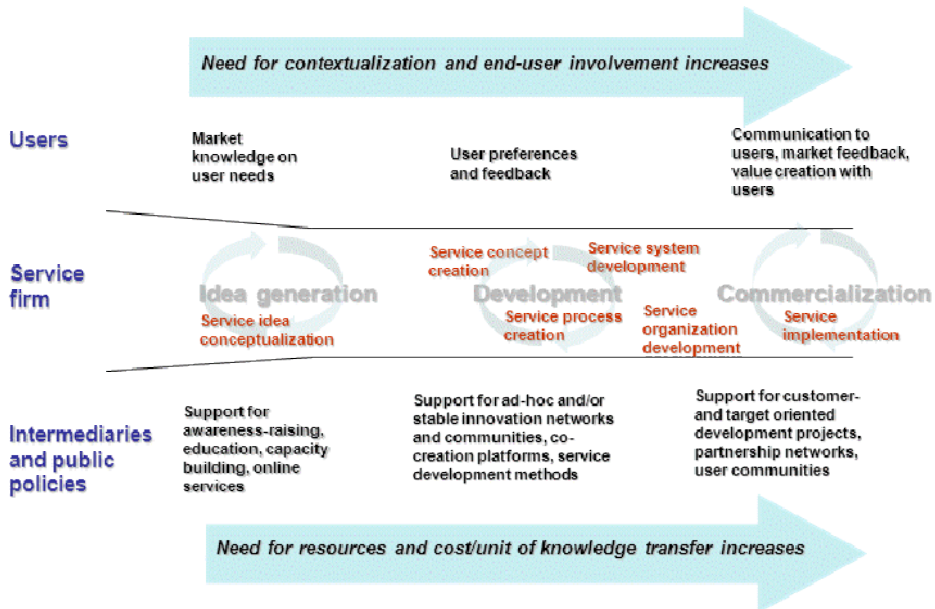


Figure 11. Support for service business development in different phases.

¹⁰ Although all development phases are important in service business development, here we presume that the level of servitization in the country, region or industry sector should be taken into account in policy planning. For low level servitization contexts, emphasis should be placed on service ideas and concept creation, whereas in high level servitization contexts emphasis should be placed on supporting the (re-)development and commercialization of new services.

Service firms' innovation processes elaborate development activities and policies

Ultimately, the focus on the policies and activities of intermediary actors are always a service firm. However, to take the NPD process more into the context of this category we elaborate the process by using Edvardsson and Olsson's (1996) model of new service development (see also section 2.1). This model distinguishes between service idea conceptualization, service concept creation, service process creation, service organization development, service system development and service implementation. Following Edvardsson and Olsson, service concept, service process and service system development are more or less parallel processes, however service idea conceptualization belongs clearly in the earlier phase (idea generation) and service implementation in the later phase (commercialization) in the NPD model. Arrows within the service firm's development process refer to learning processes where knowledge is created in different phases and needs to be internalized successfully within the firm before entering the next phase.

Need for knowledge about how users guide development activities and policies

The results of this and previous studies have clearly proven that the roles of customers and end-users are extremely important in service business development (e.g. the value of the service is often co-created with customers). An ability to understand customers is a key capability in service business. According to our analysis, the need for contextualization and end-user involvement increases when development activities move closer to commercialization and service implementation. For example, a firm needs to adjust (or transform) its external knowledge to match the needs of its own organization, customer base or provider networks and it needs more specific feedback from its existing or potential customers and users when the new or improved service is actualizing.

On the other hand, in the idea generation phase, when new service ideas are conceptualized, general knowledge on the user's needs in the market are required but knowledge flow is more or less one way, meaning that the firm extracts existing knowledge and tries to interpret and utilize it for its own needs. In the development phase, when actual service concepts and processes are formulated, the firm needs to know more about user preferences and it needs more detailed feedback from existing or potential users regarding the new service under devel-

opment. Similarly, it needs to inform (test) users about the characteristics of the service. At this point, knowledge flow is two way and (should be) based on joint development and co-creation. In the commercialization phase, when the new or improved service is launched and implemented, two-way knowledge transfer increases as the firm needs to communicate and market the service to users. Similarly, the firm receives direct market feedback of the launched service. Moreover, interaction with users increases as the firm begins to create value with users of the service. The point of this analysis is that when (the need for) user engagement increases, the public policies and development activities of intermediaries should be adjusted accordingly.

