Self-Service Recovery

Services, by their very nature, are seldom error free. Service recovery is a set of actions a service provider can take in order to repair a failure. Many services are also Internet-based, meaning that the user produces and consumes the service alone. Self-services enabled by IT, referred to as self-service technology (SST), are characterized by an interaction between a user and a machine rather than between two humans. Consequently, solving a problem due to an error in the self-service is no longer conducted between two humans interacting in a face-to-face manner, but between a user and a machine. Therefore, a new type of service recovery adhering to the self-service technology context is needed and introduced as a new term in this dissertation:

Self-Service Recovery (SSR) is defined as the capability, enabled by self-service technology, of turning user problems into solutions and improvements by means of sharing knowledge between users in order to create value.

This dissertation has two purposes regarding self-service recovery: to describe what it is, and to understand why it works. The purposes have been addressed by evolving two frameworks to describe self-service recovery and understand why self-service recovery works. The contributions of this dissertation reside in the frameworks, which enhance our understanding of self-service recovery as a value creation activity through not only recovery, but also through improvement and development of the service in question.
Niklas E. Johansson

Self-Service Recovery

Karlstad University Studies
2006:68
Abstract

Service recovery is about problems. What happens when customers experience problems? Well, sometimes customers complain to the one responsible for the service. Sometimes customers do not complain but instead tell somebody else about the problem, possibly leading to a bad reputation for the one responsible for the service. Sometimes it happens that customers never return to the same provider because of the problem experienced. To avoid the customer leaving, service recovery can be used. Service recovery is a set of actions a service provider can take in order to repair a failure (Tax and Brown, 1998; Zemke, 1995; Scheuing and Christopher, 1993; Levesque and McDougall, 2000).

In addition, many services today are Internet-based, meaning that services are self-services enabled by information technology (IT). Self-services enabled by IT, referred to as self-service technology (SST), are characterized by an interaction between a user and a machine rather than between two humans. Consequently, service recovery is no longer between two people interacting in a face-to-face manner when solving problems, but between a user and a machine when taking place in an SST context.

This change of context has resulted in difficulties but also opportunities in the work of service recovery. Instead of turning to the one responsible for the service when problems occur, it is now possible to turn to other customers and users to receive help. SST has opened up new opportunities to learn with and from other individuals through the sharing of knowledge. The sharing of knowledge for the purpose of turning problems into solutions and improvements depends on the ability to create value for people involved.

Service recovery in a self-service technology context, i.e. self-service recovery (SSR) is defined as the capability, enabled by self-service technology, of turning user problems into solutions and improvements by means of sharing knowledge between users in order to create value.

The aim of this doctoral thesis is to answer the question, “Why self-service recovery works?” The question is addressed by seven research studies and by evolving a framework for understanding why self-service recovery works.
The contributions of this dissertation reside from the framework, which enhances our understanding of self-service recovery as a value creation activity through not only recovery, but also improvement of the service in question.
Acknowledgements

It may sometimes seem like research is carried out single-handedly and therefore rather lonesome in its nature; this is in fact both right and wrong! This dissertation has evolved during many unaccompanied hours where I have been sitting alone in my office trying to find the solution or even the problem. However, to be creative, determined, productive, efficient, dedicated, systematic, happy, organized, devoted, punctual, optimistic, and motivated which are abilities I consider to be important in research, involves more people than just myself.

First of all I would like to express my sincere appreciation to my parents, Lotta and Lasse. The love and support given during not only my academic education, but also throughout my life, has been the most important reason for where I am today. Sailing-camp, broken toe, cigarette lighter in the car, Chivas, moving again, blueberry pie (representing excellent wine and stunning cuisine), commitment to school, and for so much more, thank you!

Daniel, you have been truly inspiring as a brother and a great friend. I am certain that your kindness to let me win (often), your trustworthiness for your little brother (still), and your ability to build things (soccer box, hockey arena, porches, teams etc.) have affected me greatly.

A number of people within academia have contributed with thoughts, suggestions, opinions and just good times. My two supervisors from Karlstad University, Professor Anders G. Nilsson and Professor Bo Edvardsson have constantly provided me with new and challenging insights. One thing is for certain; Professor Anders G. Nilsson is a great supervisor even at night. These nights have been the difference for this dissertation. Thinking about it, this dissertation truly feels like a joint effort. People at the Department of Information Systems, the Service Research Center (CTF), doctoral students, and professors in the Swedish Research School of Management and Information Technology (MIT) have collectively contributed to this dissertation. In particular, Professor Sven Carlsson provided valuable contributions in a critical stage of this research process. In addition, Ulrika Mollstedt – you are a great roommate and colleague, Leon Kaiserlidis – I already recommend people to read your not yet published dissertation, Per Kristensson and Jonas Matthing – I wish more were
like you in academia, Helena Renström – I really appreciate you letting me stay in Phoenix, and Ingrid Hansson – you are Tofino\(^1\) for me.

I would also like to express my appreciation to Ericsson Consumer Lab, Telia-Sonera, SAS, and Metso Paper Karlstad for participating and contributing with valuable information in various studies.

I really admire and appreciate the patience and understanding the Editor-in-Chief for the Journal of Theoretical and Applied Electronic Commerce Research, Dr. Narciso Cerpa, showed me during the last stages of the review process.

During the years as a Chairman of the Doctoral Student Section at Karlstad University I became aware of the great significance and value the Rector, Christina Ullenius, has been for our University and particularly the research education. You are Karlstad University for me.

I am grateful for the resources and financial support provided by the Swedish Research School of Management and Information Technology (MIT) that made this journey possible.

My family, Åsa and Vendela, you are my raison d'être!

\(^1\) Tofino is a symbol for good times and one reason why I should stay in academia.
Towards the Scientific Journey

My journey began during the autumn of the year 2000. That was the year when a friend and I began thinking about a suitable subject for two upcoming Master’s theses. What we knew was that it would originate from the areas of services and information technology (IT). Shortly before we started thinking about suitable subjects, I had participated in a course at Karlstad University called Services and IT. During that course, I became familiar with the concept of self-service technology and, in particular, its relationship with service recovery. The reason for my interest in the service recovery concept was the bachelor thesis (Johansson and Nilsson, 2001) I had written two years earlier. Getting to know these two concepts, i.e., self-service technology and service recovery marked the beginning of my research focus. My co-author for the bachelor thesis and I became aware, after looking for existing literature on the combination of self-service technology and service recovery, of the obvious lack of research in this relatively unexplored area.

Once we had understood the non-existence of this research combination, we began to become even more interested and quickly felt the need for some consultations with people familiar with the two areas. Fortunately, the presence of the Service Research Center (CTF) and its collaboration with the Department of Information Systems made our efforts in finding suitable people to give professional advice an easy task. After some initial discussions with representatives of the Service Research Center and the Department of Information Systems, we began developing ideas, formulating the research design, and finding an appropriate method for our research problem.

During the process of writing these two Master’s theses, Sten Carlsson, a member of the faculty at the Department of Information Systems, and my supervisor asked me if I had ever thought of becoming a Ph.D. student. This was not something I had ever envisaged as an alternative future career. Nonetheless, I felt honored by this offer and felt the urge to know more about what it was really all about becoming a Ph.D. student. Once Sten Carlsson had become aware of my interest, I was passed on to the Professor of the Department of Information Systems, Anders G. Nilsson, for additional information and discussions. Professor Anders G. Nilsson then informed me of the new Swedish Research School of Management and Information Technology (MIT), consist-
ing of seven (now ten) collaborating universities and university colleges throughout Sweden, as well as the suitability of my topic should I apply to enter this research school.

When I started mulling the offer over and discussing it with other people, I remembered some important words Professor Anders G. Nilsson had said to me during our last meeting. He told me that two of the most important things for a Ph.D. student are motivation and perseverance. This subsequently led me on to other questions; would I enjoy working with academics, did I like writing theses and, since I was from another city, would I like to live in Karlstad for an additional period of five years?

For as long as I can remember, challenges have always encouraged me. I need challenges to get pleasure from life in general, but also in order to reach my peak ability. I guess this characteristic stems from my “previous” life, when my first priority was playing ice hockey. Although my life has changed significantly, the need for a good challenge is still important.

So, what was the offer really all about? It was about a new research school called the Swedish Research School of Management and Information Technology. My workplace would be in the beautiful and friendly city of Karlstad. The research focus would most likely be something very interesting and full of potential. If all of this combined is not a first-class and interesting challenge, then what is? Of course, I accepted the challenge!

A couple of months later, when I was starting at the Swedish Research School of Management and Information Technology, I had finished my fourth thesis which was the third in a row focusing on service recovery (Johansson and Nilsson, 2001), with the second and third one focusing on the combination of service recovery and self-service technology (Johansson and Pettersson, 2001a; Johansson and Pettersson, 2001b). Although I was quite satisfied with these theses, I had realized that there was so much more to explore and comprehend in this area. This feeling of being slightly uncompleted was very much due to the results of the theses. At this time, I did not have any specific research question for my Ph.D. thesis, more than my ambition to change and develop the concept of service recovery in order to work more properly in a self-service technology (SST) context.
After successfully applying to and being accepted by the Swedish Research School of Management and Information Technology (MIT), we were given the recommendation to attend and complete up to four courses during the first semester. This recommendation was based on the conviction to finish as many courses as possible at the beginning of the five years of research studies and then focus on writing the thesis, thereby lessening the time needed to finish the dissertation. Even though this heavy course-load together with the need to adjust to a completely new work setting consumed much of my time, I felt the need to accomplish something for my Ph.D. thesis. In addition, at the end of January 2002, the first research proposal seminar at the Gimo Mansion outside Uppsala had been scheduled and required all Ph.D. students at MIT to prepare their research proposals. Being relatively certain about my topic and research question, I felt nervous but not in despair. During my first autumn as a Ph.D. student, I also became involved in discussions and received valuable feedback from a lot of people from the Department of Information Systems and through my co-supervisor, Bo Edvardsson from CTF. This changed my own personal view of the concepts of service recovery and self-service technology, making me challenge and confront much of what I had previously written. The journey could now begin…
Included Research Studies


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### Abbreviations

<table>
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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASU</td>
<td>Arizona State University</td>
</tr>
<tr>
<td>ATM</td>
<td>Automated Teller Machine</td>
</tr>
<tr>
<td>CBIS</td>
<td>Computer-Based Information Systems</td>
</tr>
<tr>
<td>CPQ</td>
<td>Customer Perceived Quality</td>
</tr>
<tr>
<td>CTF</td>
<td>The Service Research Center</td>
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<tr>
<td>EKR</td>
<td>Electronic Knowledge Repositories</td>
</tr>
<tr>
<td>FAQ</td>
<td>Frequently Asked Questions</td>
</tr>
<tr>
<td>HCI</td>
<td>Human-Computer Interaction</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and Communications Technology</td>
</tr>
<tr>
<td>IHIP</td>
<td>Inseparability, Heterogeneity, Intangibility, and Perishability</td>
</tr>
<tr>
<td>IS</td>
<td>Information Systems</td>
</tr>
<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>KaU</td>
<td>Karlstad University</td>
</tr>
<tr>
<td>KMS</td>
<td>Knowledge Management System</td>
</tr>
<tr>
<td>MIS</td>
<td>Management and Information Systems</td>
</tr>
<tr>
<td>MIT</td>
<td>The Swedish Research School of Management and Information Technology</td>
</tr>
<tr>
<td>NPD</td>
<td>New Product Development</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>RBV</td>
<td>The Resource-Based View</td>
</tr>
<tr>
<td>RS</td>
<td>Research Study</td>
</tr>
<tr>
<td>SAS</td>
<td>Scandinavian Airlines System</td>
</tr>
<tr>
<td>SCC</td>
<td>The SymBelt Customer Center</td>
</tr>
<tr>
<td>SIS</td>
<td>Strategic Information Systems</td>
</tr>
<tr>
<td>SM</td>
<td>Service Marketing/Management</td>
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<tr>
<td>SMS</td>
<td>Short Message Service</td>
</tr>
<tr>
<td>SR</td>
<td>Service Recovery</td>
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<tr>
<td>SSR</td>
<td>Self-Service Recovery</td>
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<tr>
<td>SST</td>
<td>Self-Service Technology</td>
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<tr>
<td>TAM</td>
<td>Technology Acceptance Model</td>
</tr>
<tr>
<td>TBSS</td>
<td>Technology-Based Self-Service</td>
</tr>
<tr>
<td>TQM</td>
<td>Total Quality Management</td>
</tr>
<tr>
<td>TR</td>
<td>Technology Readiness</td>
</tr>
<tr>
<td>TRI</td>
<td>Technology Readiness Index</td>
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Structure and Reading Instructions

Early in the Ph.D. program I decided to write the type of dissertation that consists of a number of papers/articles together with a comprehensive summary (“sammanläggningsavhandling” in Swedish). It was also decided that I should present and defend a licentiate thesis (half-part dissertation) after 50% of the time available. The licentiate thesis, which was presented and defended in March 2004, is structured as a one-piece book. The doctoral thesis is also to be regarded as a one-piece book. The dissertation as a whole consists of the licentiate thesis and the doctoral thesis. The problem was therefore to bring the one-piece book of the licentiate thesis, to form part of another one-piece book of the doctoral thesis. Many alternatives were tested and presented to research colleagues and the most important decisions revolved around whether the licentiate thesis should be excluded or included in the final dissertation. If included, where should it be placed? Should the licentiate thesis be split or should it be preserved as the one-piece book it was in the licentiate thesis? All of these questions have finally led me to the structure of this dissertation consisting of two frameworks and the supporting research studies (Figure 1).

