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COMPETENCES SUPPORTING SERVICE INNOVATION

- a literature review

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Competences supporting service innovation

- literature review

by

Annika Schilling - Stockholm School of Economics

Mapping in the EPISIS task force on new skills and competences to support
service innovation, managed by VINNOVA, Irene Martinsson

Foreword

EPISIS (European Policies and Instruments to Support Service Innovation) is a project under the PRO-INNO Europe initiative of the Directorate General for Enterprise and Industry. It promotes the development of service innovations at policy, strategic and operational levels through transnational cooperation between policy-makers and innovation agencies. The EPISIS Consortium consists of the leading European public authorities including Tekes (Finland, the Coordinator), BIS (the UK), DASTI (Denmark), PT-DLR (Germany) and VINNOVA (Sweden).

In a “Strategy for European Service Innovation” the EPISIS countries highlight the critical role of service innovation in the European economy. Service innovation is among the key factors contributing to future growth and well-being. The positive impact of service innovation is realized through:

- Creating jobs and employment
- Renewing industries and clusters
- Tackling the grand societal challenges
- Building a sustainable Europe
- Creating competitive advantage for European businesses across sectors

The present report is a contribution to the European strategy thus focusing on mapping the new skills and competences required to support service innovation. It is essential that European countries recognize and develop the necessary skills and competences to unleash the transformative capacity of services, i.e. to support service innovation in order to raise productivity, create value as well as new market opportunities. EPISIS Task Force 4 (TF4) focuses on service innovation which can and should be applied to address challenges, for example, maintaining a competitive industry and develop sustainable cities.

The current literature review is written by Annika Schilling. Dr. Schilling is Affiliated Assistant Professor in Management and Organization, working at the Stockholm School of Economics and Uppsala University. The literature review is part of the preparatory work in TF 4. In addition, a final report encompassing a roadmap for policy makers and recommendations of how to improve and develop new skills and competence to support service innovation will be released during spring.

VINNOVA in November 2011

Dr. Irene Martinsson
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1 Introduction

Service innovation increases in scope and it has become of great importance for economic growth, specifically in Europe. The industry's ability to innovate in services has also recently gotten attention from policy makers who wants to support the value creation potential and transformative effects of service innovations in the industry. However, in order support service innovation there is a need to understand what contributes to companies being successful in service innovation.

The purpose of this report is to identify the most central competences organizations and their collaboration partners need in order to be successful in service innovation. This is done based on the findings of existing literature. The focus is on competences that support organizations to be innovative in a general sense and not on the skills needed to come up with a specific innovation within a specific technical area. The ambition is to make the results relevant for all types of service providers. Two concepts frequently used in the report needs to be defined: *service innovation* and *competences*.

Service innovations here means the creation of new or improved service offerings. Because of a trend toward servicification of the industry more and more manufacturing companies take on a service logic, emphasizing how their products fit together as a service which help solve a problem of the customer. No distinction is here made whether service innovations are provided by pure service firms, by manufacturing companies who also offer some services or by companies who integrate products and services in their offerings.

Competence entails a combination of knowledge, skills and behaviors necessary to perform a specific task. In an organizational context competence means that the knowledge, skills and potential behavior of individuals also need to be supported by procedures that coordinate these individuals actions. When looking at competences supporting service innovation we therefor not only look for which skills specific individuals needs to have, but also which procedures that would coordinate these individuals to perform their task collectively.

This review is based on the assumption that talking about competences supporting service innovation makes no sense unless we also ask who are supposed to possess these competences and for what specific purpose. Therefor organizational practices supporting service innovation and actors contributing to it are also discussed.

The reviewed articles have primarily been found through a systematic search in eight scientific journals published between year 2009 and august 2011. All in all this review includes 43 scientific articles. The reviewed journals and the number of articles from each of them are listed in Table 1.

Table 1. Scientific journals included in the literature review

Scientific journal	Academic sub-discipline	Number of articles
Service Industries Journal	Service management	11
Journal of Service Management	Service management	2
International Journal of Innovation Management	Operations management	5
Journal of Product Innovation Management	Operations management	6
Journal of Service Research	Service management	8
International Journal of Service Industries Management	Service management	3
Human Relations	General management	1
Journal of Management Studies	General management	1
Other	Organizational behavior, operations management, marketing	6

In the identified articles all research falls within the discipline of the social and behavioral sciences. More specifically we find most of them in business studies and within the sub-areas service management and operations management.

This report is partly a continuation of a previous literature review made for VINNOVA (Schilling & Werr 2009) in which the focused was on the role of service workers in the innovation process and the organizational and management practices by which their knowledge may be exploited in the development of new services. This new report has a narrower focus but overlaps in some of the findings.

Competences supporting service innovation will be discussed in three steps. First, six organizational practices which have been suggested to support service innovation will be identified and presented. Secondly, related to the achievement of these practices five central competences are identified and discussed. Third, the role and required competences of five actors most central to the service innovation process are discussed.

2 Organizational practices supporting service innovation

Before identifying competences supporting service innovation we need to understand more in detail what companies need to do in order to innovate in services. In this section six organizational practices suggested to support service innovation are therefore identified and discussed. Organizational practices are here understood as things companies do in a systematic way, collectively and on a regular basis. The organizational practices supporting service innovation are summarized in Table 2.

2.1 Implement a service innovation strategy

In the literature it is repeatedly emphasized that in order to be continuously and successfully innovative in services companies need to have a strategy for service innovation and/or embrace service innovation as part of their corporate strategy. Below follow some of the more central points made by the literature on the need to implement a service innovation strategy.

A portfolio of different types of innovations

Several research projects have concluded that companies who think of their service innovation efforts in terms of a portfolio of different types of service innovations and levels of innovativeness get the highest returns on their service innovations. Oke (2007) for example, have found that service companies need to not only pursue the most radically new innovations but also needs to mix it with “me-too” innovations (not new to the market) and incrementally developed service innovations.

A market oriented corporate strategy

van Riel et al (2004) provide evidence that a strategy characterized by market orientation contributes as an internal success factor for service innovation. This entails nurturing an organizational climate that favors information sharing and information gathering in relation to the costumers and their needs and requirements.

Customer focus and intelligence

Menor & Roth (2008) have found that formalized innovation processes – such as having a formal R&D department or formal service innovation routines – play a lesser role for the success of service innovation compared with having a strategy witch embraces service innovation, information gathering and knowledge management. What they call “market acuity”, i.e. the firm’s ability to see the competitive environment clearly and to anticipate and respond to customer’s evolving needs and requests, was found to be the most important indicator of innovativeness in services.