The role of public policy and intermediaries in the service development phases

As claimed earlier, the support activities that intermediaries and public policymakers offer to service firms can be elaborated by using the service innovation process approach. The results of this study also indicate that the need for resources and the cost per unit of knowledge transfer increase when development activities move closer to commercialization and service implementation. This means that when knowledge needs to be more contextualized because of the specific needs of a firm and when user engagement increases, more resources are needed for knowledge transfer activities. Similarly, the costs for each knowledge transfer recipient, in this case a service firm, will increase. Here, we reflect how policymakers and intermediaries can target their activities in different phases of the new service development process.

For supporting idea generation, activities need to be targeted to awareness raising, education and capacity building. A lot of groundwork is needed to transform firms for service-dominant thinking, especially in the sectors and regions that have long traditions in manufacturing and technology. In addition, online-based services (initiated by intermediaries or public organizations) can leverage knowledge transfer to include large audiences. Knowledge in this context can include good practice case descriptions, market and business intelligence data, existing service concepts and models, information about relevant service business developers and collaboration partners.

The development of service concepts, service processes and service systems (e.g. organization, supply-chain, technologies in service supply), requires co-creation and joint development with external developers as well as with potential

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cooperation partners, customers and users. Intermediaries and policymakers should concentrate on supporting ad-hoc and/or stable innovation networks and communities and co-creation platforms as well as experimental development methods, such as rapid prototyping and service design. Importantly, support is given for two-way knowledge transfer since the service firm needs to expose the new emerging service to outsiders to gather feedback and development ideas. The more development in communities and development platforms are contextualized and made firm-specific, the more they should be designed in a way that the confidentiality of the business activities of individual firms is not jeopardized.

When the service development process proceeds to commercialization, the development process most likely becomes more closed to protect the IP of the firm against competitors. By contrast, the characteristics of the service need to be visible for suppliers or partners that participate in implementing the service. Therefore, support is needed for fixed-term development projects among service firms, intermediaries and/or research organizations that aim to develop a new or improved service for the market. In addition, support should be given for the development of target-oriented partnership networks where the detailing of service implementation can be carried out in a trustful environment. It is often mentioned in the technology commercialization literature that the commercialization phase is the most expensive (e.g. Di Benedetto, 1999; Langerak et al., 2004; Chesbrough, 2006). No differences seem to exist in the commercialization of services. When the aim of public policy is the actual commercialization of new or improved services, enough resources should be allocated for the varying needs of each firm that hopes to commercialize and launch a new or improved service.

When the new or improved service is on the market, firms also have an opportunity to gather direct market feedback from customers and users. For this, intermediaries and policymakers can support the development of platforms for user/peer communities. Feedback from users can also give ideas for the firm that starts a new service innovation process. This describes the cyclical nature of the innovation process.

5.3 Practical tips for enhancing knowledge transfer in service business development

This study has highlighted approaches and solutions that are specifically suitable for enhancing knowledge transfer in service business development between intermediaries, research organizations and firms. Here, we list the main findings as

practical tips for people and organizations involved in knowledge transfer and service business development.

- A stepwise approach for creating service business may be required. For instance, start with awareness raising in certain regions or industry fields. Firms then become familiar with service business and ideas for developing their own services, and they can identify suitable external development partners.
- To make service firms seek solutions that are not in their comfort zones, scientific findings, models and case examples can awaken them to experiment with totally new service concepts or business models.
- Introduce mechanisms (networks, projects, workshops, training sessions etc.) that allow both open participation and closed or limited participation. The latter are more suitable for securing confidential development, IP protection or establishing new partnerships for service delivery.
- Find ways to ensure that knowledge that is transferred is internalized (i.e. understood and operationalized) in receiving organizations. Find ways to commit top management and the whole organization to development activities.
- Service business capabilities are often embedded in individuals, so provide opportunities for staff exchange and social interaction between organizations.
- Use service design methods and create tangible and visible prototypes (e.g. with physical artefacts) of potential new service concepts and processes. This helps staff members, partners, stakeholders and customers grasp the idea of the new service.
- Create regional public forums and facilities for co-creating and developing services (such as SINCO, see section 4.2.4). Public support for service development forums, test beds and platforms is necessary, at least until there is enough private demand to cover the costs of implementing such arrangements.
- Use quick prototyping – “fail often to succeed sooner”. The sooner ideas are concrete and visible the sooner they can be disregarded or accepted for further development.

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- Provide support that allows service firms to productize their service activities. This will help firms communicate the qualities of the service to their staff members and customers and facilitate an exchange of ideas and learning between firms.
- Target support activities to include infrastructural (technologies, sub-contracting network, physical environment etc.) and organizational development instead of only conceptual, business model or processes development.
- Provide support for the creation of different online services (e.g. bulletin boards, crowdsourcing) where peer assessments or customer and user feedback can be utilized for assessing, (re-)developing and co-creating new services.