Structure of the dissertation

This dissertation includes the licentiate thesis and the doctoral thesis, but the licentiate thesis, which is to be regarded as a pre-study, is available in “Appendix B: The Licentiate Thesis”. The licentiate thesis entitled “Self-Service Recovery – Towards a Framework for Studying Service Recovery in a Self-Service Technology Context from a Management and IT Perspective” contains a comprehensive summary and three research studies (research study 1-3). The comprehensive summary in the licentiate thesis will be referred to in this doctoral thesis as “Self-Service Recovery – What it is”. It is important to note, however, that the three research studies have been excluded in Appendix B because otherwise the research studies would have been in various locations. The seven research studies, including the three from the licentiate thesis, are now in “Appendix A: The Research Studies”.

The doctoral thesis will begin with a comprehensive summary, which is named “A Framework for Self-Service Recovery – Why It Works”. The short name for the comprehensive summary is: “Self-Service Recovery – Why it works”. The framework will be followed by the seven research studies, which are presented
in “Appendix A”. Finally, the comprehensive summary of the licentiate thesis is to be found in “Appendix B”. The structure of the dissertation is illustrated in figure 1.

Figure 1: Structure of the dissertation

The licentiate thesis (Appendix B) starts from the beginning discussing some of the main concepts and theories in this dissertation such as service recovery (SR), self-service technology (SST), and self-service recovery (SSR).

Before the presentation of the seven research studies (Appendix A), a complete list of all the literature references in this dissertation is presented. The complete list of references in the dissertation, including the references found in “Appendix A” and “Appendix B”, is entitled “Bibliography”.

Reading instructions
Although the licentiate thesis has been published and defended previously, it should now be regarded as something new and part of a new whole, which is
the dissertation. For readers unfamiliar with service recovery and self-service technology, it is recommended to begin with the licentiate thesis and then continue with the doctoral thesis in order to comprehend self-service recovery. Otherwise, it should be fine to begin with the doctoral thesis, where the main constructs from the licentiate thesis are introduced briefly.

The disposition of this doctoral thesis is as follows:

**Chapter 1**
Introduction to the research problem, knowledge gap, research questions, and the purpose of the study.

**Chapter 2**
Brief summaries of the seven conducted research studies from Appendix A.

**Chapter 3**
Methodological considerations consisting of research design, data collection, and important analysis connected to the research studies.

**Chapter 4**
Proposed framework for why self-service recovery works based on the three aspects strategic issues, collective knowledge, and SST as an IT enabler.

**Chapter 5**
Answering the research questions and drawing attention to the academic contributions and managerial implications.


A Framework for Self-Service Recovery
– Why It Works

1 Introduction

For approximately two years (2002-2004), a study was carried out focusing on an electronic service that was launched to customers of the paper machine producer Metso Paper in Karlstad, Sweden. Metso Paper is a global supplier of papermaking, tissue making, pulp making, and board making lines. The electronic service was called the SymBelt Customer Center (SCC) and the potential customers were personnel at mills in various countries around the world.

At Metso Paper in Karlstad, one crucial component of a paper machine is produced which is the SymBelt Shoe Press Roll. The roll is the result of extensive design and development work together with many test hours in pilot machines in field experience settings. Some of the advantages with the SymBelt Shoe Press Roll are said to be increased dryness levels out of the press, it works at a high speed, and it gives a high quality paper at low power consumption and costs. Approximately 200 customers worldwide have the SymBelt Shoe Press Roll in their paper machines.

The SymBelt Customer Center is an Internet-based service center intended to help customers optimize the SymBelt installation and use. SCC supports Metso Paper’s services and makes it possible for the customer to get improved control of the SymBelt Shoe Press Roll. The SCC is a communication channel that is open 24 hours a day, 7 days a week, and 365 days a year. The SymBelt Customer Center includes functions such as allowing customers to report disturbances and giving them access to the status of reported cases. In the SymBelt Customer Center, planned services and service history are also presented. In addition, all documentation on the mill’s SymBelt Shoe Press Roll is available as an updated contact list. Two other functions of the SCC are a FAQ (Frequently Asked Questions) section where the customers’ questions can be asked and a forum where SymBelt Shoe Press Roll questions can be discussed (Metso, 2005).

The idea to develop The SymBelt Customer Center was introduced by a business manager at Metso Paper Karlstad in the year 2000. At that time e-business
was almost a necessity and as a result discussions within the organization\(^2\) took place about how to use and gain benefits from e-business. There were several reasons for choosing an electronic service for the SymBelt Shoe Press Roll. One of the reasons of choosing to develop the SCC is that the product is unique in the sense that it is an important component for the efficiency of the complete paper machine. Moreover, the roll is not easily replaceable with a similar product in case of a breakdown. As a consequence, it is important to customers that breakdowns do not occur. In addition, the SymBelt Shoe Press Roll is a relatively new product for Metso Paper. Considering all these factors, the SymBelt Customer Center was initiated in order to provide the customers with increased control and to secure the operations of the SymBelt Shoe Press Roll.

The idea was to build an Internet-based service that would improve service and feedback for customers of Metso Paper in general and the SymBelt Shoe Press Roll in particular. This should lead to shorter stops after breakdowns and less time to get back to normal production levels.

When developing The SymBelt Customer Center, Metso Paper involved a number of selected customers (pilot customers) in the development process. The reason for this involvement, according to Metso Paper, is that customers are the main future users of the electronic services and their opinions about issues like the SCC’s contents, quality, and usability are therefore relevant for the success of the SCC.

1.1 The licentiate thesis

Before presenting more on the SymBelt Customer Center case, a short introduction to the main concepts in this dissertation will take place through a short presentation of the licentiate thesis. Some of the main concepts explained in the licentiate thesis are important for the overall dissertation. The purpose of the framework (Figure 2), found in the licentiate thesis, is to describe self-service recovery from a management and IT perspective. Each row in the framework represents one research question (the shortened name) from each included research study in the licentiate thesis. Each research question is then analyzed in light of three perspectives (three columns): management, management & IT, and IT.

---

\(^2\) Company and firm are considered the same in this dissertation. Organization and enterprise includes both public and private companies.
As the title suggests in the licentiate thesis as well as in the name of the framework (Figure 2), self-service recovery, which is the combination of service recovery and self-service technology, is the most central concept in this dissertation.

Service recovery was defined in the licentiate thesis as a set of actions a service provider can take in order to repair a failure in the service (Tax and Brown, 1998; Zemke, 1995; Scheuing and Christopher, 1993; Levesque and McDougall, 2000). The definition of a “service” used in the doctoral thesis follows the definition proposed by Edvardsson et al. (2005:118):

“Service is a perspective on value creation rather than a category of market offerings; the focus is on value through the lens of the customer; and co-creation of value with customers is key and the interactive, processual, experiential, and relational nature form the basis for characterizing service.”

Self-service technology, on the other hand, was defined as when the customer with the aid of technology creates and consumes the service with no human interaction (Bitner et al., 2000; Meuter et al., 2000; Parasuraman, 2000). Important to note is that “technology” in the quotation refers to the hardware and software used by information systems (Alter, 2002).

In line with the findings in the framework (Figure 2), self-service recovery was defined as (Johansson, 2004:3):

---

3 The term “self-service recovery” was first coined during the master thesis in June of the year 2001 (Johansson and Pettersson, 2001).
“The activities that a customer and a service provider undertake, with the aid of technology, in order to recover from a service failure in the marketspace.”

As the understanding of self-service recovery through the framework (Figure 2) began to be comprehensible, it also became evident that although service recovery may aspire to noble intentions, i.e., helping out in troublesome situations, it nevertheless tends to fail. While the Metso Paper study did not turn out to be what Metso Paper, customers, or researchers involved in the study anticipated, it became clear that an understanding of the low usage, and later the shut down of the SCC, was important. These occurrences made me interested in why self-service recovery did not work in the Metso Paper study.

1.1 Problem background

The idea from Metso Paper was to develop an Internet-based service, foremost based on external pressure (the .com boom), to extend and improve customer service and support using self-service technology (SST) as an IT enabler. Once implemented, the system was supposed to be used in operation and particularly when failure occurs (service recovery occasions). Based on feedback from users (examples of collective knowledge) and by monitoring activities, Metso Paper intended to increase awareness of customers managing the SymBelt Shoe Press Roll. As a result of better understanding of usage, Metso Paper projected a decrease of unsatisfied customer due to better support and service. In addition, improvements of the SymBelt Customer Center as well as paper products would benefit from an increased awareness of customers’ usage and consequently a better understanding of customer needs.

One problem with customer perceived problems and service recovery activities is that few companies see the benefits in acquiring feedback from unsatisfied customers and few realize that service recovery has the potential to create value. Instead of treating customer problems as something difficult and specific for one individual user, organizations should deal with customer problems as customer knowledge. Customer knowledge is important to be aware of when trying to improve a service or a product to become more suitable to customer needs. Applying this perspective as a company and to make it purposeful requires changes in the top level of companies. The Metso Paper study gives evidence to the fact that a company’s overall strategy must comply with the
intentions in projects like the SymBelt Customer Center and comply with the motives behind self-service recovery. If not, self-service recovery can not survive.

In the beginning of the study, Metso Paper had just decided to develop an Internet-based portal with the purpose of improving customer support and adding valuable services to existing relationships. Metso Paper wanted to improve the Internet-based service by providing customers with a tool, for example, to help customers in troublesome situations, i.e., self-service recovery. The portal was also meant to coexist with the current organization and employees within that organization. In the end, it was not valuable enough for customers and employees in the Metso Paper organization. Together with decisions at a strategy level of not supporting the development of the Internet-based service, it was soon shut down.

The Metso Paper study is a faceted story that raises several interesting questions not fully emphasized in the framework presented in the licentiate thesis. The reason why the Metso Paper study is interesting for my understanding of self-service recovery is that this particular study made me advance from focusing on the question, “What is self-service recovery?” to the overall research question in this dissertation, “Why self-service recovery works?” This also implies a focus on the opposite but related question of why self-service recovery does not work.

1.2 Knowledge gap

Service recovery has been extensively explored in research, however, most of the studies being carried out focus on situations where human beings are present. For example, Duffy et al., (2006) state that it is vital for service recovery satisfaction that someone is listening to the customer in an empathetic way. Likewise, Harris et al., (2006) declare that service delivery occurs between a customer and an employee and therefore is not possible to perform when the customer is not present. Snellman and Vihtkari (2003) call attention to the use of technology in problem solving because service providers may not be able to give responses in an empathetic manner when technology is the mediator. However, when it is not possible to listen to the customer in an empathetic way, e.g., non face-to-face situations, other aspects are important in order to make customers involved in a service recovery process satisfied.

Harris et al., (2006) state that customers are more in charge regarding Internet-based services than traditional “offline” services. In view of that, once could
assume that failures would occur more often and result in more service recovery efforts from the service provider. But in fact, it is quite the opposite. Meuter et al., (2000) found that when customers are more involved and responsible for the service being carried out, they feel that any mistakes are due to themselves and not the service provider. Snellman and Vihtkari (2003), however, present results showing that customers who feel mistakes are due to themselves were the most frequent complainers. Moreover, Harris et al., (2006) found that online customers are more willing to resolve problems by themselves, but only problems that require a low level of recovery.

Surjadaja et al., (2003) argue for the benefits of creating chat rooms or discussion forums, which stimulate communication between employees and customers or between customers. Chat rooms or discussion forums would also benefit from the research of Shaw and Craighead (2003) who stress the importance of keeping customers informed throughout the recovery process. In discussion forums, customers are dependent on, but not able to demand from, other customers in order to solve problems, which is different from a provider where customers often have the right to demand help.

Consequently, as the aspect (aspect is embraced in the doctoral thesis describing the main things to be studied) of collective knowledge in relation to self-service recovery has been recognized empirically in the SymBelt Customer Center case as well as theoretically through discussion forums, it will be further explored later in the thesis.

This dissertation focuses on contexts or situations when human interaction, in a face-to-face manner, is absent into which Harris et al., (2006) suggest firms should put more effort. Likewise, Surjadaja et al., (2003) affirm that few studies of service recovery in e-services have been carried out. Self-recovery (Harris et al., 2006) implies that the customer recovers alone, which in fact might lead to benefits such as feelings of being in control. Surjadaja et al., (2003) give an example of self-recovery when stating that customers in fact solve problems by themselves when participating in discussion forums. One problem with self-recovery is to find relevant information for problem solving.

This dissertation will not involve face-to-face contexts regarding self-service recovery. Instead, the face-to-face context is replaced by capabilities to recover in a self-service manner. The interaction could therefore be described as being
between a user and an IT or self-service technology enabler. Consequently, this dissertation will promote further exploration of SST as an IT enabler in relation to self-service recovery.

Poston and Speier (2005) investigate how content ratings and credibility indicators affect search, evaluation, and decision performance. They found evidence that the number of raters and rater expertise did not affect content search and evaluation, but content quality did. Customers also seem to prefer old fashion ways of complaining. Snellman and Vihtkari (2003) found that most complaints in an SST context were made by telephone or directly to an employee. Although self-service technology can offer built-in feedback mechanisms, service providers also tend to offer traditional ways of complaining which customers often prefer. Snellman and Vihtkari (2003), however, found that it doesn’t make complaining any easier. Shaw and Craighead (2003) focus on the service provider and suggest seven items to remember when recovering from an e-service failure. One of these items is called “offer a way out” which suggests, as opposed to Snellman and Vihtkari (2003), that customers should have an alternative option in the service recovery process.

