SEEKING RESOURCES FOR B-TO-B SERVICE DEVELOPMENT WITHIN NETWORKS

Competitive Paper

Business to Business Service Networks

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Abstract

This paper examines companies' resource acquisition for the purpose of new service development. The paper identifies the resources that companies need for B-to-B service development, presents preferred forms of resources access, and discusses reasons for the choice of a specific form of operation. This is accomplished by examining resource acquisition through a qualitative case study. Empirical data for the study comprises of 29 in-depth interviews with management in three case companies that develop business-to-business services.

The basic premise for this study is the view that collaborative service development will benefit the development process and emergence of service innovation because of the variety of resources it provides. Involving actors with different kinds of resources in the service development process provides a possibility to get access to, combine and develop new resources.

The empirical research applied a qualitative case study where 29 interviews where conducted in three case companies in Finland. The studied companies provide business-to-business services within industrial services and engineering.

The study revealed several resources sought for the purpose of developing new business-to-business services in collaboration. The most important resources appear to be technological and financial resources, knowhow and market intelligence. Human resources, such as knowhow, are seeked for through collaboration between different units and functions inside the firm. Customers are suggested to have a critical role in NSD because they provide market intelligence, financing and test environments. Market knowledge and technologies can be acquired through suppliers. Partners and consultants provide with specific expertise. Universities and public research centers provide the latest scientific research knowledge, research inside the companies, and publicly financed development projects.

This paper contributes to industrial marketing literature by 1) focusing on service development which is scantly studied within IMP field and 2), providing an empirically grounded analysis of resources that are needed for new service development, and the actors from whom the resources will be acquired.

Keywords: resources, business services, new service development, service network

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INTRODUCTION

Research has concluded that new service development (NSD) is the most important factor affecting competitiveness of a service firm (Brentani, 1995; Johnson et al., 2000). Service development has become a source of strategic competitive advantage also for companies outside of the traditional service industries, such as product-related companies and manufacturing companies (Grönroos, 2000, 17–18; Ojasalo, 2009). New offers need to be brought to markets constantly in turbulent environments (Stevens and Dimitriadis, 2005) where service life cycles become ever shorter (Kandampully and Duddy, 1999). To be able to create superior value and gain competitive advantage with services, a firm should be first to handle the problem in a new way, to apply new technologies, or create innovative processes (Brentani and Ragot, 1996; Kandampully, 2002).

Previous research has indicated that by including various perspectives and knowledge domains in an innovation process, complex problems may be better solved (Fischer, 2001). Many scientific and technological breakthroughs have resulted from contributions of several actors working in networks (Bougrain and Haudeville, 2002). In fact, innovation seems often to be a key driver in the formation of business partnerships and networks (Arias, 1995) and collaborative interactions have become an alternative strategy for developing and enhancing competitive advantages (Goes and Park, 1997).

According to the industrial network approach, resources are an important reason why companies develop relationships with each other (Håkansson and Snehota, 1995, p. 135). Easton (1992, p. 24) highlights the importance of networks and resources in innovating by arguing that innovation occurs within a network, and it requires right resources in the right combinations. Relationships between business actors facilitate access to, and the use of, internal and external resources (Harrison and Håkansson, 2006; Gadde and Håkansson, 2008).

Traditional economic theory values resources without taking into consideration how the resource is used and combined with other resources (Waluszewski and Håkansson, 2007). The IMP approach, instead, regards resource combining as a critical part of product development, suggesting that developing and combining resources of multiple actors creates major opportunities for innovation (Håkansson and Ford, 2002). However, empirical insights into the resources that are combined, exchanged, and created for new service development have remained scarce. To address this underdeveloped area, *this paper examines how companies seek access to resources for the purpose of developing new b-to-b services*. The paper identifies the resources that companies need to share for B-to-B service development, the actors with whom companies prefer to share resources, and the reasons for the choice of a specific means of accessing resources. This is accomplished by examining resource acquisition and sharing for NSD within three case nets.

This paper contributes to industrial marketing literature in several ways. First, it focuses on service development which is scantly studied within the IMP field. The importance of studying new service development apart from product development has been stressed by several academics. Intangibility, heterogeneity, inseparability and simultaneity characteristics of services make their development different from tangible products (Martin and Horne, 1993; Kelly and Storey, 2000; Menor, Takikonda and Sampson, 2002). Services are processes rather than objects, which sets special requirements to a new service developer (Syson and Perks, 2004). As services are mostly produced and consumed at the same time and all parties involved affect the service process, simultaneous innovation in the service product and procedure is required (Callon, Laredo and Rabeharisoa, 1996). Services may be embodied in organizational competences (Gallouj, 2002), and the creation of the offer cannot be distinguished from the activity of production and commercialization (Callon, Laredo and

Rabeharisoa, 1996). Hence, studies conducted in the tangible product context might not be readily applied to new service development.

Second, this study provides an empirically grounded analysis of resources utilized in new service development and the actors from whom the resources will be acquired. Contrary to present IMP literature which has for the most part focused on resources in the manufacturing industry, this paper provides knowledge about sharing important resources in business-to-business services. This paper provides a broad view on resources through studying both internal and external resources shared in collaborative service development.

The paper is organized as follows. The next section discusses the actors that have been identified as potential sources for resources for new service development in existent NSD literature. Thereafter we outline a categorisation of resource types, drawing on resource advantage theory and existent research in the fields of IMP and NSD. The conceptual discussion is followed by description of the empirical research method and cases. Subsequent sections present empirical findings of resource acquisition and sharing in the studied case companies, followed by conclusions.