5.4 Recommendations for further research

This study has investigated knowledge transfer in service business development from many perspectives but it has not covered the whole topic, and new questions to be studied further have emerged. For one thing, studying the topic from the perspective of successful service innovations (or innovation processes) would be beneficial. That would allow, for example, retrospective analyses of successfully internalized knowledge –through what kind of process socialization, externalization and combination of knowledge has the successful internalization of service business capabilities in a service firm been achieved. So, further studies could take the individual innovation of a service firm as a unit of analysis and analyze how the firm has extracted external knowledge, what kind of knowledge and from who it was acquired and, consequently, through which kind of process it was internalized (or personalized) to match a firm's context-specific environment.

Besides further studies on knowledge transfer processes, knowledge transfer mechanisms should be studied and benchmarked in more detail. The results of this study imply that more resources in form of in knowledge transfer are needed when development processes are close to the commercialization phase. However, the cost-effectiveness of different types of mechanisms or development methods, regardless of whether they are used in earlier or later phases, is yet unknown. Therefore, knowledge is needed on the approximate or exact costs of implementing particular knowledge transfer mechanisms, how many potential knowledge receivers the mechanism will affect and the effectiveness of the

mechanism. However, defining the ultimate effectiveness of a mechanism – the point when transferred knowledge is converted into actual business benefits in the firm – would most likely need a longitudinal case study approach. Another approach for benchmarking the effectiveness of different transfer mechanisms would be a quasi-experimental study design. With this approach, for example, a specific service business-related problem or development target would be processed with different types of methods (e.g. workshop methods) and researchers would observe the functionality of the methods and their differences in supporting knowledge transfer among participants.

We should also highlight that this particular study has approached service business as if it were one single entity. However, in further analyses concentrating on specific service sectors or the comparison of different sectors in service business development and knowledge transfer are advisable. We presume that knowledge transfer objectives, related service business capabilities or other characteristics are different when comparing IT services, financial services or travel and leisure services. Sector-specific analyses can provide more accurate development recommendations for policymakers and intermediaries as well as for firms that aim to develop their capabilities with service-oriented development.

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Appendix I: List of interviewees in phase one

Organization	Interviewee
Aalto BIT Research Centre	Marja Toivonen, Director
Aalto BIT Research Centre	Kaija-Stina Paloheimo, Researcher
Aalto University	Markku Markkula, Johtaja
Aalto Innovation Centre	Veijo Ilmavirta, Director
Laurea University of Applied Sciences	Katri Ojasalo, Principal Lecturer
Culminatum Ltd	Jussi Sorsimo, Program Manager
SME Foundation	Juha Saapunki, Managing Director
Aalto University Design Factory	Anssi Tuulenmäki, Research manager
The Finnish Health Technology Association, FiHTA	Terhi Kajaste, Managing Director
VTT Oulu	Minna Isomursu, Research Professor
VTT Oulu	Pentti Vähä, Research Professor
University of Oulu	Saara Pekkarinen, Professor Pauliina Ulkuniemi, Professor
Oulu University of Applied Sciences	Taina Vuorela, Aila Sarkkinen, Päivi Aro
Oulu Innovation Oy	Jukka Klemettilä, Managing Director Sari Turtiainen, Development Manager
Technopolis Oulu	Juha Juntunen, Director
The Centre for Economic Development, Transport and the Environment (ELY-Centre) Oulu	Jouko Sarkkinen, Head of Training Division

Appendix II: KIBS perspectives on service business-related knowledge transfer

As a part of the study and in executing the case of the SME Foundation and its ExpertFinder database (presented in section 3.3.2) we were able to carry out a web survey targeted to experts and consultants registered on the ExpertFinder database. This gave us the opportunity to get the views and opinions of private KIBS, which the target group represents, on the subject of knowledge transfer in service business development. The survey was a pilot that aimed to generate indicative results about the research subject.

Execution of the survey

We selected a sample of experts based on expertise fields including *product and service development, strategic business planning, management and organization and information and communications*. The database did not include information about expertise specifically on 'service-related' terms, but the above mentioned search criteria were assessed to be the most likely to reach experts that operate with service companies or in the service-related development of organizations. The survey was sent to 798 experts and we received 248 answers. Eighty-two percent of respondents represented micro-firms, employing a maximum of 10 people. Half of respondents worked in the capital or in the Southern Finland (*Uusimaa*) region. The survey was open for respondents between 11.10.2010–11.11.2010. One reminder was sent to the target sample within this period.

