DEVELOPMENT OF SERVICE DESK FUNC-TION THROUGH INSOURCING

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1   INTRODUCTION

1.1   Background of the study and definitions of key concepts

Nowadays, the majority of tasks and interactions of daily life and work are dependent on information technology (IT). Thus, any type of malfunction in IT hampers smooth work, and can lead to significant problems. To cope with risky situations, the IT service desk function supports the daily operations of businesses, keeping them running smoothly. The service desk is designed for users as the single point of contact (SPOC) that handles daily IT-related service requests and incidents (OGC 2007, 214). The primary aim of the service desk is to deliver service, meaning any action that is needed to allow users to resume working satisfactorily, as quickly as possible (OGC 2007, 112). Siti-Nabiha, Thum & Sardana (2012, 104) point out that service desk objectives include providing quality service to users and increasing users' productivity through resolving incidents and queries quickly and effectively. Furthermore, the Information Technology Infrastructure Library (ITIL) highlights that the value of the efficient service desk should not be underrated (OGC 2007, 112). Torkkeli (2016) states that the service desk has a very important role in making sure that IT-problems do not have a negative effect on productivity. Consequently, the service desk is defined as a fundamentally valuable function for businesses and users, because it clearly serves to maintain users' work efficiency.

The so-called "sourcing dilemma" relates to the consideration of how companies can best obtain their information systems (IS) services, such as the service desk. Companies consider advantages and disadvantages of sourcing alternatives in the sourcing decision-making process. (Dibbern, Goles, Hirschheim & Jayatilaka 2004, 7, 15) Veltri, Saunders & Kavan (2008, 51-52) state that, in sourcing decision-making companies estimate what would be the most appropriate sourcing arrangement among many alternatives. According to the ITIL glossary (2011, 114), service sourcing means:

> *"The strategy and approach for deciding whether to provide a service internally, to outsource it to an external service provider, or to combine the two approaches. Service sourcing also means the execution of this strategy."*

This make-or-buy decision is the first sourcing decision. When a company chooses outsourcing, it evaluates the arrangement periodically and decides among several different alternatives: to continue to outsource with the same provider, to change to another service provider, or to backsource all or some parts (Veltri et al. 2008, 51). Veltri et al. (2008, 51) define backsourcing as a business practice where a company takes previously outsourced IS operations back in-house. In this research, insourcing and backsourcing are used as synonyms to describe this kind of change. According to Solli-Sæther &

Gottschalk (2015, 93), backsourcing a function is not a return to the beginning because, as time passes, companies change as well as their needs, thus, no permanent optimal final sourcing arrangement actually exists.

IS outsourcing has grown and gained popularity since Kodak successfully turned its IT operations into outsourcing partners in 1989 (Dibbern et al. 2004, 7; Qu, Oh & Pinsonneault 2010, 96). However, several companies have brought some or all of their outsourced IT functions back in-house in the 21st century. For example, JP Morgan Chase (2004) and Saindsbury (2005) are two high-profile examples of backsourcing (Qu et al. 2010, 96; Veltri, Saunders & Kavan 2008, 51; Whitten & Leidner 2006, 605). In Finland companies have likewise insourced IT-services in the 21st century, two examples being Konecranes and Nordea (Toivanen 2014). Dibbern et al. (2004, 89) even suggest that backsourcing may become a trend.

Several backsourcing researchers argue that surprisingly few studies focus on backsourcing arrangements (Solli-Sæther & Gottschalk 2015, 88; Bhagwatwar, Hackney & Desouza 2011, 165; Veltri et al. 2008, 51; Whitten & Leidner 2006, 605). Furthermore, in general, service desk function and insourcing seem to be separate research subjects in IT and IS literature. Insourcing is a strategic decision, which supposedly affects the functionality of the service desk function. Thus, it is logical from theoretical and practical points of view to study these two major research subjects concurrently and find out about the development of service desk function through insourcing.

In addition to service desk insourcing theories, this research studies, in a single-case study, the development of a large company's internal IT service desk and especially its insourcing project. The case company is a large insurance company in the Nordic and Baltic countries, which insourced its service desk in the summer of 2015 from an external service provider in the Nordic countries. The reasons behind the change did not include high costs or poor service. In this company, the idea behind the service desk insourcing project was basically to get a more holistically business-wise and viable service to support their core business, the employees and the work itself, while spending the same amount of money. The development project has been carried out quite recently, approximately a year before this thesis. This has enabled intriguing observations to be made of the whole service desk insourcing project and the people who participated in it. Gaining a comprehensive understanding about this complex real-life business event is the origin of this study.

1.2 Purpose of the study and research questions

The aim of this research is to increase understanding about the development of service desk function through insourcing by critically studying both theoretical and practical insights about the whole service desk insourcing process. The service desk insourcing process contains three main points: start, execution and results. Thus, the following objectives were identified as being crucial in achieving the stated aim:

- (1) to examine critically the components and functionality of the service desk function
- (2) to examine and critically analyze the execution of IS insourcing
- (3) to explore and critically evaluate the results of the service desk insourcing choice.

The first objective is important, because the service desk insourcing starts from the recognition that an in-house service desk could be more functional than an outsourced service desk. Therefore, the basic components of the service desk function, which affect the functionality of the service desk, needs to be understood before the service desk function can be developed through insourcing. The second objective is significant, as it addresses how the insourcing should be carried out in order for the service desk insourcing to succeed. The third objective is important because, after the implementation of the service desk insourcing, the results and success of the choice should be reviewed. Based on the research aim and objectives, the following research questions were formulated:

- What are the general requirements for the development of the service desk function through insourcing?
- How have the objectives of the service desk insourcing project been realized in the case company?
  - What is the present state of the service desk?
  - What are possible targets for further service desk development?

The first research question identifies the general requirements that enable the development of the service desk function through insourcing. The literature review provides best practices and recent studies to address this question, and the empirical findings improve the understanding of the requirements. These findings can offer tips to business managers, who evaluate whether to insource or outsource the service desk and what service desk insourcing actually requires.

The second research question and its sub-questions focus on the empirical part of the study. The empirical section evaluates the results of the development project at the case

company, gives objective information about the present state of the service desk, and provides possible new development ideas for the case company. The practical results of this thesis may prove valuable to the business in general and especially to the case company. The findings may reveal something new that has not previously been taken into consideration, or alternatively, the findings may confirm the current understanding of the state of the service desk and related insourcing project.

1.3   Outline of the study

This master's thesis contains five chapters. Eriksson & Kovalainen (2008, 31) suggest that a realistic picture of the research process proceeds back and forth, including revising and changing the report as new things are learned. The circular research process relates to the hermeneutic circle, which refers to the interpretation of research objects (Eriksson & Kovalainen 2008, 32-33). The research process of this study can be described as a circular process, although the chapters proceed in a straightforward manner.

Chapter 1 is the introduction. The starting points for the research are described and the key concepts are shortly defined. The research purpose, the research questions and outline of the study are also presented.

Chapter 2 is the literature review. This chapter contains relevant literature about the essentials of service desk insourcing, including three parts: service desk function, execution of IS insourcing and overview of service desk insourcing process. The section dealing with service desk function covers the basics of the insourcing target: the components, management and development of the service desk. The section on the execution of IS insourcing covers the insourcing decision and the implementation of the decision. Last, a tailored framework is presented, combining the relevant topics. The created evaluation framework encompasses a comprehensive approach to the service desk insourcing process and helped in the evaluation of the service desk insourcing project at the case company.

In chapter 3, the research design is described. This chapter includes explanations and argumentations for the choice of research strategy, material collection, and analysis methods.

In chapter 4, the empirical results are presented. The focus is on the correspondence between theory and practice. In other words, the empirical data is compared with the theoretical framework. The case background is analyzed in detail including basic information of the service desk, reasoning behind the insourcing decision and the implementation plan. After that, the findings concerning the results of the present state of the service desk and current opinions of the accomplished insourcing project are presented.

Finally, the conclusions are presented. Chapter 5 summarizes the key findings of this study. Based on the findings, the final results are provided, and general and case-specific suggestions are made to help continue the development of the service desk function. In addition, evaluation and limitations of the study, and ideas for further research are covered.

2   ESSENTIALS OF SERVICE DESK INSOURCING

2.1   Service desk function

2.1.1   Components

This chapter gives an overview of the service desk function and related components, which affect the functionality of the service desk. The service desk function and its components vary between companies, but the basic elements of the operating service desk are more or less alike. Figure 1 illustrates the main components of the up-to-date service operation and IT support functions.
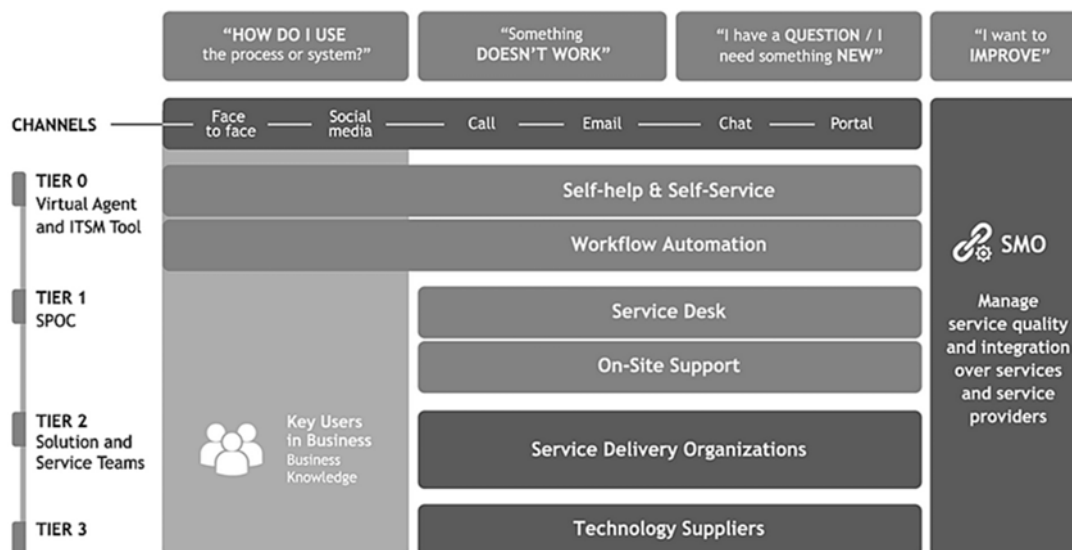
Figure 1 Service Operation and Support functions (IT standard for business 2016, 118)

Figure 1 illustrates that IT support is usually divided into different tiers or, in other words, levels, which take care of various tasks. The higher the support level, the more specialist skills, time or other resources are required (ITIL Glossary 2011, 53). Tier 0 consists of self-help, self-service and workflow automation, enabling service independent of time and place. Tier 1 includes the service desk and possible on-site support. Tier 1 takes care of common service requests, for example, software installations. The questions that cannot be solved at tier 1 require advanced knowledge and experts. Those requests

are assigned to tier 2 or to tier 3. These tiers include specialists on specific service areas such as applications. (IT standard for business 2016, 118-119; Jäntti et al. 2012, 207)

The service desk work starts from the recognition of IT-related problems. The typical service desk handles incidents, service requests, and communication with users. An incident is when there is an unplanned interruption or reduction in the quality of an IT service and users make service requests for something to be provided. (ITIL Glossary 2011, 59, 106, 114) The main tasks of the service desk are i) advising or informing users about relevant processes or systems, ii) taking care of unexpected incidents, when something does not work normally, such as hardware or software failures, and iii) answering users' questions and requests, for example, installing a workstation or new software for users (IT standard for business 2016, 118; Jäntti, Shrestha & Aileen 2012, 203; ITIL Glossary 2011, 114). Furthermore, Botha & Leonard (2012, 3134) point out that through user training it is possible to avoid some IT problems and prevent their occurrence. This proactive training approach might help to lower service costs. Thus, IT problems result from both technical problems and users' inadequate IT knowledge and skills.

One important component in the service desk function is the relationship between users and service desk employees. The service desk is at the heart of user interface, and high user satisfaction refers to the functionality of the service desk (Jäntti et al. 2012, 203). Moreover, paying attention to effective communication with users and informing them about the progress of their service requests is essential and usually results in better service experiences (Jäntti et al. 2012, 203).

Users can contact service desk employees via a variety of channels. Traditional contact methods are face-to-face meetings, phone calls, and emails. Today, more modern channels can also be utilized, such as social media, chat and portals (IT standard for business 2016, 118). According to Roos (2012) and Torkkeli (2016), the roles of social media and peer-to-peer support are especially increasing. They suggest that companies should utilize social media in the service desk function because it can result in faster resolution times and improved user satisfaction. Furthermore, Jäntti et al. (2012, 204) point out that users' experiences should be consistent across all channels.

Another important component is naturally solving IT problems and one way of doing this is through self-service. The main goal of the self-service model is that users can solve their IT problems by themselves. This could lead to lower support costs, a decreased amount of support requests, and faster solutions. Self-service technology can include, among other things, instant messaging, interactive voice control systems, question/answer forums and customized web portals and forums, where users can ask each other about solutions. Self-service tools have had a bad reputation because of poorly implemented solutions, but nowadays modern self-service tools can provide users easy-to-use and tailored services. (Jäntti 2013, 179-180, 183) According to Torkkeli (2016), young employees in particular prefer finding solutions by themselves instead of, for example, queuing

on the telephone and waiting for a solution. Automation and self-service can lead to operational costs and increased user satisfaction (Torkkeli 2016; IT standard for business 2016, 118-119). Thus, if self-service is well-executed, it is efficient way to help users solve their IT problems and increase the functionality of the service desk.

Traditionally, service desk employees solve IT problems. The goal of service desk employees is to record, classify, diagnose and solve users' requests (Jäntti et al. 2012, 203). They need to find correct solutions quickly using a variety of resources. Knowledge management plays an important role, since accurate information needs to be delivered to the appropriate set of employees in time. (Jäntti & Kalliokoski 2010, 100) Furthermore, Torkkeli (2016) points out that besides IT know-how, service desk employees need knowledge about the demands of the business and the user experience. Nowadays, the social and networking skills as well as the knowledge of new technology are being emphasized more and more (Torkkeli 2016). Also Shih, Lie, Klein & Jiang (2014, 670-671, 677) state that IT professionals are expected to have both technical skills and customer service expertise. Moreover, emotion regulation strategies are essential in service work and an inappropriate organizational support could easily lead to negative effects on psychological well-being, increase stress levels, and decrease job satisfaction. For example, training programs and sharing experiences with colleagues and managers may help IT professionals handle user aggression and unpleasant situations properly. In brief, the job satisfaction of service desk employees, their knowledge of IT and their level of social skills enhance their being able to solve IT-problems and, in turn, benefit the functionality of the service desk.

Another important component of the service desk function is software tools, which impacts how well the service desk employees can support users. The service desk handles incidents and service requests using special software tools to log and manage events (OGC 2007, 111). Nearly every service desk center uses some software tools to provide information about users, to assign and co-ordinate the information that is obtained from users, and to do statistical analyses on, for example, resolution times and assignments of second or third level support. These special software tools should sufficiently support service desk employees and make their work as fluent as possible. (Botha & Leonard 2012, 3131, 3133)

In summary, the service desk function and related components include a tier-based structure, users and their versatile IT-related issues that need to be solved, relationships between users and service desk employees, various modern contact channels, support for users' self-service practices, skilled and motivated service desk employees who solve IT problems, special software tools that help to solve and manage IT-related issues, and managers, who want to measure how the service desk function works and how it could be improved. These components of IT support functions are described in Figure 1, and their interoperability typically forms the functional service desk.