ACTORS THAT CONTRIBUTE RESOURCES FOR NSD

According to the ARA framework, components of a network consist of *actors, resources and activities* (Håkansson, 1982) which are related to each other in the overall structure of networks. Actors are those that perform activities and control resources. To be able to perform the activities they establish a certain resource structure. Actors implement activities to employ resources with the aim to change other resources, and at the same time actors use resources to perform activities (Håkansson and Johanson, 1992, p. 28). In the network context, actors can be studied at different levels, from individuals to groups of companies (Oerlemans, Meeus and Boekema, 1998).

Current literature on new service development and service innovation has indicated various types of actors who may contribute resources for collaborative development activities. Such actors may reside within intra-firm or inter-firm networks. *Nano network*s are internal networks which consist of people who work in an organization (Gummesson, 2006, p. 350) in different business units or subsidiaries. Neu and Brown (2005) found in their research that successful cases of B-to-B service development were intra-firm collaborative efforts. The benefits of cross-functional teams are argued to arise from different views, skills, and expertise but physical interaction and verbal communication among specialized personnel are required to be able to share them (Love and Roper, 2009).

Market networks primarily include customers, suppliers, distributors, competitors, and intermediaries (Gummesson, 2006, p. 350). According to Gulati, Nohria and Zaheer (2000), strategic networks have the potential to provide a firm with access to information, technologies, and other resources. This, however, requires that firms know their partners in terms of excellence and complementarity of their resources as well as co-operative culture (Arias, 1995). One reason for establishing strategic new service development networks is the possibility to access assets and capabilities of partnering firms in order to increase NSD capabilities (Perks, 2004).

Literature on new product and service development suggests that information exchange and collaboration with *customers* may increase new product and service success (Alam, 2002; Neu and Brown, 2005) and relationship and network literature argues that collaboration with users improves new product and service development (Alam 2002).

Love and Mansury (2007) argue that external sources, and especially customers, are important sources of knowledge for innovation in business services. Leiponen (2005) states that external sourcing of knowledge, especially from customers and competitors, positively

affect the probability and extent of innovation. Alam and Perry (2002) suggest that firms should develop a long-term relationship with customers and regard them as partners in the NSD.

Integration of *suppliers* in the innovation process has been regarded as one of the most important factors in innovating (Kaufmann and Tödtling, 2001; Romijn and Albu, 2002). During NSD, supplying firms mainly offer intangible resources, including skills, information, knowledge and experience. Since such resources are embedded in the organizational structure and routines, it may be however challenging for another firm to access or make use of the other party's resources (Syson and Perks, 2004).

As service firms expand their portfolio of offerings and face the need to offer larger service packages to customers, they increasingly depend on resource exchange with their *competitors* in the NSD. Competitors can act as a source of know-how, experience, contacts and information. The problem is, however, that competitors may not want to lose control over such resources which may be part of their core competency (Perks, 2004).

Consultants, universities and research centers also act as an important information source for the innovation process. Reliance on universities and research centers as information sources for innovation process has been discovered to influence a company's knowledge development potential when combining internal and external innovation activities (Cassiman and Veugelers, 2006; Tether and Tajar, 2008).

In sum, new service development may require exchange, development, and combination of resources within a network of actors. To access resources, new relationships may be initiated between functional departments or business units within the firm, or with other companies. Companies or business units may form development partnerships or nets that are more or less structured, hierarchical, and goal oriented. Also mergers and acquisitions can play an important role in transferring resources and capabilities between the firms. M&A can open up new market opportunities in a shorter time when needed resources may be acquired otherwise slowly or at high costs or they are difficult to imitate. Successful resource acquisition however requires that the integration process will be managed in a way which preserves capabilities, transfers them to appropriate setting and applies them in a way that enhances business performance (James, 2002).

TYPES OF RESOURCES

Resource advantage theory provides a broad categorization of resources needed in companies. Resources are defined as "tangible and intangible entities available to the firm that enable it to produce efficiently and effectively a market offering that has value for some market segment" (Hunt and Madhavaram, 2006, p. 69). Resources are considered anything that has an enabling capacity (Hunt, 2001). Resource-advantage theory classifies resources into (1) financial, (2) physical, (3) legal, (4) human, (5) organizational, (6) informational, and (7) relational resources. Financial resources comprise cash resources and access to financial markets. Physical resources consist of plant, raw materials, and equipment. Legal resources may include e.g. trademarks and licenses. Human resources comprise skills and knowledge of individual employees. Organizational resources refer to competences, controls, routines, policies, and culture. Information resources include consumer and competitive intelligence as well as technology. Relational resources refer to relationships for example with suppliers, competitors and customers (Hunt, 2001; Hunt and Madhavaram, 2006, p. 69–76). This broad categorization provides a useful basis for identifying resources that are important in new service development.

Within the industrial network approach there seems to be no general agreement concerning resource classification (Gadde and Håkansson, 2008). The 4R-model developed by Håkansson and Waluszewski (2002, p. 17) identifies four types of resources: two types are organizational, namely organisational units and relationships, and two are mainly technological, namely products and facilities. Similarly, Harrison and Håkansson (2006) divide resources into two general types: physical, and organizational. Business relationships and business units are sometimes also referred to as social resources (Håkansson and Waluszewski, 2002, p. 30, 33, 38; Waluszewski and Håkansson, 2007). Terminology or classifications used are thus not very coherent.