The questionnaire included two structured questions and five open-ended questions. With the structured questions, we aimed firstly to understand the usual needs and expectations of expert's clients in service business development and secondly how important experts considered the use of different methods in transferring knowledge for customers. In the former question, we utilized Edvardsson and Olsson's (1996) model of the three main types of service business development targets: the development of the service concept, the development of the service system (resource structure) and the development of the service process. We also added some general business development areas (e.g. internationalization, finances, dealing with the bureaucracy) into the question. In the latter structured question, we utilized Nonaka and Takeuchi's (1995) SECI model.

With the open-ended questions, we asked the experts to give specific examples of usual business development cases by asking the following questions: what kinds of methods or particular projects have been the most successful in transferring knowledge to client organizations; what are the most relevant elements that relate to service business capability; what kinds of potential barriers and challenges relate to the transfer of service business capabilities among organizations; and how can service business-related knowledge transfers be enhanced at a national level in Finland?

Needs and expectations related to service business development

Figure 1 presents the experts' views of their clients' usual needs and expectations. The development of service processes, new earnings or business models, activities in the customer interface and service offerings were areas where clients seem to most often seek outside expertise. Interestingly, the development of the physical infrastructure of the services was seldom on clients' development agendas.

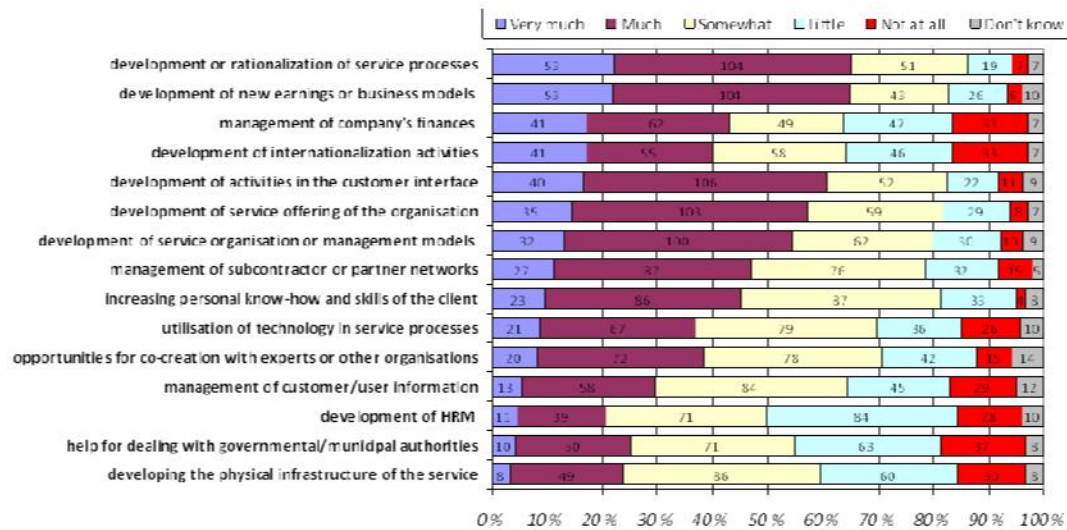


Figure 1. The needs and expectations of KIBS's clients in service business development (n = 248).

In the given specific examples of usual business development cases, assignments often relate to profitability analyses, business planning, productizations and conceptualizations, finding new growth paths, developing marketing and sales