2.1.2   Management and development

IT service management (ITSM) refers to the implementation and management of quality IT services that primarily meets the needs of a business (ITIL Glossary 2011,67). Jäntti et al. (2012, 203) highlight that the service desk function is under continuous improvement. The ITIL glossary (2011, 33) asserts that continual service improvement (CSI) includes identification and implementation of improvements to IT services, which ensure alignment with changing business needs. Furthermore, performance is continually measured and improvements are made to increase efficiency, effectiveness and cost effectiveness. According to OGC (2007, 129) CSI processes include the seven-step improvement process. This section follows the seven-step improvement process, which is illustrated in Figure 2.
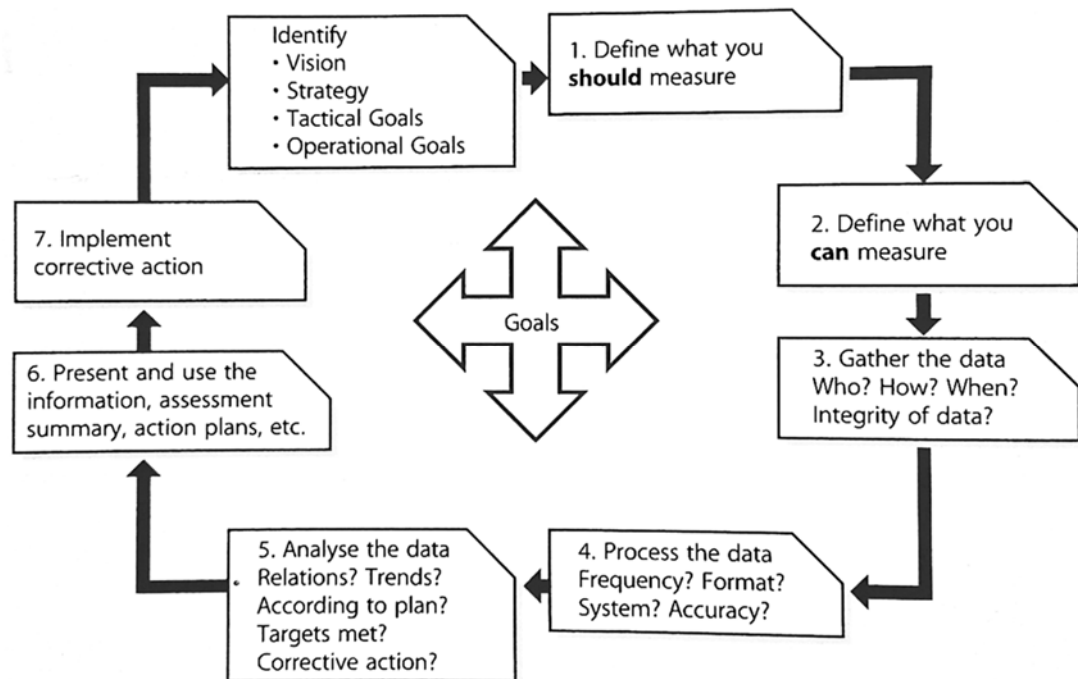
Figure 2 Seven-step Improvement Process (OGC 2007, 130)

The first step of the improvement process is defining what you should measure. This often starts with business requirements, based on a company's vision, strategy and goals. (OGC 2007, 129-130) According to Siti-Nabiha et al. (2012, 105), managers are responsible for the determination of key performance indicators (KPIs), which monitor and measure the performance of the service desk. Managers regularly check for any indications of unsatisfactory performance or meeting of development targets. KPIs are the most

important metrics and critical success factors that help to manage an IT service or other activity (Siti-Nabiha et al. 2012, 105; ITIL Glossary, 2011, 38). The measurement of user satisfaction is emphasized in many service desk journals. For example, Botha & Leonard (2012, 3134) stress that the opinion of users is important and it should be utilized in the development of the service desk function. Furthermore, Roos (2015) highlights that the service desk is usually measured on an activity basis, such as availability rate and response time, but most of the traditional service desk metrics do not have linkages to the delivered value.

The second step of the improvement process is defining what you can measure. Companies may find limitations on what is actually measurable, and should analyze the gap between what should be measured and what can be measured with current tools. This gap should then be reported, and possible new tools should be looked for. (OGC 2007, 130-131) Botha & Leonard (2012, 3134) state that measurement can be done through surveys, internal measuring tools and user contact data. Moreover, performance measurement can be financial or non-financial. Over the past decade, organizations have realized the importance of non-financial measures, although they can be difficult to measure. Several performance indicators of the service desk are available and they can be, for instance, number of tickets, average answering rate, average call abandon rate, average handling time, cost per incident, first call resolution rate and user satisfaction. (Siti-Nabiha et al. 2012, 105-107) In the service desk function, it is easy to measure the duration of the break and call, whereas the measurement of lost working hours caused by IT or facilitation of work with the help of IT is not quite as simple (Roos 2015).

The third step of the improvement process is gathering the data. This step requires data collection and monitoring, such as detecting exceptions and resolutions in service or IT performance. Weak areas can be identified by monitoring when remedial actions can be taken. (OGC 2007, 131-132) Siti-Nabiha et al. (2012, 104) state that today the availability of technological systems makes gathering the data and performance measurement relatively easy.

The fourth step of the improvement process is processing the data. The collected data is processed into the required format. The data can be collected automatically or manually. Also, the report frequency and format need to be decided upon. It is important to use the data to develop insight into the performance of the service or process. (OGC 2007, 133)

The fifth step of the improvement process is analyzing the data. Data analysis means transforming the information into knowledge and meaning. For example, if a service desk's call volumes are decreasing, a manager must determine through analysis if that is a good or bad trend and why. This requires more skill and experience than steps three and four. Analysis confirms that objectives are supported and value is added. (OGC 2007, 133-135) Furthermore, Siti-Nabiha et al. (2012, 104) point out that focusing on meeting

certain performance indicators might be misleading, a point that must be kept in mind. For example, a low handling time does not necessarily mean that a service desk is efficient; it is possible that a service desk employee just ended a call without solving a user's issue completely. Proper data analysis enables strategic, tactical and operational decisions about whether there is need for improvement (OGC 2007, 135).

The sixth step of the improvement process is presenting and using the information. The knowledge is presented in an understandable manner to the target audience and internalized by the recipients, for example through utilizing reports, evaluations and opportunities. Both weak and strong areas should be reported. Especially the business benefits of a well-run IT support should be communicated. This step allows those receiving the information to make strategic, tactical and operational decisions. (OGC 2007, 135-136)

The seventh step of the improvement process is implementing corrective action. The gained knowledge should be used to optimize, improve and correct services. Managers must identify issues and present solutions. (OGC 2007, 136) Siti-Nabiha et al. (2012, 104) point out that, by identifying performance issues of the service desk and reasons for them, it is possible to develop the service desk function and enhance users' experiences through corrective action. Moreover, several opportunities for improvement may be identified, but organizations must prioritize them based on the company's needs (OGC 2007, 136).

As can be seen in Figure 2, the improvement process is cyclic and continuous. IT services and the service desk must conform to the changing requirements and needs of business (IT Standard for Business 2016, 105). Roos (2012) and Torkkeli (2016) suggest that the complexity of IT services and users' expectations are currently increasing and that the service desk function should conform to these changing requirements. Furthermore, Torkkeli (2016) argues that planning is too often done in a reactive manner, and reactive companies will probably lag behind, not fully utilizing the possibilities offered by IT. Experts and managers responsible for the service desk function should have enough long-term view on developing the service desk so that it works in a strategic, innovative and a forward taking way, aiming to genuinely develop business (Torkkeli 2016).

All in all, the improvement process of the service desk function is challenging, and it should be continuous. The development targets change over time, and they can be found in any component of service desk function. Managers must pay special attention to the right performance measurements of the service desk, and the changing needs of the business and users, in order for the service desk function to be developed in the desired direction, so that it truly supports business and work effectively.

2.2 Execution of IS insourcing

2.2.1 Suitable situations for making a decision to insource

Mohr, Sengupta & Slater (2011, 43-44) have compiled a framework, which is illustrated in Figure 3, that helps to answer whether or not a specific sourcing arrangement is appropriate and likely to lead to the desired benefits. The framework was originally designed to help managers address two questions: should a function be outsourced and, if so, which type of outsourcing makes sense (Mohr et al. 2011, 43-44, 48). Oppositely, the framework can also be utilized to determine if a function should be in-house. In Figure 3, circled situations are suitable for insourcing.

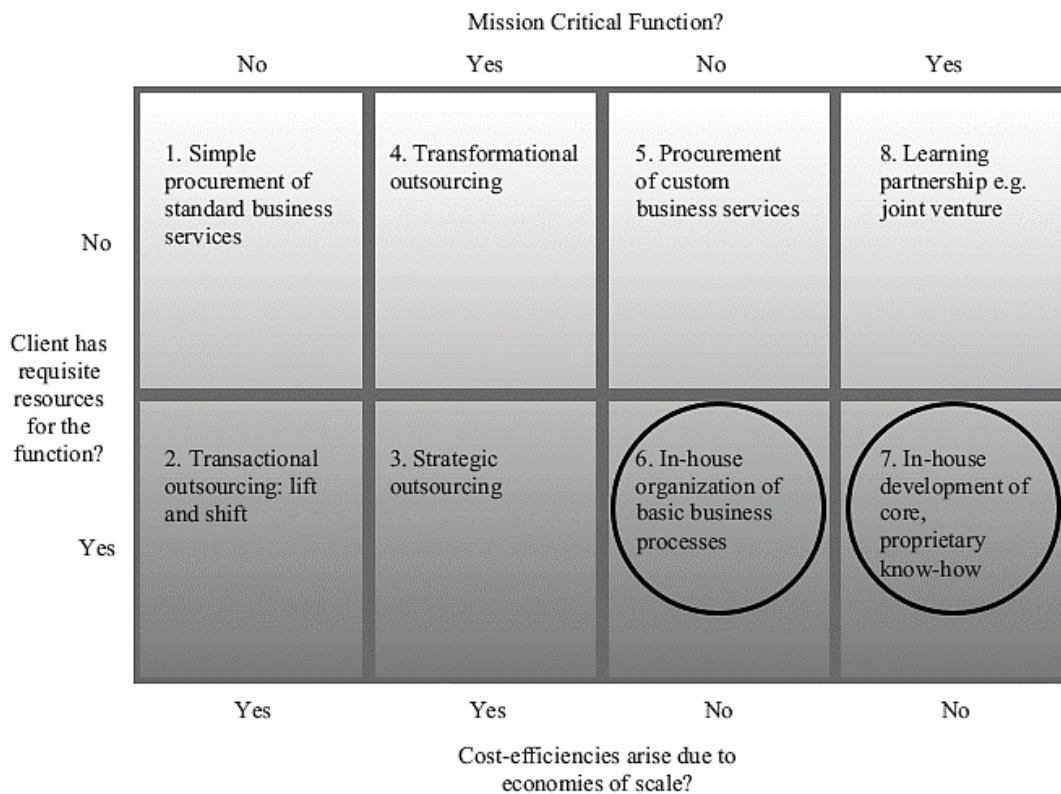Figure 3 Mapping the outsourcing landscape (Mohr et al. 2011, 44)

When managers contemplate outsourcing or insourcing a specific business function, they commonly assess three critical factors: 1. Is the function critical to the company's mission? 2. Does the company have the requisite resources to organize the function in-house? 3. Does the service provider have economies of scale in the function? (Mohr et al.

2011, 43-44). Freytag et al. (2012, 101) highlight that when motivations for the sourcing decision are explained, sourcing researchers prefer the strategic approach, the resource-based approach and the transaction cost approach, which are similar perspectives tho the framework by Mohr et al. (2011, 44).

Mohr et al. (2011, 43-44) state that mission-critical business functions provide the foundation for sustainable competitive advantage. Strategic management theories focus on strategic advantage and explain activities of companies (Dibbern et al. 2004, 18-19). Moreover, Dibbern et al. (2004, 7) and Veltri et al. (2008, 59) point out that IS functions are commonly outsourced, because companies want to focus on core competencies, and executives often perceive IS function as a non-core function that supports business operations. On the other hand, Qu et al. (2010, 99, 105) argue that IT should be considered as a core competency, instead of a tool that helps firms focus on their core activities, because then firms can create value and gain strategic advantage from IT investments. IS resources often enable other key resources, making them valuable and mission-critical resources that improve companies' competitive advantage (Veltri et al. 2008, 59-60).

Mohr et al. (2011, 45) state that the company may lack specific resources needed to perform a business function, for instance, financial resources or the necessary know-how. Resource theories focus on the company's internal resources and capabilities, as well as resources in the external environment. An IS vendor can possess better technical expertise and experience than an internal IS department. Dibbern et al. (2004, 7, 19) and Mohr et al. (2011, 45) point out that, if vulnerabilities that prevent effective competing in the market exist, the company may be motivated to outsource that function to the service provider, since that could compensate for weaknesses.

Mohr et al. (2011, 45) point out that the source of cost savings that outsourcing can deliver must be evaluated. Economic considerations traditionally have a significant role in the make-or-buy decision. Managers need to compare estimated internal IS costs with the costs of the current outsourcing arrangement. (Veltri et al. 2008, 53, 58) Many executives view IS as an essential cost that needs to be minimized and believe that IT vendors provide IS services more efficiently than internal IS departments (Dibbern et al. 2004, 7). In addition, high switching costs may prevent backsourcing (Veltri et al. 2008, 71; Whitten & Leidner 2006, 609). On the other hand, Veltri et al. (2008, 53, 58) argue that the cost savings from outsourcing often tend to be overestimated. They state that when evaluating and assessing the costs of outsourcing, managers need to take into account more than the direct financial expenses, because then the costs can prove to be excessive. Moreover, some companies can internally implement better strategies than the service provider and it is also possible to achieve significant cost savings through backsourcing. Generally, the function should be outsourced if the company is not capable of matching the costs of service providers (Freytag et al. 2012, 101; Mohr et al. 2011, 44).

Based on the framework (mission criticality, resources and cost-efficiency) situations 6 (in-house organization of basic business processes) and 7 (in-house development of core, proprietary know-how) in Figure 3 are suitable for and would motivate for a decision to insource. In situation 6, the function is not mission-critical, the company has the requisite resources, and using service providers does not deliver cost efficiencies. At first glance, it might seem that the non-mission-critical function could be outsourced so that the company could focus on core competencies, but outsourcing this kind of non-critical function would cause the extra costs of monitoring and supervising the service provider. Therefore, an in-house arrangement makes more sense than outsourcing in this situation. In situation 7, the only difference, compared with situation 6, is that the function is mission-critical, so the possible risks of outsourcing outweigh its benefits. In-house development allows leveraging skills and minimizing the risk of losing know-how. (Mohr et al. 2011, 47) Thus, suitable situations for the insourcing decision require adequate resources to perform the function in-house and at least matching the costs of service providers. Furthermore, the framework (Figure 3) shows that outsourcing is the preferred alternative in most cases, and in some specific cases performing the function in-house is the better alternative. Moreover, it is essential to take into account the combination of the different factors so that the insourcing decision would be successful.

2.2.2   *Reasons for insourcing decision*

The presented framework (mission criticality, resources and cost efficiencies) illustrates suitable situations and three major motivations for the IS sourcing decision, but it does not cover all aspects; there several other factors that affect the sourcing decision. Veltri et al. (2008, 52-57) have identified several reasons particularly for backsourcing by studying 33 backsourcing cases. They highlight that many studies of backsourcing focus on problems with the existing outsourcing arrangement, although companies decide to backsource even when the outsourcing arrangement is satisfactory. Veltri et al. (2008, 53) have divided the reasons for backsourcing into three main categories: outsourcing contract problems, opportunities arising from internal organizational changes, and opportunities arising from external environmental changes. The contents of these three categories are illustrated in Table 1.

Table 1 Summary of Reasons for Backsourcing (Veltri et al. 2008, 53)

Problem: Contract Problems	Opportunity: Internal Organizational Changes	Opportunity: External Environmental Changes
Higher than Expected Costs	Changes in Executive Management	External Business Changes
Poor Service Quality	Recognition of a New Role for IS	Pressures from Outside
Loss of Control over Outsourced Services		
Know-How Mismatch		

Higher than expected costs are included in the contract problems category (Veltri et al. 2008, 53). Transaction cost economies and agency theory are the basis of the higher than expected costs category (Veltri et al. 2008, 74). The transaction cost theory focuses on economic aspects (Whitten & Leidner 2006, 607). This reason is similar to the cost-efficiency theory by Mohr et al. (2011, 44). Excessive costs refer to either high costs of outsourcing or cost savings upon backsourcing (Veltri et al. 2008, 74).

Poor service quality is included in the category of contract problems (Veltri et al. 2008, 53). Social exchange theory is the basis of the poor service quality category (Veltri et al. 2008, 74). Whitten & Leidner (2006, 607) state that the social exchange theory includes relationships that influence the satisfaction of outsourcing arrangements. The parties continue in the relationship when both recognize the value provided by each other and the value created is more attractive than alternatives. Service quality is evaluated by comparing the received service level against the expected service level (Whitten & Leidner 2006, 607; Veltri et al. 2008, 58). Veltri et al. (2008, 59) point out that poor responsiveness, lack of professionalism and service delays can be reasons for inadequate service quality. Whitten & Leidner (2006, 607-608) state that the quality may suffer, if the employees are transferred to other projects or the service provider fails to make continuous improvements expected by the client. They note that social factors are important in the sourcing decision. On the other hand, Veltri et al. (2008, 59) state that service quality can be superseded by other factors and the contract can be terminated even if the client is happy with the delivered service. Poor service quality basically refers to problems with service or unsatisfactory performance (Veltri et al. 2008, 74).

Loss of control over outsourced services is also included in the category of contract problems (Veltri et al. 2008, 53). The strategic contingency theory is the basis of the loss of control over the outsourced services category (Veltri et al. 2008, 74). This reason is similar to the mission-criticality point by Mohr et al. (2011, 44). Loss of control refers to

the mentioning of control, control over the provider or product, or the inability to be in charge of business processes (Veltri et al. 2008, 74).