Reflected on the resources classification in RA-theory, the industrial marketing literature seems to have concentrated on *physical resources*, such as production equipment, facilities, and machines, (Harrison and Håkansson, 2006; Bengtson and Håkansson, 2008; Baraldi and Strömsten, 2009) and *relational resources* (Håkansson and Snehota, 1995, p. 137; Håkansson and Waluszewski, 2002, p. 30). Relationships can, however, also be tools to create new benefits of resources. An individual actor, such as business unit, is also argued to be an important organizational resource, since it has skills to handle relationships (Harrison and Håkansson, 2006; Waluszewski and Håkansson, 2007, 17) Industrial marketing literature discusses also *human resources* including knowledge (Waluszewski and Håkansson, 2007; Lenney and Easton, 2009), know-how (Håkansson and Snehota, 1995, p. 134), and skills (Bengtson and Håkansson, 2008; Lenney and Easton, 2009). Bengtson and Håkansson (2008) discuss competences and economic reasoning which can be considered as *organizational resources* in the RA-theory classification.

Extant literature offers little empirical insight into the combining and exchange of resources for the purpose new product or service development. A recent study by Baraldi and Strömsten (2009) examined how combining and controlling resources takes place at a network setting between actors that aimed at a product innovation, with focus on the resources identified in the 4R model (organizational / physical). The focus of the study is on controlling resources, not on initiating new relationships for resources access from the focal firm viewpoint. The authors nevertheless point out that identifying the resources that need to be combined, the actors that control these resources, and the way these actors could be mobilized are critical questions to ask at a firm level before starting network level processes.

The domain of new service development literature does not offer much empirically grounded knowledge on resources sharing either. Majority of NSD research has an internal perspective to innovation; that is, studies have addressed company resources that facilitate successful NSD endeavors (e.g. Froehle and Roth, 2007). Nevertheless, many authors at least implicitly emphasize the importance of sharing some of these resources across organizational boundaries. A number of studies emphasize the importance of involving different functions and departments (e.g. Brentani, 1989; Lievens and Moenaert, 2000; Neu and Brown, 2005; Love and Roper, 2009) and customers (e.g. Alam and Perry, 2002; Matthing, Sandén and Edvardsson, 2004; Neu and Brown, 2005; Kristensson, Matthing and Johansson, 2008) in service development to gain a broad set of ideas, experiences and knowledge for service development. A study by Syson and Perks (2004) investigating a NSD process within a network identified skills, information, knowledge and experience of employees as important resource contributions by actors in the network (Syson and Perks, 2004).

METHODOLOGY

Research approach and case descriptions

The research employed multiple case studies. Business-to-business marketing has traditionally used qualitative case studies because case study provides a flexible method to

study complex, evolving relationships and interactions in industrial markets (Beverland and Lindgreen, 2010; Borghini, Carù and Cova, 2010). Qualitative case study provides the possibility to study the phenomenon deeply and to find precise answers to study questions (Yin, 2003, p. 1–8). The aim of this methodology is to examine complex problems with a view to identifying theoretical implications in a theory building approach (Gummesson, 2003). Multiple-case study is used when the aim is to develop a rich theoretical framework (Yin, 2003, p. 47) and to reach an understanding of or a general conclusion on the topic in question (Gummesson, 2003).

Three cases of business-to-business service development nets were included in the study. In *Case A,* the focal company is a multinational group delivering construction, maintenance and professional services within energy, telecom and industry sectors in Finland, Sweden and Baltic countries. Company's turnover was 310 million euro in 2009 and the number of personnel totals 3,000. The company A has been growing fast in recent years through acquisitions. Their business has been boosted by client companies' tendency to outsource technical service businesses. The company therefore consists of various business units that possess diverse sets of resources. Furthermore, the company has a long tradition of networked business model including close collaboration with customers and subcontractors. The case was chosen to provide information on resource sharing for new service development in a company that has a long-term experience in seeking resources though different methods. Company A is currently initiating new relationships between intra-organizational functions, and also strategic partnerships with extra-organizational actors (Figure 1) with the aim of transforming the company into a service integrator.

In *case B,* the focal company is a multinational engineering, design and consultancy company employing almost 9,000 experts in Northern Europe, Russia, India and Middle East. The group's turnover was 739 million euro in 2009. In Finland the company has about 1,200 employees. Major customers are public sector organizations and companies for example in the manufacturing and construction industry. The company B is organized into 12 areas of technical specialization, operating in five different business areas. The company is in the process of increasing intra-organizational collaboration across these divisional and technical boundaries in Finland and in other countries for NSD (Figure 1). The company has a long tradition of developing services together with public research centers and universities, and new projects are piloted in collaboration with the customer. For the study, the case B provides an example of a company seeking to exploit the full potential of resources within the organization.