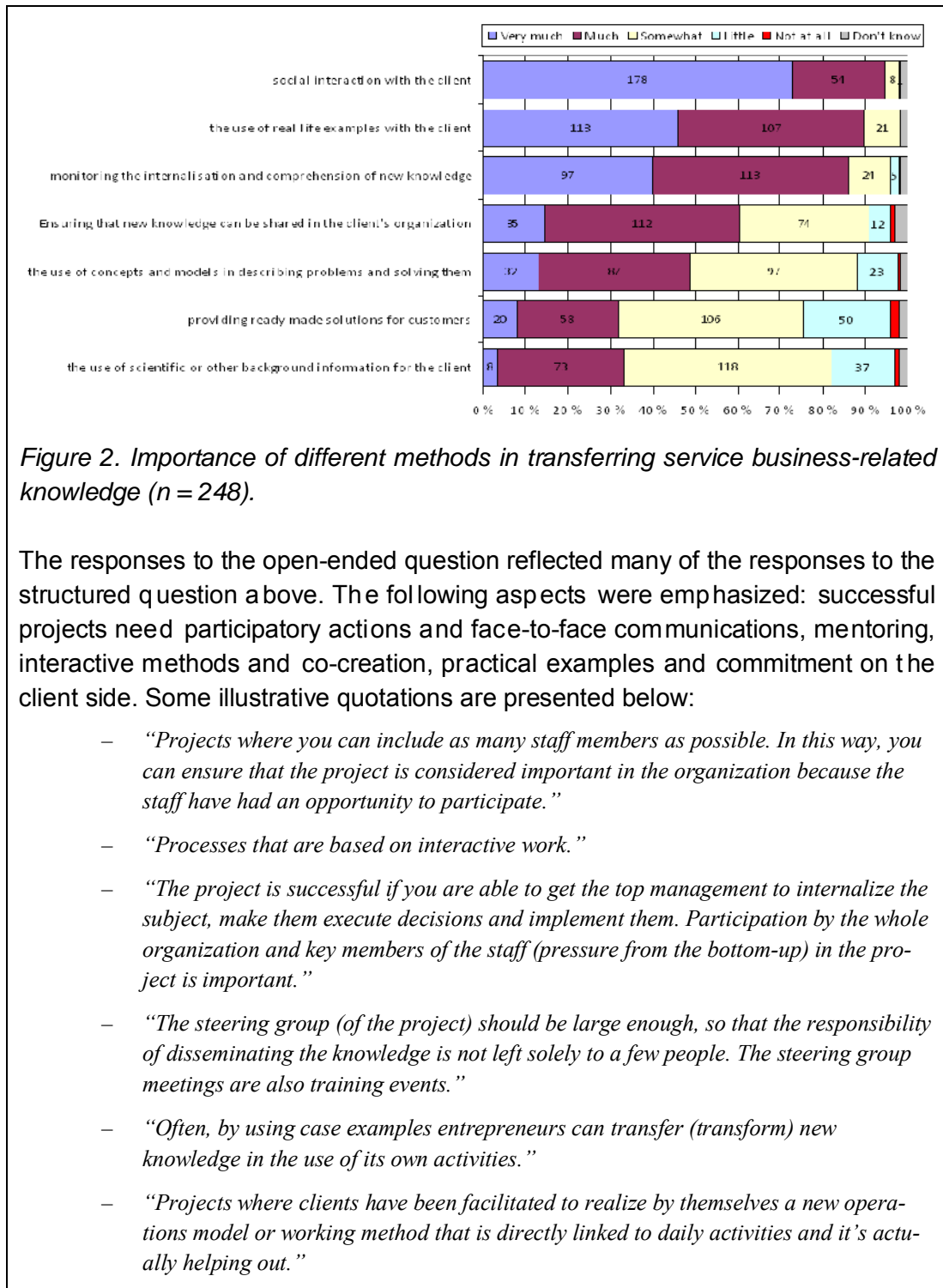
and international activities. Some quotations from the open-ended responses are presented below:

- *“A client may, for example, add a new service to its service offering or ask for help developing a respective process. Or if the service already exists help is asked to improve the service.”*
- *“The development of the client’s service process starting from making the tender, specifying the whole implementation process and ending in after-sales monitoring is essential in service business development. Also, making and managing agreements are central for clients.”*
- *“The development of cooperation between several companies in order to create a new service concept.”*
- *“Defining the added value ... and the estimation of the return on investment from a client’s customer perspective.”*
- *“The development of an earnings model to evaluate the balance between service product and customer needs.”*
- *“Design strategy – defining different interfaces of the service.”*
- *“Client’s problems have included e.g. the determination of customerships (in what terms a customer contact can be regarded as an assignment; when a service product is actually delivered to a customer; things related to the quality system etc.).”*
- *“Often I construct with the customer a new service business concept including a business plan.”*
- *“Needs relate to productization, pricing, profitability analyses, sales and marketing.”*

Different working methods in service business development consulting

In terms of the importance of the different methods for transferring knowledge to clients, social face-to-face interaction was regarded clearly as the most important method among the experts (Figure 2). The use of ready-made solutions and scientific (explicit) information were less important, although the responses reflect that this type of information is somewhat important. An interesting observation related to these results is that 40 percent of the experts considered that monitoring the internalization and comprehension of new knowledge within clients was very important.

Appendix II: KIBS perspectives on service business-related knowledge transfer



- *“In-depth and continuous conversations with the client, describing the impacts of the development through models and monitoring the impacts of implemented development activities.”*
- *“The client develops its own activities, but tools, guidance and mental support are given by an outside expert.”*
- *“Practice-oriented workshops. Should have limited development target – if there are too many things on the agenda, nothing will be accomplished properly. In training, everything needs to be concrete and visualized – not theoretical.”*
- *“Practice-oriented approaches, transferring knowledge and practices from other industry sectors. You cannot get very far with theories, especially because the productization of services is so large that you really need to understand the different functions and processes of the company.”*