Knowledge and service quality management a part of the corporate strategy

A service innovation strategy should according to Leiponen (2006) also support knowledge management practices, specifically practices for organizational controlled explicit and collective knowledge. In a supportive innovation strategy both innovation and knowledge management are integrated in the continuous work with service quality and improvement in the firm. Hargadon (2002) further points out that a focus on knowledge management and learning should not be limited to looking solely inside the company for new ideas and knowledge combinations, but should also exploit the preconditions for innovation that resides within the larger social structures by looking at knowledge within other knowledge areas and linking this knowledge to new situations more relevant for the own operations. Service innovation efforts could thus be based on networks with external innovation partners who possess knowledge in other areas or who can look at knowledge from an independent outsiders point of view.

2.2 Engage in service innovation networks

Within the literature on service innovation there is nowadays a consensus that the development of innovations involves numerous actors who contribute in different ways in the development of service innovations. These actors form a service innovation network in which they can both get access to knowledge and ideas that are new to them and collaborate to develop service innovations together. Service innovation networks get particularly relevant when talking about open innovations which by definition means going outside the traditional organizational boundaries in service innovation collaboration. Below follow some of the more central points made by the literature on the need to engage in service innovation networks. The engagement of two specific actors – customers and customer contact personnel – will be reviewed in more detail the next couple of sections.

Engaging in external relations and events

The findings of Jenssen & Nybakk (2009) indicate that external relations are beneficial for service innovation, at least in small knowledge intensive firms. According to them engaging in a service innovation network involves participating in a regional environment in which firms get access to resources greater than each firm can possess by themselves. Specifically they found that service innovators who interact with both other firms and with external R&D resources, such as universities and researchers, had was more likely to be succeed in their innovations. Also they found that the participation in conferences and courses positively influenced service innovation.

Co-producing innovations

den Hertog et al (2010) argue that managing and engaging in networks is a key capability for being able to put a new service concept or configuration on the market, specifically as many services is composed of service elements from different service providers. As the core service provider the service innovating firm need to co-design

and co-produce service innovations with other suppliers and manage the alliance between them. Customers might also be involved in these alliances.

den Hertog (2000) have previously also looked at knowledge intensive business services (KIBS) – supplying knowledge based services to other companies - and at their role as facilitators, carriers and sources of service innovation for their clients. Because of the often close and long-term relationship between KIBS and their clients they also have the ability to act as co-producers of service innovation. Involving an external partner in the management of service innovation makes the service innovation process more cross-disciplinary, heterogenic and diverse with the benefit of making knowledge is more multidimensional and more easy to apply. Both Czarnitzki & Spielkamp (2003) and Wong & He (2004) confirm the role of KIBSs as facilitators of service innovation among their clients.

Committing to a few service innovation partners

Eisingerich et al (2009) look at whether it is better for service innovating firm to diversify their external collaborations or to commit to just a few ones. They found that commitment to fewer inter-organizational relationships strengthen the service innovation efforts of a firms and makes it more likely that these efforts are successful. On the other hand trying to handle a diverse set of inter-organizational relationships weakens the service innovation efforts. They also stress that service providers must make the development of new services a priority in order to get the benefits from their inter-organizational relationships and thereby strengthen service innovativeness and performance.

Balancing knowledge sharing and idea protection

Hurmelinna-Laukkanen & Ritala (2010) raises the relevant question about how service innovators can protect their new service ideas, given the inherent collaborative nature of the service innovation process. They point to contracts, HRM practices supporting employee loyalty and time for continuous improvements as three possible tools service innovating firms can use to protect their ideas.

2.3 Involve customers and users

One of the most prominent themes in the service innovation literature, and increasingly so during the last 4-5 years, has been the benefits of involving customers, clients and other service users in generating service ideas and/or as a service innovation partners in the service development process. Below follow some of the more central points made by the literature on the need to involve customers and users in service innovation.

Understand and communicate how the new service meets customer needs

In line with the recommendation of having a customer focused corporate strategy previous research also emphasizes the need to take time and effort to understand the customers and their needs. In 2001 de Brantini (2001) argued that in order to succeed in new service innovation efforts the innovators are required to fist get an in-depth

understanding and appreciation of the customer's everyday life and needs. This is needed in order to differentiate the new service from those of the competitors and give a perception and argument of real value for the customer. In the same spirit den Hertog et al (2010) emphasize the need to be able to signal the new service's fit with user needs. This can be achieved through the use dialogue with lead users, joint experimentation and prototyping, user panels and other tools for communicating with and involving customers. Halliday & Trott (2010) also points to the need to understand what influences customer evaluations of new services and to brand the innovation in interaction with customers.

Collaborating with customers

Ordanini & Parasuraman (2011) have recently found that collaboration with customers fosters service innovation volume but not radicalness, while collaboration with other business partners contributes to the radicalness but not the volume of service innovations. However, business-partner collaboration was found to enhance the positive effects of customer collaboration implying a recommendation to engage in both types of collaboration simultaneously. Compared to the role of customer involvement in open innovation in technical or engineering settings the two researchers argue that in service innovation processes customers act more as knowledge providers than direct executors of tasks.

User-generated innovation ideas

Magnusson et al (2003) were early in studying the benefits of asking users for ideas for new services. In their study of innovation in telecom services they found that user generated ideas were more original and held a higher perceived value for users. However, the user-generated ideas were also on average more difficult to produce than ideas generated by professional designers. Kristensson et al (2004) continue the discussion of these results and advice companies in need of original, customized new service ideas to involve their users in the creative phases of their service innovation process. However, they should be aware that these unique and valuable ideas come at the price of a more costly and time-consuming service realization process.

In later article Kristensson et al (2008) suggest key strategies for getting the desired effect out of user idea generating exercises in service innovation. First of all, users need be in their own setting and in their various roles in order to be able to experience their needs and come up with new solutions. Also they suggest that a heterogeneous group of users are to be recommended as they generate more diverse ideas. The users should also be provided with analytical tools and information regarding the technical platforms of existing services. However, traditional brainstorming techniques and involving users with too much information about the technology is not recommended for optimal benefits. Lastly, the users need to experience possible benefits from their involvement in order to be motivated to get involved. For example they could be given an opportunity to contribute with solutions to a problem they struggle with in their everyday life.

Test service innovation ideas on users

Abramobici & Bancel-Charensol (2004) argue that it is often more beneficial to involve customers in the experimentation and testing phases of innovation than in the need identification or idea generation phases. Arranging formal tests of new services may also play an internal role within the firm by making the service innovation project visible internally. Bessant & Maher (2009) suggest two ways to involve customers in the testing of new services: ethnography, which allow for deep insight into user needs, including those not clearly articulated; and prototyping, providing the possibility of creating a set of boundary objects around which design discussions in which users are included can be carried out. In the same spirit Meiren & Burger (2010) suggest involving potential customers and users in virtual reality and service theaters exercises as two methods to visualize and test new service concepts.