Know-how mismatch is included in the category of contract problems (Veltri et al. 2008, 53). The dynamic capabilities theory is the basis of the know-how mismatch category. Know-how mismatch describes a situation when the service provider cannot respond to the client's changing needs, which hinders the client's business success (Veltri et al. 2008, 58-60, 74). Also, Qu et al. (2010, 98-99) note that an external vendor's IT staff may not fully understand a client's specific business processes, and likewise, business staff at the client firm might not completely recognize the external vendor's capacity and capabilities. They suggest that coordination and sharing knowledge is usually easier and more intensive between internal IT and business units than between an outside IT vendor and a business client, because of routine meetings and co-location. These likely encourage frequent and progressive formal and informal communication between IT and business units. Furthermore, coordination and shared knowledge within a firm enhance knowledge creation and organizational innovations. The integration of IT and business knowledge is needed for the development of IT-enabled business processes, which can improve a company's performance. (Qu et al. 2010, 98-99, 105) Know-how mismatch fundamentally refers to cases when the provider does not have the needed expertise or has failed to maintain expertise in the outsourced area (Veltri et al. 2008, 74).

Changes in executive management falls under the category of internal organizational changes (Veltri et al. 2008, 53). Power and politics theories are the basis of the changes in the executive management category (Veltri et al 2008, 74). According to Dibbern et al. (2004, 20), power and politics theories assume that power, interest, and politics influence decision making. They state that people have different degrees of power within an organization. Veltri et al. (2008, 61-62) point out that new executives have their own experiences and opinions. They view the existing situation differently and they can trigger a change in sourcing arrangements. Additionally, at times companies purposely bring a new executive to execute a planned change. A new executive refers to a new person on a board at the executive level (Veltri et al. 2008, 74).

The recognition of a new role for IS is included in the category of internal organizational changes (Veltri et al. 2008, 53). A resource-based view and dynamic capabilities are the basis of the recognition of a new role for the IS category. The recognition of a new role for IS is driven by the key decision makers of a company, and it results from a changing environment. A client company may have to backsource IS activities to match s changing environment. IS resources can be seen in a new light, such as a strategic component in business success, and this can lead to the restructuring of internal and external competencies. (Veltri et al 2008, 61-62, 74) According to Qu et al. (2010, 106), many companies have insourced their IT because they have recognized its strategic importance and have placed value creation opportunities. Whitten & Leidner (2006, 606) suggest that

one of the major reasons for backsourcing is that executives in IT-intensive industries discover IT as a competitive asset. An IS role change refers to a change of the part that IS plays in a company (Veltri et al. 2008, 74).

External business changes and pressures from outside are included in the category of external environmental changes (Veltri et al. 2008, 53). Institutional theory is the basis of external business changes and pressures from outside categories. Structural changes create new IS requirements and capabilities. For example, an acquired company has its own IS department, which can be leveraged for the entire company. (Veltri et al. 2008, 53, 62, 74) External business changes refer to mergers, acquisitions or divestitures (Veltri et al. 2008, 74).

Veltri et al. (2008, 62-64) highlight that there is seldom one reason that terminates the outsourcing arrangement. Qu et al. (2010, 97) point out that the comparison of IT outsourcing with IT insourcing should not be based merely on costs, because the value creation aspect of IT performance is also essential. The diversity of reasons for insourcing indicates that typically the insourcing decision is complex, dependent on the business context and management views. Moreover, the recognition of the possible reasons and motivations can help companies fully consider the functionality of different sourcing alternatives (Veltri et al. 2008, 64). Thus several factors must be considered in order for the insourcing decision to be successful.

2.2.3   *Implementation of an insourcing decision*

According to Bhagwatwar, Hackney & Desouza (2011, 165) backsourcing decisions are challenging to make due to the transfer and re-integration of knowledge, resources and capabilities. Also, Whitten & Leidner (2006, 606) state that backsourcing causes a return of employees, assets, and knowledge, which creates costs and risks. Veltri et al. (2008, 68-69) emphasize that successful backsourcing can be difficult, and they asserts that a detailed transition plan and testing of transition activities can smooth the way through a potentially difficult transition. They point out that it is critical to ensure that all aspects of the backsourced function are working well together.

Figure 4 illustrates essential features that appear to describe backsourcing (Bhagwatwar et al. 2011, 168, 170). Considerations are based on findings from both theory and the JP Morgan Chase (2004) and Sainsbury (2005) backsourcing events. Bhagwatwar et al. (2011, 170-172) suggest that essential considerations, or stages, for successful backsourcing are:

- (1) informing the outsourcing vendor about the backsourcing decision
- (2) financial viability analysis through audits

- (3) backsourcing project team and plan
- (4) workforce requirements and responsibilities during backsourcing
- (5) employee re-hiring or new employee hiring strategies
- (6) security policies
- (7) continuity of business operations
- (8) stakeholder management
- (9) knowledge management
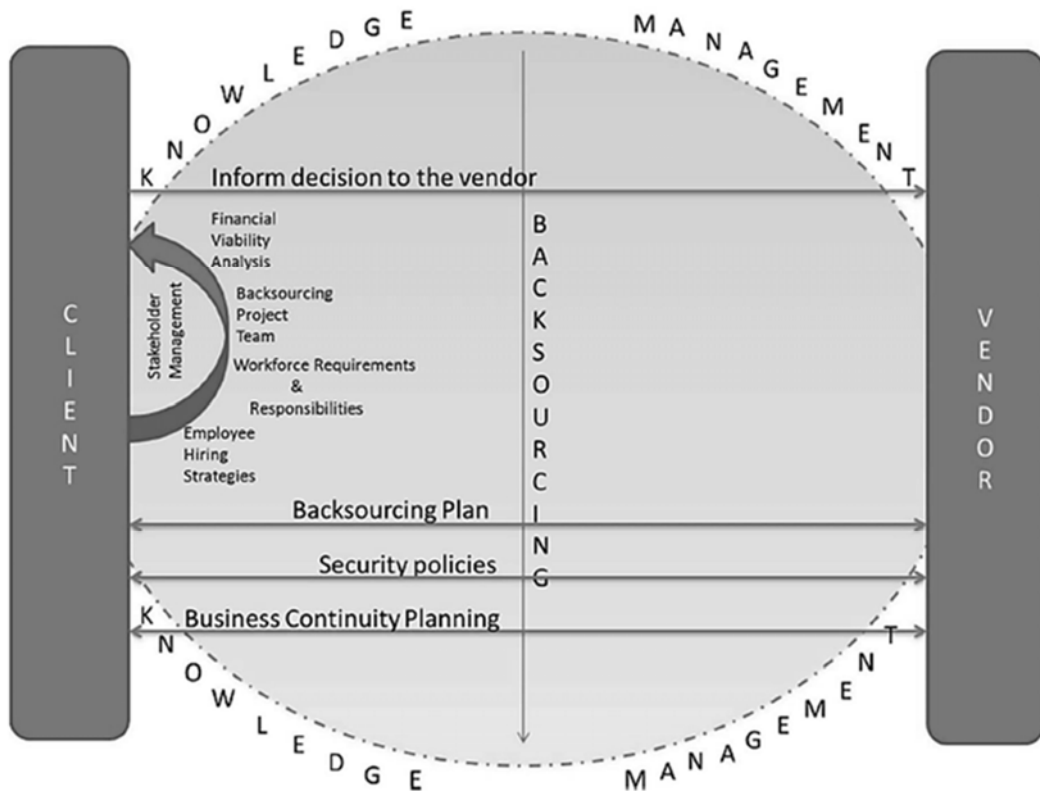
Figure 4 Outline backsourcing factors (Bhagwatwar et al. 2011, 168)

The first point is informing the outsourcing vendor about the backsourcing decision. This action is needed to keep up the cooperative environment between the parties and to ensure that the service provider starts the preparation for the knowledge transfer process. Successful knowledge transfer requires the mutual exchange of knowledge and frequent interaction with the service provider. (Bhagwatwar et al. 2011, 168, 170) Also, Veltri et al. (2008, 69) state that it is critical for the client to establish procedures for working with the service provider. According to Overby (2005, 68), notifying the service provider of backsourcing intentions is both a contractual obligation and a chance to foster a cooperative climate that will likely make backsourcing easier.

The second point is a financial viability analysis through audits. The company can analyze how time-consuming and economically viable the backsourcing project will be when it has a well-written documentation of various transferred aspects, such as employees. Then it is possible to determine the exact activities involved in the backsourcing and estimate the required amount of monetary and personnel investment. (Bhagwatwar et al. 2011, 170) Overby (2005, 68) agrees that future needs must be assessed and, in the best outsourcing scenarios, documentation has been effectively utilized. This documentation makes estimations more accurate, and therefore, expectations are probably met to a greater extent.

The third point consists of the backsourcing project team and plan. The backsourcing team has a critical role during backsourcing, and it typically compromises executives, managers and technical staff from both sides. They need to analyze the outsourcing documentation and identify key steps and responsibilities during the process. The co-operation and communication with the service provider lead to the early detection of risks and making sure that the process is completed quickly, because the service provider has the knowledge of the steps to be followed in the outsourcing process. The backsourcing plan must be constructed carefully by taking into account all the involved risks and impacts on the ongoing operations. (Bhagwatwar et al. 2011, 170)

The fourth point is workforce requirements and responsibilities during backsourcing (Bhagwatwar et al. 2011, 170). Overby (2005, 68) and Bhagwatwar et al. (2011, 170) point out that the company needs to ensure that the service provider supports the company for a specified period of time until the company has guaranteed that the backsourced operations are at a satisfactory level. Challenges are surely faced without the service provider's support (Bhagwatwar et al. 2011, 170). Furthermore, Bhagwatwar et al. (2011, 170) state that employees' roles, and responsibilities are essential and the company must make sure that the transferred employees are comfortable and not overwhelmed with the process nor feeling job insecurity. Veltri et al. (2008, 68-69) emphasize that human expertise has a pivotal role in re-establishment of outsourced IS services.

The fifth point is employee re-hiring or new employee hiring strategies. Establishing an early plan of employee re-hiring or new employee hiring is an important consideration regarding the backsourcing-related costs. Backsourcing can involve hiring employees from the service provider and totally new employees, such as experts to manage the in-house IT function. Managing employees during the backsourcing process can be a challenge, where knowledge sharing is needed to ensure their compliance and motivation during a period of job instability. Furthermore, a lack of knowledge transfer can lead to a situation where employees are unsure about their role in the restructured organization. Operations can be severely affected due to the chaos and the frustration of employees. (Bhagwatwar et al. 2011, 168, 171) Overby (2005, 68) points out that determination of

staff reassignment and responsibilities should be done quickly to minimize staff uncertainty, productivity- and morale issues.

The sixth point is security policies. Information security procedures are necessary when the entire IT systems are transferred back from a third party. Proper system security and password protection techniques are crucial to safeguard company data from disgruntled employees. (Bhagwatwar et al. 2011, 171) Also, Overby (2005, 68) states that security policies are needed to protect proprietary information, and asserts, for example, that new technical and password protections should be established, also warning of the risk of disgruntled employees accessing protected data or disrupting IT systems.

The seventh point is continuity of business operations. The entire backsourcing process should not affect the company's daily operations drastically. A backsourcing project includes rigorous work to ensure that operational services are not affected due to the migration. The whole project often lasts for months. Backsourcing should be planned so that there are always backup systems to handle operations. (Bhagwatwar et al. 2011, 168, 171) Business continuity should be part of the backsourcing plan including disaster recovery procedures for possible business disruptions during the transition (Overby 2005, 68). Furthermore, phased implementation or a pilot project could make the backsourcing process easier (Bhagwatwar et al. 2011, 171). Also, Veltri et al. (2008, 51) state that adequate testing of the equipment and software should be done before actual deployment.

The eighth point is stakeholder management. It is important to understand all the stakeholders whom the backsourcing decision will impact differently. Proper communication about backsourcing makes sure that the stakeholders do not feel disgruntled by the sudden change of strategy. Good stakeholder management also enables the implementation of the backsourcing decision with few disruptions (Bhagwatwar et al. 2011, 171-172) Overby (2005) emphasizes that the backsourcing plan, goals and objectives should be communicated to the enterprise and affected third parties, because this helps gain the support and cooperation of the stakeholders affected by the change.

The ninth point is knowledge management. Knowledge about the outsourcing process is essential and should include all major decisions and outcomes. Furthermore, attention should be paid to learned lessons and building workable communication between the client and the service provider. In the backsourcing process, knowledge management will pay off because it will bring expertise, and facilitate tracing the key steps and understanding the processes. (Bhagwatwar et al. 2011, 172)

In summary, the implementation of the insourcing decision requires a great deal of preparation and planning to make sure the transition and insourcing will succeed. The nine discussed considerations by Bhagwatwar et al. (2011, 170-172) seem to be essential in the successful implementation of a backsourcing decision. Moreover, research regard-

ing insourcing seems to be unbalanced; a number of articles can be found about the reasons for an insourcing decision, but only a few cover factors involved in the successful management of a challenging transition.

2.3 Overview of the service desk insourcing process

This research strives to provide a holistic approach to the results of the development project at the case company. Therefore, a tailored evaluation framework of the whole service desk insourcing process has been created, interconnecting the 'separate' service desk and insourcing subjects. The framework is based on a recent theory, presented in the previous chapters, and it illustrates the points to be observed at the various stages of the transition project. Furthermore, the evaluation framework is utilized especially in the analysis of the service desk insourcing project at the case company.

Starting point
- Analysis of the functionality of the outsourced service desk
  - Components (2.1.1)
  - Management & development (2.1.2)

Service desk insourcing decision
- Reasoning behind the decision
  - Suitable situation (2.2.1)
  - Reasons (2.2.2)

Implementation of the decision
- Implementation of the service desk insourcing decision
  - Considerations (2.2.3)

Evaluation of the results
- Realization of the objectives
  - The present functionality of the insourced service desk: overall, components & changes (insourced vs. outsourced SD)
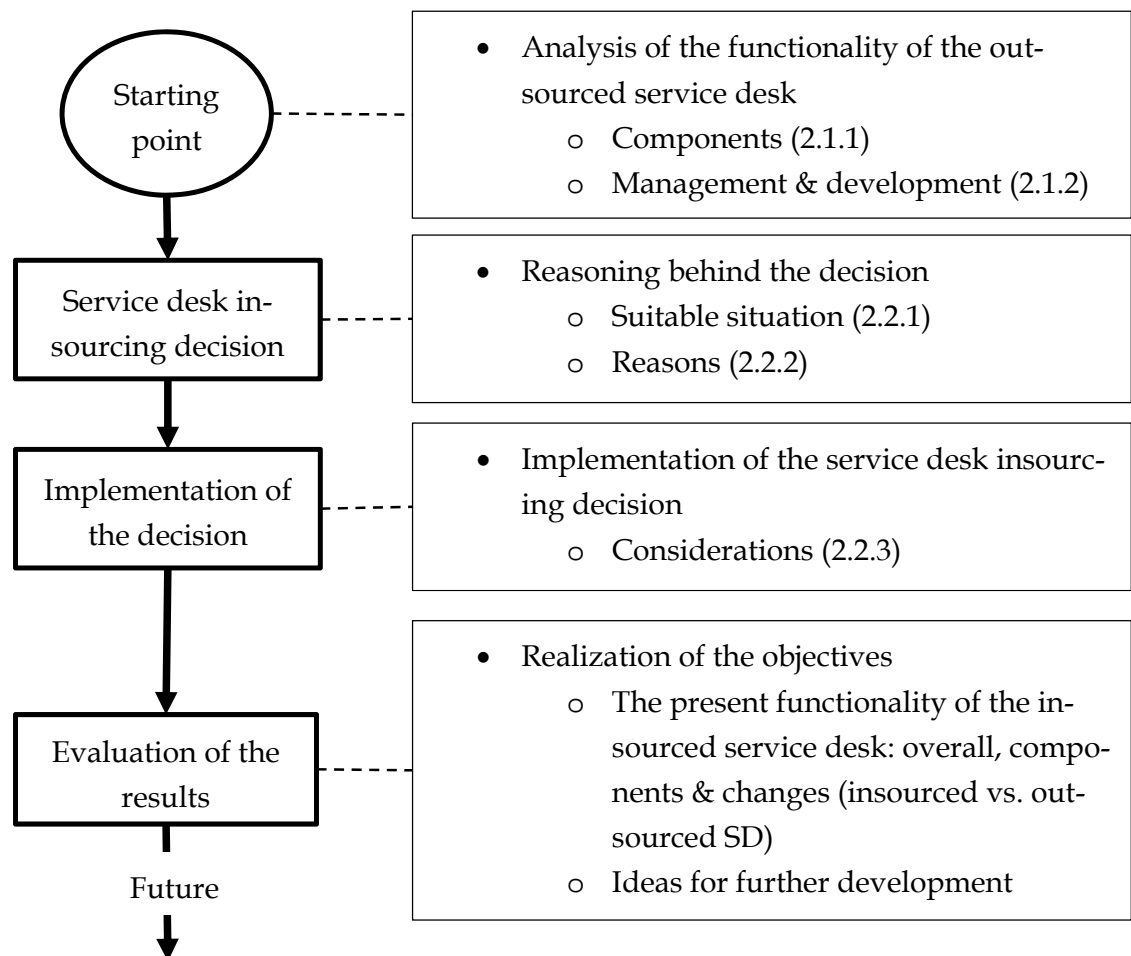 - Ideas for further development

Future

Figure 5 The evaluation framework

As Figure 5 illustrates, the service insourcing process starts from the analysis of the outsourced service desk function and its functionality (2.1). The functionality of the service desk comprises the functionality of its components. Management should evaluate the outsourced service desk arrangement periodically and recognize improvement possibilities, as the business' and users' needs can change over time, and the current arrangement may no more be the optimal solution. This starting point can be seen as the first general requirement for the development of the service desk through insourcing. The analysis of the starting point at the case company consists of the same components that were covered in section 2.1.