Smith (2005) looks at the area of service recovery from a crisis management perspective and concludes that service recovery is foremost focused on reactive approaches to failures, such as damage limitation and service continuity, and not on the reasons for failures, i.e., prevention. Crisis management, on the other hand, is by definition concerned with systematic attempts to prevent crisis from occurring. This is also the reason, Smith (2005) states, why the core elements of crisis prevention have not received attention within the area of service recovery. Prevention, however, is costly and relative to the probability that a failure will occur, which makes organizations unwilling to spend too much money or resources on prevention systems. Martin (2005) concludes that crisis is not entirely random and unpredictable so detection systems should be useful in order to take precautions for the upcoming incident. Martin states (2005:350),

“Indeed, a proactive approach to crisis management seems obvious.”

In line with Martin (2005) and Smith’s (2005) call for service recovery to be more proactive and preventive in its nature, Johansson and Kaiserlidis (2002,
have explored the area of proactive service recovery and present four different service recovery strategies. Smith (2005) also emphasizes that crisis management will not prove to be successful unless both prevention and response strategies work in concert. Based on the need to not focus on reactive approaches to failures alone, self-service recovery will be expanded in this dissertation to include strategic issues.

It is noticeable that service recovery, due to a high degree of dissatisfaction among customers, is very common. It is noticeable that, although self-service technology solutions or e-services are growing in numbers rapidly, self-service recovery is not very common. It also seems to be a rather rigid area when it comes to research. Although a technology infusion in services has been noticed and is assumed to grow even more in the coming years, surprisingly few studies about service recovery in combination with an IT or SST context have been conducted. One explanation may be that the vast majority of research carried out concerning service recovery originates from Marketing and Management and not from Information Systems, Computer Science, or other fields. Great knowledge about service recovery has been generated in the field of Services Marketing/Management, just as great knowledge about development and usage of IS has been generated in the field of Information Systems and Computer Science. Great potential lies within these fields and it would benefit the area of service recovery if they were united. In general, service recovery would benefit from expanding its perspective to include other fields and other questions than just from Marketing and Management.

1.3 New research direction

During the same time as the Metso Paper study was taking place, two new projects started to receive my attention: the involvement in the CUDIT II study (research study 7), and further collaboration with Leon Kaiserlidis (research study 5). Both of these projects made me think even more about the question of why self-service recovery works? The Metso Paper study was truly the trigger to the transition between what self-service recovery is and why self-service recovery works. Research study 5, 6, and 7 made it possible to further explore the question “Why self-service recovery works?” but from a somewhat different angle.

For the purpose of answering the “why” question, this doctoral thesis will focus on a few selected areas of interest, not accentuated in the licentiate thesis, where the purpose is to answer, “What is self-service recovery?” The focus in the
doctoral thesis on strategic issues, SST as an IT enabler, and collective knowledge (Figure 3) will guide the discussion towards the answer to the research question in the doctoral thesis, “Why self-service recovery works?” The reasons why these three aspects will be emphasized in the doctoral thesis are related to the framework (Figure 2) presented in the licentiate thesis, empirical findings in the Metso Paper study (research study 4), and the CUDIT II study (research study 7).

Figure 3 is defined as a conceptual framework which is briefly described by Miles and Huberman (1994:18) in the following quotation:

“A conceptual framework explains, either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them. Frameworks can be rudimentary or elaborate, theory-driven or commonsensical, descriptive or causal.”

“Strategy” as a construct was part of the framework presented in the licentiate thesis (Figure 4). Strategic issues are used in the doctoral thesis (Figure 3) because the intention is not to present a plan to achieve a major aim but rather to discuss certain strategic issues in relation to self-service recovery. While strategic issues are important for the understanding of what self-service recovery is, it also became evident that strategic decisions in the Metso Paper organization affected the outcome of the SymBelt Customer Center (SCC) in general and consequently the outcome of self-service recovery.
In research study 4 (the first research study after the licentiate thesis was completed), the overall research question focuses on what users and employees perceive as valuable in an Internet-based service, where part of the service involves self-service recovery. It became evident that although users and employees found the Internet-based service to be valuable, it was not used very much. As a consequence of the usage in relation to the costs involved in the project, the Internet-based service did not get prioritization on a strategic level and was later shut down. The research question for research study 4 is therefore,

*What sources of value are important when evaluating Internet-based services?*

Several reasons why the Internet-based service was shut down are likely. Users and employees found the Internet-based service to be valuable, but to what extent? Since “valuable” is not an either-or state but dynamic, it is possible that the Internet-based service was valuable, but not enough for justification of a yearly fee and changes in work routines. It is also possible that users and employees found the Internet-based service to be valuable enough, but on a strategic level users’ and employees’ opinions were not taken into account. Although there can be several explanations why the Internet-based service was shut down, it is reasonable to believe that self-service recovery solutions, to some extent, must be of strategic importance in order to stay alive. Therefore, strategic issues, in a broader sense than only in relation to different service recovery strategies as was emphasized in the framework of the licentiate thesis, are vital for understanding the question “Why self-service recovery works?”
SST as an IT enabler has evolved from the construct “self-service technology”, which was part of the framework presented in the licentiate thesis (Figure 5). The reason for this focus on SST as an IT enabler and the difference to self-service technology is that SST as an IT enabler involves a broader perspective, including information technology and information systems, compared to a limited perspective on the combination of technology and services, i.e., self-service technology (SST). In particular, the change of focus means that IT (information technology) being a support of business activities is not sufficient to explain the role of IT in relation to service recovery. IT is more than a support; IT is an enabler for self-service recovery activities.

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<th>Service process approach</th>
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<td>Service Process</td>
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<td>Package Approach</td>
<td>Self-Service Technology</td>
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<td>Recovery strategies</td>
<td>Service Recovery (Relationship)</td>
<td>Strategy</td>
<td>System Recovery</td>
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<td>User assessment</td>
<td>Assessment</td>
<td>Quality and Utility</td>
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Figure 5: “IT” and “SST” from the framework for understanding what self-service recovery is will be further explored in the framework for understanding why self-service recovery works.

As was explored in research study 6, the appropriateness to link service recovery and service development was possible using a systems work perspective, implicitly contemplate IT as an enabler. It is argued in this doctoral thesis for the advantages in linking service recovery and service development using SST as an IT enabler, because self-service recovery has the potential to become an important part of service development activities, especially in the early phases of service development. In succeeding to link self-service recovery and service development, lies a potential strategic implication for the necessity of self-service recovery. Self-service recovery should not be concerned only with solving user problems and therefore running the risk of being excluded in strategic priorities, but instead should develop from being a problem-solving activity to becoming a crucial activity in the work of service development. This would also open up doors for
co-creation with users. Research study 6 focuses on the question of how service recovery and service development could conceptually be linked using IT as an enabler for that purpose. The research question in research study 6 is therefore, "What is the connection between service recovery and service development from a systems work perspective?"

Collective knowledge received attention because Metso Paper introduced user forums (a type of electronic network of practice) in the SCC and emphasized user involvement during the development of the Internet-based portal. The user perspective was also emphasized in the licentiate thesis (Figure 6). Together with the involvement in the CUDIT II project (research study 7) where user involvement through the use of mobile phones was realized and the conceptual development with Leon Kaiserlidis manifested in research study 5, collective knowledge which included user involvement and electronic networks of practice, grew to become a cornerstone around the question, “Why self-service recovery works?” In the framework (Figure 2) presented in the licentiate thesis, collective knowledge was not acknowledged. The reason was foremost due to the lack of empirical evidence. As the SCC and the CUDIT II project progressed, the importance of collective knowledge became more and more obvious in light of self-service recovery.

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Figure 6: “User assessment” and “User” from the framework for understanding what self-service recovery is will be further explored in the framework for understanding why self-service recovery works.

The basic idea behind service recovery is to help users or customers in troublesome situations. The idea behind self-service recovery is to enable users to receive
or provide help from and towards other users. This implies that users are involved in the process to a greater degree than in service recovery and that the knowledge used for solving problems is primarily created through interactions between users, not at the service provider (Harris et al., 2006).

Research studies 5 and 7 share the interest in exploring the potential in collective knowledge, however, research study 7 focuses on how customers can be involved when innovating new technology-based services and research study 5 focuses on IT-enabled knowledge acquisition and the effects on service development. The research questions for research study 5 and research study 7 are,

How can IT-based external knowledge acquisition from customers be used for service development purposes? (RS 5)

How can user involvement, in a self-service technology context, contribute to new ideas? (RS 7)

The center of attention in chapter 4 (“A framework for self-service recovery based on strategic issues, collective knowledge and SST as an IT enabler”) is illustrated in figure 7, which describes the key areas for each of the three aspects in the framework for understanding the question, “Why self-service recovery works?” Based on theoretical as well as empirical research concerning strategic issues, collective knowledge, and SST as an IT enabler, the following aspects and key areas have been chosen to further advance self-service recovery (Figure 7).

The premises for choosing the key areas in figure 7 were based on the suitability to the related aspects, the occurrences in the empirical studies, suggestions from reviewers of papers, and the appropriateness for advancing the findings in the research studies. The main reason for choosing the key areas, however, has been the appropriateness for contributing to the understanding of why self-service recovery works.¹

The somewhat unsystematic selection of key areas follows the characteristics of an explorative approach. An explorative study is often conducted when it is uncertain which characteristics and connections are the most important ones (Törnebohm, 1973). As stated by Törnebohm (1973), one characteristic of an

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¹ The reason and purpose of selecting the studied key areas are explained more thoroughly in connection to the framework description in chapter 4.
When beginning with this doctoral thesis, it was not completely certain which concepts and areas were most important for understanding why self-service recovery works. Sometimes a suggestion to look into a key area resulted in the discovery, or even the removal, of another area or aspect. As an example, during a MIT (The Swedish Research School of Management and Information Technology) seminar the suggestion to look into the area of “absorptive capacity”, due to the relation with strategic issues, resulted in the adoption of the area of “absorptive capacity”. It turned out (the person suggesting “absorptive capacity”
was most likely aware of this fact) that “absorptive capacity” not only relates to strategic issues, but also to collective knowledge. As “absorptive capacity” focuses on similar issues as self-service recovery it is placed in connection to self-service recovery. As a consequence, the relation between strategic issues and collective knowledge is evidently due to self-service recovery, which includes “absorptive capacity”.

1.4 Purpose

The purpose in the licentiate thesis was to “Develop a framework for describing self-service recovery from a management and IT perspective.” The purpose in the doctoral thesis is as follows:

Develop a framework for understanding why self-service recovery works. The conceptual framework will explain and describe important aspects, key areas, and relationships. This is based on the scientific work of the seven included research studies.

1.4.1 Some comments on the purpose

The majority of the research studies carried out in this dissertation have been explorative (see section 3.1.1). An explorative approach is useful when the research area, context, or concept is rather unexplored (Törnebohm, 1973, 1985) which is the case of self-service recovery. However, self-service recovery was recognized in the Metso Paper study because it did not work. Finding out why it did not work would rather be characterized as an explanatory study. The framework from the licentiate thesis (Figure 2) has provided a fair amount of understanding concerning what self-service recovery is. Based on this experience would it be possible to explain and describe why self-service recovery in the Metso Paper study did not work? The answer is almost certainly dependent upon the type of answer to expect. It is therefore important to state that this dissertation will not provide a definite answer. The ambition is rather to reach a conceptual model for penetrating a possible answer as well as a platform for considering the methodological choices made. Moreover, this dissertation will not make any claims of generalizability of the research results, rather tendencies (Walsham, 1995).

1.4.2 Research questions

The transition from what self-service recovery is to why self-service recovery works became evident, as previously stated, in the Metso Paper study (research studies 3 and 4). Research study 4 and the following research studies (5, 6, and 7) made
it possible to further study the question “Why self-service recovery works?” In “1.3 New research direction”, the relation between research studies 4-7 and the framework for understanding why self-service recovery works, was discussed in general. This also confirms the relation between research studies 4-7 and the overall research question. In addition, each research study is, as previously stated, represented by a research question. These research questions cannot be found explicitly in the corresponding research studies, but they were implicitly important for the direction of each research study moving towards the overall research question in the doctoral thesis. The research questions originating from research studies 4-7 will work as sub-research questions to the overall research question. The overall research question in the doctoral thesis is,

Why self-service recovery works?

This question will be answered based on the findings in the framework for understanding why self-service recovery works as well as in the research studies found in “Appendix A”, represented by the following four sub-research questions:

Research study 4: What sources of value are important when evaluating Internet-based services?

Although it might seem like this research question is somewhat far from the overall research question, this is not the case. This research study made it evident that self-service recovery sometimes does not function to its full potential. Why self-service recovery did not work in this case study was not the main focus in the study, but it was, to a certain extent, revealed.

Research study 5: How can IT-based external knowledge acquisition from customers be used for service development purposes?

How, then, would it be possible to make self-service recovery work? This was one of the questions that initiated this research study and also one of the questions that opened up the interest in collective knowledge and the possibilities lying within SST as an IT enabler for knowledge acquisition.

Research study 6: What is the connection between service recovery and service development from a systems work perspective?
Is it possible to connect service recovery and service development in a self-service technology context and in so doing benefit self-service recovery? Self-service recovery implies that self-service technology is an important enabler for service recovery. Therefore, it seemed natural to explore the connection between service recovery and service development from an IS (information systems) oriented perspective.

Research study 7: How can user involvement, in a self-service technology context, contribute to new ideas?

It is possible to involve users in service development activities in various ways. While the research question for research study 5 focuses on collective knowledge acquisition, i.e., early in the development process, research study 7 is concerned about how involved users can contribute to new ideas by means of mobile phones, i.e., the focus is not only on knowledge acquisition but also on the connection between knowledge acquisition and new ideas.