2.4 Involve customer contact personnel

Several articles emphasize that front-line employees who are those who have everyday contact with customers should be considered as a valuable source of knowledge and ideas about customer needs and new innovative service solutions. In order to get access to this valuable experience firms should involve customer contact personnel in the innovation process. Below follow some of the more central points made by the literature on the need to involve customer contact personnel in service innovation.

Service innovations evolve in the everyday service work

Toivonen & Tuominen (2009) emphasize that instead of being the result of structured projects which are carried out separate from everyday operations, service innovation processes usually interlinked with the actual service delivery process and the supplier-client interface. This means that innovation processes in services may start in the delivery process without a conscious, well-formulated innovation goals and develop from a problem or opportunity faced by the customer contact personnel in the interaction with the customer. The service innovation process therefor depend highly on the particular knowledge and experience of the service suppliers (Koelling et al 2010).

Service failure recovery a source for innovation

The findings of Umashankar et al (2011) show that service employees represent a critical source of user-generated feedback specifically in the context of service failures. Involving service employees and giving them autonomy in dealing with service failures contribute to acceleration of the service innovation process and implementation. They further argue that involving customer service agents in the design process of internal innovations also benefit the customer service personnel through making it easier for them to handle the typical stressful situations of service failures. Also Yang et al (2009) underscores service disruptions as a possible source for service innovation.

Collaborate with customer contact personnel

Because of the unique knowledge and experience of the front-line personnel several authors suggest that new service developers should collaborate with these employees. Collaboration here means consulting customer contact employees in the different phases of the innovation process. According to de Brantani (2001), all types of service innovation ventures benefit from having highly trained experts in the front-line who have an intimate knowledge of the product and the customers. These experts can be critical early in the service innovation process for gaining insights in client needs and new service opportunities. In the design stages they can contribute with their knowledge about customers and of competitive offerings and can help in defining the appropriate level of service customization, user-friendliness and complexity. During the launch phases of the service innovation process knowledgeable front-line employees can help in educating and persuade clients about the new service.

Also Ordanini & Parasuraman find that employee collaboration has a strong impact on both service innovation volume and radicalness. In order to foster service innovation customer contact employees should be provided with appropriate incentives, they argue. There is also a need for formal and informal mechanisms for capturing and sharing employee knowledge.

Involve customer contact personnel in the innovation service project

In line with the argument about the central role of customer contact personnel above Ramirez (2004) suggest that companies who want to become innovative in services should take the involvement of the customer contact employees one step further by involve customer service employees in the formal service innovation projects. In these projects customer service employees can perform the role of representatives of the final customer to other departments and thus give direct feedback on how a new service idea would be met by the customers. However, this also means that the knowledge and technical expertise possessed by traditional R&D personnel need to be spread to these groups of employees who are not traditionally associated with contributing to the service innovation process. Kelly & Storey (2000) also points out that not involving contact or operations staff in the service innovation process may lead to unexpected difficulties when launching a new service.

2.5 Use cross-functional service innovation teams

Numerous articles have discussed the ideal composition of the service innovation project team, and most typically suggested that effective service innovation teams need to involve representatives with diverse backgrounds and perspectives, i.e. use cross-functional teams. Using cross-functional teams in the service innovation process means including representatives from different stakeholders and competence areas as members in the formal group of innovators. However, since service innovation, as we have seen, often take place in a network of both internal and external actors also the formal service innovation team could consist of representatives from both the internal and external

environment of the company. These cross-functional service innovation teams should be managed in a way that embraces the diversity and heterogeneity the mix of people make possible. Still, all studies do not quite agreed on whether the use of cross-functional service innovation teams contribute to overall innovativeness in services. Below follow some of the more central points made by the literature on the need to use cross-functional service innovation teams.

Don't forget the internal relationships

Perks & Riihela (2004) discusses the challenges of inter-functional integration in service innovation processes. Specifically when the service innovation process involves also having to manage external collaborations, the service developers must not make the mistake to forget about the internal relationships. They stress that service developers should invest in mechanism to secure input from different organizational function in an appropriate way and at an appropriate time. In particular, managers need to early in the process ensure that communication is established with different organizational functions and create a shared understanding of the goals and objectives of the innovation project. The authors also claim that a clear and structured hierarchy of authority appears to be central for making the inter-functional integration mechanisms used efficient.

Pros and cons of using cross-functional service innovation teams

Froehle et al (2000) have come to the conclusion that the use of cross-functional teams for service innovation tend to increase the effectiveness of a firms service innovation in terms of number of service innovations and new services developed. However, using cross-functional teams was not found to contribute to the speed of service innovation. On the contrary they may increase the time it takes to develop a new service innovation since consensus-building takes time. Lievens & Moenaert (2000a) further conclude that cross-functional teams and their composition are crucial for the team's ability to learn and to innovate in services. Also the findings of Menor & Roth (2008) supports the use of cross-functional teams.

Blindenbach-Driessen & van den Ende (2010) argues against the use of multi-disciplinary teams (with members from different competence areas) in the service innovation process in particularly project-bases firms. Instead these kinds of firms should use more specialized teams. The reason for this is that since project-based firms frequently use multidisciplinary teams in their everyday work specialized members of an service innovation team are still likely to be familiar with the requirements and needs of other disciplines.

High quality team processes

According to Fay et al (2006) multi-disciplinary teams only contributes to service innovativeness if the quality of the team processes is high. This means that the team should develop a shared vision and have a high interaction frequency which together function as a "glue" in the team. The team should also have high levels of team reflexivity (reflecting on how the teamwork is going and being willing to change it) and

safety in order to make it easier for each team member to communicate his or her views to the team. Mascitelli (2000) also stress the benefits of face-to-face interaction for facilitating a creative team.

For Mascitelli the big challenge when diverse teams are to be creative and develop breakthrough service innovation is how to harness the tacit knowledge possessed by individuals, i.e. knowledge based on experience that is hard to put into words. He suggests two methods to facilitate the transfer and combination of tacit knowledge. The first method highlights the use of early and frequent prototyping as a powerful focal point for putting words to the tacit knowledge possessed by individuals. The second method involves the encouragement of face-to-face interaction between service innovators during the service innovation process, thereby enabling creative improvisation and real time knowledge sharing. Communication via documents, specifications, e-mail and memos are likely to become obstacle for creative improvisation.