In *case C,* the focal company is a technical trading company operating in Finland. Their services include machine deliveries, installation, implementation, training, maintenance, and replacement part services. The concern's turnover was 138 million euro in 2008 and they employ about 250 persons. Major customer segments include metal and building industries. Company C is in the process increasing service business and converting their mindset towards service orientation. The company is focused on developing and offering new, innovative service concepts for their customers in collaboration with new partners. The case provides information about relationship initiation with a number of external actors for accessing new types of resources for the purpose of NSD, an area where the company has less previous experience (Figure 1).
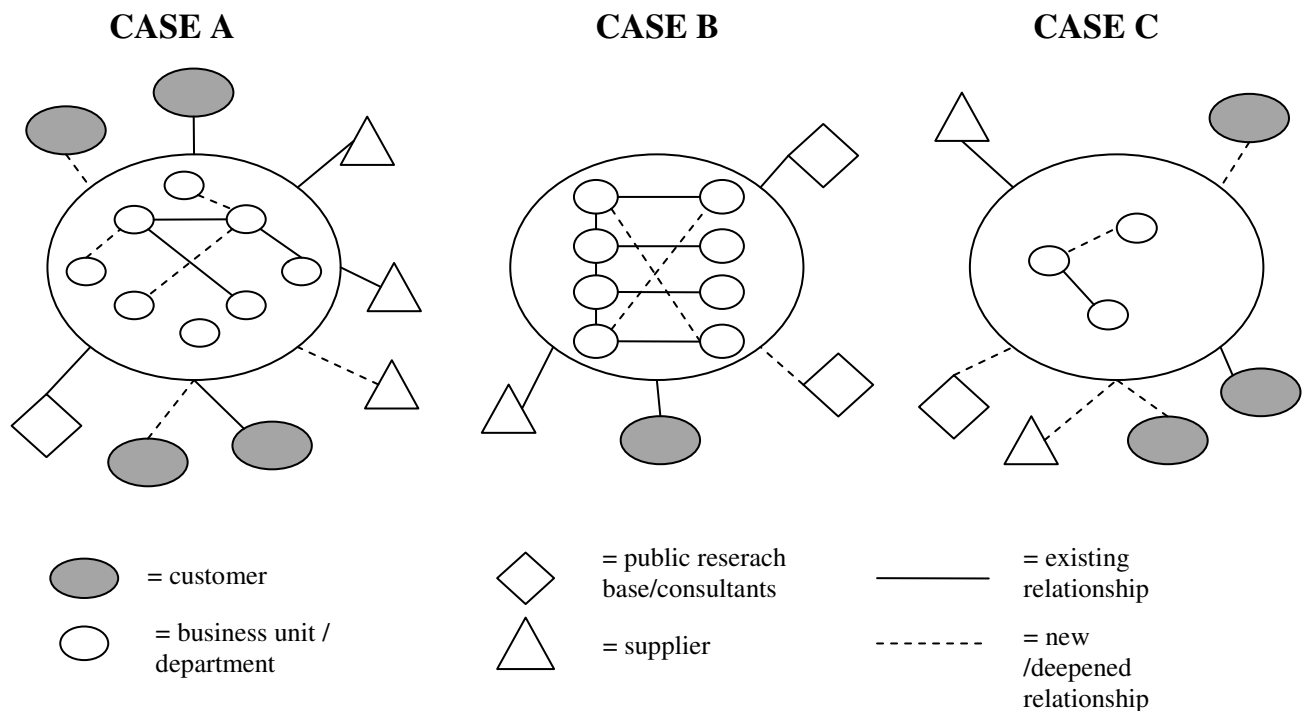
| | CASE A | CASE B | CASE C |

Figure 1. Outline of case nets (for the sake of clarity, not all actors are visualized)

Empirical data collection

The empirical data collection involved a total of 29 in-depth interviews in the three focal companies. The interviewees included various members of the case companies connected to new service development: country managers, corporate managers, business unit directors, business operations managers, R&D directors and coordinators, key customer managers, marketing and sales managers and designers, and heads of supplies and spare parts.

Interviews were carried out by a group of researchers between 28th of January and 4th of March 2010. At least one of the authors of this paper was present in the interviews. The interviews were conducted face-to-face in the case companies' premises separately with each interviewee. One interview was conducted on the phone because of the tight time table of the interviewee. Each interview lasted between 60 minutes and one and half hours. 15 of the interviews took place in the company A, seven interviews were made in the company B and seven in the company C. All interviews were audio recorded and transcribed verbatim. Interviewees spoke very openly during the interviews and the atmosphere was relaxed after the first minutes of the interviews.

Interviews followed a thematic guide including topics such as the company's NSD practices and experiences, forms of resource access, and experiences in and expectations for resource sharing between actors for new service development. The interview guide was used very flexibly depending on the interviewees position in the company and knowledge of the topics included in the draft. The interviewees or interviewers could also pose new topics during the interviews.

Before starting the interviews, the researchers met some representatives responsible for business development and R&D in each focal company. The company CEOs gave an overview of their company, particularly their service development practices, goals, and future plans. A memorandum was written after every meeting by the researchers. Company

information was also acquired by visiting companies' Internet pages and reading articles and press material about the companies.

Empirical data analysis

The empirical data was categorized using *content analysis* (Silverman, 2006, 159–164). The resource categories outlined in the resource-advantage theory (financial, physical, legal, human, organizational, informational, and relational resources) were used as a basis for analysis. Text extracts from the transcribed interviews were analyzed and classified according to the resource categories, complemented with other resources found in the industrial management literature and NSD literature. These citations (data extracts related to resources) were divided under three titles according to the study questions: 1) citations concerning resources that the companies seek to share for service development; 2) citations concerning the actors with whom the companies prefer to share resources, and 3) citations clarifying the reasons for choosing a specific means of accessing resources.