In addition, the framework for describing self-service recovery from a management and IT perspective (Figure 2), also contributes to the overall research question in the doctoral thesis. The framework presented in the licentiate thesis is, understandably, intertwined with the framework in the doctoral thesis because the two frameworks focus on the same process, i.e., self-service recovery.
2 Research studies

The research process started in the year 2001 when I was selected to become a member of the Swedish Research School of Management and Information Technology (MIT). During five years of research education, several empirical studies (Figure 8) have been undertaken in cooperation with various companies, which have resulted in four empirically based research studies (RS) out of the total seven.

![Figure 8: Length and time-line for the empirical studies](image)

A brief summary of research studies 1-7 will be presented in this chapter. Following the perspective in the licentiate thesis (Appendix B), the role of the user is the main focus in this dissertation, regardless of whether the user is a customer or not, regardless of whether the user is a consumer or not, and regardless of whether the user is part of a business-to-business or business-to-consumer context. Figure 9 illustrates the relation between the aspects in the framework for understanding why self-service recovery works and the seven included research studies. As a result, the relation between the research studies will therefore be discussed in this chapter. The research studies are numbered according to the chronological order when they were initiated.

In the licentiate thesis, future research was proposed regarding research studies 4-7. These suggestions turned out to be different in the doctoral thesis than was proposed in the licentiate thesis. In short, research study 4 in the doctoral thesis is similar to the proposed research study 4 found in the licentiate thesis. The proposed research studies 5-7 became one research study (RS 5) in the doctoral thesis. Consequently, research studies 6 and 7 in the doctoral thesis are not possible to trace back to the licentiate thesis, at least not explicitly. Research studies 6 and 7 are new ideas contributing to the selected research theme.
Research study 1 was initiated before my acceptance to the Swedish Research School of Management and Information Technology, and developed after the acceptance. This study has been the most influential study shaping my direction of research interests. Research study 1 was the first, to the best of my knowledge, to combine service recovery and self-service technology. This study made me interested in the combination and encouraged me to explore self-service recovery further. A fair amount of research had been produced concerning the area of service recovery, but when self-service technology was introduced at a rapid pace throughout the service sector, service recovery was also in need of change. Although self-service technology was more of a context in research study 1, it soon became obvious that SST involves many opportunities in the work of service recovery.

Research study 2 was highly influenced by research study 1, where the early understanding of service recovery was investigated. The collaboration with Leon Kaiserlidis (research studies 2 and 5) was critical because it opened up doors to new domains in relation to service recovery. Research study 2 felt like a huge leap towards collective knowledge and introduction to strategic implications in the work of service recovery. This path was foremost initiated because of our observation of Microsoft Windows XP proactive (self-) service recovery
solution. This solution, although somewhat inflexible, showed signs that Microsoft understood the valuable knowledge residing in the user. Obviously, this was also an important strategic decision when Microsoft started to consider users, the common user and not only experts, as an important source for development of Microsoft Windows XP.

During the same time as research study 2 was in progress, research study 3 was initiated. Later on in research study 3, it became clear that Metso Paper used self-service technology as an IT enabler to realize Internet-based services, where users were actively engaged. At that time, the understanding of what self-service recovery is started to become perceptible and resulted in the framework for understanding self-service recovery (Figure 2).

While research study 3 provided valuable input into figure 2, it also resulted in a change of my research direction. As the study of Metso Paper and the SymBelt Customer Center progressed, it soon became evident that the SymBelt Customer Center (what could be described as a type of self-service recovery) did not work as expected. To my knowledge, the benefits and potential had become more visible through the framework for understanding self-service recovery. It was also thought-provoking to witness that SSR could be unsuccessful. It was thought-provoking because it made me include the question, “Why self-service recovery works?”

The SymBelt Customer Center was of high priority in the beginning of the development phase but soon started to receive less attention. This was also one of the reasons why strategic issues became important in relation to the question, “Why self-service recovery works?” In addition, while research study 2 involved strategic issues in the work of service recovery, much more was possible to investigate regarding the relation between self-service recovery and strategic issues. Moreover, the feedback received from my opponent Professor Fredrik Nilsson during the licentiate thesis seminar where he suggested more focus on strategic issues in relation to self-service recovery, was also pushing me in the same direction. This in turn had an affect on the choices taken in research study 4 towards the resource-based view of the firm and Amit and Zott’s (2001) model of value creation in e-business.

Research study 5 was initiated because so much potential was left to be further investigated after the completion of research study 2. Research study 5 shares
the same foundation as research study 2, but it put more emphasis on the potential effects of various service recovery strategies than was explored in research study 2. In addition, research study 5 emphasizes SST as an IT enabler through the exploration of IT-based external knowledge acquisition from customers. Collective knowledge residing within and between users was previously difficult to manage and use. As of now, the Internet has become the foundation for online discussions and is available for everyone most of the time. Research study 5 draws attention to the opportunities in the relation between SST as an IT enabler and collective knowledge.

While research studies 2 and 5, as well as research studies 3 and 4, build upon each other to a great extent, research study 6 does not have a strong relation with any other research study. On the other hand, on a higher abstraction level research study 6 builds upon research studies 2 and 5 and particularly the connection between service recovery and service development. Research study 6, however, explores the relation between service recovery and service development from a systems work perspective (IT as an enabler). From a strategic point of view, customer value is emphasized and in particular value creation made possible through SST as an IT enabler.

Research study 7 focuses primarily on collective knowledge acquired through user involvement. Specifically, rather than benefit from the potential in using the Internet as the foundation for acquisition of collective knowledge as was explored in research study 5, mobile phones (a type of SST) are the IT enabler for involving users in the process of service (and product) development. While the Metso Paper study draws attention to user involvement, the differences are more significant than the similarities between the two research studies. Instead, research study 7 has more in common with research study 5 because of the exploration of collective knowledge in relation to SST as an IT enabler. Yet, research study 7 is more focused on user involvement than any other study in this dissertation. The “Collective knowledge” aspect in figure 9 is the only aspect that is not connected to a specific research study. The reason is that collective knowledge is tightly connected with SST as an IT enabler. It is not possible to reach the same opportunities residing within collective knowledge without SST as an IT enabler. When users easily connect to a large amount of users around the world and discuss common issues, the discussion is enabled by electronic networks of practice through the use of IT. IT is truly the enabler for collective knowledge. As a consequence, when discussing and studying
collective knowledge it includes a focus on IT, which is evident in research studies 5 and 7.

The shortened name of the title for each research study is used in the following sections.

2.1 Research study 1 – Self-service recovery


This research study was conducted during my first and second semester at the Swedish Research School of Management and Information Technology (MIT) and was later accepted, presented, and included in the proceedings of the eighth international research symposium on service quality (QUIS 8) 2002 in Victoria, Canada.

The research study addresses the problems of service recovery in a self-service technology context in the paper called self-service recovery. By interviewing customers and employees about service recovery aspects in a self-service technology (SST) context, differences and similarities between these two groups of respondents were presented. The results of the study showed that service recovery was barely working in the face-to-face context, but not at all in the self-service technology context. Even though the airline company had procedures for collecting and classifying information from customers, the most important step in the service recovery process, “improvement of the service”, did not work. Employees complained that nothing ever happened with all the information collected and had begun to mistrust the service recovery process as a waste of time. This highlights the importance of improvement activities in the work of self-service recovery.

The study was carried out using a modified model of Tax and Brown’s (1998) model of the service recovery process. The process of service recovery consists of four activities:

- identifying service failure,
- solution of problems,
- collecting and classifying information, and
- improvement of the service.
In addition, the attitude towards service recovery and self-service technology of the personnel has been emphasized in the study. Interviews with customers were carried out in connection with their use of “Self Service Automats” (an example of SST) at two airports in Sweden (Arlanda and Karlstad). In order to get a clear picture of the service recovery system of the organization, in-depth interviews were held with personnel on various levels of the organization.

Based on the results of this study, interesting questions arose which call for more research into service recovery in a self-service technology context. Although customers are not pleased with the service recovery strategy in the SST context, the customers in this study seemed to complain less in the SST system than in the traditional service context.

2.2 Research study 2 – Service recovery strategies


The second research study has been presented as a paper and included in the conference proceedings of the Academy of Marketing Science – Multicultural Marketing Conference 2002 in Valencia, Spain. In this paper, the authors analyze the concept of service recovery in an IT-based service setting. The main ideas of this paper are to develop the concept of service recovery even further and present four types of service recovery strategies.

A customer voicing his or her view of, for instance, the dysfunctional parts of a service or a less than satisfying level of service performance engages in a knowledge-sharing process with the firm. For the firm, the opportunity to learn and subsequently develop knowledge when creating a solution may yield many advantages. The advantages, however, are all linked to the type of service recovery strategy that the firm employs. The various strategies proposed in the paper are the following:

- **inactive** – a low level of involvement by firms and customers,
- **reactive** – a low level of involvement by firms but high level of involvement from customers,
- **active** – a high level of involvement by firms and customers, and
• *proactive* – a high level of involvement by firms but a low level of involvement by customers.

The strategy is closely related to how the firm has chosen to design the activities in the information system to acquire information, to develop knowledge during the process of creating a solution, as well as how and to whom this solution will later be distributed. This paper presents the four actions involved in all service recovery strategies. The four types of processes are information acquisition, information processing, solution creation, and solution distribution.

The difference between the service recovery strategies is, on the one hand, firms’ and customers’ level of involvement and, on the other, their relationship with the four processes of service recovery. It is argued that the use of information technology and the Internet in particular, has led to a change in the service’s firm-customer interaction. The customer is not merely a co-producer and consumer of services but can also be regarded as the single most important knowledge holder, and thus an information provider. By integrating firm and customer capabilities through the embedding of knowledge into their IT-based service systems, firms can increase their service management skills and enable a lower rate of poor service performance.

2.3 **Research study 3 – A conceptual model to assess use**


This research study has been presented and is included in the proceedings of the 11th International Colloquium in Relationship Marketing, 2003, Cheltenham, UK.

In the area of information technology and management, the introduction by Davis (1989) of the technology acceptance model (TAM) was, in many ways, a pioneering step in understanding the psychological factors influencing the use of information systems. The study by Davis (1989) focused on the role of the individual within the organization. Orlikowski and Barley (2001), claim that organizational theories have ignored the role of the human agency in shaping the design or the use of technology. Orlikowski (2000) posits that, since most technologies can be used in a number of ways, users shape the meanings of technologies as they integrate them into everyday practice.
Results from the study done by Karahanna et al., (1999) highlighted the importance of organizational issues and their affect on the individual. Similarly to Bobbit and Dabholkar (2001), they present a framework wherein they combine innovation diffusion and attitude theories into study differences in pre-adoption and post-adoption beliefs and attitudes. In addition to pre-adoption and post-adoption, a middle time phase is implemented in the conceptual model presented in this paper. The reason why the evaluation of IT-based services should include the middle phase is the importance of testing prior to implementation. Testing is crucial for the quality of the IT-based service (Andersen, 1994). The objective of this paper is to present a conceptual model for evaluating and assessing the individual’s use of an IT-based service. The conceptual model consists of the following three phases:

- **pre-use** - information about the service and/or visual experience are the only sources available for the potential user to assess the IT-based service,
- **test** – assessment is based on a longer use of the IT-based service in an organizational context, and
- **use** - the use phase makes it possible for the user, with more certainty than in the test phase, to form an opinion about the quality of the IT-based service (Winograd and Flores, 1986).

The principle underlying our model is that the user’s ability to assess the utility of an IT-based service is possible without usage. As for quality evaluation, usage of the IT-based service is a requirement.

### 2.4 Research study 4 – Value creation sources

“Revisiting Amit and Zott’s Model of Value Creation Sources: The SymBelt Customer Center Case”, by Niklas Johansson and Ulrika Mollstedt.

This paper is based on an earlier version entitled “An Empirical Study to Assess the Use of a New Web-Based Customer Services System”, which was accepted and presented at the AMCIS 2004 conference held in New York, USA. The included version has been published in the Journal of Theoretical and Applied Electronic Commerce.

The importance of the value of goods and services is crucial to firms providing all types of products. Lately, the development of electronic businesses has made it possible for firms to provide services in a way that was not possible earlier.
This development has also lead to challenges for firms to provide valuable Internet-based services to their customers.

Amit and Zott (2001) recognized the importance of understanding value sources in e-business. The concept of e-business, however, is rather broad and therefore this paper suggests a more narrow focus on the value of complementary services. The reason for this approach is an ever-increasing importance for firms to provide complimentary services supporting products or services. Amit and Zott’s (2001) model of the sources of value creation in electronic business includes four dimensions of value creation: efficiency, lock-in, complementarities, and novelty. We propose that in this business-to-business context a relationship perspective, emphasizing both the supplier and the customer firms, is necessary in order to comprehend the perceived value of complementary services. In contrast to Amit and Zott (2001), we suggest that the four dimensions of the model should not only be used as value creation sources, but moreover as value evaluation dimensions.

The findings of this case study, where Metso Paper’s Internet-based service and some of their customers’ perceptions of the services have been studied, show that the pilot customers have used the services infrequently. This study also shows that in this business-to-business context, the characteristics of the product, which the Internet-based service supports, are vital. Therefore, we suggest a modification of Amit and Zott’s (2001) business model to replace complementarities with nature of the core product.

2.5 Research study 5 – Knowledge acquisition


The first version of this paper was accepted, presented, and included in the proceedings of the ninth international research symposium on service quality (QUIS 9) 2004 in Karlstad, Sweden. This is an extended version of the award winning paper from the International Academy of E-Business, 5th Annual Conference, held in San Francisco, USA. The paper received the award “Outstanding Research Paper”.