2.6 Develop a service innovative culture

A last practice supporting service innovation many authors has agreed on is that service innovative organizations needs to have an organizational culture and climate which supports the innovative behavior of its members. An service innovative culture permeates the entire organization and effects the values, priorities and practices of employees. In the service innovation literature it varies some whether it is emphasized that an service innovative culture need to permeate the entire organization or whether it is primarily needed in the service innovation project organization (i.e. the service innovation team). While many authors list a service innovative culture as important few specify in much detail what it should entail. Liu (2009) is one of them who has made an attempt to do so. His research results indicate that four cultural elements should exist. These are listed below.

Desire to innovate

First, the culture should support service innovation in terms of fostering values and beliefs which fosters willingness and desire to innovate among all organizational members. Liu calls this an innovative supportive culture. An innovation supportive culture include support of team work, the emergence of product champions, support in terms of rewards, risk taking, autonomy in the treatment of failures, encouragement of employees to develop their own ideas and investing money in internal projects. de Jong & Kemp (2003), who have investigated drivers of innovative behavior of individual co-workers in knowledge intensive services, recommend that managers should pay attention to giving employees and appropriate job challenge, giving them autonomy to be creative and the possibility to have external contact with customers for an increased experience of meaning in developing new services. This indicates that, fostering innovative behavior often comes down to leadership style. Also Chen et al (2009) stress the need for openness to service innovation among members in an organization as a

critical part of the service innovation process and suggest that firms who want to be innovative in services should train employees to accept or adopt radical new ideas.

Information gathering and market orientation

Secondly, a service innovative culture should be market oriented. According to Liu, market orientation is characterized by three behaviors: customer orientation (acquiring and disseminating information about customers), competitor orientation (gathering and disseminating information about the competitors) and inter-functional coordination (internal coordinating effort to create value for the customer). Also van Riel et al (2004) recommends an open and informal organizational climate that supports the acquisition and the exchange of information about both customers and competitors.

Organizational learning

Thirdly, a service innovative culture should, according to Liu be a learning culture. An learning culture involves creating continuous learning opportunities, promoting inquiry and dialogue, encouraging collaboration and team learning, empowering people toward a collective vision, and establishing a system to capture and share learning and organizational knowledge. According to Mascitelli (2000) firms who want to be innovative in services should value the tacit knowledge and creativity of its employees and support the transfer of tacit knowledge between individuals. Face-to-face interaction is one practice Mascitelli suggests to enable creative improvisation and real-time knowledge sharing.

Communicating with customers

Lastly, a service innovative culture should be characterized by customer communication. This involves an emphasis on listening to ones customers in order to tailor their product and service offerings to the customers needs. Communicating with customers should be valued and practiced by organizational members at all different levels of the firm. Also Ordanini & Parasuraman (2011) emphasize that a continuous focus on the customer should be part of the organizational culture of service innovating firms.

Table 2. Organizational practices supporting service innovation

Organizational practices supporting service innovation	Findings in summary	Authors
Implement a service innovation strategy	<p><i>Market orientation with an organization wide focus on the customers.</i></p> <p><i>New service development/innovation strategy and knowledge management approach a part of corporate strategy.</i></p> <p><i>Pursue not only radical innovation but also me-too and incremental innovations</i></p>	<p>van Riel et al 2004</p> <p>Leiponen 2006, Menor & Ruth 2008, Hargadon 2002</p> <p>Oke 2007</p>
Engage in service innovation networks	<p><i>External relations are beneficial for innovation. Engage in service innovation networks and alliances in creating a knowledge infrastructure in interaction with external actors such as suppliers, business service firms and client/customer firms.</i></p> <p><i>Participation in conferences and courses and systematic environmental scanning positively influences service innovation.</i></p> <p><i>Innovating firms need to commit to inter-organizational relationship with fewer exchange partners (customers, suppliers) rather than diversify to a larger number.</i></p> <p><i>Make business service firms bridges for service innovation in long-term intra-firm collaboration.</i></p> <p><i>Balancing protection of ideas and the sharing of knowledge in the service innovation network – managed through HRM practices that make employees loyal, through tailored lead times and through contract.</i></p>	<p>den Hertog 2000, Wong & He 2005, den Hertog et al 2010</p> <p>Jenssen & Nybakk 2009</p> <p>Eisingerich et al 2009</p> <p>Czarnitzki & Spielkamp 2003,</p> <p>Hurmelinna-Lukkanen & Ritala 2010</p>
Involve customers and users	<p><i>Collaborate with customers. Involve users in the creative phase of the service innovation process and/or in the customer experimentation phases of innovation.</i></p> <p><i>Involve customers through a branding process focusing on shared value.</i></p> <p><i>Having intimate knowledge and interpreting signals in “the real world” of customer needs.</i></p> <p><i>Use service disruptions as an opportunity to generate new service ideas.</i></p> <p><i>Test new service concepts on customer, with the help of for example virtual reality, service theatre</i></p> <p><i>Use ethnography or prototyping for testing ideas on customers.</i></p>	<p>Kristensson et al 2004, 2008, Abramovici & Mancel-Charensol 2004, Ordanini & Parasuraman 2011</p> <p>Halliday & Trott 2010</p> <p>den Hertog et al 2010, de Brantini 2001, Bessant & Maher 2009 Umashankar et al 2011</p> <p>Meiren & Burger 2010</p> <p>Yang et al 2009</p>
Involve customer contact personnel	<p><i>Engage customer service employees/contact employees in the process of joint learning between the customer and the firm.</i></p> <p><i>Service innovation processes are usually interlinked with the actual service delivery process. Paying attention to the supplier-client interface is of specific importance</i></p> <p><i>View customer service employees as internal customers and design innovations to also benefit them.</i></p>	<p>Ramirez 2004, Ordanini & Parasuraman 2011, Kelly & Storey 2000</p> <p>Toivonen & Tuominen 2009, Koelling et al. 2010</p> <p>Umashankar et al 2011</p>