After the initial categorization, the data extracts were further classified through a rough numerical and a more precise verbal analysis. Excel table was outlined according to resource classification of the resource advantage theory (7 types of resources). Those categories were further divided into specific resources found in the theoretical literature. Then the citations concerning types of resources were examined one by one and marked in the Excel table. As there were no specific problems in placing the resources into the chosen categories, the reliability of the codes was regarded as good. Simultaneously, another table was filled, to encompass a verbal resource description of the analyzed resources together with the company identification letter.

The same kind of procedure was conducted with the data extracts on the actors from whom resources were acquired from. The main categories were adopted from the industrial marketing management, new service development and alliance literature. Categories included intra-firm networks, inter-firm networks and acquisition. Inter-firm networks category was further divided into specific actors found in the literature. The specific means of accessing resources mentioned in the interview citations were first marked in the table. Another table was again filled to include citations that were assorted according to the form of acquiring the resources.

Then, the reasons for seeking for resources through specific forms of collaboration were examined thoroughly in the citations under the corresponding title. Citations were classified according to the form of collaboration and actors included. The reasons expressed in the interviews were listed under the corresponding citations.

In each phase of analysis, the type of resource and resource descriptions, the way of acquiring the resource, the actors included, and the reasons for choosing such a collaboration form were linked together, and the source of data (company A, B, C) was indicated in the citations. This allowed analyzing the resource acquisition forms and preferences concerning each type of resource, and also case-specific analysis.

RESOURCES SHARED THROUGH COLLABORATIVE TIES IN NSD

Overview of resource types in business service development

In the studied case companies, *informational resources* were the resources most often sought for when developing new business-to-business services in collaboration (Table 1). Technology was the informational resource most commonly taken up by the interviewees. Besides technology, important informational resources included market intelligence, external knowledge, and research knowledge, all of which were emphasized several times by the

companies. External knowledge discussed by the interviewees referred to specialist knowledge provided by consultants and partners.

Another type of resource that emerged as particularly important was *relational resources* which referred to relationships with external actors when developing new business-to-business services. This may be due to the service development strategy of the companies, as all of them were interested in developing services in networks.

As all the companies consisted of several different lines of business, possibility to share and combine various employee know-how was a resource which was clearly regarded a strength when developing new services. It was also regarded the most important of *human resources*. The ability to think analytically was also emphasized in connection to new service development. This was a resource not apparent in the literature but its importance is understandable during the development process. Experience in projects and service productization were regarded as a good help in developing new services.

In terms of *financial resources,* the interviewees took up the financing of service development projects. Financial resources were mostly discussed in connection with public financing possibilities or when customers participated in financing of customized solutions. Premises or sites of customers were the *physical resources* sought for in collaborative new business-to-business development.

Table 1.   Resources in new business-to-business service development

Resource category	Resources	Description	Frequency in data
Informational resources	Technology	New technologies, software	17
	Market intelligence	Customer knowledge, market knowledge	9
	External knowledge	Knowledge through consultants and partners	7
	Research knowledge	Knowledge through universities and research centers; research conducted in-house	7
Organizational resources	Knowledge	Knowledge from conducting projects; knowledge needed in business transformations	5 3
	Experience	Practical know-how through acquisitions	13
Relational resources	Relationships	Customer relations; relations to suppliers, subcontractors and other partners; relations to specialists, universities and research centers	20
Human resources	Know-how	Expertise, practical knowledge	9
	Analytic thinking	Ability to discover new things	6
	Experience	Project and productization experience	4
	Knowledge	Knowledge about manufacturing industry	1
	Skills	Ability to do various things	1
	Education	Academic degree, further education	3
	Motivation	Enthusiasm to develop	1
Financial resources	Development funding	Financing by public financiers	12
		Financing by customers	2
Physical resources	Development environment	Customers' premises and sites	6

Resources shared by intra-firm networks

In all three cases, the focal companies were initiating collaboration across divisions and functions for new business service development at the time of the interviews. The most important reason for aiming at creating a new culture of cross-functional NSD inside all companies was the company structure which consisted of several units representing different technological knowledge.

Lately the new strategy of the company A was introduced with the aim to become a service integrator among the customers offering life-cycle services. Employees from different business units need to adopt a new way of collaborating with each other in order to be able to better operate with customers in the various functions. An important part of this transformation is that the lines of business learn to develop new services in cross-functional networks as a part of larger development networks with customers and partners.

Company B is aiming at innovating new strategic services. This strategic decision inside the company has raised the need to combine human resources in new ways for NSD inside the company.

Company C aims at developing several new services as part of their transform into a service company. New services also include life-cycle services for their customers. Human resources of various functions inside the company should be used in their full potential for this effort.

In terms of human resources, *know-how* was the resource mostly sought for when organizing NSD in intra-firm networks. A development manager from company B put it this way: "A significant strength which we have for service development, is having an expert in-house almost for every situation." The expertise mainly referred to by interviewees consisted of various technological knowledge or deep customer knowledge or experience in managing projects. It was believed that if this various knowledge could be better shared and combined, it could lead to new innovations in services and better customer value.

Employees' *experience* in working in projects was regarded important because things learnt from project business were thought to help managing service development projects too. Some employees had previous experience in developing a type of services in some other company which their present employer was now beginning to offer. Interviewees of the company A also valued the experience that a part of their employees had from working earlier in their customer companies. Those employees could bring the thoughts of customers to the development process.