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Customers are an important source of knowledge, and information technology (IT) is one channel to reach and create a dialogue with that source. This paper focuses on external knowledge acquisition from customers by means of information technology for service development purposes. It pays particular attention to internal, i.e., strategic choices of IT-enabled knowledge acquisition opportunities concerning customer-held knowledge for service development processes, as well as external processes such as service recovery and the connection with organizational structures such as virtual communities. The customers’ role in the process of service development is emphasized as well as the techniques for knowledge acquisition. The paper illuminates the complexity of such strategic choices, the role of IT in these occasions, and the potential effects on the firm’s service development.

The aim of this paper is to conceptually explore how IT-based external knowledge acquisition from customers may be used for service development purposes.

This paper contributes to the understanding of the customer as an important source for external knowledge acquisition, where IT is exposed to be the enabling factor. The importance of customer-held knowledge cannot be underestimated. On the contrary, if acquired by means of IT and developed into knowledge of the service organization it may lead to important advantages. The potential benefits of acquiring customer-held knowledge for service firms are valuable in the work of providing services according to customer needs. As this analytical paper shows, however, the process and procedures are complex and multifaceted. Service organizations need to investigate their strategic choices and the outcomes of these choices since they directly affect the role they assign to the interplay with IT and in the long run to the process of knowledge creation itself. The outcome of that process has, in turn, effects when enacted on the service organization’s service development processes.

2.6 Research study 6 – Customer value in SST


This research study has been presented and included in the ISD 2005 Proceedings of the Fourteenth International Conference on Information Systems De-
velopment: Pre Conference held in Karlstad, Sweden. A previous version was presented at the 2005 SERVSIG conference in Singapore.

Customers are interested in the usefulness of products, i.e., the value of services and goods. The value is made up of the ability of the service to solve problems or satisfy needs that the customer might have (Echeverri and Edvardsson, 2002). If the firm succeeds in satisfying customer needs the business value will improve as well. Customers’ perception of value, however, is dynamic not static. Value is therefore important to comprehend in terms of changes of value, feedback of customer value, creation of value, and assessment of value. The importance of value of goods and services is crucial to firms providing all types of products. This paper places emphasis on the relation between service change and systems work in technology-based services through development and recovery of services.

Service recovery and service development (jointly defined as service change) are common in traditional service work. With the infusion of technology in services (self-service technology), however, the same activity now requires an understanding of systems work.

Systems work, according to Nilsson (1991), consists of the interaction between the systems usage and the systems maintenance of an information system. The purpose of this paper is to elucidate the connection between systems work and service change in relation to customer value.

So far, this paper is the first to clarify the connection between systems work and service change in relation to customer value. In addition, this contribution encourages the interplay between two academically separated fields: Service Marketing and Information Systems. The second contribution lies in the relationship between service recovery and service development. In the field of Service Marketing, service recovery and service development have been treated as two distinct and separated processes. As illustrated, however, service recovery and service development present prospective opportunities when connected. In particular, service recovery could be a natural trigger for service development activities.
2.7 Research study 7 – Market oriented innovation


This paper was accepted and presented at the 30th PDMA (The Product Development and Management Association) 2006 conference held in Atlanta, USA. It has been submitted to the International Journal of Innovation Management.

This article is about how companies can involve customers to become co-producers of future technology-based services.

A particular challenge that technology-based service companies face is the difficulty in asking customers what kind of services they find interesting. The typical customers are often unable to express the kind of services that would create surplus value for them as they have little knowledge of what technology actually might be able to do for them in the future.

Consequently, if a traditional survey is conducted where future applications are being asked for, customers usually give answers that any product developer would have already guessed. In addition, since technology-based service seldom implies traditional face-to-face interactions with front-personnel, companies are missing the chance to understand how the customers use their services, i.e., the kind of mistakes and misunderstandings customers might have that provide opportunities for the company to make service improvements.

A new approach that enables service companies to learn from their customers is therefore needed.

Customer involvement implies such an approach. Customer involvement implies a situation where the customer takes part as an active collaborator together with the company in the beginning of a new service development project. Through a mutual learning process, knowledge is created about how the company can serve customers in a better fashion, and/or the customer can produce ideas for improvements of existing services or radically new services. It is assumed that the customer after some time of collaboration reaches insight about what the company might actually be able to produce. As a member of the service development team, the customer can then initiate new projects or kill those
who are likely to fail – from the viewpoint of what the customer her- or himself would desire. To conclude, the customer as a co-producer implies finding ideas for improved services, strengthening new customer relationships, gaining knowledge about customer failures and mistakes, or making insights about the environment where a customer uses a certain service.

The aim of this article is to investigate what core dimensions that makes up user involvement. This is important since previous studies within this field have mainly focused on the benefits of user involvement but no attempts have been made to identify the factors leading to those effects. In order to manage this, our study focuses on several essential design issues that need to be considered in order to manage user involvement in a successful way. We believe that the research carried out will have implications for how managers implement user involvement and for researchers who want to investigate the mechanisms underlying user involvement further.
3 Methodological considerations

The methodological challenges experienced during the seven research studies and during the development of the framework have been numerous and varying in complexity. The purpose of this chapter is to present and discuss these difficulties and the choices made. The structure of this chapter is illustrated in figure 10.

Figure 10: The structure of the presentation of methodological considerations

“Research design”, which includes “Research approach” and “Building theoretical frameworks”, will give a short introduction to the reason for the two overall research questions regarding “what” and “why” in this dissertation. The approach for dealing with these questions will also be discussed in relation to the research studies and to the development of the framework (Figure 3).

“Data collection”, contains a short literature search about the main concepts in this dissertation, which gives evidence to the fact that self-service recovery is a rather unexplored area (“Secondary data”). A description regarding selection of sample and selection of respondents for the empirical studies is provided (“Empirical data”).

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Finally, “Analysis” refers to methods for examining the collected data in accordance with the research design applied. This section will provide a more detailed description of the procedure for each research study. In addition, a methodological overview and analysis for each research study will be provided using seven tables (Table 3-9). The chapter will end with a discussion and analysis on the subject of generalizability.

3.1 Research design

The first study I conducted, as a Ph.D. student, was at the airline company SAS (Research study 1). That particular study’s purpose was to find out how the concept of service recovery was utilized within a particular context. The particular context was named a self-service technology context. The difference between the self-service technology context and the more personalized context was, most notably, less face-to-face communication. The self-service technology solution was new at the time of the study. As a result, technical problems were common.

The results of the study showed that service recovery was barely working in the face-to-face context, but not at all in the self-service technology context. Service recovery is a process consisting of four different activities: information acquisition, information processing, solution creation, and solution distribution (Research study 2). The company had some routines to acquire information from customers who were willing to share their opinions and thoughts about the service. After acquiring this information, however, it all ended up lying as a pile of papers in some middle manager’s office. The organization did not have the right routines to exploit all the potential ideas revealed by their own customers.

Although it might seem like the focus was placed on the reasons why service recovery and self-service recovery did not work properly in research study 1, this was not entirely the case. As service recovery and self-service recovery were new to me, it became necessary for me to understand more about the concepts and not just about why it works or not. In fact, the question why or why not self-service recovery seems to work was not fully emphasized prior to the completion of the licentiate thesis (Appendix B).

As shown from the first research study, I was considering the question of why self-service recovery was working, or rather why it was not working, but I was defeated by logical reasons in favor of the question of what self-service recovery
is. It seemed wise to begin with describing self-service recovery before moving to the question “Why self-service recovery works?” and the opposing question “Why self-service recovery not works?”

### 3.1.1 Research approach

Gable (1994) states that more attention should be paid to choosing the right research approach. The appropriate research approach should be based on the phenomena of interest, most likely in IS research something concerning people, organizations, and the technologies involved (Hevner et al., 2004). As was evident in research study 1, self-service recovery was something concerning people, organizations, and the technologies involved. As well, self-service recovery is not very well explored and therefore it seemed reasonable to focus on this concept. What do we mean by research approach? Järvinen (2000:1) helps to clarify the meaning of a research approach in the following quotation:

> “We define a research approach as a set of research methods that can be applied to the similar research objects and research questions.”

Cavaye (1999) states that capturing the context is always important when people and organizational issues are being studied and therefore a case study research method is appropriate for the field of IS. Case studies can involve either single or multiple cases and several levels of analysis (Yin, 1984). Moreover, case studies are often conducted with the help of several data collection techniques, i.e., archives, interviews, questionnaires, and observations. Case studies can be either qualitative or quantitative or even a combination of the two. Other types of research methods are as follows (Christensen et al., 1998):

- **cross section** – which is wide and superficial,
- **longitudinal** - is also superficial and takes place during a certain timeframe, and
- **experiment** - focus on manipulated changes in the environment of groups or individuals, which is then compared to the previous state.

Neither cross-sectional nor longitudinal methods (according to Christensen et al., 1998) seem to be appropriate because they are shallow in character. Self-service recovery is largely unexplored and would therefore benefit from a more penetrating type of research. It also seems difficult to arrange an experiment
because self-service recovery is a process that can take a long time to study. Since contextual and organizational issues provided rich insights in research study 1 where the focus was self-service recovery, it made sense to believe that qualitative case studies would be appropriate in more studies than just research study 1, especially because self-service recovery as a concept was still vague. As the Metso Paper study (research studies 3 and 4) also provided rich contextual and organizational insights in relation to service recovery and self-service recovery, it became even more convincing that qualitative case studies were fruitful for the understanding of self-service recovery.

A common approach for a case study is an interpretative approach. Interpretive research could be described as providing the following (Chen and Hirschheim, 2004:201-202):

1. “evidence from a non-deterministic (freewill) perspective,
2. researchers’ engagement in the specific social and cultural setting investigated, and
3. an analysis based on participants’ viewpoints.”

More and more research undertaken today is funded by major contributors through competitive applications. Some of these contributors demand that results stemming from academic research be used outside of the academic world. Aken (2004) claims that researchers have to comply with two different reward systems within the academic system: the academic reputation system which rewards rigorous research and the professional reputation system which rewards relevant research and professional training of managers.

The various reward systems have also had an effect on this dissertation. Getting involved in empirical-based studies, where a close connection often exists between practitioners and researchers, it is understandable that both parties like to benefit from the time and resources spent on the collaboration. On the contrary, sometimes empirical-based studies only collect data from practitioners, but never engage in collaboration. Mathiassen (2002) argues for collaborative practice research, but acknowledges that the institutional settings and incentives discourage researchers to engage in collaboration with practitioners. In research study 1, it was mainly a collection of data and not collaboration, while research studies 4 and 7 were more collaboration with the involved practitioners. Consequently, research study 4 and research study 7 have been carried out with re-
spect to both the academic rewards system and the professional reward system. With the close connection with practitioners in the field of management, one would assume that most research would be prescription-driven. However, in the field of management most research is description-driven (Aken, 2004).

Case study research could be characterized as description-driven, since it is a method which describes a way to systemize observations (Cavaye, 1996). Cavaye (1996:229) describes case study research as the following:

- “does not explicitly control or manipulate variables,
- studies a phenomenon in its natural context,
- studies the phenomenon at one of a few sites, and
- makes use of qualitative tools and techniques for data collection and analysis.”

Collaboration with involved practitioners is evident in research study 4 and research study 7, but is that equivalent to controlling or manipulating variables? In research study 4 the phenomenon of SCC has been studied in its natural context. No manipulation of the variables concerning the SCC has occurred. In research study 7, the mobile phones used were equipped with a certain type of service provided by the involved mobile phone company. This type of service was not unique for the study but available for all customers of the mobile phone company. However, in the beginning of the study users involved were given an introduction to the possibilities of the included mobile phone service, as well as the possibilities of the hardware (the telephone), such as photo, video, and voice recording capabilities. During the study, SMS messages were sometimes received from users asking questions about how to use the mobile phone service. It is difficult to believe that this type of communication has influenced the outcome of the study, i.e., ideas from users.

Consequently, the appropriateness of using case studies is evident because of the importance of contextual and organizational insights when studying self-service recovery and this method was therefore used throughout the three empirical studies (research studies 1, 4, and 7) in this dissertation. The research approach is apparently influenced by reward systems: whether it is a qualitative or quantitative study and whether it is a cross section, longitudinal, experimental, or case study. In line with Chen and Hirschheim (2004), where they conclude that an interpretative approach is a common one for case studies, all three
case studies in this dissertation have been qualitative and interpretative-driven. Each research study is, however, unique and involved a decision about the research approach. Consequently, for each of the seven research studies motives regarding the choice of research approach will be provided.

**Research study 1**
Research study 1 was initially explorative because it was uncertain which characteristics and connections were the most important (Törnebohm, 1973). The findings in the study describe that employees’ attitudes towards service recovery and self-service technology have an impact on the outcome of the service recovery process in the self-service technology context, and reveal that the research approach was both explorative- and description-driven.

**Research study 2**
In research study 2, the main reason to initiate the study was the interest in describing service recovery more thoroughly than in research study 1. It soon became evident, however, that this type of research would be characterized as explorative-driven. In addition to a literature review, the point of departure in research study 2 was the findings of research study 1, which suggest that the study was both description- and explorative-driven.

**Research study 3**
Research study 3 started out being description-driven because the intention was to describe utility and quality in three different use-phases. Since the study was influenced by empirical findings, one difficulty was that interpretations of the meanings of utility and quality were different among the people being interviewed. Interpretations of user perceptions of utility and quality were based foremost on work by Winograd and Flores (1986), i.e., research study 3 was interpretative-driven.