Service business capabilities and related elements

In one of the open-ended questions, we asked respondents to describe how they would define “service business capabilities” and what are the most relevant elements that relate to service business capabilities. Many respondents saw this as a capability to operate with customers, understand and define customer needs and expectations, determine the added value for customers, use conceptualization and productization approaches and use human-centric approaches in developing and conceptualizing services. Some illustrative quotations are presented below:

- *“Central is understanding customerships and the utilization of customer information. Quite often companies do not have a clear picture of who their customers are or much less the actual needs of their customers. The cornerstone of service business capability lies in understanding customers.”*
- *“In service business, it’s all about the productization of one’s own competences and special skills. In productization, the customer perspective, management of service processes and marketing and sales of the service is central.”*
- *“Timely delivery of service promises with desired methods.”*
- *“It’s about understanding and knowing customer needs and expectations and delivering services for that.”*
- *“According to the knowledge received from my circle of acquaintances, service business capabilities are 80 percent general business know-how and 20 percent industry-specific know-how.”*
- *“Planning is important. Customer orientation is just an empty term if you offer only*

services that you are willing to offer but you haven't figured out beforehand what kind of services customers really need."

- *"It's the ability to outline and formulate different business concepts, to understand customer orientation and added value and also an ability to develop financially viable business functions."*
- *"The core of service business capability is that a company can visualize their customers and understand how they make their purchase decisions. Then, you know how to construct the right service with the right price and image. After this follows marketing capabilities: to know which marketing channel is effective in marketing the service to customers. All this is completed by a consistent brand – all the service elements are consistent under the brand's image."*

Promotion of service business-related knowledge transfer activities in Finland

In the final open-ended questions in the survey, we asked experts to give us their opinions and views about what kinds of potential barriers and challenges relate to the transfer of service business capabilities among organizations and how service business-related knowledge transfer activities should be promoted or enhanced in Finland.

Potential barriers to knowledge transfer

In general, respondents felt that service business-related knowledge transfer among organizations is difficult and, in some cases, impossible because generic business development models, practices or concepts cannot be transferred as such from one organization to another. Different concepts and models often need adaptation and internalization to "receiving" organizations, which makes the knowledge transfer difficult and time consuming. In addition, confidentiality issues and companies' needs to protect their competencies were considered barriers to inter-organizational knowledge transfer. Many respondents indicated that negative attitudes towards development and outside experts among smaller firms hindered the transfer and adoption of new ideas and concepts. In addition, a low level of the productization of services was considered one knowledge transfer barrier in many comments. Some of the quotations are presented below:

- *"Knowledge transfer among organizations is difficult because of competition, confidentiality and trade secrets. The transfer of tacit knowledge related to service business is almost impossible since nobody wants to share or uncover their competences."*
- *"With service business capabilities you aim to gain a competitive edge in the markets."*

It's not profitable to give away your competencies to competitors. Even in the public sector, there is similar competition that restricts knowledge transfer. Some actor communities have transformed into exchange economies where they are ready to transfer knowledge if in the longer run they expect to gain an advantage through reciprocal interactions or the development of the whole community/sector."

- *"The transfer period is often too short – new operational models need to be internalized and transformed into a permanent practice. It's difficult to motivate the entrepreneur or organization for this."*
- *"Services have not been productized sufficiently. The importance of productization is not understood, organizations do not comprehend how products of different organizations would fit into their own organizations and what changes have to be made. They want to reinvent the wheel or continue with the old mode."*
- *"Organization's functions and competencies are not described clearly enough that other parties could understand them. Practical examples are needed for demonstration and assurance. Quality systems and brands are often too sophisticated and disconnected from hands-on practicalities to use them to present your activities or instruct others."*
- *"You can transfer practical knowledge/experiences, but not copy them as such. Case examples are always useful, which helps the development of the service system."*

Promotion of service business-related knowledge transfer at a national level

The experts' answers to how service business-related knowledge transfer activities should be promoted in Finland highlighted the need to increase networking and collaboration among service business firms (e.g. by using discussion forums) and the need to utilize more extensively practical and real-life examples. The latter notion was also accompanied by opinions that discourse on service business development is often "too scientific" and researchers and academics in this field use too many theoretical terms and language, which makes the knowledge transfer from research organizations to firms difficult. In addition, increases in business mentoring activities among smaller firms were often mentioned as a promoting factor. Some experts also highlighted that the more developed productization of services could promote the service business-related knowledge transfer. Some illustrative quotations are presented below:

- *"The development of mentoring activities would be an effective way. Mentoring usually benefits both parties, although in principle knowledge is transferred from more experienced to less experienced (organizations). With mentoring you can go directly to the core problem and deal with issues that the mentee wants to know and learn."*
- *"Experts and consultants should be brought into research groups to give practical in-*

sights and to apply research results to firms' activities."