Ability to analytic thinking or *innovativeness* was also emphasized as a human resource which was needed during the NSD. Cross-functional collaboration and sharing of human resources was regarded as a good way of staying innovative even when the company had employees who had been doing the same work for a long time and often could not easily see new possibilities any more. Innovativeness was a resource which was also sought for through recruiting. A divisional director described: "We should have the courage to employ also more innovative people. For some reason we prefer employing people who are good in managing customer projects but I think those people are not always the innovative ones. Maybe we should recruit also developers."

Cross-functional collaboration was regarded an efficient way for organizational learning and it helped to transfer best practices between the functions. An important part of cross-functional development was combining of various resources members have. A divisional director stated: "One person may have the knowhow and maybe a vision for the new service we are looking for. Then three employees bring their own expertise in the development process and those resources are then combined. To my mind there must be different actors in a good development team and they then make use of their strengths." Other reason for cross-functional collaboration was clearly the tendency to offer larger entities for customers. This

requires combining of human resources inside the company. Cross-functional collaboration also prevents such situations where different units are developing new services without knowing from each other. Collaboration also helps to standardize NSD processes.

Human resources needed from outside the companies were mostly accessed through acquisitions. Especially company A and B had been growing fast through acquisitions during the last years and company C had increased its service business through acquisitions. Company B also recruited students who had prepared their thesis for the company. Company A also employed several people who were outsourced from their customer firms or whom they had recruited from their customer firms during the changes in their customers' operations.

Resources shared with customers

Customers were considered major sources of *market intelligence* needed for the new business-to-business service development purposes. As company A and C had employees constantly working at the customers' facilities, customer knowledge was improved daily at work and customer feedback was acquired quickly. Site meetings were held regularly and it was a good platform for service development ideas. Also company B had regularly meetings with customers. New services could be innovated when solving customer's problems and reacting to their feedback.

Customer relations gave, on the other hand, the possibility to learn about customers' customers. As a development manager put it: "In the business-to-business world a relationship with a company means always engaging to customers behind this company. Relationship is an access to some needs behind your customer. The more you understand those needs, the more you can provide added value to your customer." It was also stated that finding a solution to a customer's problem always requires that the service company learns from their customers what the customers have learnt from their own customers because problems arise outside the customer company. External knowledge was also acquired in collaboration with specific user groups when innovating new kinds of approaches for service offerings. This kind of external knowledge was discovered a clear competitive advantage. A divisional director stated: "We have understood that all know-how does not need to be inside our company but we can network and create partnership with somebody who has the expertise we are looking for."

Financing was a significant resource if the service development process was to be organized well. As companies had limited financial resources available for development work, they actively sought for financing also from external sources. Customers financed in many cases a part of the development project because companies often conducted customized service development for their customers' needs. A divisional director told about customers' role in financing: "It's quite natural that the customer is willing to invest money if we are solving their problem."

As NSD was often connected to solving customers' problems, customer's premises or site could be used as a *test environment*. This was important because service production and delivery process could be often developed only at the environment of a customer. As companies A and C continuously operated at same kinds of customer projects at the environments of various customers, services could also be developed further during the projects. A divisional director explained their practice: "Our firm is too small to be able to develop generic concepts. It's better for us to develop specific customer cases. Of course, we must develop a lot before entering customer's environment but we cannot test only theoretically how the service works. We typically need to have a customer case where we make the decisions, then." Sometimes new service development at customer's environment helped the companies to win a larger service entity from the customer, as the tendency was

clearly towards overall services, and new service development often aimed at offering larger service entities.

NSD with customers was regarded a good way to commit customers to new solutions. If the solution was developed in collaboration with customers it was not easy for the customer to arrange a competitive bidding before buying it, as the solutions include special expertise of the case company. Collaborating with customers was also a learning process for both parties. Companies had also the possibility to get a more important position in the customer's business through NSD collaboration.

As the studied companies offered business-to-business services, most of their services were solutions tailor-made for the customer. Services increasingly included large and continuous entities, such as life-cycle services in the company A and C.

Resources shared with partners, suppliers and subcontractors

Suppliers were regarded as an important source of *market knowledge* for service development purposes. They gave information about new development projects and new innovations in their business fields as well as changes in markets. Collaboration with suppliers offered possibilities to enter new markets and increase business. Suppliers had also own development projects where the case companies could be sometimes part of. A marketing designer crystallized their relationship to suppliers in the following way: "We differentiate ourselves by making sure that we have the right, skillful suppliers. We actively seek for new suppliers and dealerships in order to be able to provide our customers with better service and service entities."

Expertise of business partners and private consultants was utilized regularly in new business-to-business service development. Expertise in a specific field was regarded the most important characteristic when choosing partners and consultants for development processes. A business unit manager told: "We look for special knowhow from the partner company in order to have the possibilities to develop a broader scope of services."

Companies hired experts and consultants to advice them in new service development projects. When the company needed some sort of expertise only for a shorter time, choosing an external expert was found more reasonable than employing one to the company. This meant primarily buying specialist knowhow in some technology or process. Existing relationships with trusted experts helped to find a suitable person when needed. Interviewees indicated that they took a risk in taking a consultant with whom they did not have an existing relationship because collaboration with consultants had not always succeeded as expected from the company.