Organizational practices supporting service innovation	Findings in summary	Authors
Use cross-functional service innovation teams	<p><i>Cross-functional teams contribute to new service development effectiveness.</i></p> <p><i>Involve cross-functional stakeholders at the right time and level of the service innovation process in order not to undermine ownership and authority</i></p> <p><i>High quality team processes signified by a shared vision, a high interaction frequency, team reflexivity and safety.</i></p> <p><i>Face-to-face interaction in the service innovation team.</i></p> <p><i>The staffing of cross-functional teams is crucial for project success in general and for learning in particular.</i></p> <p><i>The use of cross-functional teams should be weighted against more specialized service innovation teams, specifically in project-bases organizations in which the benefits of multi-disciplinarity are less pronounced.</i></p>	<p>Froehle et al 2000, Lievens et al 1999, Menor & Roth 2008 Perks & Riihela 2004</p> <p>Fay et al 2006</p> <p>Mascitelli 2000</p> <p>Lievens & Moenaert 2000a</p> <p>Blindenbach-Driessen & van den Ende 2010</p>
Develop a service innovative culture	<p><i>An informal communication climate.</i></p> <p><i>Stimulate individual co-workers innovative behavior: open attention to an innovative strategy, customized job challenge, autonomy and external contacts.</i></p> <p><i>An inspiring and fun climate where employees feel secure and committed and can share tacit knowledge.</i></p> <p><i>Firms trying to be innovative in services should have four cultural components: a culture in which innovation behavior is supported, a culture with commitment to the client (market orientation), a culture in which learning and knowledge transfer is supported and a culture in which the communication with the client is prioritized</i></p> <p><i>Openness to service innovation - willingness of members in an organization to consider the adoption of new ideas</i></p>	<p>van Riel et al 2004 de Jong & Kemp 2003</p> <p>Mascitelli 2000</p> <p>Liu 2009, Ordanini & Parasuraman 2011</p> <p>Chen et al 2009</p>

3 Competences supporting service innovation

In this section it is finally time to identify which competences the service innovation literature suggests best support service innovation. Five competences are here identified. These competences are derived from the literature and with the organizational practices supporting service innovation outlined above in mind. This means that the service innovation competences each support one or – more often – several of the service innovation practices. Competences are here seen from an organizations point of view and the word “competence” is understood as the possession of a particular skill to do something combined with organizational routines and procedures that can facilitate the use of this skill. The competences are listed and explained below as well as summarized in Table 3.

3.1 Dynamic and informed decision making

Decision making skills and procedures are important in all areas of organizational life. In the context of service innovation competences in decision making are primarily needed where strategic decisions about what kind of new services the firm should focus on developing are made, i.e. on top management and service innovation project management levels. As we can understand from the organizational practices supporting service innovation decision makers in service innovation processes need to be able to make decisions based on complex information from numerous both internal and external stakeholders. Often decisions may be made in collaboration with representatives from different knowledge disciplines and interests.

van Riel & Lievens (2004) have investigated decision-making effectiveness in high tech service innovation projects including factors leading to good decisions being made on an individual level. According to their findings, the task conditions in these service innovation projects are very demanding and they requires dynamic decision making strategies based on good cognitive skills, i.e. being able to think about a problem in different ways, and on flexibility in using them. This means having a non-dogmatic proactive approach to how problems need to be solves and allow the use of a mix between rational analytical techniques and common sense, creativity exercises and intuition. Decision makers also need to have a strong desire to learn in many different knowledge disciplines.

In another article van Riel et al (2004) stress the need for well informed and knowledgeable decision makers in service innovation processes. To support this the firm or the project needs to establish good information infrastructure including activities and skills for both gathering and processing information. They particularly suggest an efficient real-time information platform that provides decision makers with selective up-

to-date and relevant information about developments in customer requirements and preferences and technology. Also informal information exchange should be supported and conditions to support informal exchange of information should be created both among different internal department, teams and managers and with external service innovation partners, customers and suppliers.

3.2 Inter-disciplinary collaboration

As we have seen above service innovation should evolve or be created in collaboration between several different actors. Different actors mentioned are: top managers, members of the service innovation team, customer contact employees, members from different organizational functions, customers and service innovation partners. The point of this being that different actors have different knowledge and experience that might contribute to the development of a new service. To support the integration of knowledge from different areas there is a need for competence in inter-disciplinary collaboration.

Chen et al (2009) argue that collaborative processes with customers, partners and employees are essential for service innovation. Also Ordanini & Parasuraman (2011) underscore the critical role of business partner collaboration in developing radical service innovation and the strong impact of employee collaboration in both the volume and radicalness of service innovation. It is thus not only within a service innovation team that collaboration needs to take place but also between the innovation team/initiator and other roles and competences within the organization and external collaboration partners.

Vence & Trigo (2009) have found that in general a higher proportion of service innovative firms cooperate in the service sectors than in the manufacturing sector. However, they also found differences regarding the tendency to cooperate among firms in different service sub-sector. For most of the sub-sectors studied collaboration with supplier was the most common choice. The exception from this pattern was found in the knowledge intensive business service firms in which the client played the most important role throughout the service innovation process.

Lievens & Moenaert (2000a) argue that enhanced learning through cross-functional cooperation can be seen as a core competence that is hard to copy and hence reduces the threat of competition. They therefore recommend that service innovation project managers should consider to implement learning-project teams. These teams would learn from previous experience, from the experience of other teams previously or currently engaged in service innovation tasks.

3.3 Boundary spanning

As we have seen service innovation are recommended to take place in a network of actors who interact across traditional organizational boundaries. To handle these interactions may be hard and stressful as it involves being able to connect both to actors

and contexts outside the organization and to the internal setting. Also the interactive nature of service co-production implies that the boundary between the firms' representatives and the customers become blurred. This is particularly evident in knowledge-intensive firms in which the employees may spend weeks at the client's location. For service innovation purposes this becomes a challenge as loyalty tensions may hinder employees to transfer the knowledge they develop in the client projects back to their home organization. In order to help managing learning across boundaries the organization and its members need to possess boundary spanning competences. Even though boundary spanning has a similar purpose as inter-disciplinary collaboration it is also distinct from it though its focus on the ability to learn and transfer knowledge across borders rather than on the ability to interact with people from different disciplines.

Lievens & Moenaert (2000b) talks about the need for boundary spanning roles in firms who want to innovate in services. Boundary spanning roles are a way of connecting project members to external sources of information. The individuals who act in this role transfer information and mediate the communication flow between the service innovation project and external information areas. Different organizations and organizational units have distinctive values, norms and languages that characterize the way of both thinking and working. When representatives from different organizations or organizational units are to collaborate these dissimilarities may impede communication. Boundary spanning thus has the role of understanding these differences and interacting with actors on several different arenas. As we saw in the organizational practices supporting service innovation customer service personnel – with their unique experience of both the customers world and the world of the organization - are appropriate candidates for taking on the role as boundary spanners. In another article Lievens & Moenaert (2000a) further identified a need for boundary spanning competence in the interactions between internal work units in service innovation efforts.