- *"By creating clear-cut service process models in different sectors with detailed process descriptions and tools and related contract models. In addition, there should be a service business quality standard system developed that could be applicable in most sectors."*
- *"It needs discussion, fact checking, repetition and showcasing good practices."*
- *"Benchmarking information and research results should be more easily available."*
- *"The balance between knowledge needs and knowledge supply should be improved by offering intermediary services that translate communication between different business cultures and facilitates the matchmaking of suitable counterparts. In research and education, the focus should be put on developing product and service sketches with user-driven pilot projects and finalizing them with user feedback (e.g. in Living lab environments)."*
- *"If we are talking about SMEs, perhaps some kind of external promoters (consultants or regional business development agents) dedicated to this field could convince firms about the possible benefits they gain in development activities. In my experience, the mobilization of people or making a change in organizations requires a personal touch instead of mass communications."*
- *"By affecting the attitudes of the management team and by creating functional and facilitated small firm networks for sharing good practices among service firms' management teams."*
- *"Things should not be so theoretical and difficult to comprehend. A good example is the jargon 'service business capabilities'. Information should be presented by using practical language in the business sector. Development activities should be firm and customer-oriented and not based on the needs of the research and education institutes or the requirements of EU funding."*

Conclusions of the KIBS survey

The development of service processes, new earnings or business models, activities in the customer interface and service offerings are the areas where new knowledge and outside expertise are needed. More specifically, needs often relate to profitability analyses, business planning, productizations and finding new market opportunities. Social face-to-face interaction is regarded clearly as the most effective way to transfer knowledge, in line with the academic understanding of the subject and the findings of this study. Service business capabilities (or "know-how" in general) relate strongly to the abilities to understand customers and their needs and expectations. The most common barrier to knowledge transfer

was considered the diversity of organizations (where general models or plans do not apply as such), confidentiality issues and negative attitudes towards development and outside experts. For the development of service business-related knowledge transfer at a national level, networking between smaller firms, the use of practical case examples, the productization of services and business mentoring should be promoted more extensively.

Appendix III: Scholarly articles from the theory section

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Appendix IV: Phase I Interview guide – Identification of knowledge transfer mechanisms

- 1) Background information; what are the main operations of intermediary organization?
- 2) Activities related to service business; what kinds of service companies are the customers? What kinds of activities are carried out with service companies? How can firms gain from service development activities?
- 3) Perceptions of service business knowledge transfers; what kinds of transfer mechanisms are in use in organization? How have these been used? Which ones are effective and why? How can tacit knowledge be transferred?
- 4) The role of intermediary in service business; what is the role of intermediary in service business knowledge creation today and in future? What is Tekes's role?

In addition the respondents were asked to point out the core areas to understand service business knowledge transfer and indicate possible additional interviewees.

Appendix V: Phase II interview guide – Impact of knowledge transfer mechanisms

Interview themes, service provider:

- 1) Background information and history of mechanism; what, how and to whom?
How mechanism has been developed (innovativeness)?
- 2) Service knowledge; what is service knowledge according to the respondent?
Which part of the service is at the core of development?
- 3) Impact and effectiveness of mechanism; are there long- or short-term impacts? How mechanism caters for different knowledge creation and transfer activities (SECI model)?
- 4) Service business knowledge transfer in general; what are the best ways to transfer knowledge? How funding should be targeted to develop new/existing mechanisms?

Interview themes, service customer:

- 1) Background of customer; why, and how? What was the need?
- 2) Description of mechanism; what was developed? How development was carried out?
- 3) Service knowledge; how customer perceives service knowledge?
- 4) Impact of mechanism; what was effective? What was not effective? To which parts of service development was it targeted? How mechanisms catered for different knowledge creation and transfer activities (SECI model)?
- 5) Service business knowledge transfer in general; what are the best ways to transfer knowledge? How funding should be targeted to develop new/existing mechanisms?