**Research study 4**
Following the overall aim and building on the findings in research study 3, research study 4 was description- and interpretative-driven as well because of the difficulty in interpreting the value and quality perceptions among users.

**Research study 5**
Research study 5, which was purely conceptual (based on mental concepts, according to the Oxford American Dictionary), was explorative-driven and looking
at how IT-based external knowledge acquisition may be used for service development purposes.

**Research study 6**
Research study 6 was not only explorative- but also prescription-driven, and was explained by the theoretical illustration suggesting the potential of service change in systems work. The study was *explorative-driven* because of the limited amount of knowledge concerning service change in systems work and *prescription-driven* because of the suggestion and illustration to implement service change in systems work.

**Research study 7**
Research study 7 was *explorative-driven* because of the use of mobile phones for the purpose of being market driven in terms of innovation. Researchers involved utilized photo, video, and voice recording during the study to better understand user needs. The utilization of mobile phones was an unexplored capability for gathering user-generated ideas. Based on the findings in study 6, core dimensions for user involvement were proposed and described, i.e., the study was also *description-driven*.

### 3.1.2 Building theoretical frameworks

Concerning the framework (Figure 3) of this doctoral thesis, the approach directing its development has been explorative, but also explanatory. The aspects, or at least indications of the aspects in the framework, were first observed in the Metso Paper study and later explored in research literature. As the aspects seemed to relate to each other, the idea behind an illustration to understand the aspects and the relationships of self-service recovery encouraged the development of a framework. The idea and driving force behind the framework was empirical findings in combination with existing literature, similar to abductive reasoning, rather than conducting purely deductive or inductive research (Alvesson and Sköldberg, 1994). This raises the question about how to benefit from case studies in this task.

The discussion about how to build theories from case study research was initiated by Eisenhardt (1989). One of the disadvantages when building theories from case study research is that the theory can be very rich in detail, but be deficient in overall perspective. Theory building from case study research, how-
ever, is preferable when existing theory about the research area seems to be lacking, which coincides with the concept of self-service recovery.

Dyer and Wilkins (1991) criticize theory building from case studies because they believe case study research will not provide examples that are possible to compare with other examples. Yet, the harshest criticism from Dyer and Wilkins (1991) is that they believe Eisenhardt (1989) is wrong when assuming that it is not possible to obtain valuable results from only one case study. Eisenhardt (1989) argues for a minimum of four to ten cases in order to produce results adequate for theory building. The key issue, according to Dyer and Wilkins (1991:616), is not to focus on page length or number of cases, but rather,

“The central issue is whether the researcher is able to understand and describe the context of the social dynamics of the scene in question to such a degree as to make the context intelligible to the reader and to generate theory in relationship to that context.”

Eisenhardt (1991) responds to the critics when stating that one should not focus on the differences between single and multiple cases. Good storytelling and good description of the social context is a good start, but what is crucial is to adopt a rigorous methodology and preferably a comparative multiple-case research design. The framework (Figure 3) spans over seven research studies and includes three single case studies. The three single case studies in this dissertation, however, have not been designed for the purpose of comparative multiple-case research. Instead, the three single case studies have contributed to the development of the framework for understanding why self-service recovery works.

In the licentiate thesis (Appendix B), a framework (Figure 2) was developed for describing self-service recovery from a management and IT perspective. Likewise, the purpose of the doctoral thesis is to develop a framework (Figure 3) for understanding why self-service recovery works. The reason behind using a framework is to explain the main ideas to be studied and the presumed relationships among them (Miles and Huberman, 1994). The framework in the doctoral thesis (Figure 3) as well as the framework in the licentiate thesis (Figure 2) has evolved during the research process rather than before or after the research studies were conducted. The frameworks have been valuable for understanding
the overall picture, including the relationship between constructs (Figure 2) and aspects (Figure 3) in relation to self-service recovery. This also implies the importance of the research studies for the evolving of the frameworks. The conceptual or mental development of self-service recovery would not have been possible without the research studies. However, it would be incorrect to describe the framework (Figure 3) as theory building; it has been a tool for describing and understanding why self-service recovery works.

3.2 Data collection

According to Walsham (1995), the driving force of using theories in the beginning phase of a case study is to create a basic foundation of previous knowledge. This is also important in order to introduce the topic in an understandable and comprehensive way. As far as self-service recovery is concerned, the obvious relation to service recovery and self-service technology has proven to offer a certain level of stability in terms of a basic ground of previous knowledge. Collection of such secondary data can be followed by collection of empirical data, which was the case in this dissertation. Empirical data are collected according to the purpose of the corresponding study, which is advantageous. Collection of empirical data, however, is both costly and time-consuming (Christensen et al., 1998). When collecting data, the selection of secondary and empirical data, including selection of sample and respondents, is important to take into consideration and will therefore be discussed in terms of the research studies.

3.2.1 Secondary data

The use of secondary data is mostly valuable at the beginning of a study. The reason for this is that gathering data for a specific study is time-consuming (Christensen, et al., 1998). One disadvantage of using secondary data is that it might not be completely accurate in relation to the purpose of the intended study. Secondary data have, in most cases, been generated for a different problem and a different purpose. However, authors usually develop theories by combining observations from previous literature with common sense and experience (Eisenhardt, 1989). The most common methods of data collection of Swedish business administration are interviews and usage of secondary data (Engwall, 1992). The data collection in research studies 2, 5, and 6 were theoretical, which denote that the studies in question are concerned with or involving the theory of a subject or area of study rather than its practical application (the Oxford American Dictionary).
Gathering secondary data is sometimes carried out at the beginning of a research study when it is difficult to know the research direction. As a result, the gathering process is sometimes an important process during which the research direction partially evolves. In this dissertation, however, the lack of secondary data about service recovery and self-service technology combined made it necessary to focus on the concepts of service recovery and self-service technology separately. In the licentiate thesis (Appendix B), a small and rather non-scientific search of the frequency of keywords in various scientific databases was carried out. As a comparison, the same search has been carried out once more. The results of the 2006 search can be found in table 1. Although the keywords are in short form in table 1, the actual searches in the databases were carried out using the entire words. The results from the search in 2004 can be found next to the 2006 results in parenthesis. Unfortunately, SwetsWise was no longer accessible because Karlstad University has ended the subscription and it was therefore not possible to use in the 2006 search.

Table 1: Search results in scientific databases regarding frequency of keywords in this dissertation (results of the year 2006 in parenthesis)

<table>
<thead>
<tr>
<th>Database</th>
<th>Keyword</th>
<th>Emerald</th>
<th>ScienceDirect</th>
<th>Academic Search Elite</th>
<th>SwetsWise</th>
<th>Wiley</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td></td>
<td>61 (2)</td>
<td>28 (20)</td>
<td>29 (17)</td>
<td>(34)</td>
<td>12 (3)</td>
</tr>
<tr>
<td>SST</td>
<td></td>
<td>1 (3)</td>
<td>5 (1)</td>
<td>11 (6)</td>
<td>(7)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>SR AND SST</td>
<td></td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>(0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>SR AND IT</td>
<td></td>
<td>62 (0)</td>
<td>1 (2)</td>
<td>4 (2)</td>
<td>(0)</td>
<td>1 (0)</td>
</tr>
<tr>
<td>SR AND TBSS</td>
<td></td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>(0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>TBSS</td>
<td></td>
<td>1 (0)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td>(2)</td>
<td>2 (0)</td>
</tr>
</tbody>
</table>

Emerald’s 61 results for “service recovery” compared to 62 results for “service recovery” AND “information technology” is hardly correct. When searching for “service recovery” AND “IT” no results were found, which may indicate a more correct result. To summarize the results in the 2006 search compared to the 2004 search, it seems like only a few more articles have been produced regarding the keywords used in this small search. Most important, though, there is still a scarce amount of articles covering the combination of service recovery
and IT/TBSS. Also, self-service recovery did not occur in any of the databases in table 1 (unknown in SwetsWise).

3.2.2 Empirical data

First, it is necessary to comment on the fact that the sample in this dissertation is considered to be both business-to-business (research study 4) and business-to-consumer (research studies 1 and 7) oriented. Following the licentiate thesis (Appendix B) regarding various actors, however, a related difficulty exists concerning the role of the user. The difficulty lies within the fact that a user can be either internal or external. Customers are referred to as external users whereas internal users are part of the service provider group (Johansson, 2004, Appendix B). In addition, a customer can be a user but a user does not have to be a customer. The difference between consumer and customer in this dissertation is not critical in terms of self-service recovery. The difference is that consumers purchase and make use of the products or services, while customers do not necessarily purchase the products or services, but they do use them (Echeverri and Edvardsson, 2002; Wikipedia.org).

Following the perspective in the licentiate thesis (Appendix B), the role of the user is the main focus in this dissertation, regardless of whether the user is a customer or not, regardless of whether the user is a consumer or not and regardless of whether the user is part of a business-to-business or business-to-consumer context.

Selection of sample

Two methods of selecting a sample are the random choice method and making a choice in accordance with a plan. In research study 1, a strategic choice has been made in order to find a suitable company. This type of method has been used when finding an appropriate company and people to be interviewed at this particular company. The purpose of a strategic choice is to gain a deeper understanding of a concept or phenomenon (Christensen et al., 1998). The strategic choice during research study 1 was SAS, Scandinavian Airlines, because they had recently begun to use Self Service Automats (self-service technology) and they were willing to participate in the study.

The samples in research studies 2, 5, and 6 are conceptual and consequently based on mental concepts (the Oxford American Dictionary). The mental concepts have evolved through theoretical studies in combination with findings
from the empirical research studies in this dissertation. This interchange between theoretical and empirical ingredients is essential for a deeper understanding of the concepts being studied.

Research studies 3 and 4, which were based on the Metso Paper study, were random choices. Through another Ph.D. student (Ulrika Mollstedt), an option to study the Metso Paper study arose. However, unless the random choice would have been strategic to its nature, providing a deeper understanding of a concept or a phenomenon, the decision to get involved in the Metso Paper study would not have been made at all. In view of that, the only thing influencing choices of sample opportunities is whether the sample will provide, or at least give the impression to provide, a deeper understanding of self-service recovery.

Research study 7 was of a similar nature to research studies 3 and 4. Because of the close association with researchers from the Service Research Center (CTF), such as my supervisor, Bo Edvardsson, Professor Anders Gustafsson, and in particularly Per Kristensson and Jonas Matthing, an opening appeared that became part of the sequel to the CUDIT study (Magnusson et al., 2003; Matthing, 2004; Kristensson, 2003). The CUDIT II study was not a disappointment as it followed my overall interest in self-service technology as an IT enabler, the connection between user perceived problems and new ideas, and improvement in relation to self-service recovery. In addition, because of the CUDIT study (Magnusson et al., 2003; Matthing, 2004; Kristensson, 2003) cooperation already existed with the companies involved.

**Selection of respondents**
The most important issue when selecting respondents in research study 1 was to come in contact with the people most involved in the area being studied. This is a type of selection called a non-probability sample (Christensen et al., 1998). In order to find the most appropriate people to solicit respondents from, the person with the greatest knowledge of self-service technology and the organization of the company needed to be identified. It soon became evident that the person first contacted was the one most suitable to ask about other respondents. More specifically, one respondent was selected and then this person was asked if he knew anyone else who would be suitable for our study. This way of working was repeated until nothing new was revealed during the interviews.
Regarding the users taking part in the study, a representative sample was used as the method of selection. Customers of SAS were selected directly after using self-service technology. A customer was never interviewed more than once.

In research study 4, a project group from Metso Paper with the purpose of being responsible for the development of the SymBelt Customer Center determined, through discussions with the involved researchers, what respondents would be suitable to participate in the study. First, the respondents needed to be selected as pilot customers, which meant they would be part of the development project and given suggestions and opinions of development issues. Second, respondents were also selected because of geographical concerns. It would not have been as convenient to interview users in Canada or New Zealand, for instance, compared to users in Sweden. Therefore, only pilot customers in Sweden were selected to be respondents.

For research study 7, the participants in the experiments were selected through a professional recruitment company in three different locations in Sweden. Four experiments were conducted where the participants were equipped with a mobile phone and a prepaid card lasting thirteen days.

### 3.3 Analysis

As stated by Darmer and Freytag (1995), values and previous experience will affect the interpretation when researchers interpret secondary data and qualitative empirical data. The purpose in this dissertation is to describe, explain, and understand self-service recovery. Self-service recovery originates from service recovery and self-service technology. This fact suggests that service recovery should be understood and probably changed in order to function in the new self-service technology context. Being able to move or progress from service recovery to self-service recovery requires an understanding of service recovery as well as self-service technology. This implies that values and therefore procedure of interviews, analysis, and interpretations will be influenced by previous knowledge regarding service recovery, self-service technology, and even self-service recovery. In addition, my background in the field of Information Systems will probably influence the importance of IT in light of service recovery. I see possibilities and potential in information technology more than disbeliefs and doubts, which consequently has an effect on this dissertation.
After the section covering the procedure in the research studies, an overview and analysis of methodological considerations of the seven research studies will be provided in a broader sense in tables 3-9. The chapter will end with a discussion and analysis concerning generalizability of case studies.

3.3.1 Procedures in the research studies

This dissertation consists of seven research studies (Appendix A). Obviously, the procedure for each of the research studies is unique and will therefore be presented in turn. A procedure, in this sense, is a concrete methodological description of a research study.