Hargadon (2002) also talks about the need to bridge actors and knowledge from multiple contexts in order to be innovative in services. He argues that firms spanning multiple knowledge disciplines have the possibility to innovate by moving ideas from a discipline in which they are known to another where they are not creating new combinations of ideas that hopefully result in service innovations. For the ability to transfer and process ideas like this the firm need competence in knowledge brokering. Hargadon's study show that the conditions that enable knowledge brokering depends on the ability of some individuals and firms to see possibilities that others do not or cannot see themselves. He also stress that the roles and identities of individuals and organizations may be a strong influence on their ability to convert their past knowledge to new knowledge. By not identifying with any one domain knowledge brokers may be more able to resist the dogma of any one domain and recognize connections that individuals who have a strong identification with any one specific knowledge domain.

3.4 Managing tacit knowledge

Coming up with new ideas for services is to a large extent about the ability to acquire new knowledge and combine existing and new knowledge in new ways.

A big part of the knowledge that exists in an organization is possessed by individual employees who learn and accumulate knowledge through their work experiences. This form of knowledge is typically called tacit knowledge and it is different from explicit knowledge in that it is personal and not made explicit through documents and other ways of codifying information. However, there is a tension between these two forms of knowledge as documented knowledge is easier to circulate than knowledge which is embedded in individual employees experiences while experience based knowledge is richer and more dynamic. When the experienced based knowledge of individuals is written down it loses much of its richness. The challenge when innovating is how to manage the individual tacit knowledge that do exist in the organization and transform it to a collective and more explicit form. Skills and procedures for managing tacit knowledge is relevant for creating value from the collaboration between different internal and external actors in the service innovation network.

Leiponen (2005, 2006) have found that collective, and organizationally controlled, knowledge is statistically associated with service innovation while individual tacit knowledge does not tend to contribute to the development of new services. Therefore, creating collective or explicit knowledge assets out of individual-based and tacit competence improve the opportunity for combining them and turning them into new service ideas. Based on these results Leiponen recommend firms who wants to be innovative in services to invest in codification routines that facilitate the sharing of knowledge on a collective level. To achieve codification Leiponen further recommend firms to apply project management techniques that standardize service delivery processes and stages. Further the author recommends developing skills in team work through training and motivating employees and by rewarding team performance rather than individual performance. Also Amara et al (2009) and Lawson & Samson (2001) stress the ability to combine existing knowledge with new knowledge through bringing people together in collaborations as one important facilitator of service innovation.

Storey & Kahn (2010) have compared the use of two strategies for managing knowledge when stimulating service innovation: the personalization knowledge strategy and the codification knowledge strategy. The personalization strategy means that the firm focuses on developing processes, which enable the sharing of tacit knowledge. Examples of this type of processes listed are team-based service innovation projects, formal group meetings, team-based problem solving, intradepartmental cooperation and communication. The codification strategy means that a firm mainly focuses on transforming knowledge from people to documents. Examples of tools for this strategy are the development of formal processes, storing knowledge and experiences from past projects in reports and writing new service development/innovation manuals. Storey & Kahn (2010) found that both these strategies contribute to the service innovation

process in general. However, while codification increased the firm's ability to execute service innovation activities personalization made the company seem more innovative in the eyes of the market.

In contrast to the recommendations to make tacit knowledge explicit to facilitate service innovation tacit knowledge has also been seen to more directly lead to innovations in services. Vence & Trigo (2009) argues that because of the interactive and unique nature of the service delivery process customer contact personnel to a large extent use their tacit knowledge on an everyday basis for producing services. Since the interaction with the customer is a valuable source for new service ideas the tacit knowledge of these individuals have an important influence on how and whether the exposed needs of the client are recognized. Training employees in detecting and communicating new customer needs and new service solutions can thus be important for service innovation to take place. Also Mascitelli (2000) argue for the possibility of innovating based on tacit knowledge. The tool for this he suggests should be face-to-face interaction between innovating parties.

3.5 Constant communication and conceptualization

Parallel with the need to manage knowledge from different sources it has been emphasized that successful service innovation also depends on the firms ability to sustain a constant communication flow between different actors. As we have seen previously firms innovating in services need information and knowledge from numerous actors and therefor also need to establish communication channels and routines. It has also been argued that a central role of an service innovative culture is to support open communication of information and ideas. Communication flows need to be constant in order to keep up to date with the needs of customers and to gain support for the new services among the employees. The use of information technology has an increasingly important role when communicating and processing information in the service innovation process (Froehle et al 2000, Chen et al 2009, Menor & Roth 2008). Also service innovative firms need to be aware of the need to work with the conceptualization and sense making of the new service innovation among employees and users.

The need for communication and information-sharing have been stressed in the context of good decision making in service innovation processes, as we saw in the work of van Riel et al (2004). They claim that service innovation success depends on how well informed and knowledgeable decision-makers are. Having a market orientation is as we have seen previously a practice which supports service innovation. A market orientation should, according to van Riel et al, include the development of processes for information acquisition, diffusion and utilization in order to increase the likelihood of service innovativeness. Specifically they recommend firms to invest in structural intelligence activities that focus on the identification of trends in consumer needs.

However, collecting information about competitors' strategic moves was not found to be beneficial.

In their research Lievens & Moenaert (2000a, 2000b) have investigated communication patterns in service innovation project teams and their impact on uncertainty about user needs, technologies, competition and required resources to succeeding in a service innovation project. The more information available about these factors the easier the service innovation process will flow. Their findings stress the critical communication role of frontline employees and service innovation project members and the service innovation project manager. Not surprisingly, but nevertheless important, they found that frontline personnel have a central role in bringing external customer information into the project team. This is why Lievens & Moenaert suggest that effective project communication can be achieved when customer contact personnel actively participate during the service innovation process. Project managers on the other hand have to deal with sometimes quite complex communication interfaces during the service innovation process. They have to keep careful track of horizontal processes within the organization, knowing the activities, flows and interactions between the departments and actors involved as well as coordinate these processes. This requires specific skills in information processing and communication.

However, more communication is not always better as it risks leading to information overload, according to Lievens & Moenaert. Due to individual information-processing limits, individuals try to deal with the problem of information overload by choosing to interact with fewer interaction partners within the organization. Also there is a need to balance communication within the service innovation project with external communication. The communication patterns of the individual members in the service innovation team are likely to over time be constrained by the group and its norms creating an inference to the diversity of the communication flow. Keeping communication links with external actor may function as a counteract to these group dynamic tendencies.