Series title, number and
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VTT Publications 776
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Author(s) Jari Konttinen, Anssi Smedlund, Nina Rilla, Katri Kallio & Robert van der Have		
Title Knowledge Transfer in Service Business Development Transfer mechanisms and intermediaries in Finland		
Abstract Service activities are important in today's business. For this reason, also decision makers need to place emphasis on service-oriented development and service innovations as well as knowledge transfer and the sharing of service business-related capabilities to increase the competitiveness. This study provides understanding on the processes and dynamics of services business knowledge transfer by identifying and analysing different knowledge transfer mechanisms available for service enterprises. The main focus was on knowledge transfer activities in intermediaries. The collection of knowledge transfer mechanisms indicate that majority of mechanisms concentrate on externalizing and combining knowledge but less means are found to internalize or socialize knowledge. A successful transfer mechanism takes client expectations into account, is personalized and places emphasis on the type of knowledge it aims to transfer. Moreover, building a trustworthy transfer environment is clearly a positive aspect of successful knowledge diffusion. However, the results also indicate that internalization of knowledge in target organization as well as service resource and infrastructure development are often neglected. Due to the diverse nature of knowledge, different phases of service development process, the level of end-user engagement and contextualization of knowledge as well as related costs of knowledge transfer should be considered when designing knowledge transfer activities and policies targeted to service development. A stepwise approach from awareness raising to more specific knowledge transfer is recommended. Creation of regional facilities and forums with public subvention for firms to raise the awareness, co-create, design, test and productize their service activities would enhance learning between firms and service business experts and the creation of new service innovations.		
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VTT Publications 776
VTT-PUBS-776

Tekijä(t) Jari Konttinen, Anssi Smedlund, Nina Rilla, Katri Kallio & Robert van der Have		
Nimeke Osaamisen ja tiedon siirtäminen palveluliiketoiminnan kehittämisessä Siirtomekanismit ja välittäjät Suomessa		
Tiivistelmä Palvelutoiminnot ovat keskeisiä tämän päivän liiketoiminnassa. Päätöksentekijöiden tulisi huomioida palvelusuuntautunut kehitys ja palveluinnovaatiot, sekä palveluliiketoiminnan kyvykkyyksien siirtäminen ja jakaminen yritysten kilpailukyvyn vahvistamiseksi. Julkaisu lisää ymmärrystä palveluliiketoimintaosaamisen siirron prosesseista ja dynamiikasta tunnistamalla ja analysoimalla erilaisia palveluyrityksille suunnattuja tiedonsiirtomekanismeja. Tutkimuksen pääkohde oli välittäjäorganisaatioiden tiedonsiirtomekanismit. Erilaisten tiedonsiirtomekanismien tunnistaminen osoitti, että suurin osa mekanismeista keskittyy tiedon ulkoistamiseen ja yhdistämiseen, jättäen tiedon sisäistämisen ja sosiaalisaation vähemmälle huomiolle. Onnistunut tiedonsiirtomekanismi ottaa asiakkaan toiveet huomioon, on omakohtainen ja huomioi tiedon luonteen, jota mekanismin avulla pyritään siirtämään. Näiden lisäksi luottamuksellisen ilmapiirin aikaansaaminen edesauttaa huomattavasti tiedon leviämisessä. Tulokset osoittavat, että tiedon sisäistäminen ja palveluresurssien sekä -infrastruktuurin kehittäminen jäävät kuitenkin usein huomioimatta kohdeorganisaatioissa. Tiedon moninaisen luonteen vuoksi palvelukehitysprosessin eri vaiheet, loppukäyttäjien osallistaminen, tiedon kontekstualisointi sekä tiedonsiirron kustannukset tulisi ottaa huomioon kehitettäessä tiedonsiirron mekanismeja ja julkisia menettelytapoja uuden palveluliiketoiminnan luomiseksi. Tämän vuoksi asteittainen lähestymistapa tietoisuuden nostamisesta kohti yksityiskohtaisempaa tiedonsiirtoa on suositeltavaa. Alueellisten julkisten tilojen ja foorumien rakentaminen tietoisuuden levittämiseen sekä palveluiden luomiseen yhdessä ja muotoiluun, testaamiseen ja tuotteistamiseen auttaisi yritysten ja palveluosajien välistä oppimista ja uusien palveluinnovaatioiden kehittämistä.		
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Service activities are important in most of today's businesses. For this reason, decision makers need to place emphasis on service-oriented development and service innovations, as well as knowledge transfer and the sharing of service business-related capabilities to increase their competitiveness. This study sheds light on the processes and dynamics of services business knowledge transfer by identifying and analysing different knowledge transfer mechanisms available for service businesses. The main focus was on knowledge transfer activities in intermediaries. The identified knowledge transfer mechanisms indicate that a majority of them concentrate on externalizing and combining knowledge, while we found fewer means to internalize or socialize knowledge. A successful transfer mechanism takes client expectations into account, is personalized and places emphasis on the type of knowledge it aims to transfer. However, the results indicate that internalization of knowledge in the target organization as well as service resource and infrastructure development are often neglected. Due to the diverse nature of knowledge, different phases of service development process, the level of end-user engagement and contextualization of knowledge as well as related costs of knowledge transfer should be considered when designing knowledge transfer activities and policies targeted to service development.