Research study 1

Before the interviews in research study 1, all employees were informed about the purpose of the study and the guarantee of anonymity. A semi-structured interview guide was used in order to be sure that the most important areas, selected before the interviews, were being covered. All interviews were recorded. The interviews with the SAS employees were conducted at Karlstad airport. The access to self-service technology at the airport made it a suitable location. The interviews with the customers of SAS were conducted in domestic hall four at Arlanda airport. The interviews were held next to the machines offering self-service technology. The interviews started directly after the customers had used self-service technology. Permission to use information from the interviews in the study was given by all customers after each interview. The reason for the choice of location was the amount of self-service technology at Arlanda airport, compared to Karlstad airport.

The first step following the interviews in research study 1 and research study 4 was to remove information from the transcribed interviews that was irrelevant to the study. This was done in order to get a better overview of the interviews and their relation to the purpose of the study (Andersen, 1998; Christensen et al., 1998). Then, interviews were structured by arranging the information into coherent patterns (Christensen et al., 1998). Andersen (1998) claims that it is possible to explore qualitative data by reading, twisting, and turning the data. This procedure was repeated in research study 1 and research study 4, but the second time was according to the purpose of the study.
Research study 2
Based on the findings in research study 1 concerning self-service recovery, new questions arose and called for further exploration of the concept of self-service recovery. Therefore, a search was initiated for relevant theory concerning the questions which concentrated around a more dynamic perspective on service recovery than found in existing literature. Due to the rather unexplored area of self-service recovery, it was evident that a knowledge gap existed in research literature concerning alternative strategies for service recovery. During this procedure it was possible to identify the object under study in a real case (Microsoft Windows XP), which influenced the direction of further reviews of literature, especially towards the utilization of IT in the work of service recovery.

Once a theoretical frame of reference had been established, it was possible to analyze various service recovery strategies (research study 2). One of the four service recovery strategies proposed was then illustrated using the Microsoft Windows XP example.

Research study 3
Research study 3 was initiated during a theoretical discussion about the importance in differentiating between utility and quality (Winograd and Flores, 1986). Rather quickly it was discovered that this topic was important in terms of the Metso Paper study because of the difference between utility and quality, where quality is only possible to assess after use, whereas utility is possible to assess before use (Winograd and Flores, 1986). The relation between utility and quality was appropriate for the Metso Paper study because the SymBelt Customer Center had not yet been developed.

During interviews in the Metso Paper study it was possible to understand the central concepts (utility and quality) from a practical perspective and then compare and analyze the meaning with theoretical findings. Based on this procedure a model was proposed illustrating the relationship between utility and quality in three different phases in the Metso Paper study.

Research study 4
In research study 4 a semi-structured interview guide was also used. The interview guide was put together and based foremost on the concept of value and quality and the differences between them (Winograd and Flores, 1986). The
interviews, which were recorded, lasted between 30 minutes and 2 hours and were carried out at the respondents’ place of work. The interview guide was then slightly modified for the next round of interviews. In total, three rounds of interviews were conducted. After the interviews had been transcribed the respondents was given the opportunity to read through the related and transcribed interview and suggest corrections.

The foundation for the analysis in research study 4 was based on the model proposed in research study 3, concerning utility and quality in three different phases. As the analysis was carried out it became evident that utility (which is similar to value) was important to further explore. For that purpose, the model of value creation sources by Amit and Zott (2001) was adopted for further analysis of the collected data. As a result, the importance of the product, which the SymBelt Customer Center was based upon, was recognized as essential for understanding the value creation sources.

Research study 5
Due to the interesting discussions and contributions in research study 2, the urge to continue with other interesting questions related to various service recovery strategies that were not investigated properly in research study 2, initiated research study 5. The point of departure was the four proposed service recovery strategies suggested in research study 5, but with an emphasis on the effects on service development. As the utilization of knowledge is central for the effects on service development, the literature review enclosed a knowledge focus.

The analysis therefore focused on the differences in the acquired knowledge depending on the chosen service recovery strategy. It then became evident that each service recovery strategy has an impact on the role of IT, which provides either/or explorative or exploitative opportunities. Consequently, the acquired knowledge, being explorative or exploitative, will have an effect on service development activities when connected to service recovery activities.

Research study 6
The inspiration behind research study 6 derives from research study 1. During research study 1, it became evident that some users were affected by the self-service technology solution, both negatively and positively. The self-service technology context implies that information technology is important for the
service to be realized. As self-service technology solutions are used they also tend to break down (see research study 1) which suggests an understanding of systems work. Systems work is the interaction between systems usage and systems maintenance of information systems (Nilsson, 1991). In addition, the utility and quality discussion found in research study 3 contributed to the emphasis in research study 6 on customer value during and from occurrences in systems work.

Influences from other research studies (research study 1 and research study 2) were apparent in early phases of research study 6 and noticeably in the analysis as well. As the model of value creation sources (Amit and Zott, 2001) was introduced in research study 4 it also became interesting for this study because of the focus on value creation sources and especially in relation to customer value. The data collected in research study 4 also contributed to the understanding of customer value during systems work. For the purpose of illustrating the connection between service change and systems work, a model was proposed which also explains the relationship between service recovery and service development in systems work.

Research study 7
Due to the very nature of mobility, in terms of ambiguity and complexity in the context of use, studying mobile phone customers is a challenging task. Performing experiments in a laboratory setting dashes the very idea of mobility, but carrying out studies in real life settings puts strong demands on the data collection method used (Hagen et al., 2005; Iacucci et al., 2002; Isomursu et al., 2004). Therefore, some of the greater challenges in developing services for mobile devices concern the context. Context can be described as “that which surrounds, and gives meaning to something else”\(^5\). Tarasewich (2003) proposed a contextual model consisting of not only people (participant) and object (environment) but also activities. Context is of great importance when developing services as it is strongly related to user needs, but needs vary according to the location, the user, and the usage situation (Kangas and Kinnunen, 2005; Palen and Salzman, 2002). The use of mobile phones was intended to adhere to the importance of the context when developing services for mobile devices. All participants were equipped with a brand new mobile phone to be used in the experiment. Photo, video, and voice recording from the mobile phones were then used among the participants in order to grasp ideas and situations as they

\(^{5}\) According to Foldoc - The Free On-line Dictionary of Computing
appeared during the experiment. Isomursu et al., (2004) argue for the importance of defining a method that limits the influence by the researcher, provides enough freedom for users to discover the possibilities of the object under study, supports usage situations, and keeps the environment as close to real life as possible. In line with Isomursu et al., (2004) the method used in research study 7 limits the influence by the researcher because only sporadic communication occurred during the study. Furthermore, participants involved were using the mobile phones in their own environment with no usage restrictions at all during the 13 days of the study.

All the ideas arising from participants during the experiment were transcribed and coded into a pre-formatted service description. Pictures, voice, and movies recorded by participants together with a service idea sheet were used in the analysis. The service idea sheet was used in order to prevent notes from being too shallow, but instead rather rich. Media capture and structured notes were found to be the best combination of response from participants (Carter and Mankoff, 2005). Although Isomursu et al., (2004) found that pictures taken by mobile phone users did not provide much additional information we found pictures to provide valuable information in combination with the service idea sheets when analyzing the usage situation and related feelings. The participating companies then categorized the ideas into various types of services. The ideas were categorized based on the expected end-value.

### 3.3.2 Methodological overview in a broader sense

A general presentation regarding research studies (RS) 1-7 will be presented in a broader sense in this section. The purpose of a general presentation is to provide an overview and summary when comparing the seven research studies. This will be done using tables for each research study. In order to understand the methodological considerations, it is necessary to describe them in a broader sense connected to research questions, premises, contributions, and implications.

The tables have been created based on information found in various places in this dissertation. Each line of the table structure will be clarified according to where the information originates and where additional information can be found. This will be done using a meta-table (Table 2). The table representing each research study (3-9) will be found directly after table 2.
### Table 2: A meta-table for describing the structure and the contents of tables 3-9

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Title of the research study (Appendix A)</td>
</tr>
<tr>
<td>Research question</td>
<td>The research questions can be found in chapter 1, section 1.4.1</td>
</tr>
<tr>
<td>Study object</td>
<td>Originates from Appendix A and further analyzed in chapter 4, section 4.6 and chapter 5, section 5.1</td>
</tr>
<tr>
<td>Research approach &amp; method</td>
<td>An overview of each research study is found in chapter 2. A more detailed description can be found in chapter 3. Appendix A, which contains the full version of each research study, also presents information about research approach and method.</td>
</tr>
<tr>
<td>Premises for the research</td>
<td>A general discussion is provided in chapter 1. Premises for the research can also be found in each research study (Appendix A).</td>
</tr>
<tr>
<td>Sample</td>
<td>Data collection in chapter 3 discusses selection of sample. Some information can also be found directly in the research study in question (Appendix A).</td>
</tr>
<tr>
<td>Type of respondents</td>
<td>Data collection in chapter 3 discusses selection and type of respondents. Information can also be found directly in each research study (Appendix A).</td>
</tr>
<tr>
<td>Data collection</td>
<td>Data collection in chapter 3 discusses both secondary as well as empirical data collection. Some information can also be found directly in the research study in question (Appendix A).</td>
</tr>
<tr>
<td>Length of study</td>
<td>Some information is available in chapter 2 and in Appendix A.</td>
</tr>
<tr>
<td>Key references</td>
<td>Some information is available in chapter 2, but entirely in respective research study (Appendix A).</td>
</tr>
<tr>
<td>Contributions/results</td>
<td>In each research study (Appendix A) the contributions and results for that particular study are available. In chapter 5 section 5.1, the contributions from each research study to the framework are provided.</td>
</tr>
<tr>
<td>Implications</td>
<td>In each research study (Appendix A) the implications for that particular study are available. In chapter 5, section 5.5 the managerial implications from the research studies in general and this dissertation in particular are provided.</td>
</tr>
<tr>
<td>Authors and responsibility</td>
<td>Where more than one author exists for a research study, each author’s contributions must be accessible according to Karlstad University regulations. The contributions are stated in percent and decided in discussion between involved authors.</td>
</tr>
</tbody>
</table>
Table 3: Overall presentation of research study 1 including methodological issues

<table>
<thead>
<tr>
<th>Title</th>
<th>RS I: “Self-Service Recovery – Service Recovery in a Self-Service Technology Context”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research question</td>
<td>What is a service recovery process from a self-service technology approach?</td>
</tr>
<tr>
<td>Study object</td>
<td>User (customer) and service provider perspective</td>
</tr>
<tr>
<td>Premises for the research</td>
<td>As more services becomes self-services and supported by technology, face-to-face situations becomes less common. Studies focusing on self-service technology are frequent, but studies focusing on service recovery in a self-service technology context are scarce.</td>
</tr>
<tr>
<td>Sample</td>
<td>Single case study – 30 respondents</td>
</tr>
<tr>
<td>Type of respondents</td>
<td>21 Customers and 9 employees</td>
</tr>
<tr>
<td>Data collection</td>
<td>Short and in-depth interviews</td>
</tr>
<tr>
<td>Length of study</td>
<td>October 2000 – April 2002 (1 year and 7 months)</td>
</tr>
<tr>
<td>Contributions/results</td>
<td>Although service recovery was just about working outside of the self-service technology context, the airline company lacks a well functioning service recovery process within the self-service technology context. One reason for service providers developing self-service technology solutions is to reduce the human workforce involved in the service, but the study shows there is still a need for personnel involved in the service. The fact that “Employees’ attitude towards service recovery and self-service technology” was a fundamental aspect, brought up in the interviews by employees and customers, confirms that there is still a need for human involvement in the self-service technology context of this airline company.</td>
</tr>
<tr>
<td>Implications</td>
<td>Several surveys show increasing use of self-service technology and as a result, service recovery aspect will be more important when the usage of self-service solution increases. Even though the airline company had procedures for collecting and classifying information from customers, the most important step in the service recovery process, “improvement of the service”, did not work. Employees complained that nothing ever happened with all the information collected and had begun to mistrust the service recovery process as a waste of time. This highlights the importance of improvement activities in the work of self-service recovery. Given the fact that service recovery in a self-service technology context is a relatively new phenomenon, there is a great need for further research within the area of self-service recovery.</td>
</tr>
<tr>
<td>Authors and responsibility</td>
<td>Niklas E. Johansson (100 %)</td>
</tr>
</tbody>
</table>
**Table 4:** Overall presentation of research study 2 including methodological issues