Another role of communication in service innovation is to prepare the organization for the implementation of the new service. Gaining support for a new service innovation can some time be hard as the employees may be set in their ways of how things are done or be in general skeptic to changes, particularly if they come "from above". den Hertog et al (2010) talk about conceptualization as a central capability in service innovation. The role of the service innovation team is according to them to transform a rough idea of a new service into a viable service offering that can gain support both by the top management and other stakeholders. This takes skills in communicating, framing and negotiating the meaning of the innovation. Fitzgerald et al (2002) focus on the service innovation diffusion process and show how innovations often are defused to the users though modification, translation and customization of the innovation to suit local needs through negotiations and re-negotiations between different actors.

Table 3. Competences supporting service innovation

Service innovation competences	Findings in summary	Authors
Dynamic and informed decision making	<i>Well-informed decision makers. Ability to use cognitive strategies in a flexible manner: a proactive attitude, capability to mentally represent various interfaces between service, customer and firm.</i>	van Riel et al 2004 van Riel & Lievens 2004
Inter-disciplinary collaboration	<i>Highly innovative service firms develop innovations while providing their services. The high level of contact and collaboration between client and business services contribute to the innovation process. Collaborate both with customers and with contact/service employees. Collaborative processes with customers, partners and employees are essential to innovation. Collaborate for team-learning.</i>	Vence & Trigo 2009 Ordanini & Parasuraman 2011 Chen et al 2009 Lievens & Moenaert 2000a
Boundary spanning	<i>Project managers need to have the ability to deal with complex processes and collaboration interfaces, both internal and external and build boundary-spanning networks. The need for knowledge brokers.</i>	Lievens & Moenaert 2000b, 2000a Hargadon 2002
Managing tacit knowledge	<i>Broad information sourcing and internal cooperation to mobilize knowledge. Structure to bring knowledge to a collective level, including team competences and routines and codified service solutions. Combine existing knowledge and processes with new knowledge and ideas. Incentives and practices to support knowledge management and knowledge transfer. Highly innovative service firms to a large extent use tacit knowledge crated in the supplier-client interaction to develop innovation. Through a knowledge management strategy of codification firms become more effective in their innovation activities while through a strategy of personalization they are perceived as more innovative. Innovate through tacit knowledge by facilitating face-to-face interactions</i>	Leiponen 2005, 2006, Lawson & Samson 2001 Amara et al 2009, Vence & Trigo 2009 Storey & Kahn 2010 Mascitelli (2000)
Constant communication and conceptualization	<i>Arrangements for rapid and accurate communication and feedback trough the use of ICT. "Translating" innovations to suit local needs and appeal to different users. Project managers need to recognize the critical communication role that project members and front line employees may have. Conceptualize new service ideas as well as unbundle existing service packages combined with a readability to learn and adapt.</i>	Froehle et al 2000, van Riel et al 2004, Menor & Roth 2008, Chen et al 2009 Fitzgerald et al 2002, Bower et al 2000 Lievens & Moenaert 2000, den Hertog et al 2010

4 Actors and competences in service innovation networks

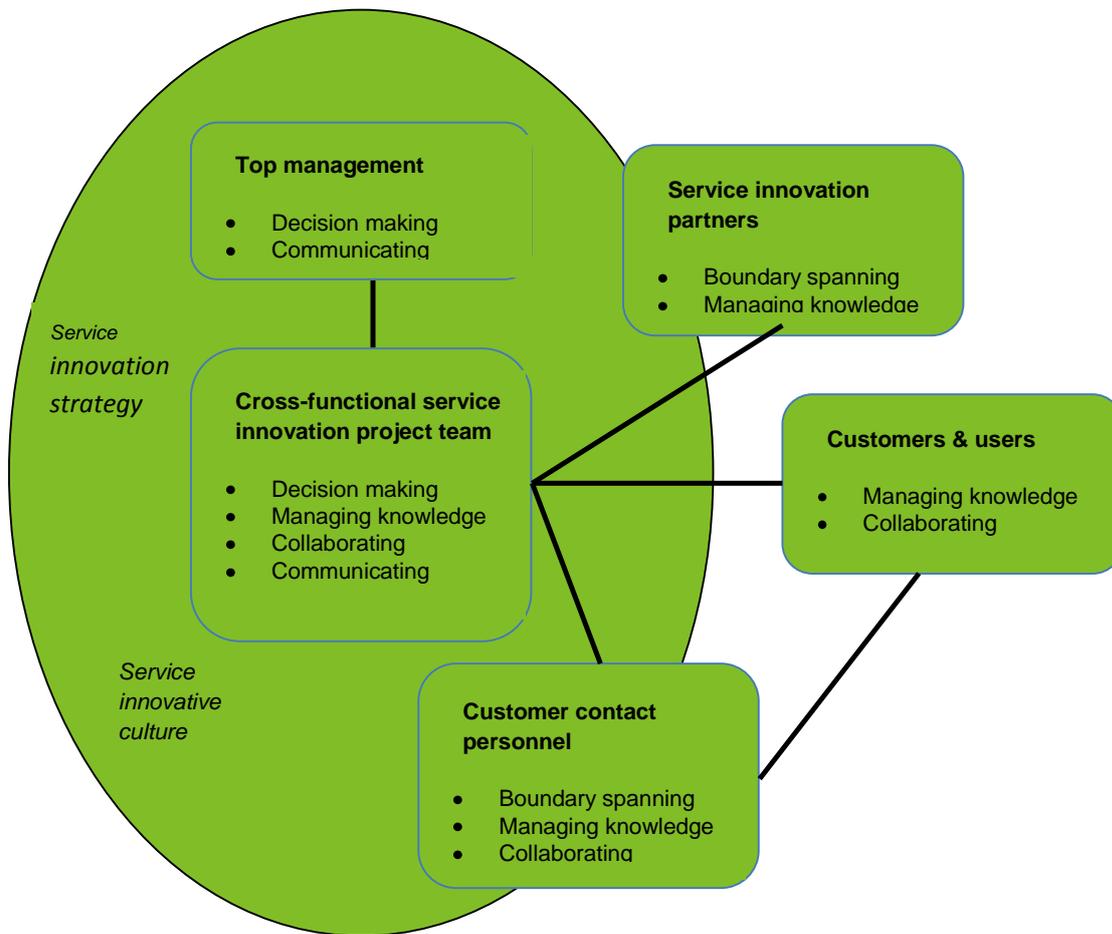
In the two previous sections we have identified six service innovation practices – things firms need to do in order to be innovative and five service innovation competences – things these firms need to know in order to be successful in these organizational practices. What we can see from the service innovation practices and competences is that service innovation is most successful when several different actors are involved. In fact, talking about competences without specifying who needs to possess them and for what purpose makes little sense. Therefore we will in this section look closer at the innovation actors and at who needs to know what in the service innovation network. From the discussion so far five actors in the service innovation network has been given a central role: the top management, the service innovation project team, customer contact personnel, customers & users and external service innovation partners. The organizational practices, competences and actors that support service innovation are summarized in Figure 1.