Company A which had multiple subcontractors in producing the services had active discussion with the larger subcontractors about doing things in a new way. As reducing costs and increasing effectiveness were important objectives for the company when developing services, subcontractors had a significant role in reaching those targets. A supply manager explained their relationship with subcontractors in service development: "Likewise our customers demand innovations from us, we expect also innovations from our subcontractors. They may do something better than us. They should provide us their competence, too. That's what we expect from them."

Companies relied notably much on *IT technology* when developing new business-to-business services. Software were mostly acquired from IT companies because the case companies did not employ many experts only for software development as it was not regarded their score business. IT technology was, however, found significant in service development because it was believed to lead to cost efficiencies in service production and help information flow with customers. The development of service production process was

regarded as important especially in companies A and C because they both operated in a labor-intensive service industry.

IT technology was also seen as a significant possibility to create radical service innovations for the markets. Pioneering IT companies were seen potential partners for example in the development of new kinds of life cycle services. Interviewees admitted that such resources are not yet taken advantage of as much as one could, as stated by a CEO: "My future vision is that we truly make use of the possibilities of today's technology." Tendency was clearly towards overall service offerings through a network of partnering firms, and IT companies were important actors in such networks. A development manager explained: "We gathered IT companies as subcontractors in our development project. We will consider with them the possibilities to offer overall services in the energy sector."

Company A seemed to turn to the same suppliers in their NSD which they had in their business network. Acquisition of a company had also provided them a subcontracting network with dozens of companies, which has organized a systematic way to develop its operating. Company B has initiated some collaboration with IT companies for NSD and uses regularly the same consultants in developing its services. Company C, instead, was at the time of interviews actively seeking for new partners in order to develop its service business.

A development manager at company A explained their reasons for NSD collaboration with suppliers as follows: "Suppliers provide us new ideas as they have also their own development projects going on. They come to ask us if we have considered launching this kind of service. They are a big help if we want to start some new service because they have a long experience in their business field. They provide us technical expertise and contacts." Suppliers and subcontractors have such special knowledge and skills which the case companies lack themselves. Relationships with product suppliers in NSD can provide access to new markets. Suppliers and partners provide also new perspectives on adding value to customers through NSD. Especially companies A and C believe in combining of resources with partners in order to create new services and service packages.

Resources shared with public science base and funding agencies

All three companies had experience in development collaboration with universities and research centers and companies A and B constantly utilized their *expertise*. Interviewees felt that service business, which was based on scientific research, enabled a strong position at the market. Especially, when developing new service business, research centers and universities were considered noteworthy partners. Research perspective provided an outsider view on the organization and therefore researchers could notice easier things that needed to be developed. Interviewees also found that research knowledge helped them to think in a new way, as stated by a development manager: "My idea is that research knowledge helps to see behind the status quo. This means to me that employees learn to think in a new way." If the company joined a development project with a research center or university, the project had an exact time table which was seen a positive thing by an interviewee because it helped the company implement the needed development tasks in time.

University students participated regularly in development projects of the companies A and B. Company B described itself as the leading firm at their industry in engaging university students to prepare theses and to develop the services and business of the company that way. It was regarded as an economic way of developing business and students provided fresh ideas and had the latest theoretical knowledge available. The firm B also encouraged their employees to continue research which regularly resulted in dissertations made at the company. A divisional director explained their hiring students this way: "Thesis writers

provide huge additional potential at our business units. We have also at present a number of people doing licentiate theses, dissertations, and R&D research."

Collaboration with research centers and universities helped the companies also to have *financing* for service development from public funding agencies. Collaboration was organized regularly through publicly financed development projects where universities and research centers managed the development project and companies participated in them to get financial and expert resources for their service development projects and to learn from scientific research done during the project. Research centers could also be the way to establish *relationships* to customers and new partners. Especially companies A and B could have several publicly financed development projects under way at the same time. Public financing seemed to be a powerful incentive for the companies to start networking with external partners in new service development.

Table 2.   Actors providing resources for new business service development

Actors (from whom the focal companies seek resources)	Resources (sought for)	Means of accessing resources
Business units /departments/personnel within the company	Knowhow Experience Innovativeness	Cross-functional NSD teams (A*, B, C)
Customers	Market intelligence	Contact in service delivery/daily operations (A,C) Meetings with customers (A, B, C)
	Financing	Developing a new service on customer demand (A, B,C)
	Test environment	Tailor-made solutions for customers (A, B, C)
Suppliers/Partners/ Consultants	Market intelligence	Contacts in daily operations (A, C)
	Knowledge and expertise	Daily operations (A, C) NSD collaboration (A, B, C) Acquisition (A)
	IT-technology	Involvement in NSD projects (A, B)
Universities, research centers	Knowledge and expertise	Involvement in research projects (A,B,C) Students preparing theses and dissertations (A, B)
	Relationships to potential customers and partners	Collaboration with research center as a reference (C)
	Financing	Publicly financed development projects (A, B, C)

*letter refers to the case company

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CONCLUSIONS

This study contributes to understanding the resources sought for and shared by companies developing new business-to-business services and the actors providing resources. The industrial marketing literature emphasizes resources arguing that they are often the reason to form ties through company relationships (Håkansson and Snehota, 1995). Although resource combining is considered a critical part of product development (Håkansson and Ford, 2002), empirical insights into the resources that are combined, exchanged, and created for new service development have remained scarce. To address this underdeveloped area, this paper examined how companies seek access to resources for the purpose of developing new b-to-b services. By examining resource acquisition and sharing within three case nets, the paper identified the resources that companies need to share for B-to-B service development, the actors with whom companies prefer to share resources, and the reasons for the choice of a specific means of accessing resources.