Next the service desk decision should be well-justified and consist of several factors (2.2.1 & 2.2.2). This assures that service desk insourcing truly has the potential to be a better arrangement than the previously outsourced arrangement. A thorough evaluation of the reasons for a decision to insource can be seen as the second general requirement. The service desk sourcing decision at the case company is evaluated with the help of the findings from sections 2.2.1 and 2.2.2.

After the final accepted insourcing decision, comes the implementation of the decision (2.2.3). Successful implementation considerations ensure that all aspects of the insourced function work well together. The successful implementation of the service desk insourcing decision can be seen as the third general requirement. The implementation of the decision at the case company is analyzed by utilizing the presented considerations in section 2.2.3.

The starting point, decision, and implementation impact the results of the service desk insourcing. These need to be well-handled in order for the development of the service desk function to be possible. In this study, first the service desk insourcing project is evaluated to determine whether or not it fulfills the general requirements. After that, the results of the service desk insourcing project at the case company are evaluated, taking into account the present functionality of the service desk, the success of changes, by comparing the insourced service desk with the outsourced service desk. Based on this evaluation, ideas for further service desk development are formed. Furthermore, the future point in Figure 5 illustrates that the development of the service desk function does not end with the results point as continual service improvement should continue after the project to ensure the alignment of the service desk with the changing business needs.

3 RESEARCH DESIGN

3.1 Research strategy and approach

A single-case study was selected as a research strategy since the aim of this research is to increase understanding about the development of service desk function through insourcing by studying previous theories and the case company's project. Case studies are applicable to research that investigates a contemporary phenomenon in its own historical, economic, technological, social and cultural context (Aaltio 2014; Eriksson & Kovalainen 2008, 115; Yin 2003, 1-2). Furthermore, there is a primary distinction between single- and multiple case designs (Aaltio 2014; Eriksson & Kovalainen 2008, 118; Yin, 2003, 39). Single-case studies aim at understanding as much as possible about a unique case whereas multiple case studies contain and compare several cases (Eriksson & Kovalainen 2008, 118).

The choice of the appropriate research approach depends on the research focus and questions. Research approaches are typically classified as qualitative or quantitative research. In brief, qualitative approaches refer to interpretation and understanding, whereas quantitative approaches refer to explanation, testing of hypotheses, and statistical analysis. (Eriksson & Kovalainen 2008, 5, 27) The focus of this research is on understanding the development of the service desk through insourcing, thus the research approach is mainly qualitative.

A case study does not restrict material collection and it is possible that quantitative materials are used in addition to qualitative materials (Yin 2003, 15; Eriksson & Kovalainen 2008, 127). In case studies various ways of collecting materials are often used, including, for instance documents, interviews, articles, company histories and surveys. (Aaltio 2014; Eriksson & Kovalainen 2008, 126) Kaplan & Ducon (1988, 575) state that using different kinds of data from various sources may result in a fuller picture of the studied topic than using one method. Therefore, this research uses both qualitative and quantitative data to gain comprehensive research results.

3.2 Data collection

All empirical data was collected from the case company, which has approximately 7000 service desk users and over 40 service desk employees in the Nordic countries, including Finland, Sweden, Norway and Denmark. This research was conducted from a Nordic per-

spective, because despite the different locations the service desk operates as a single function. The Nordic perspective influenced the data collection; the empirical data collection had to contain representatives from all four Nordic countries.

In the beginning stages, the empirical data was gathered from meetings, e-mail messages with two Finnish case company representatives, and the case company service desk feasibility study (internal document: Case 2014). The meetings and e-mail messages clarified the case company's service desk insourcing project as well as the objectives, plan and execution of this study. The service desk feasibility study clarified the starting point, decision and implementation of the service desk insourcing project. The meetings, messages with the representatives, and the internal document mainly described the past: what had been planned and done and what is expected of the service desk insourcing project.

Furthermore, an internet questionnaire was chosen to gather new empirical material and information about the realized results of the service desk insourcing project. The questionnaire targeted 45 service desk employees. Feedback from the users on the functionality of the service desk is gathered by the case company on a regular basis, but the service desk employees' perceptions had not been studied before. Moreover, the service desk employees were chosen as a target group, because they have the best hands-on experience with the newly implemented service desk -related solutions. This research strives to identify possible differences found within the service desk employees' opinions on insourcing and the functionality of the service desk based on their gender, age, role, workplace (country) and previous work experience. The questionnaire enabled best a comprehensive Nordic approach to the results, since everyone had a chance to express an opinion and limitations on the respondents were not necessary.

The questions in the questionnaire were formed by utilizing both the literature review and the case company service desk feasibility study. To ensure that the questions were correct and understood correctly, a meeting with the case company representatives was held, where the meanings of the questions and choice of words were checked. Based on this meeting, the final editing was made.

The tailored questionnaire contained 20 questions both multiple choice and open questions (Appendix: The service desk questionnaire). The difference between the types of questions is that answers to open questions are freely-formulated, whereas with the multiple-choice questions, the answer is chosen from excluding alternatives (Vehkalahti 2008, 24). The quantitative (multiple choice) questions gave the basic evaluation of the targets, and the qualitative (open questions) questions explained in more detail the service desk employees' evaluations and opinions.

The questionnaire was structured as follows: the respondents' background information (questions 1-6), the current state of the service desk (questions 7-12), the changes in the service desk (questions 13-17), development targets (questions 18-19) and willingness to participate in a short interview (question 20). A short interview was a backup plan if the

results of the questionnaire would have been insufficient or would have showed some interesting issues that need a more thorough investigation. Eventually, interviews were not necessary (five respondents volunteered), because the results of the questionnaire were considered adequate for the purpose of this research.

The questionnaire was conducted with Webropol software and it was executed on 16th May-20th May in 2016. A pilot test with one respondent was executed on 13th May to ensure the technical functionality of the questionnaire, before sending it to all. One reminder message was sent on 20th May, and additionally, managers reminded the service desk employees to answer the questionnaire. Originally, the service desk employees had a week to answer the questions. It was decided to extend the deadline by two days, because it was thought that there would likely then be more respondents, and this proved to be true (five respondents answered on the extra days).

3.3 Data analysis

The data analysis of this study is twofold, including a text analysis of the service desk feasibility study (internal document) and an analysis of the results of the questionnaire. The text analysis focuses on the background information of the project, whereas the questionnaire analysis focuses on the results of the project. The evaluation framework (Figure 5), which is based on prior theories, was utilized in both analyses.

All the background information of the service desk insourcing project is based on the text analysis of the case company service desk feasibility study (Case 2014). The background information is described in order for the results to be properly compared with the plan and objectives. Furthermore, the coherence between the background information of the project and the findings from the literature review was analyzed. The text was analyzed and organized by utilizing the evaluation framework, which includes crucial themes from previous research.

The results of the project are based on the analysis of the questionnaire. Both quantitative and qualitative analyses were conducted on the results of the questionnaire. Webropol and Microsoft Excel were used and considered sufficient for the statistical analysis of this research. The distribution of the quantitative evaluations is illustrated in figures. Similar themes were searched for among the open answers, and from each open question the three most common themes are highlighted. The respondents' answers are illustrated by their direct quotations; at least one direct quotation from each respondent has been included. The answers are presented and discussed as per the questionnaire.

4 EVALUATION OF THE SERVICE DESK INSOURCING PROJECT

4.1 General requirements for the project

4.1.1 Components and development of the service desk function

This chapter describes and analyzes the starting point of the service desk insourcing project including the case company service desk function, recognized improvement possibilities and planned changes. The service desk function was analyzed according to the findings from literature review (2.1), containing the basics of the service desk function: structure, tasks, relationship between the users and the service desk employees, contact channels, the service desk employees, tools, KPIs and other relevant project-related themes.

To begin with, the previous service desk setup delivered by the service provider defined the scope of the insourced service desk, but the aim of the project was to make a better design for the current support so that it would be more effective and efficient. There was little value in insourcing the previous support as it was, therefore, the insourced service desk solution was designed towards business needs, and required changes were planned and made.

Figure 6 illustrates the structure of the insourced service desk setup at the case company. The service desk internal organization is divided into three departments (as Figure 6 illustrates): 1) 1st level support 2) 2nd level support and 3) On-site support. The 1st level support troubleshoots- and solves incidents, errors and other problems and escalates those problems that they cannot solve to the next level: 2nd level, on-site support, 3rd level to internal application teams or to a third party supplier. On-site support physically provides hardware- and software support, and takes over incidents that cannot be solved remotely. ITIL continued to be the base framework for operational and service processes.
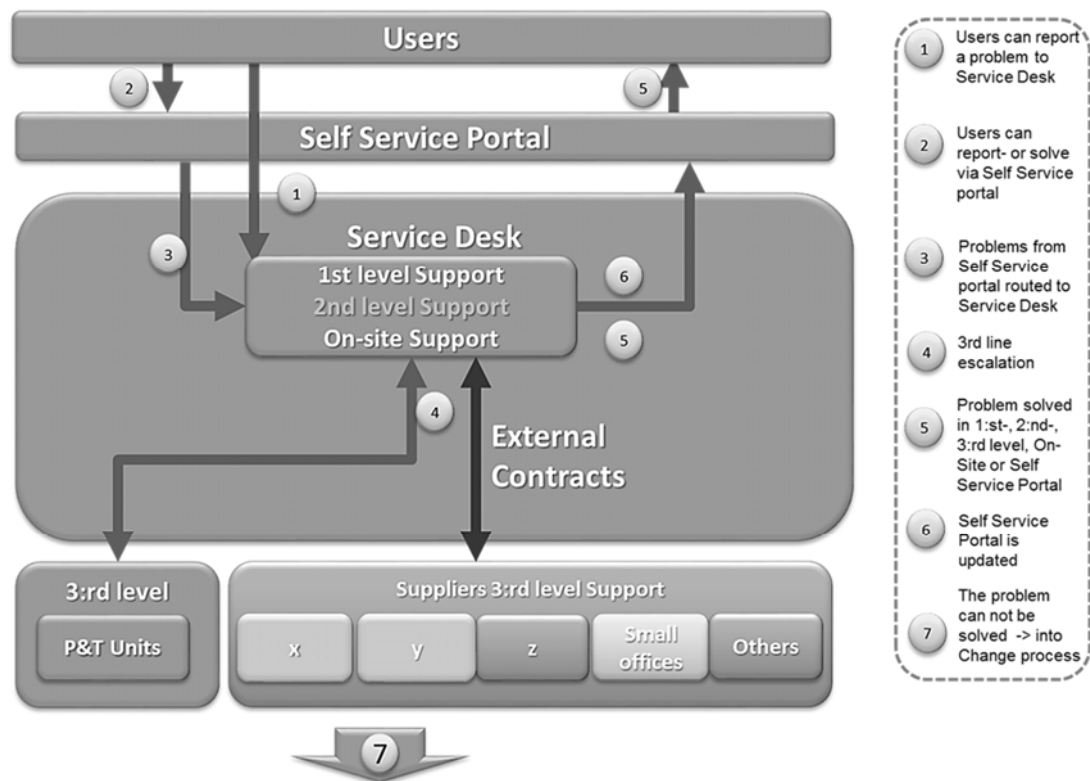
Figure 6 Service desk setup (Case 2014, 30)

The employees use IT as a tool for creating value, and any problem can stop the flow of value creation. The main goal of the service desk is to keep the value flow running and help the employees to do their work better with the help of modern technology. The goal of the support process is to solve all users' IT-related problems by: advising the user, fixing a known error (often by restarting an IT component that is known to fail occasionally) or by providing an alternative solution. In this case, the service desk provided by the outsider service provider handled simple tasks pretty well. However, in dealing with complicated questions and service demands, the chain of vendors and resolution times could be long, leading to inefficiency in the case company business. Thus, in the insourced service desk easy and routine tasks should be minimized, so that it could concentrate efforts on the more difficult problems, such as application support.

A new feature was added to the on-site support: physical support desks, inside the case company offices, where users can book a time or visit in emergency situations. This way, users and support employees would meet each other, strengthening the business environment. Also, more urgent and complicated issues could perhaps then be handled more quickly than before. Previously, on-site support came to the offices on request. The new support desks were located in the seven largest offices in the Nordic countries. Suitable spaces in the current offices had to be created, and the desks were located in central places

that were visible and easy to visit. Based on the amount of requests, medium-sized and smaller offices could not support a full-time employee. Therefore, their on-site support continued to be delivered by a vendor, as before.

One of the major changes of the service desk insourcing relates to the interaction and relationship between the users and the service desk employees. When a service desk is insourced, most of the support interaction is internal (all the grey connections in Figure 6), whereas in the previous solution interaction was governed through contracts. The outsourced service desk filtered out cases that they did not have a contractual obligation to solve. By having most of the support interaction within the case company, the support would be more agile towards business needs. Moreover, the internal service desk is less about obligation and more about helping colleagues to succeed.

With the newly insourced service desk, users could contact the desk via on-site in person, via social media, by phone, by email, via chat or via a portal. Currently, peer-to-peer support and social media are an important part of efficient IT support operations, and this can be better exploited when the service desk employees are integrated as part of a company's community. The utilization of social media at the case company was designed for internal use only, and therefore could not be utilized in the outsourced service desk. The insourced service desk made use social media, as people used it to discuss IT problems. This method enables visibility of the questions and answers to all, and many can solve their problems by applying the answers given to one person. The new contact channels were put in place with the aim to make contact easy and increase communication between the users and the service desk employees.

One change in the insourced service desk is the introduction of the self-service portal, which include an automatic password reset to minimize manual work and resolve simple solutions quickly. The previous solution did not utilize the self-service opportunity, so phases 2, 3 and 6 in the service desk setup (Figure 6) were new. Today, many users rely on their own knowledge and try to solve their IT-related issues by themselves. In this case, users expressed the willingness to use self-service and pointed out password reset issues as an example. Calls about password tickets were among the most frequent calls received byt the previous service desk. In addition, FAQ's and information about IT-related systems were missing or hard to find. The introduction of self-service provides value by reducing the workload at the service desk and by allowing the users to resolve IT-related issues by themselves, and get solutions even faster than was previously practiced.

IT support employees should be knowledgeable regarding the working practices, business routines and applications of the case company at the insourced service desk. In this case, the lack of knowledge from the outsourced service desk had resulted in low satisfaction. This was due to employees' training, level of competence and a high turnaround of employees. Since the new service desk us internal, the service desk employees have

better access to the knowledge related to the case company and users. A company's service desk needs experienced personnel who are both service minded and technically trained. Also, continual training is needed to keep personnel valuable.

In order to run the service desk, the following systems are needed: a ticketing system, a remote management system, a contact center, a service portal and a knowledge management system. At the case company, most of the tools that the service desk function needed were already in use. Only two new tools had to be built or bought: a self-service portal and password automation. The ticketing system is used to receive, register and keep track of all incidents and requests. Through a remote management system, IT support employees can see and operate a user's workstation. The remote management system is part of the workstation distribution platform SCCM. A cross-Nordic contact center system routes and queue calls to the service desk. In knowledge base system solutions to problems are shared. In setting up the service desk unnecessary tailoring of tools was avoided, and the aim was to keep the tools simple.

The insourced service desk setup also strived also to solve supplier-related issues. The previous setup included multiple layers in the supplier chain. This was difficult to manage; there were difficulties with cooperation between suppliers and sometimes borders were unclear. The difficult problems could move back and forth between suppliers, and be closed several times, causing long resolution times and decreased user satisfaction. In addition, each step in the supplier chain increased the price tag. The case company continued to have a multi-sourcing setup in order to enable the procurement of the best of breed from the market, but the new setup includes only one layer of suppliers, which is managed by the insourced service desk function.

Traditional KPI's, such as number of incidents solved, availability, 1st level solution rate and resolution time, did not describe what the case company wants, and therefore, the insourced service desk works and is managed and operated according to the following value-oriented goals:

- User satisfaction
- Cost savings
- Diminishing of problems
- Resolution time of difficult problems.

The idea behind user satisfaction is that satisfied employees are able to generate more satisfied customers, and this positively impacts business efficiency. In this case, the general user satisfaction of IT is evaluated through a bi-annual survey, and much of the outcome is influenced by the performance of the service desk. Additionally, to find out about the users' experiences, the case company conducted interviews at the end of 2013. Many changes in the insourced service desk function were based on the users' feedback.

By insourcing the service desk and onsite support, significant cost savings are possible due to a better synergy in the cooperation and organization of the support, and cost avoidance. An outsourced service desk easily causes hidden costs. In this case, when the users tried to solve IT-related issues by themselves, they often turned to super users, without being logged in to any ticket system. This caused a risk of having too many hidden problems. Employees might call the service desk after long enquiries, and this was inefficient in terms of lost working hours. Thus, the service desk needs to be close to the users' needs and knowledgeable about the services and products used at the case company. When these requirements are filled, the needed connection will be made faster and through official channels, when working hours are saved and costs are better in hand.