Figure 1. Organizational practices, competencies and actors supporting service innovation

Service innovation practices	Service innovation competences	Service innovation actors
<ul style="list-style-type: none"> • Implement a service innovation strategy • Engage in service innovation network • Involve customers and users • Involve customer contact personnel • Use cross-functional service innovation teams • Develop a service innovative culture 	<ul style="list-style-type: none"> • Dynamic and informed decision making • Boundary spanning • Inter-disciplinary collaboration • Managing tacit knowledge • Constant communication and conceptualization 	<ul style="list-style-type: none"> • Top management • Service innovation project team • Customer contact personnel • Customers & users • External service innovation partners

In Figure 2 below a typical service innovation network is mapped out complemented also with which competences each actor needs to possess in order to contribute to the service innovations of the network. The service innovation network is here viewed from the innovating companies point of view, putting their service innovation project team in the center. However, given that service innovations often are coproduce in an open system the value gained from the innovation need to be distributed to all contributors in order for them to keep contributing to the network. Below we recap the role and competence needs of the five service innovation actors.

Figure 2. Competences supporting service innovation in the service innovation network - from the service innovating company's point of view



4.1 Top management

The top management of the service innovating company is typically not portrayed as being actively involved in the service innovation project team. According to the reviewed literature the role of the top management is first to formulate a service innovative strategy and make service innovation a priority for the company. This means also prioritizing which type of service innovations (radical or incremental) to develop and which markets to target. Service innovation should thus become a part of the overall strategy of the company. For this to happen the top management needs to have routines that support both informed and pragmatic decision making.

Secondly it is the top management role to assign a service innovation project team, or at least a project manager and to show their support to the team and its outcomes. The top management should also openly communicate the importance of the service innovation project within the company. This is crucial for encouraging employees to collaborate with the service innovation project team both in the idea phases and the implementation phases of the service innovation process.

Thirdly, the communication of the top management is crucial when developing a service innovative culture where employees feel that their ideas are valued.

4.2 The service innovation project team

The service innovation project team has the most central role in the service innovation network being those who coordinate involvement of all the other actors. Therefore they also need to have almost all the competences identified.

First we have seen that the service innovation project team needs to have good routines for a informed and dynamic decision making. In the tightly scheduled service innovation projects decisions often need to be made based on ambiguous information from several sources. Abilities to efficiently collect and sort relevant information are therefore crucial. But it also means that they cannot solely rely on getting all relevant information fast enough and must therefore also be willing to make more decisions more pragmatically.

Since the service innovation team ideally should consist of representatives from several different functions and knowledge areas there need to exist good conditions and experiences of collaborating across disciplines. These skills are also necessary when collaborating with other actors – customers, customer contract personnel, service innovation partners – as one of the main values from these types of collaborations is that different actors come from different disciplines with different perspectives, experiences and knowledge. It is also these differences in experiences that make the procedures for managing tacit (silent and personal) knowledge central.

Lastly the service innovation project team needs to develop channels and skills for communication and getting support for what they do both within the organization and externally. Communicating here also means engaging in dialogues with users and with employees internally in which the meaning of the service innovation is conceptualized and negotiated with these actors.

The one competence that the service innovation project team is not likely to possess is the skills associated with boundary spanning. Because of their strong insider status it becomes difficult for them to also take the distanced perspective of the boundary spanner. However, that one or several members of the team can take the boundary spanning role is not impossible.

4.3 Customers and users

The role of the customers and users of the innovative firms services is twofold. Their first role is to give feedback about their needs, preferences and experiences of the services. This feedback becomes a valuable input in the service innovation process. Feedback should ideally come from all customers and users who get in contact with the service. Secondly, customer and user representatives could be more actively engaged in

the service innovation process either through being asked to generate ideas for new services or giving feedback on service prototypes.

It is here misleading to say that customers and users as actors have the responsibility to develop specific competences. Their contribution to the service innovation network is solely voluntary. However, in order to contribute to the service innovation process they need to be willing to collaborate with the company and to contribute with their ideas. It might also be necessary for these customers/users to learn more about the world of the innovative company. However, as pointed out in the literature, too much insider insight into the technologies and processes enabling a specific service might hamper the idea generation.

Additionally, both types of customer and user involvement requires that they are willing to engage in the knowledge management procedures and be able to share their tacit knowledge through giving opinions and ideas.

4.4 Customer contact personnel

Also customer contact personnel have a central role in the service innovation process, whether they are included in the service innovation project team or not. Their most important role and competence is their ability to act as boundary spanners between the customers and the innovating company. Because of their daily engagement in the co-creation of services together with the customers they have experiences in actively taking the perspective of the customers, while still being a member of the service providing company. This position in-between the customers and the company makes them ideal for boundary spanning, i.e. translating and transferring the knowledge of the customers into the organization.

But besides boundary spanning competence customer contact personnel also need competence in knowledge management and collaboration in order to make the knowledge they gain from the customers useable in the service innovation project.

4.5 External service innovation partners

The role of the last actors, the external service innovation partners, is primarily to contribute with to the company new knowledge that can be combined with existing knowledge for the creation of new ideas. Service innovating companies can partner up with a variety of different kinds of actors. The literature primarily mentions other innovating firms and business service providers as potential service innovation partners. However, others stakeholders who are willing to contribute with knowledge, ideas or financial support – such as governmental agencies or industry organizations – could also be included in this category of actors.

Given their role as knowledge providers external service innovation partners need to possess competence in knowledge management – transferring and creating knowledge – and in inter-disciplinary collaboration. But because of their outsider position they can

also be candidates for the role of boundary spanners. This role is particularly likely to be taken by knowledge-intensive business service providers who are engaged by the service innovating company for exactly this role. By their position on the boundary between different organizations, which is very typical for any type of advisory service providers, they can see potentials for knowledge combinations that an insider of any specific knowledge area could not.

In summary we can thus see that:

- 1 competence in *managing tacit knowledge* and in *inter-disciplinary collaboration* is required of all actors except the top management (since they are not supposed to be active participants in the service innovation project),
- 2 customer contact personnel and innovation partners are possible candidates for the role of *boundary spanners* and
- 3 the responsibility for *constant communication and conceptualization* and for *dynamic and informed decision making* lies on the top management and the service innovation project team.

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- 05 Sammanfattning Sveriges deltagande i FP7 - Lägesrapport 2007-2010 - Fokus SMF. *Brief version of VA 2011:04*
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