The findings indicate that *technology* and *financing* are the resources mostly sought for when developing new services in industrial service firms. *Knowhow* and *market intelligence* are also important resources. The findings suggest that there are several resources connected to new service development, only some of which can be found in existent IMP research. The study revealed that resources are sought for from different units and functions inside the service firms for new business service development. *Customers* have an important role as resource provider for NSD. *Suppliers*, *partners*, and *consultants* can provide several resources needed by the focal firm during NSD. *Universities* and *public research centers* also provide resources for new service development in various ways.

The research suggests that cross-functional new service development becomes important inside industrial service firms when they start to develop life-cycle services and larger service entities or when they develop strategic new services. It appears that cross-functional collaboration provides human resources for the NSD process. Especially various technical knowhow and knowledge about customers are shared between functions for the NSD purpose. Also experience in managing projects and ability to analytic thinking seem to be valued human resources in the cross-functional collaboration. Earlier research on resources shared in intra-firm NSD emphasized the role of skills and expertise (Love and Roper, 2009).

Intra-firm resource acquisition appears to be organized mainly through named teams consisting of members from different units, technologies and functions. As argued also by Love and Roper (2009), an important reason for seeking human resources through cross-functional teams appears to be the possibility to combine various knowhow and experience of the employees with the aim of finding new innovative solutions for the customers. When companies lack some human resources important for their score business, they often seem to source them through acquisitions which provide direct control on strategically important resources.

The study indicates that customers provide business service companies with various critical resources for NSD. Earlier research has mainly presented knowledge as a resource provided by customers for NSD (e.g. Leiponen, 2005; Love and Mansury, 2007). Customers appear to be major sources of market intelligence needed in NSD. Business companies have access also to knowledge about customers' own customers through their customers. This knowledge enables to provide added value with new services to customers because problems which need to be solved at customer firms go back to customers' customers. The results indicate that market intelligence is mainly acquired from customers through daily contacts in service companies which work in close collaboration with their customers. Meetings with customers seem to be another way of sharing market intelligence.

Customers appear to provide also financial resources for NSD as business services are mostly developed to solve some problem or specific need of a customer. Customers financing thus enables NSD of business service companies which requires considerable financial resources. Developing tailor-made customer solutions provides physical resources from customers as well, since customer premises or sites can be used as test environment during the NSD process. As business solutions cannot be tested only theoretically but they need a physical, authentic test environment, the role of the customer is crucial in NSD. Sharing of resources with customers during NSD process appears to improve also their commitment to new solutions and prevent competition. It also seems to enhance possibilities for service firms to get a more important role in the customers' business.

The results could reveal that market knowledge is also shared with suppliers in service companies which have suppliers in their business network. Especially knowledge about new development projects and innovations in the suppliers' business fields is acquired through suppliers. Also earlier research on NSD indicated that suppliers mainly provide intangible resources for NSD (Syson and Perks, 2004). IT suppliers appear to be an important part of new business service development as they offer the latest knowledge in information technology. They develop software which is needed to offer overall services to customers. Their role seems to be also crucial when aiming to create radical business service innovations.

Expertise of business partners and consultants appears to be often utilized in business service development when specific knowledge is needed. Larger subcontractors may provide valuable advice when the aim is to reduce costs and increase effectiveness through service development. The study indicates that service companies which do not have suppliers or subcontractors in their business network, prefer to develop new services in-house or through acquisitions.

Resources seem to be acquired from suppliers during daily operations in such companies which work intensively with suppliers. Partners and consultants are also actors in NSD nets. Knowhow of suppliers may be so valuable to the focal firm that suppliers are acquired in order to be able to provide new services and larger entities for customers.

The existent literature discusses also the increased importance of resource sharing with competitors in the NSD when the companies expand their offerings (Syson and Perks, 2004). This study, however, indicates that competitors are very rarely a part of NSD nets in business companies because of the difficulty to protect services. Competitors may, however, sometimes participate in the NSD net when the net is formed by the customer. Instead, competitors can be a part of business networks.

The results suggest that expertise and scientific knowledge provided by universities and public research centers is actively used in industrial service companies when developing new services. The latest scientific knowledge is seen to help acquiring a strong position at the market. Researchers provide an outsider view with new insights into the development work of companies. The expertise of universities and research centers appears to be shared in different ways. Students may prepare their theses and dissertations for the company and develop their business that way. Companies regularly also participate in publicly financed development projects which are managed by universities and public research centers. The earlier research emphasized the information provided by universities and research centers which influences company's knowledge development potential (Cassiman and Veugelers, 2006; Tether and Tajar, 2008).

This study adds to current understanding of resources and their sharing in the industrial service context. It also contributes to new service development literature which has only occasionally explicitly discussed resources in new service development, and mostly only resources residing within a company (Froehle and Roth, 2007).

This study is limited to three business-to-business service firms with technical orientation which should be taken into consideration especially when the resources needed for service development are concerned. Conducting this study in some other business service sector could complement insights from our qualitative research. This study was made from the service provider perspective and including other parties of the service development net into the study might provide interesting complementary knowledge about resource sharing in new service development.

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