The main goal for the case company service desk is to reduce the number of re-occurring problems and resolution time. By focusing on reducing the number of routine tickets, there can be a greater focus on solving more complex issues, for example, by introducing a password self-service solution in order to minimize downtime for the end users and reduce the workload at the service desk. Manual work should be minimized, leaving the difficult problems for the service desk. When this happens, it encourages a learning process and improved knowledge-levels at the new service desk, which enables better and faster resolution times when dealing with the more complex issues. As the service desk improves its competence level, the users move from informal channels to the official service desk and will contact the desk more often with application-related questions. Furthermore, the users did not know the outsourced IT support's scope or the resolution times. The discrepancy between expected and actual resolution times created frustration. Agreed response and resolution times should be well-communicated to the users.

The previously presented analyses point out the possibilities of insourcing the service desk in terms of cost savings and quality improvements due to better support. The changes impact the functionality of the service desk, and therefore, these will be utilized in the evaluation of the results of the project. Thus, points to be observed in the results of the project include the following themes: tasks, the significance of the on-site support, the relationship between the users and the service desk employees, contact channels, used tools, and the service desk employees' knowledge and motivation.

4.1.2   *Reasoning behind the decision*

The literature review indicated that several factors must be taken into account when insourcing is considered. Furthermore, motivations for the insourcing decision are diverse and dependent on the business context. This chapter studies the reasoning behind the service desk insourcing decision at the case company. The motivations for the decision were analyzed according to the findings from literature review, including the suitable situation:

mission criticality, resources, cost efficiencies (Mohr et al. 2011, 44), and the reasons for the insourcing decision: contract problems, and internal and external opportunities (Veltri et al. 2008, 53).

Apparently, mission-criticality, resources and costs favored the insourcing decision at the case company. The service desk can be seen as a mission-critical function in running day-to-day business. Employees use IT as a tool for creating value and any single problem may stop the flow of value creation. The service desk restores the flow of value creation. Therefore, it enables other key resources, making it a valuable resource that likely improves competitive advantage. The case company had all the requisite resources, since it was able to carry out the service desk insourcing project. Furthermore, for the case company, an outsourced service desk was not significantly cheaper than an internal service desk, because of the company's size. The internal cost estimations supported the assumption that an external supplier of the service desk function would not be able to harvest large scale benefits for the company, as the cost for insourcing were at the same level as the supplier costs. Based on the feasibility study, the case company was in a situation that was suitable for insourcing. The service desk at the case company comes under scenario 7 (in Figure 3) making insourcing an attractive alternative.

Moreover, it seems that contract problems and internal opportunities supported the insourcing decision. The external opportunities did not affect the service desk insourcing decision, because merger, acquisition nor divesture ha ocurred. Table 2 summarizes the reasons for the service desk insourcing decision in the case company, adapted to the themes of the table created by Veltri er al. (2008, 53).

Table 2 Summary of reasons for the service desk insourcing decision in the case company (adapted to the themes of the table created by Veltri et al. 2008, 53)

Problem: Contract Problems	Opportunity: Internal Organizational Changes	Opportunity: External Environmental Changes
✓ Higher than Expected Costs	Changes in Executive Management	External Business Changes
✓ Poor Service Quality	✓ Recognition of a New Role for IS	Pressures from Outside
✓ Loss of Control over Outsourced Services		
✓ Know-How Mismatch		

It seems that contract problems affected the service desk insourcing decision. Probable long-term cost savings was an important factor, but it was not the only reason to insource. This falls into the category of higher than expected costs. Furthermore, many quality improvements were expected in the functionality of the service desk function through insourcing. Although the service provider's service desk had operated according to the contract and well in general, it was found that service would be better provided internally. For example, company locations in the Baltic countries, where the service desk was already internal, had higher rates of user satisfaction than in the Nordic countries. These points fall into the (poor) service quality category. Additionally, the outsourced service desk hardly focused on important aspects such as minimizing easy problems and recognizing improvement targets. This indicates a loss of control over outsourced services. Moreover, generally, sourcing providers try to standardize customers into a single model, but this was no longer ideal for the case company and was leading misalignments of business needs. Previously, the arrangement had worked, as problems were mostly simple. However, rapid development of IT changed the world of support, and tasks became more complex than before. At the case company at the time of this study, the systems were complex and IT support needs were difficult to standardize. This refers to a know-how mismatch.

In addition to outsourcing contract problems, it seems that opportunities arising from internal organizational changes affected the service desk insourcing decision. Changes in executive management were not a trigger of the change in the sourcing arrangement. However, the executives identified the changed role of the service desk that came from the changing environment and business needs. Previously, the concept of a single point of contact and standardized service desk services worked, when users were a more homogenous group that had reoccurring problems, which were relatively easy to solve. Today's IT environment and the solutions are complex. The users' problems and needs are more specific than before. The modern support operation must be more knowledgeable in order to serve more demanding users and handle increasing complexity. In the case company the executives basically wanted to make changes in the service desk function to better serve the changed needs, and insourcing the service desk was found to be the best solution.

The text analysis of the service desk feasibility study relating to the reasoning behind the service desk insourcing decision supports the literature review. The comparison of alternatives should be based on multiple factors and the combination of several reasons to terminate the outsourcing arrangement. Costs were not the main point in this decision; rather, the probable cost savings enabled and supported it. In general, poor service quality had not been a problem, but it was noticed that it was possible to provide better service internally. Furthermore, insourcing enables better control of the service desk and allows a focus on important aspects from the company's perspectives. One of the major reasons

for the service desk insourcing decision was the finding that the outsourced service desk no longer supported business and the users as well as it could. In summary, the service desk insourcing decision was made because the overall value of performing the service desk function internally outweighed the costs of managing it. Based on the literature review and the previous text analysis, the reasoning behind the service desk insourcing appears comprehensive enough.

4.1.3 Implementation of the service desk insourcing decision

This section describes and analyzes the implementation plan. The implementation plan describes possible and preferred scenarios for implementing the case company's service desk. The service desk insourcing contains many elements that are interrelated and the transition approach is illustrated in Figure 7. The implementation plan was analyzed with the help of nine considerations by Bhagwatwar et al. (2011, 170-172).
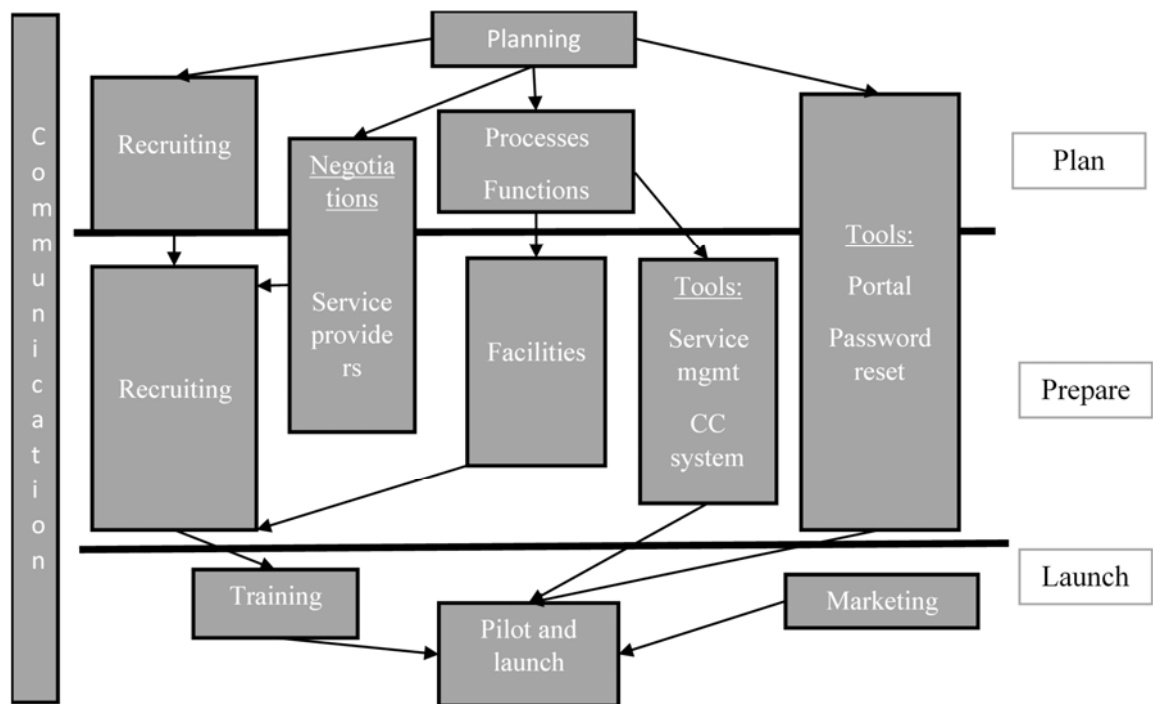

Figure 7 Transition approach (Case 2014, 100)

As Figure 7 shows negotiations with service providers had to be handled in the beginning stages of the project. Contracts with the service providers were renegotiated. The

case company informed the service provider early and made sure to keep up good relationships with it, as it would continue to deliver the service desk services until the cutover date as well as other functions to the case company. These actions represent informing the outsourcing vendor about the backsourcing decision.

The case company estimated what costs could be avoided by insourcing the service desk and decided what the minimum cost savings should be, as a results of negotiations. The estimations included activities involved in the insourcing, implementation and running costs. Additionally, the value of the quality improvements was estimated. In brief, the costs of the insourced service desk were less than the costs of the outsourced service desk. The cost estimations refer to financial viability analysis.

The implementation needs good planning, and many of details were dealt with during the work. The feasibility study included the implementation plan including key steps, responsibilities and the involved risks. Furthermore, the implementation plan was based on one cutover date, that was the date when the service desk function was fully transferred in-house. The decision to have one cutover date was mainly because of the following reasons: there would be clear contractual handover of responsibility for the service desk, there would be a notification of responsibilities for personnel, users would have clear communication information about where to call and the responsibilities for open tickets at the date of cutover would be clear. These reasons exemplify the backsourcing project team and plan.

The service provider continued to deliver the service desk services until the cutover date and supported the insourcing project. Clear responsibilities during insourcing were negotiated with the service providers. Furthermore, the service desk manager and the initial team had to be in place before the implementation process could begin. It was important to have the new employees involved in the planning and implementation so that they would feel ownership in the new operation. These decisions and actions indicate workforce requirements and responsibilities during backsourcing.

The service desk insourcing project resulted in significant recruitment. There were a number of different profiles needed to run the service desk, and the recruitment process took time. People determine the success of the service desk. Therefore, the selection of personnel was critical. Service desk personnel need to have the right competence and the right attitude. Good teamwork does not happen by accident; thus, the selected persons should see service and support as a step in their career, not as a temporary stopover while waiting for a better position. The most skilled service desk personnel strived to transfer from the service provider to the case company, as it would reduce the risk in the implementation of the service desk and the transition costs. The service desk and on-site personnel were hired from the current vendors, internally, and supplemented by normal recruiting to fill the remaining positions. Additionally, all employees were trained, to ensure that they had a good understanding of what is important within the case company. The

service desk employees were required to pass an exam. These aspects refer to employee re-hiring or new employee hiring strategies.

The project had to be planned so that it would allow enough time to secure implementation. The plan could not be too optimistic with a tight schedule. Moreover, a small pilot was done before the full launch to make sure everything was working. The whole implementation time lasted over a year, and based on current understanding the transition was managed according to the plan. These factors exemplify the continuity of business operations.

Communication was maintained throughout the project, including that between vendors and the case company employees. After the final insourcing decision was made, the management teams within the main vendors were informed, and a separate information session was organized for the current service desk employees. Information for IT employees as well as an intranet article was published after initial negotiations with vendors to coordinate communication with them. Additionally, during the project, updates were posted on the intranet and social media, for example, introducing the new managers and other employees. In the final phase, all case company employees received a message, which helped them remember the new contact information. These communication actions represent to stakeholder management.

Communication about the service desk insourcing between the case company and the service providers attempted to keep workable. During the implementation of such a decision, it is important to consider previous experiences as well as new ways of thinking. In this case, an external subject matter expert (SME) was hired. The SME supported the project by giving insights on solutions from other service desk implementation projects. The SME reviewed the implementation approach and confirmed that the service desk insourcing plan was realistic. Apparently, this helped the case company executives in understanding the service desk insourcing process and identifying key steps. These aspects can be classified as knowledge management.

The implementation plan of the case company included considerations similar to those of Bhagwatwar et al. (2011, 170-172). Although the feasibility report did not include plans for security policies, the security policies were taken care of in the case company. Furthermore, the implementation plan included other factors that especially related to the implementation of the service desk, such as processes, tools and facilities (Figure 7). Based on the literature review and the previous text analysis, the implementation plan of the service desk was well done and comprehensive.

4.2   Results of the project

4.2.1   Background information of the respondents

This section describes the results of the first questions of the questionnaire (1-6), which were used to gather background information on the respondents, including gender, age, workplace (country), role in the service desk, previous work-related connections and work experience at service desks in general and at the case company service desk. Statistical correlations between background information of the respondents and answers were checked. If correlations were discovered, they are presented in this chapter. Moreover, background information is used to describe the representativeness of the respondents.

The target group of the questionnaire was the service desk employees of the case company in the Nordic countries, which include 45 people with various backgrounds. In total, 25 people answered the service desk questionnaire, and so the answer rate was 56%. According to Vehkalahti (2008, 44), nowadays, typical answer rates of questionnaires are often under 50%. Therefore, the number of respondents can be considered very good, especially because the questionnaire was relatively long, since part of it contained open questions. Managers reminded the service desk employees to answer the questionnaire, and this may have affected the answer rate positively. Additionally, the choice of questions is generally considered successful, because the quality of answers is good and most of the questions were understood correctly. Background information of the respondents (questions 1-5) is summarized in Table 3.

Table 3 Background information of the respondents (questions 1-5)

Category (question)	Answer alternatives	Respondents	
Gender (1.)	Female	7	28%
	Male	18	72%
Age (2.)	29 or under	8	32%
	30-39	5	20%
	40-49	8	32%
	50 or older	4	16%
Country (3.)	Sweden	12	48%
	Finland	7	28%
	Norway	4	16%
	Denmark	2	8%
Role (4.)	Service desk manager	3	12%
	Service desk analyst	15	60%
	Onsite specialist	3	12%
	Incident manager	3	12%
	Other	1	4%
Previous work-related connections (5.)	Yes, worked for the case company through a service provider	10	40%
	Yes, worked within the case company	8	32%
	No previous connections	7	28%

The first two questions inquired about the respondents' gender and age. The target group was composed of 14 females (31%) and 31 males (69%). The respondents included 7 females (28%) and 18 males (72%). Furthermore, every age group was represented by the respondents: 8 respondents (32%) were 29 or under, 5 (20%) were 30-39, 8 (32%) were 40-49 and 4 (16%) were 50 or older. Thus, the respondents' distribution of gender was almost the same as in the target group and each age group got several representatives.

The third question asked which country the respondents work in. Twenty of the target group work in Sweden (44%), 14 in Finland (31%), 7 in Norway (16%) and 4 in Denmark (9%), whereas 12 of the respondents work in Sweden (48%), 7 in Finland (28%), 4 in Norway (16%) and 2 in Denmark (8%). The Norwegians and Danes are represented in correct proportion, while the Swedes make up slightly higher proportion and the Finns have slightly lower proportion in the respondent group than in the target group. In brief, the answers of the questionnaire represent the Nordic perspective and the employees of each country well.

The fourth question asked about the respondents' roles in the case company service desk. In general, at the case company service desk, service desk analysts make up the majority of workers, onsite specialists are the second most common, there are few incident and service desk managers, and least of all, other employees. Expectedly, service

desk analyst was the most common role among the respondents as 15 out of 25 respondents (60%) chose it. Each of the other specific roles, service desk manager, onsite specialist and incident manager, had 3 (12%) respondents. One (4%) respondent chose the role of other. Service desk managers, incident managers and others are well represented in the results of the questionnaire, but onsite specialists were fewer than expected. Therefore, their views are underrepresented in the results of the questionnaire. Thus, the different roles are well represented in the answers of the questionnaire, with the exception of onsite specialist since ideally their proportion of the respondents would have been slightly bigger.

The fifth question asked about the respondents' previous work-related connections to the case company. Most of the target group had previous work-related connections; they were either recruited from a service provider or internally transferred within the case company, but some totally new employees were recruited. Ten out of 25 respondents (40%) had worked for the case company through a service provider, 8 respondents (32%) had worked within the case company, and 7 (28%) did not have previous work-related connections. All in all, the answers and results reflect the service desk employees who have different previous work-related connections well.

The last background information question related to the service desk employees' work experience. This was an open question, without pre-written alternatives. In the correctly understood answers, the overall work experience varied from 28 years to 1 year, and work experience at the case company service desk (including work for the case company through a service provider) varied from 16 years to 2.5 months. About one-fourth (7 out of 25) somehow misunderstood the question, because their answers were inconsistent, and these answers had to drop from the results. For example, the overall work service desk experience should have been the same or longer than the work experience at the case company service desk, but in some answers it was not that way. Consequently, the work experience could not be properly utilized in the analysis of the answers.

Overall, the background information of the respondents was divided quite nicely, and significant over- or under-representation of a particular group does not exist in the results of the questionnaire. This enables versatile and comprehensive views of the case company service desk. Thus, all in all, the respondents of the questionnaire, and hence the results of the questionnaire, accurately represent the target group and their views about the present functionality of the service desk and related issues.

4.2.2   *Work at the case company service desk*

This section presents and discusses the results of questions 7 and 8, which relate to work tasks and enjoyable matters at work. The questions were asked as open questions that

supplement each other. The results of these questions mainly describe the service desk employees' work content and tasks, and the motivating factors that would be worth maintaining.

The seventh question canvassed the service desk employees' views about their three most important tasks. The most general answer related to customer service and helping the users, and 68% of the respondents expressed this opinion in one way or another, for example: *"Help users with their problems." "Make the users happy and satisfied." "To give 1) a good customer service and 2) help end user to continue his / her job 3) as soon as possible."*

The second most common answer concerned know-how and improving knowledge as 32% of the respondents stated this opinion: *"3. Improving my knowledge about the case company and about IT in general." "Be knowledgeable." "Have knowledge about the case company's IT-setup in general and stay up to date when changes are being executed."*

The third most common answer related to colleagues; 24% of the respondents stated this theme in some way, for example: *"Support my team to be good at their work together and also in individual level." "To Always be positive in my Group and spread knowledge to we all can be the best Service Desk." "Good relations with coworkers."* Additionally, many other tasks were expressed less frequently, such as attitude, communications and maintaining a good relationship with vendors.

The eighth question studied which matters the service desk employees enjoy most in their work. Generally, most answers related to colleagues and teamwork, as 48% of the respondents stated it one way or another, for example: *"Good team work. Group power – under pressure." "Colleagues: Our team is great and I glad to be part of it." "My colleagues. We have an awesome team."*

The second most common answers generally concerned the users and delivering good service; 40% of the respondents expressed this opinion: *"Deliver good service." "3) To get good feedback from the customers." "Communication and helping end user."*

The third most reported enjoyable matter generally encompassed problem solving, and a few especially emphasized challenges; 36% of the respondents stated this theme in some way, for example: *"Fault handling that isn't solved in 5 minutes." "Troubleshooting/problem solving. Finding the solution" "When complicated incidents gets resolved."* Additionally, many other enjoyable matters were expressed, such as: learning new things, meeting people (on-site) and working in the case company.

The results highlight that the service desk employees, and their work, especially concentrate on the users (not on IT problems). Apparently, having knowledge, continual learning opportunities and good teamwork are considered to be important matters, which affect success in work. Furthermore, the most enjoyable matters interrelate with the most

important tasks. The service desk employees enjoy their colleagues and the work itself, including helping the users and solving problems.

4.2.3   Evaluations of the insourced service desk function

This section presents and discusses the results of questions 9 and 10, which relate to general functionality of the service desk as well as the functionality of specific service desk-related matters. The questions are mainly quantitative questions that supplement each other. The results of these questions mainly describe the service desk employees' perceptions of the functionality of the insourced service desk about one year after the change.

The ninth question of the questionnaire inquired about the service desk employees' views on how well the service desk operates in general on a scale of 1-5. Statistically, having a previous work-related connection weakly correlated with the given answers. People who had worked for the case company through a service provider gave the most positive evaluations. Their answers averaged at 4,4 (6 good, 4 excellent). People who had worked within the case company also evaluated the service desk operation positively. Their answers averaged at 4,1 (1 average, 5 good, 2 excellent). The new employees at the case company service desk were the most critical among the respondents. Their answers averaged at 3,6 (1 fair, 1 average, 5 good). In total, 6 out of 25 respondents (24%) evaluated the service desk operations as excellent, 16 (65%) good, 2 (8%) average and 1 (4%) fair. The results show that the service desk currently operates well, as the average was 4,08 on a scale of 1-5.

The tenth question focused on the specific service desk-related matters, and the respondents' evaluations are illustrated in Figure 8. The respondents also had a voluntary opportunity to provide reasons for their evaluation. Out of 25 respondents, 8 (32%) gave reasons, especially when a weaker evaluation was given. The voluntary text box was apparently quite useful, because some of the evaluations could be done additional observations. Following Figure 8, some of the comments are presented and the results are analyzed in the same order as in Figure 8 (from left to right).
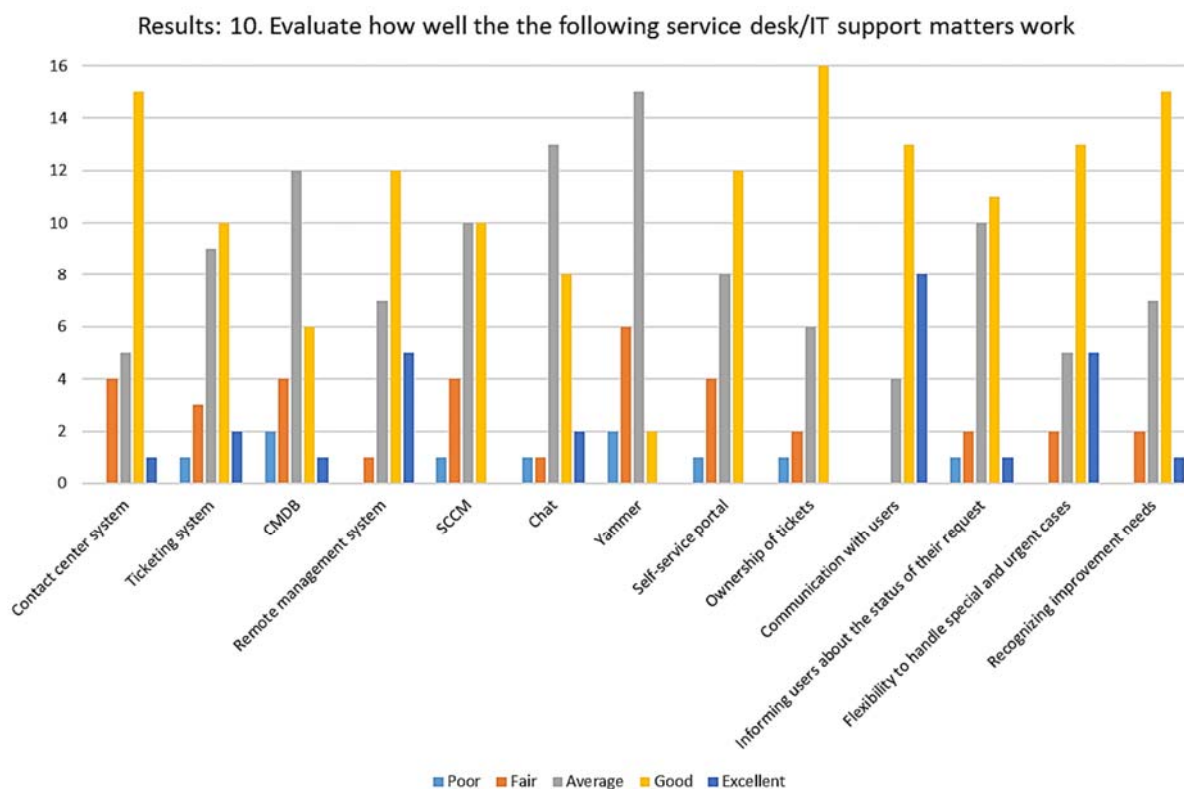
Figure 8 Results: Functionality of service desk matters (question 10)

The contact center system got a good average, 3,52. Out of 25 respondents, 1 (4%) evaluated the contact center system as excellent, 15 (60%) evaluated it as good, 5 (20%) as average, and as 4 fair (16%). Three of the respondents, who chose 'good', commented as follows: *"Its better now after all the updates that have been done." "Some issues with application which need constant operations done by SD." "Long wait before third party helps us*." Thus, the service desk employees had experienced relatively minor issues with the contact center system, and in general it was seen as quite functional.

The ticketing system got a mediocre average of 3,36. The evaluations covered the whole spectrum of the scake: 2 (8%) excellent, 10 (40%) good, 9 (36%) average, 3 (12%) fair and 1 (4%) poor. For example, three respondents, who gave evaluations of poor, fair and average, wrote the following comments: *"Integration errors, missing assignment groups, internal groups don't always use the Now system." "Too slow and too much information." "Its better now but we still need to change a lot of things."* These responses indicate that the service desk employees find the ticketing system somewhat time con-suming and complex, but in general it more or less works.

CMDB got the second lowest average of 3,00 from thirteen evaluation targets. The respondents' evaluations again covered the whole spectrum of the scale: 1 (4%) excellent, 6 (24%) good, 12 (48%) average, 4 (16%) fair, 2 (8%) poor. Two respondents, who chose

poor and average, commented as follows: *"CMDB is like a jungle, it does not help our work at all." "Better than the last one."* Although CMDB was given an average score overall, it appears to be one of the weak links among the thirteen evaluation targets.

The remote management system was one of two categories with the second best average of 3,84. The evaluations are divided as follows: 5 (20%) excellent, 12 (48%) good, 7 (28%) average, and 1 (4%) fair. On the other hand, remote management systems got the best average among the tools that support work (the first eight evaluation targets). Only one respondent, who gave a good evaluation, wrote a comment: *"Some slowness momentarily."* An interesting single observation is that all three onsite specialists agreed and gave excellent evaluations. All in all, the remote management system was considered in general to be very functional.

SCCM had the third lowest average of 3,16. The evaluations are divided as follows: 10 (40%) good, 10 (40%) average, 4 (16%) fair, and 1 (4%) poor. Respondents who filled the voluntary reasoning consistently pointed out that the previous SCCM worked better than their current one. For instance, comments from poor, fair and average evaluations included: *"Was better with the previous supplier." "The new supplier has not done a good job, the previous supplier was better (and it's not difficult to outscale the previous supplier)." "Some issues with the new supplier."* SCCM's functionality level was graded as average, but unlike other service desk-related matters thus far, the view of SCCM has worsened.

Chat got a mediocre average: 3,36. The respondents gave the following evaluations: 2 (8%) excellent, 8 (32%) good, 13 (52%) average, 1 (4%) fair and 1 (4%) poor. Two respondents, who gave average evaluations, commented as follows: *"I think that customers like the chat function, but it could improve." "Would need more SD personnel so this would be actively used."* In brief, the chat was generally considered to be more or less functional, but its full potential was not being utilized.

Yammer got the lowest average of 2,68 among thirteen evaluation targets, and this was the only average score below 3. The evaluations are divided as follows: 2 (8%) good, 15 (60%) average, 6 (24%) fair, and 2 (8%) poor. Two of the respondents who chose average wrote the following comments: *"Don't use it that much." "Don't really know."* Thus, it can be determined that Yammer was not yet in full and functional use in the service desk at the time of the data collection.

The self-service portal got a mediocre average of 3,24. The evaluations were: 12 (48%) good, 8 (32%) average, 4 (16%) fair and 1 (4%) poor. The respondent who gave the poor evaluation commented as follows: *"Hard to find what you look for, needs a lot of improvements."* All in all, the self-service portal was seen to work, more or less, but there was still room for improvement.

Ownership of tickets had a quite good average score of 3,48. The respondents gave the following evaluations: 16 (64%) good, 6 (24%) average, 2 (8%) fair and 1 (4%) poor.

Within this point, gender had a weak statistical correlation with the evaluation; as in general, males gave better evaluations than females. The average score given by males was 3,72 (1 fair, 3 average, 14 good) and the average score given by females was 2,86 (1 poor, 1 fair, 3 average, 2 good). Ownership of tickets got two comments from poor and average evaluations: *"Have no time to go through own tickets." "Its better now than in the beginning but needs to improve for example New User account tickets (who owns them?)."* Although the service desk employees had experienced relatively minor issues with the ownership of tickets, it was generally seen to work well.

Communication with users got the highest average of 4,16, and this was the only average above 4. The evaluations are divided as follows: 8 (32%) excellent, 13 (52%) good and 4 (16%) average. Only one respondent, who gave average evaluation, wrote a comment: *"Hard to get in contact with some users."* The results indicate that, in general, communication between the service desk employees and the users was one of the greatest strengths in the current service desk function at the time of data collection.

Informing users about the status of their service requests received a mediocre average score of 3,36. The evaluations covered the whole spectrum of the scale: 1 (4%) excellent, 11 (44%) good, 10 (40%) average, 2 (8%) fair, and 1 (4%) poor. The following reasons were given for poor and fair evaluations: *"Need more personnel to be able to keep up with tickets." "We all need to get better in this area."* All in all, the service desk employees were not fully able to inform the users about the status of their service requests as well as they would have liked, but in general, this element of the service desk function was working more or less.

Flexibility to handle urgent and special cases, like the remote management system, had the second best average of 3,84. The evaluations are divided as follows: 5 (20%) excellent, 13 (52%) good, 5 (20%) average, 2 (8%) fair. Only one respondent, who gave a fair evaluation, gave a reason: *"Many Service Desk Agents are afraid of something new so we with more experience always have to handle special cases."* In brief, flexibility to handle urgent and special cases generally was working very well at the time of data collection.

Recognizing improvement ideas got a good average score of 3,60. The respondents gave the following evaluations: 1 (4%) excellent, 15 (60%) good, 7 (28%) average, and 2 (8%) fair. One respondent, who gave a fair evaluation, expressed the following reason: *"We from Service Desk try to come with new ideas but it's hard to realize the changes."* Thus, in general, recognizing improvement ideas in the service desk function was working relatively well.

The respondents also had a voluntary chance to write their own SD-related issues and evaluate them. Many seemed misunderstand this, because 18 respondents gave an evaluation, but only two explained which matter they were evaluating. Clearer instructions at this point would have likely been needed. Two comments were given with poor and fair

evaluations: *"Lack of resources to handle this wide range of issues and cases." "In Sweden it feels like some of the Agents 'carry' the others."* The topic of other service desk-related issues had an average of 3,11, but the result not very significant since most of the respondents did not specify their evaluations.

The overall average score for all of the topics, based on thirteen evaluation targets was 3,43. Communication with users (4,16), remote management system (3,84) and flexibility to handle special and urgent cases (3,84) got the best averages. On the reverse side Yammer (2,68), CMDB (3,00) and SCCM (3,16) got the lowest averages. Additionally, it is noteworthy that all three of lowest averages relate to the functionality of tools that support the service desk employees' work. The results of question 10 show that these thirteen service desk-related matters generally were working well, but also that developmental possibilities existed.

4.2.4   *Problems and user behavior*

This section presents and discusses the results of questions 11 and 12, which relate to problems or challenges in the service desk function and user behavior. First, the results of the open question are presented, and after that, the quantitative evaluations related to user behavior. The results of these questions mainly describe which matters the service desk employees considered problematic and if the users' behavior was pleasant or not.

The eleventh question found out what problems or challenges the service desk employees had experienced or noticed while working at the case company service desk. The most reported general challenge or problem related to a sense of hurry and a lack of resources. Of the respondents, 28% stated this in some way, for example: *"Biggest is lack of resources." "Too much work – we do not have time to investigate tickets as much as we should." "Continuous hurry. Did not have time to sort out problems properly."*

The second most common problem or challenge concerned a lack of information and not being involved in projects. Of the respondents, 24% expressed this theme: *"There is so much going on all the time in other IT units and SD is not getting information from things going to be set to production." "Information arrives mostly too late to SD – usually after GO is done." "When we're not involved in a project, but they still come to us for support."*

Likewise, 24% of the respondents identified a problem or challenge related to tools. For example: *"Slow ticket system." "Knowledgebase clearly leaves more to wish for." "Find among all objects in the Now system."* Many other problems or challenges were expressed, for example: a need for training, issues with suppliers, and problems with user management.

The results of question 11 show there no specific single problem was identified, but more attention was needed to be given especially to the following matters: how the service desk employees' sense of hurry could be reduced, how the information flow to the service desk could be improved and how tools could be developed to support the service desk employees' work better.

The twelfth question found out the service desk employees' views about user behavior and related issues. The respondents expressed their opinions, with a Likert scale, about six claims. Furthermore, the respondents again had a voluntary opportunity to give reasons for their evaluation, and every now and then, the respondents used it. Figure 9 illustrates the claims and whether the responders agreed with them or not.
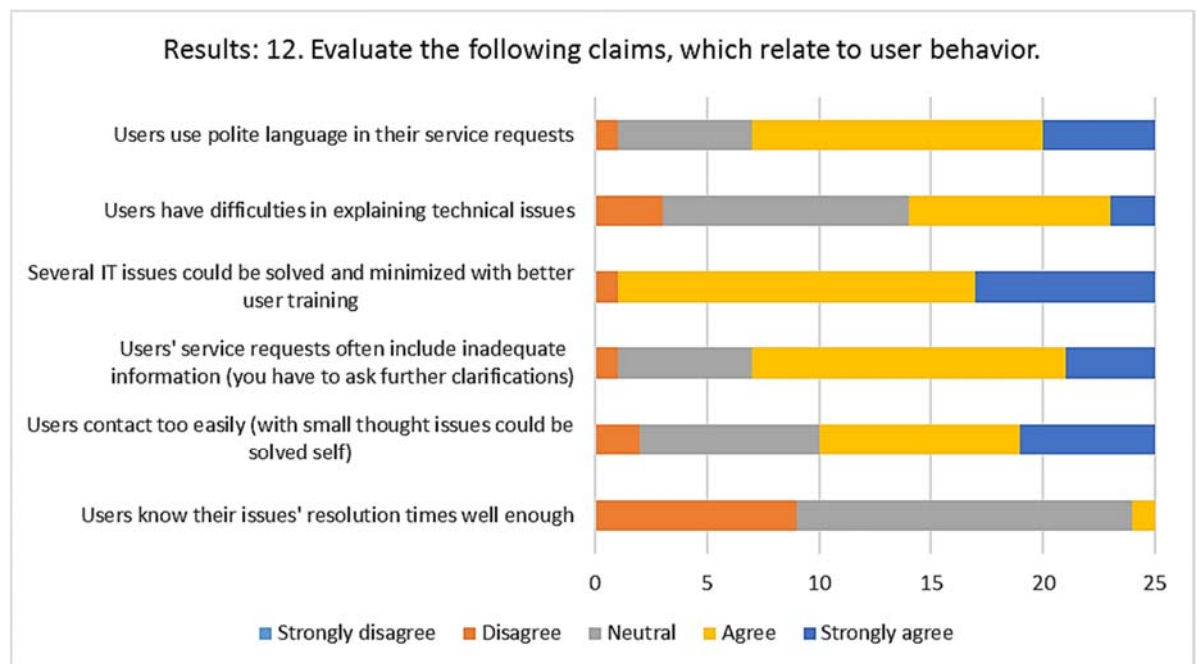
Figure 9 Results: user behavior (question 12)

The first user-related claim canvassed the service desk employees' views about the users' polite language usage in their service requests. As Figure 9 shows, the views are positive: 5 (20%) respondents strongly agreed, 13 (52%) agreed, 6 (24%) were neutral, and 1 (4%) disagreed. Three respondents, one of whom agreed with the claim and two of whom were neutral, commented as follows: *"Of course some users are not polite but the majority is." "There are exceptions!". "Norwegian users are not always polite/nice."* In brief, the respondents saw the users as generally using polite language in their service requests.

The second claim concerned users' abilities to explain technical issues. The answers are divided as follows: 2 (8%) strongly agreed, 9 (36%) agreed, 11 (44%) were neutral, and 3 (12%) disagreed. Two respondents, one of whom disagreed and another of whom was neutral, commented as follows: *"Swe SD are very good at 'going to the users' level"." "Well it's not their job to know about these things, but it usually works okay if we remote their PC."* Thus, the users expressed minor difficulties in explaining technical issues, but the service desk employees seemed to have good ways to sort out the situations.

The third claim suggested that several IT issues could be solved and minimized with better user training. Except for 1 (4%) respondent who disagreed, the service desk employees agreed (64%) or strongly agreed (32%) with this claim. Three respondents, who agreed with the claim, gave the following reasons: *"A 1 or 2 day course when a new employee comes in to the case company would be a great idea!" "Things like passwords for Mainframe." "Mainframe password changes."* The results indicate that the users had 'easy' IT-related problems that came from their dearth of information and skills, some of which could probably be avoided or minimized with better user training.

The fourth claim concerned the inadequacy of information in the users' service requests (the service desk employees were having to ask further clarifications). The answers are divided as follows: 4 (16%) strongly agreed, 14 (56%) agreed, 6 (24%) were neutral, and 1 (4%) disagreed. In one example, a respondent who agreed commented: *"This is often the case."* The results indicate that the service desk employees often need to spend time asking for further clarifications from users about their service requests, and that maybe in some cases resolution times could shorten if somehow users could get to make more informative service requests.

The fifth point claimed that users contact the service desk too easily with issues that would be possible to solve on one's own. Of the respondents, 6 (24%) strongly agreed, 9 (36%) agreed, 8 (32%) were neutral, and 2 (8%) disagreed. One respondent, who agreed, gave the following reasoning: *"Mainframe password changes."* The results show that, at times, some users contact the service desk too easily and ask for help with simple issues that could be solved without the desk's help.

The last claim concerned the users' awareness of resolution times. Of all of the respondents,1 (4%) agreed, 15 (60%) chose neutral, and 9 (36%) disagreed. This point did not get any voluntary additional responses. Thus, it appears that the users do not necessarily know resolution times of their issues, and the service desk employees are aware of it.

The respondents also had a voluntary chance to write their own user behavior-related issue with explanations and give it an evaluation. Again many seemed misunderstand this voluntary point, as 18 gave a neutral evaluation and just one explained it. The comment

was the following: *"Using calls instead of order forms."* This point in the questionnaire did not give much additional information.

Overall, in general both positive and negative views about user behavior-related issues came up. The most positive point was that the users were seen as polite (according to 72% of the respondents). Four claims tilted more or less towards negative views: users had difficulties in explaining technical issues, users' service requests often included inadequate information (the service desk employees had to ask for further clarifications), users contacted the service desk too easily (with apparently little thought that the issues could be solved by the user themselves), and users did not know resolution times well enough. One negative view clearly came up in the results: several IT issues could be solved and minimized with better user training (according to 96% of the respondents). The results of question 12 show that the users did not always behave ideally. However, often it was not their fault since the user behavior-related issues could be prevented with better organizational support, for example, by improving their knowledge and skills about the use of IT and ISs with training.

4.2.5   *Success of changes in the service desk function*

This section focuses on presenting and discussing the results of questions 13-17, which contain comparisons between the insourced service desk and the outsourced service desk as well as the success of changes that resulted from the insourcing. The questions include both quantitative evaluations and qualitative open questions that supplement each other.

The thirteenth question of the questionnaire studied the service desk employees' views about how well the case company service desk operated in general, compared with the previous outsourced service desk. Out of 25 respondents, 18 (72%) indicated that they felt the insourced service desk operated much better, 5 (20%) respondents chose somewhat better, and 2 (8%) chose that the two service desks worked equally well. None of expressed a negative opinion. Question 13 got the highest average of all quantitative evaluation questions: 4,64 on a scale of 1-5. Consequently, it is clear that, according to the service desk employees, the insourced service desk operated better than the previously outsourced service desk, or, better than companies' service desks in general (each respondent's comparison depended on whether he or she was a totally new employee at the case company service desk or not). This point indicates that, generally, developments in the service desk function had been realized and the insourcing project had been successful.

The fourteenth question found out the service desk employees' views about the advantages of working at the internal service desk instead of the outsourced service desk. The advantages they mentioned at least partly explain why the insourced desk works

much better than the outsourced desk. The most frequently stated advantage related to better relationships with the users and being colleagues with them. In one way or another, 64% of the respondents expressed this notion, for example: *"We get a better relationship with the users, they trust in us." "Colleague to colleague works way better." "You are helping your colleagues!"*

The second most widely expressed advantage related to having more influence and direct contacts, with 28% expressing this opinion, for example: *"You have the feeling of being part of something and not just a guest in the house." "Have better influence on the project we are running." "Your ideas and improvements is easier to be 'heard'."*

The third most widely expressed advantage related to location and service points, as 24% of the respondents pointed out this theme, for example: *"You can (in most cases) pop up to see the customer on location much easier." "Onsite possibilities." "The ServicePoint gives users and SD-agents a chance to meet face2face which gives a completely different relationship (in a positive way!)."* In addition, several other advantages were brought out, such as better work-flow, working towards a common goal and better understanding of business.

The results show that the main advantages of working at the internal service desk, compared with working in the outsourced service desk, were thought to be: better relationships with the users, having more influence and having onsite possibilities that helped in creating closer relationships between the service desk workers and the users.

The fifteenth question inquired about the success of the specific service desk insourcing arrangements. Again, the respondents had the voluntary opportunity to provide reason for their evaluations, but for this question, additional information was not obtained. The exact evaluations are summarized in Figure 10, and after that the results are presented and discussed in order (from left to right).
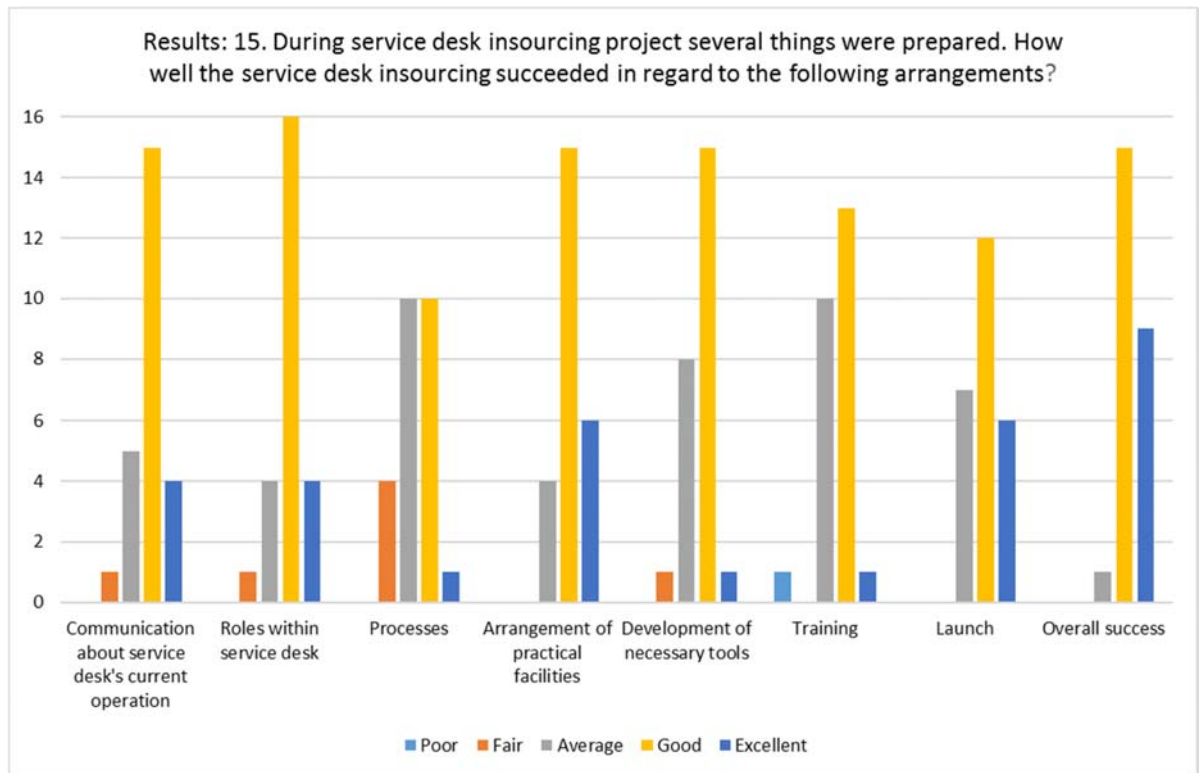
Figure 10 Results: the success of arrangements (question 15)

Communication about the service desk's insourced operation was given an average score of 3,88. Figure 10 illustrates that 4 respondents (16%) evaluated it as excellent, 15 (60%) as good, 5 (20%) as average, and 1 (4%) as fair. The average score was good, and this point fell in the middle among eight evaluation targets.

The average score for roles within the service desk was 3,92. It got 4 (16%) excellent evaluations, 16 (64%) good, 4 (16%) average, and 1 (4%) fair. Also, this point's scores fell in the middle of the eight evaluation targets.

The average score for processes was 3,32. The evaluations are divided as follows: 1 (4%) excellent, 10 (40%) good, 10 (40%) average, and 4 (16%) fair. With this topic, gender had a weak statistical correlation with the evaluation. In general, males gave better evaluations than females. The average score for males was 3,56 (1 fair, 7 average, 9 good, 1 excellent) and for females the average score was 2,71 (3 fair, 3 average, 1 good). Processes got the lowest average.

The average score for arrangement of practical facilities was 4,08. It got 6 excellent (24%) evaluations, 15 good (60%) and 4 average (16%). Arrangement of practical facilities exceeded a good evaluation, and it had the second highest average.

The average score for development of necessary tools was 3,64. Of the respondents, 1 (4%) evaluated this as excellent, 15 (60%) as good, 8 (32%) as average, and 1 (4%) as fair. This point had the third lowest average.

The average score for training was 3,52. The evaluations are divided as follows: 1 (4%) excellent, 13 (52%) good, 10 (40%) average, and 1 (4%) poor. This point got the second lowest average

The average score for launch was 3,96. Of the respondents, 6 (24%) evaluated it as excellent, 12 (48%) as good, and 7 as average (28%). In this topic, gender had a weak statistical correlation with the evaluation, as in general, males gave better evaluations than females. The average score for males was 4,17 (3 average, 9 good, 6 excellent), and for females it was 3,43 (4 average, 3 good). This point got the third highest average.

The average score for the overall success of the service desk insourcing was 4,32. Out of 25 respondents, 9 (36%) evaluated it as excellent, 15 as good (60%) and 1 as average (4%). The previous work-related connections had a similar weak statistical correlation as in question 9. In general, those who had worked for the case company through a service provider gave the most excellent evaluations. Their average was 4,6 (4 good, 6 excellent) so quite close to excellent. Those who had done another job within the case company gave the second highest evaluations, an average score of 4,25 (6 good, 2 excellent). The new employees were the most critical giving an average score of 4 (1 average, 5 good, 1 excellent). This point got the highest average.

The overall average of eight evaluation targets was 3,83. The overall success of the service desk insourcing (4,32), the arrangement of practical facilities (4,08) and launch (3,96) got the best averages. On the reverse side, processes (3,32), training (3,52) and development of necessary tools (3,64) got the lowest averages. In brief, the results show that the service desk implementation and arrangements had been well-executed, and over-all they were seen to be successful.

The sixteenth question was posed to find out what the central differences in customer relationships are, when the service desk is internal compared with the outsourced service desk, and 7 respondents (28%) gave the same answer as in the advantages question (14.). The most popular difference in customer relationships was the same as in the advantages question: better relationships with the users and being colleagues with them. In one way or another, 52% of the respondents stated this, for example: *"Closer contact with the users." "End user is talking to a colleague and not some 'random' person." "Better contact with the user."*

The second most commonly reported difference was the users' possibility to visit at the service desk and being able to see the users more easily when the service desk was insourced (quite similar to the third most popular answer in the advantages question). Of the respondents, 32% highlighted this, for instance: *"Now it's possible to visit SD at the*

service point and have a chat with us." "More easy to see customer eye to eye (working in the same building)." "Possible to meet/help users face to face."

The third most commonly stated difference related to the feeling that the users could now contact the service desk more easily. Of the respondents, 24% stated this opinion in some way, for example *"Users feel it's easier to report a problem to us since most of them have met us or seen us." "You are closer to the customer and business. They are more friendly and I think that they think we are more approachable." "Easier to discuss the internal affairs of the company. Customer has much easier to contact service desk now."* Furthermore, many other themes existed in the answers, such as gaining a better understanding about the business, having a better ability to give good service, and users' higher expectations.

The results of question 16 indicate that the main differences in customer relationships are positive because of the colleague-colleague type of relationships between the service desk workers and the users, the better possibilities to meet the users face to face, and the fact that users could now contact the service desk more easily.

The purpose of the seventeenth question of the questionnaire was to find out if the service desk employees experienced or believed that they were able to do more meaningful work in the case company's internal service desk than in an outsourced service desk. Out of 25 respondents, 16 (64%) strongly agreed, 8 (32%) agreed, 1 (4%) was neutral. The results clearly show that the employees felt that their work was more meaningful at the internal service desk than they would have at an outsourced service desk.

4.2.6   *Possible targets for development*

This section presents and discusses the results of questions 18-19, which relate closely to the possible targets for further development of the service desk operation. The questions were asked as open questions. The answers highlight which matters the service desk employees thought they would like to develop to make the service desk more functional from their perspective.

The eighteenth question asked how the case company service desk could be improved and developed. The most typical suggestion related to better tools. In one way or another, 32% of the respondents stated this opinion, for example: *"The correct tools to all the offices where SD is located. Inform of equipment that users have. If they request support on iPads, but we don't have one in the office, it's not so easy." "KB in a better database." "A little less complex Ticketing system."*

The next frequent development suggestion related to training, and 24% of the respondents expressed this in some way, for example: *"Give Agents that is not as technical more training." "Offer work related courses to SD analysts." "Certification/training."*

The next frequent suggestion concerned better cooperation across borders, and 24% of the respondents stated this theme, for example: *"More Nordic view, we are all working in our own country silos still." "Cooperation with service providers needs improvement and could be much better." "Closer cooperation with other departments."*

The nineteenth question studied what the service desk employees would have wanted to change at their workplace to make it better. The most common change mentioned was the same as in the previous question (development suggestions): tools and systems. Of the respondents, 40% gave this suggestion in one way or another, for example: *"Simplify the Now system!" "Develop better self-service portal." "Direct chat contact with all vendors regarding High/Critical incidents that needs a heads up for handover or a VIP tlf line into vendor SD."*

The second most common type of response was those where the respondents did not give any suggestions, as 24% of the respondents answered like that in some way, for instance: *"I don't know." "No further comments ☺." "Don't want to change anything."*

The third most common types of answers included two themes: more personnel and more training. Both of these themes were stated by 12% of the respondents, for example: *"Same song again – in need to get more colleagues. User admin should be completely separated from Service Desk; or at least there should be 2-3persons handling those tickets and cases." "One service desk analyst more could be help continuous hurry." "More training/education for Agents." "More training in the case company Applications."* Furthermore, other types of answers were given, such as that the processes were up-to-date, working more consistently and having more divided workplaces for the SD Agents to reduce noise that was found to be stressful.

The results of questions 18 and 19 show there was no specific single development target, but rather, several minor development possibilities exist. Various used tools were highlighted quite frequently, such as knowledge base, the Now system and getting tablets onsite. Furthermore, rethinking the amount of personnel (hurry was experienced), increasing cooperation across borders and offering more training to the service desk employees was suggested to potentially help in lifting the quality of the service desk function even further.

5   CONCLUSIONS

5.1   Summary of the key findings

The overall aim of this research was to increase understanding about the development of service desk function through insourcing. This research presented and analyzed the components, management and development of the service desk function, the IS insourcing decision and implementation, and the service desk insourcing project at the case company. The research questions were:

- What are the general requirements for the development of service desk function through insourcing?
- How have the objectives of the service desk insourcing project been realized in the case company?
    - What is the present state of the service desk?
    - What are possible targets for further service desk development?

Three general requirements for the development of the service desk function through insourcing were found during the research:

1. The development of the service desk function should be based on the needs of the business. The service desk arrangement should be evaluated periodically since the service desk function must conform to the changing requirements and needs of the business. The starting point for the development of the service desk through insourcing is the recognition that the outsourced arrangement is possibly no longer the best solution.
2. The service desk insourcing decision should be based on the thorough analysis of different reasons, in order for the insourcing decision to be successful. The reasons for the insourcing decision vary, and they are context-related. For example, in addition when there are obvious to problems, companies can decide to insource the service desk function even when the outsourcing arrangement is satisfactory.
3. The implementation of the decision must be well-planned in order for all aspects of the insourced function to work well together in-house. The insourcing decision and especially its implementation can be a challenge, due to the transfer of resources and capabilities. The detailed implementation plan likely enables suitable preparations and thus successful insourcing.

These three general requirements are important in enabling the development of the service desk through insourcing and making sure that it is really successful. Based on the literature review and the empirical study, the development project of the case company is one good example of this.

This research shows that, as a whole, the objectives of the service desk insourcing project were in fact realized at the case company. The internal service desk was seen to operate much better that when it was outsourced. Especially the results of questions 13-17 (4.2.5) show that the case company had successfully insourced the service desk and the implementation had been well-executed. For example, 92% of the respondents stated that the service desk operated better or much better than before. Additionally, 96% of the respondents expressed that the work was more meaningful in the case company's internal service desk than in an outsourced service desk. Moreover, the users were also satisfied with the service desk insourcing, as the general user satisfaction of IT (which is measured by the case company through a bi-annual survey) had increased from the previous levels. Consequently, the project achieved its aim as the insourced service desk became more effective, efficient and more supportive of the business than the previous outsourced service desk.

The results of this research show that the present service desk function operated well from the service desk employees' perspectives. The results of the questionnaire indicate that the clear strengths of the insourced service desk were good relationships between the service desk employees and users, on-site possibilities and team work. Of the respondents, 64% expressed that the main advantage of the internal service desk was the (colleague) relationship with the users (question 14). On-site possibilities were the third most common stated advantage (question 14), and it frequently came up in other points as well. Apparently, on-site support achieved its objective since it helped in creating closeness between the service desk, the business and, above all, the users. Question 8 revealed that 48% of the respondents enjoyed most colleagues and team work in their work. Thus, fairly good relationships among all employees had helped raise the quality of the service desk function.

Despite the general success of the service desk insourcing project, several potential development themes emerged from the study. No single clear development target arose, but rather, several smaller development possibilities. Four case-specific suggestions were made based on the results of this research. to help to continue the development of the service desk function even further:

- Provide training: for example, arrange an IT systems orientation for new employees and provide training opportunities for the service desk employees
- Reduce sense of hurry among the service desk employees: for example, hire new employees (if possible) and/or eliminate bottlenecks by developing processes

- Develop of tools: for example, to develop important tools and buy the needed tools for offices (iPads)
- Enhance relationships between the service desk employees and users: for example, through contact channels or even periodic walk-arounds

The first suggestion is for training. For example, 96% of the respondents agreed or strongly agreed that IT issues could be minimized with better user training (question 12). The users also seemed to contact the service desk too easily, as 60% of the respondents agreed or strongly agreed that this was true, and 32% were uncertain (neutral). These responses indicate that many users have relatively easy IT problems which could be prevented with better information sharing, such as training. One predominant idea was that, if a basic IT systems orientation for new employees could be arranged, simple and unnecessary IT problem inquiries could be minimized, and this could also help in minimizing the hurry that the service desk employees had experienced. Furthermore, some respondents felt that the case company could also provide more training opportunities for the service desk employees (questions 18-19). Some respondents pointed out that especially the new service desk employees would need more training, some wanted training related to applications and others wanted chances to get certifications. In brief, training was one potential development theme that came up in several answers.

The second suggestion relates to the hurry of the service desk employees. The most commonly reported challenge or problem related to hurry and a lack of resources as 28% of the respondents stated it (question 11). The hurry and the need for more personnel also came up in the development targets question (19). A simple solution would be to hire a new employee or new employees (if possible). Another solution would be eliminating some of the factors that cause the hurry. For example, the results of the questionnaire indicated that, at times (such as in question 15), the processes are more or less unclear, so there are likely possibilities to improve the workflow. For example, the second most common challenge or problem (question 11) concerned the lack of information and not being involved in projects. One practical action could be setting clear communication ways about the IT projects such as a regular meeting or a report. This action could eliminate the extra time that would otherwise be spent on clarifying unknown IT projects. In summary, the hurry of the service desk employees was one of the potential development themes that came up in several answers.

The third suggestion relates to the tools. The tools got weak (although average) evaluations on several points (questions 10, 11, 15, 18 and 19). There was no single clear problematic tool, but rather, there were suggestions that many tools could and should be better. Therefore, it is difficult to suggest which exact tools would have needed the most development, and so this estimation was left for the case company representatives. The tools clearly needed improvements to be more efficient at easing the work of the service

desk employees. However, one specific way of helping the service desk employees came up: buying iPads for the offices, as the users use iPads and make service requests about them. Thus, the tools theme was one potential development target that came up in several answers.

The fourth suggestion relates to utilizing and enhancing the relationship between the service desk employees and users. The results indicate that the contact channels were not all on the same level (question 10). The service requests from certain channels were found to be easier to handle than others, from the service desk employees' perspectives. Thus, there was the desire for the differences between contact channels to be equalized or for the users could be recommended to use more working channels. Furthermore, one interesting pilot could be periodic walk-arounds through the work-places (if possible), because this face to face meeting and catching up would likely enhance the trust and relationships between the users and service desk employees. The service desk employee could then also give useful tips to the users about how simple problems might be prevented. In brief, one interesting development possibility would be utilizing one of the strengths of the current service desk: the relationship between the service desk employees and users.

In conclusion, this research achieved the set objectives and succeeded in answering the research questions. The theory and empirical study support each other well. The empirical study confirms and complements previous studies and claims that have been reported in the literature.

5.2   Evaluation and limitations of the study

The purpose of the evaluation of the study is to secure and estimate the quality of the research. One of the most common evaluation criteria of qualitative research is the concept of 'trustworthiness' by Lincoln and Guba (1985). Trustworthiness of the research is evaluated through four aspects: credibility, transferability, dependability and conformability. (Eriksson & Kovalainen 2008, 290-291, 294)

Credibility refers to confidence in the truth of the findings. Good credibility requires familiarity with the topic and sufficiency of data to merit claims. (Eriksson & Kovalainen 2008, 294) Credibility can be enhanced, for example, through 'prolonged engagement,' triangulation and ensuring honesty of informants. Prolonged engagement involves spending an adequate amount of time in the field to understand the phenomenon, and establishing a relationship of trust between the parties. Triangulation involves using multiple data sources in an investigation to produce understanding and it can relate to methods, sources, analysis and theory. Tactics to help ensure honesty among informants when contributing data include giving opportunities to refuse to participate in the project and allowing par-

ticipants to offer data freely. (Shenton 2004, 65-67) The researcher of this study had previous experiences of the service desk work, but not insourcing, and knowledge of the topic accumulated as the study proceeded. In addition, meetings with the case company representatives were held to increase understanding about their project and establish a relationship of trust between the parties. Furthermore, triangulation was used since the data was both quantitative and qualitative, various data sources were used at different points in time (feasibility report and questionnaire), and the target group represented different viewpoints. Additionally, participation in this research was voluntary, and the participants were able to share their opinions anonymously. However, the lack of previous academic research of service desk insourcing caused challenges in understanding the complex phenomenon, and it may have affected the collection and interpretation of the material. Another limitation of this study was that the costs and the users' views about the results of the service desk insourcing were not studied.

Transferability relates to showing that the findings have applicability in other contexts. The idea is not about replication, but more to show some sort of similarity in other research contexts. (Eriksson & Kovalainen 2008, 294) Transferability can be provisioned by describing the phenomenon under investigation in sufficient detail and providing background data to establish context of study (Shenton 2004, 69-70). In this research, recent theories were utilized and compared with the empirical results to create a synthesis of the phenomenon. Moreover, the contextual information was written in detail as in qualitative research the results are more or less dependent on the context. One of the limitations of this study is that the data is only based on one case company, thus, the research findings cannot be directly generalized to other companies.

Dependability refers to showing that the findings are consistent and could be repeated. Good dependability requires informing the reader about the process and activities of the research. (Eriksson & Kovalainen 2008, 294) Dependability can be increased by describing the research design and implementation and providing the operational detail of data gathering (Shenton 2004, 71-72). The research process has been described thoroughly to assure the dependability. The research target, design, data collection, data analysis, and tools are all reported in this research.

Conformability alludes to the degree of neutrality or the extent to which the findings of the research are actually shaped by the respondents and not merely the researcher's imagination. The findings and interpretation of the data should be easily understood by others. (Eriksson & Kovalainen 2008, 294) Conformability can be enhanced by triangulation, recognition of shortcomings in the study's methods and an 'audit trail,' which is a transparent description of the research steps from start to the finish (Shenton 2004, 72). Triangulation was used to some degree, and the limitations of the study's methods have been analyzed and described. The research process, the data and the reasons for the findings have been presented to ensure conformability. Furthermore, the two case company

representatives and the supervisor reviewed this research and gave their professional opinions enhancing the confirmability of the research.

All these aspects together signify that the trustworthiness of the research was gained despite a few limitations. The research was made possible and has been executed by following quality and ethical research manners.

5.3   Ideas for further research

This research is thus far one of the few studies which that immersed in the topic of service desk insourcing. This research focused especially on the development of the service desk function through insourcing by critically studying recent theories and the single service desk insourcing project at the case company. However, this only provides a narrow view about the service desk insourcing process, and indeed it should be studied in a wider scale. For example, it would be interesting to study differences and similarities between multiple cases.

The empirical data showed many potential objects for agile piloting, such as the training of users, focus on certain working contact channels and periodic walk-arounds into work places. There are vast opportunities to develop the service desk function based on this kind of rich material pertaining to the work of the service desk employees. Furthermore, this research focused mainly on the service desk work, but other relevant and interesting research topics could include cost analysis and user experiences.

All in all, more studies need to be done to understand the linkage between and the effects of insourcing on the functionality of the service desk function. Service desk insourcing research is valuable and should be continued; it helps to secure and develop the service desk function to the best level.

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APPENDIX: THE SERVICE DESK QUESTIONNAIRE

Dear Service Desk staff

The Service Desk has now been insourced to the case company for approximately a year (since June 2015). Now we are conducting a small questionnaire. The aim is to get a richer view to Service Desk's current functionality and related issues from multiple perspectives, and then compare this data against the goals and existing evaluation data.

This is a good chance to you to tell and share your professional and experienced views about your work, collaboration, the functionality of Service Desk, etc. All the collected information is highly confidential, and the information from individual answers stays only in the use of the researchers. The individual answers cannot be identified from a report or results which are produced from the questionnaire.

Answering takes about 5 minutes. Please answer the questionnaire by 20 May 2016. The link to the questionnaire is here: xx

Thank you for your time – your opinion is important to us!

Best Regards,
Teresa Taskinen, Antti Tuomisto, Head of Service Delivery & Service Desk Manager

This is conducted in collaboration with Turku School of Economics, University of Turku. If there are any questions or technical problems with the questionnaire, please do not hesitate to contact: Teresa Taskinen, tetutas@utu.fi.

The case company Service Desk Questionnaire

1. What is your gender?
   - o Female
   - o Male

2. What is your age?
   - o 29 or under
   - o 30-39
   - o 40-49
   - o 50 or older

3. Where do you work?
   - o Sweden
   - o Finland
   - o Norway
   - o Denmark

4. What is your role in the case company service desk?
   - o Service desk manager
   - o Service desk analyst
   - o Onsite specialist
   - o Incident manager
   - o Other, what?

5. Did you have work related connections to the case company before your current work?
   - o Yes, I worked for the case company through a service provider
   - o Yes, I did other work within the case company
   - o No, I did not have previous work related connections to the case company

6. How long you have been working at service desk/onsite/IT support?
   a) overall:

   b) at the case company (including work for the case company through a service provider):

7. What are your three most important tasks, in your opinion?

8. Which matters do you enjoy most in your work?
   Please give max three main points with short explanations

9. How well does the service desk operate at the moment?
   - o Poor   o Fair o Average   o Good   o Excellent

10. Evaluate how well the following service desk/IT support related matters work.
If you want, you can give short reasoning for your evaluation (the small text box)

	Poor	Fair	Average	Good	Excellent
Contact center system	○	○	○	○	○
Ticketing system	○	○	○	○	○
CMDB	○	○	○	○	○
Remote management system	○	○	○	○	○
SCCM	○	○	○	○	○
Chat	○	○	○	○	○
Yammer	○	○	○	○	○
Self-service portal	○	○	○	○	○
Ownership of tickets	○	○	○	○	○
Communication with users	○	○	○	○	○
Informing users about the status of their request	○	○	○	○	○
Flexibility to handle special and urgent cases	○	○	○	○	○
Recognizing improvement needs	○	○	○	○	○
Other SD related issues: name, reasoning	○	○	○	○	○

11. What problems/challenges have you experienced or noticed in the case company service desk/IT support?
Please give max three points with short explanations.

12. Evaluate the following claims, which relate to user behavior.
If you want, you can give short reasoning for your evaluation (the small text box)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Users use polite language	○	○	○	○	○

in their service requests

Users have difficulties in explaining technical issues	○	○	○	○	○
Several IT issues could be solved and minimized with better user training	○	○	○	○	○
Users' service requests often include inadequate information (you have to ask further clarifications)	○	○	○	○	○
Users contact too easily (with small thought issues could be solved self)	○	○	○	○	○
Users know their issues' resolution times well enough	○	○	○	○	○
Other user behavior issue: name, reasoning	○	○	○	○	○

13. How well the case company service desk/IT support operate in general compared with the previous outsourced service desk (situation before insourcing)?
    If you do not have experiences about the previous arrangement in the case company, you can compare the case company service desk/IT support with your impression of how well companies' service desk generally operate.
    - o Much worse
    - o Somewhat worse
    - o Equally well
    - o Somewhat better
    - o Much better

14. What are the main advantages working in internal service desk/IT support compared with working in an outsourced service desk?
    Please give max three main points with short explanations.

15. During service desk insourcing project several things were prepared. How well the service desk insourcing succeeded in regard to the following arrangements?

	Poor	Fair	Average	Good	Excellent
Communication about service desk's current operation	o	o	o	o	o
Roles within service desk	o	o	o	o	o
Processes	o	o	o	o	o
Arrangement of practical facilities	o	o	o	o	o
Development of necessary tools	o	o	o	o	o
Training	o	o	o	o	o
Launch	o	o	o	o	o
Overall success	o	o	o	o	o
Other arrangement: name	o	o	o	o	o

reasoning

16. What are the central differences in customer relationship, when service desk/IT support is internal compared with an outsourced service desk?
    Please give max three main points with short explanations.

17. Do you experience or believe that you are able to do more meaningful work in the case company service desk/IT support than in outsourced service desk/IT support?

    o Strongly disagree o Disagree o Neutral o Agree o Strongly agree

18. How could the case company service desk be improved/developed?
    Please give max three development suggestions with short explanations.

19. Imagine that you could change anything at your work place to make it better. What would it be? Or anything else that came to your mind regarding Service Desk, your work, collaboration, tools, systems, the case company, etc.?
    Free comments

20. If you are interested in participating a short interview in which matters that come up in this questionnaire are dealt with more deeply, write your name for a possible contact.

Name

Submit