<table>
<thead>
<tr>
<th><strong>Title</strong></th>
<th>RS 2: &quot;Service Recovery Strategies in IT-based Service Systems - Information Technology and Embedded Knowledge&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Research question</strong></td>
<td>What types of service recovery strategies are important in an IT-based service setting?</td>
</tr>
<tr>
<td><strong>Study object</strong></td>
<td>Service provider perspective</td>
</tr>
<tr>
<td><strong>Research approach &amp; method</strong></td>
<td>Descriptive and explorative-driven - Literature review to analyze the main phases of a service recovery process: information acquisition, information processing, solution creation and solution distribution in relation to the use of IT. We continue by describing four types of service recovery strategies and their connection to the use of IT.</td>
</tr>
<tr>
<td><strong>Premises for the research</strong></td>
<td>Previous research has not dealt with service recovery processes as strategy analyzed through the lens of information technology design and implementation encompassing issues of knowledge embeddedness. A customer voicing his or her view of, for instance, dysfunctional parts of a service or less satisfying service performance engages in a knowledge sharing process with the firm. For the firm, the opportunity to learn and subsequently develop knowledge when creating a solution may yield many advantages. However, the advantages are all linked to the type of service recovery strategy that the firm employs. The strategy in order is closely related to how the firm has chosen to design its information systems (IS) to acquire information, how they develop knowledge in the process of creating a solution, and how and whom this solution is later distributed to.</td>
</tr>
<tr>
<td><strong>Sample</strong></td>
<td>Conceptual (based on mental concepts, the Oxford American Dictionary).</td>
</tr>
<tr>
<td><strong>Type of respondents</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Data collection</strong></td>
<td>Theoretical (concerned with or involving the theory of a subject or area of study rather than its practical application, the Oxford American Dictionary).</td>
</tr>
<tr>
<td><strong>Length of study</strong></td>
<td>November 2001 – April 2003 (1 year and 6 months)</td>
</tr>
<tr>
<td><strong>Contributions/results</strong></td>
<td>This paper contributes to the current marketing literature by providing 1) a different way of understanding service recovery processes as strategies which are 2) identified, described, and analyzed through examining the use of IT. The four types of strategies are inactive, reactive, active, and proactive. The four types of actions related to each service recovery strategy are information acquisition, information processing, solution creation, and solution distribution. The differences between these strategies are on one hand firms’ and customers’ level of involvement and on the other hand the four types of service recovery strategies and their connection to the four processes of service recovery. In other words, the contribution of this paper is the taxonomy and method of analysis.</td>
</tr>
<tr>
<td><strong>Implications</strong></td>
<td>The understanding of the differences between the four types of service recovery strategies and their connection to the four processes of service recovery have implications for decisions regarding when and why to choose different service recovery strategies.</td>
</tr>
<tr>
<td><strong>Authors and responsibility</strong></td>
<td>Niklas E. Johansson (50 %) and Leon M. Kaiseridis (50 %).</td>
</tr>
</tbody>
</table>
Table 5: Overall presentation of research study 3 including methodological issues

<table>
<thead>
<tr>
<th>Title</th>
<th>RS 3: “A Conceptual Model to Assess Use of a New IT-based Service”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research question</td>
<td>What is important, for the user, when assessing a new IT-based service from a quality and utility standpoint?</td>
</tr>
<tr>
<td>Study object</td>
<td>User (customer) perspective</td>
</tr>
<tr>
<td>Research approach &amp; method</td>
<td>Description- and interpretation-driven - The purpose of this paper is to present a conceptual model to assess individuals’ use of a new IT-based service.</td>
</tr>
<tr>
<td>Premises for the research</td>
<td>Assessing use is of vital importance for organizations selling and using IT-based (information technology) services. The underlying principle of our model and the reason why the concepts of utility and quality are important is that users’ ability to assess the utility of an IT-based service is possible without usage (Winograd and Flores, 1986). As for quality assessment, usage of the IT-based service is a requirement (Grönroos, 2000).</td>
</tr>
<tr>
<td>Sample</td>
<td>Conceptual (based on mental concepts, the Oxford American Dictionary).</td>
</tr>
<tr>
<td>Type of respondents</td>
<td>-</td>
</tr>
<tr>
<td>Data collection</td>
<td>Mainly theoretical (concerned with or involving the theory of a subject or area of study rather than its practical application, the Oxford American Dictionary) and some initial empirical data from the Metso Paper study.</td>
</tr>
<tr>
<td>Length of study</td>
<td>August 2002 – December 2003 (1 year 5 months)</td>
</tr>
<tr>
<td>Contributions/results</td>
<td>The connection between the concepts of utility and quality has been discussed and explained in accordance with the three phases. In the pre-use phase, it is possible for the user to assess the utility, but not the quality, of a new IT-based service without any usage. In the test phase the individuals’ assessment of usage and limited perception of utility and quality is emphasized. In the use phase the organizational context becomes more apparent for the user and has implications for assessment of utility and quality issues of the new IT-based service. Customers’ assessment of an IT-based service has implications for organizations when developing new services. For managers it is important to take into consideration that perceived utility aspects of a new IT-based service is of major significance for the potential customer. It is of great importance to start with finding out what the customer believes to be of value or utility. Thereafter, the question of the quality of the IT-based service can be raised. If potential customers do not find any areas where an IT-based service can be used, it does not matter how much superior quality it has.</td>
</tr>
<tr>
<td>Implications</td>
<td>A greater knowledge of the pre-use, test, and use phase in connection with the concepts of utility and quality when assessing use of an IT-based service could have implications for managers’ understanding of the buyer-seller relationship in a context highly influenced by information technology.</td>
</tr>
<tr>
<td>Authors and responsibility</td>
<td>Niklas E. Johansson (45 %), Ulrika Mollstedt (40 %), and Sten Carlsson (15 %)</td>
</tr>
</tbody>
</table>
Table 6: Overall presentation of research study 4 including methodological issues

<table>
<thead>
<tr>
<th>Title</th>
<th>RS 4: &quot;Revisiting Amit and Zott’s Model of Value Creation Sources: The SymBelt Customer Center Case&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research question</td>
<td>What sources of value are important when evaluating Internet-based services?</td>
</tr>
<tr>
<td>Study object</td>
<td>User (customer) perspective</td>
</tr>
<tr>
<td>Research approach &amp; method</td>
<td>Descriptive and interpretative-driven. The study is conducted based on users’ perceptions on Metso Paper’s Internet-based service named the SymBelt Customer Center. Data was gathered in two phases – pre-use and use – where four dimensions were utilized: lock-in, complementarities, efficiency, and novelty.</td>
</tr>
<tr>
<td>Premises for the research</td>
<td>The importance of the value of goods and services is crucial to firms providing all types of products. Lately, the development of electronic businesses (e-business) has made it possible for firms to provide services in a way that was not previously possible. This development has also led to challenges for firms to provide valuable Internet-based services to their customers. Amit and Zott (2001) recognized the importance of understanding value sources in electronic business (e-business). However, the concept of e-business is rather broad and therefore this paper suggests a more narrow focus on the value of complementary services. The reason for this approach is an ever-increasing importance for firms to provide complementary services supporting products. In contrast to Amit and Zott (2001), we suggest that the four dimensions of the model should not only be used as value creation sources, but moreover as value evaluation dimensions.</td>
</tr>
<tr>
<td>Sample</td>
<td>Single case study – 10 respondents</td>
</tr>
<tr>
<td>Type of respondents</td>
<td>4 customers of the SymBelt Customer Center and 6 employees at Metso Paper</td>
</tr>
<tr>
<td>Data collection</td>
<td>In-depth interviews, internal documentation</td>
</tr>
<tr>
<td>Length of study</td>
<td>January 2003 - December 2004 (2 years)</td>
</tr>
<tr>
<td>Contributions/results</td>
<td>The study has shown that the pilot customers have used the SymBelt Customer Center infrequently. So far, Metso Paper’s main aim of the IS development project, which was to provide the customer with an increased level of operation of the paper machine, does not seem to have been fulfilled.Interestingly, although customers involved in the project expressed that SCC was valuable, it was seldom used. An explanation could be that the SCC only covered a small part of the paper machine and not the complete machine, making the SCC useful only on rare occasions.</td>
</tr>
<tr>
<td>Implications</td>
<td>This study also shows that in this specific business-to-business context, the characteristics of the product, which the Internet-based service supports, are vital. Therefore, we suggest a modification of Amit and Zott’s (2001) business model when used as a model for value evaluation of complementary services, to replace complementarities with nature of the core product.</td>
</tr>
<tr>
<td>Authors and responsibility</td>
<td>Niklas Johansson (60%) and Ulrika Mollstedt (40%)</td>
</tr>
<tr>
<td>Title</td>
<td>RS 5: “Strategic Choices in IT-Enabled Occasions of Knowledge Acquisition – The Role of Information Technology &amp; the Effects on Service Development”</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Research question</td>
<td>How can IT-based external knowledge acquisition from customers be used for service development purposes?</td>
</tr>
<tr>
<td>Study object</td>
<td>Service provider perspective</td>
</tr>
<tr>
<td>Research approach &amp; method</td>
<td>Explorative-driven - Our discussion is based in the fields of services marketing and organizational learning and knowledge. Research in the area of organizational learning and knowledge is relevant as it covers topics of knowledge acquisition, creation, development, and diffusion within and between organizations. These are equally important in explaining issues related to service development activities.</td>
</tr>
<tr>
<td>Premises for the research</td>
<td>Organizations of today probably compete more with knowledge than anything else. The knowledge held within one organization distinguishes it from others by what it renders its holders, the employees, and in turn the organization. Knowledge is of particular interest to service firms where it constitutes the very core of all service activities, service functions, as well as service outcomes. To these organizations, developing a competitive edge entails constant knowledge development that is reflected in the service development processes. Customers are an important source of knowledge and information technology (IT) is one channel to reach and create a dialogue with that source.</td>
</tr>
<tr>
<td>Sample</td>
<td>Conceptual (based on mental concepts, the Oxford American Dictionary).</td>
</tr>
<tr>
<td>Type of respondents</td>
<td>-</td>
</tr>
<tr>
<td>Data collection</td>
<td>Theoretical (concerned with or involving the theory of a subject or area of study rather than its practical application, the Oxford American Dictionary).</td>
</tr>
<tr>
<td>Length of study</td>
<td>November 2003 – October 2004 (1 year)</td>
</tr>
<tr>
<td>Contributions/results</td>
<td>This paper focuses on external knowledge acquisition from customers by means of information technology for service development purposes. It pays particular attention to internal, i.e., strategic choices of IT-enabled knowledge acquisition opportunities concerning customer-held knowledge for service development processes, as well as external processes such as service recovery and the connection with organizational structures such as virtual communities. Moreover, the customers’ role in the process of service development is also emphasized as well as techniques for knowledge acquisition. The paper illuminates the complexity of such strategic choices, the role of IT in these occasions and the potential effects on the firm’s service development.</td>
</tr>
<tr>
<td>Implications</td>
<td>The potential benefits of acquiring customer-held knowledge for service firms are valuable in the work of providing services according to customer needs. However, as this conceptual paper shows, the process and procedures are complex and multifaceted. Service organizations need to investigate their strategic choices and the outcomes of these choices as they directly affect the role they assign to the interplay with IT and in the long run to the process of knowledge creation itself. The outcome of that process has in turn effects when enacted on the service organization’s service development processes.</td>
</tr>
<tr>
<td>Authors and responsibility</td>
<td>Niklas E. Johansson (50 %) and Leon M. Kaiserlidis (50 %).</td>
</tr>
</tbody>
</table>
Table 8: Overall presentation of research study 6 including methodological issues

<table>
<thead>
<tr>
<th>Title</th>
<th>RS 6: “Customer Value in a Self-Service Technology (SST) Context”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research question</td>
<td>What is the connection between service recovery and service development from a systems work perspective?</td>
</tr>
<tr>
<td>Study object</td>
<td>User (customer) and service provider perspective</td>
</tr>
<tr>
<td>Research approach &amp; method</td>
<td>Explorative and prescription-driven - To explain the purpose in more depth and the connection between systems work and service change a case illustration of the purchase of an airline ticket through a web-based interface is presented together with a theoretical illustration.</td>
</tr>
<tr>
<td>Premises for the research</td>
<td>To date, few studies have focused on service recovery in a self-service technology context in relation to customer value. Nevertheless, solutions based on self-service technology (e.g., e-business through websites, ATM machines, airline ticket machines) are increasing rapidly and few would argue that support and help functions are not needed. Service recovery and service development (jointly defined as service change) are common in traditional service work. However, with the infusion of technology in services (self-service technology) the same activity now requires an understanding of systems work.</td>
</tr>
<tr>
<td>Sample</td>
<td>Conceptual (based on mental concepts, the Oxford American Dictionary).</td>
</tr>
<tr>
<td>Type of respondents</td>
<td>-</td>
</tr>
<tr>
<td>Data collection</td>
<td>Theoretical (concerned with or involving the theory of a subject or area of study rather than its practical application, the Oxford American Dictionary).</td>
</tr>
<tr>
<td>Length of study</td>
<td>April 2004 – December 2004 (9 months)</td>
</tr>
<tr>
<td>Contributions/results</td>
<td>The theoretical contribution of this paper is primarily the introduction of service change in systems work, which implies that the contribution is foremost towards the information systems perspective. Further, systems work, which is the interaction between systems usage and systems maintenance of an information system, share similarities with both service recovery and service development. However, the contribution, deriving from service recovery and service development, is foremost the effect on customer value and value creation in systems work.</td>
</tr>
<tr>
<td>Implications</td>
<td>In the field of Service Marketing, service recovery and service development has been treated as two distinct and separated processes. However, as illustrated, service recovery and service development presents prospective opportunities when connected. In particular, service recovery could be a natural trigger for service development activities.</td>
</tr>
<tr>
<td>Authors and responsibility</td>
<td>Niklas E. Johansson (100 %)</td>
</tr>
</tbody>
</table>
Table 9: Overall presentation of research study 7 including methodological issues

<table>
<thead>
<tr>
<th>Title</th>
<th>RS 7: “Core Dimensions in Market Oriented Innovation: Involving Customers to Innovate New Technology-based Services”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research question</td>
<td>How can user involvement, in a self-service technology context, contribute to new ideas?</td>
</tr>
<tr>
<td>Study object</td>
<td>User (customer) perspective</td>
</tr>
<tr>
<td>Research approach &amp; method</td>
<td>Exploration and description-driven - The case is a testimony of five project meetings at two companies within the Telecom industry, Ericsson Consumer Lab and TeliaSonera together with four experiments. The main objective of the four experiments was to see how customers of TeliaSonera created ideas for new services. For the purpose of rich variation, the four experiments were conducted at three different locations in Sweden. All together, thirty-eight actual customers participated in the study. All participants in the experiments were recruited by means of a professional recruitment company.</td>
</tr>
<tr>
<td>Premises for the research</td>
<td>By identifying the core dimensions in user involvement it will be possible for practitioners to pay extra attention to the most essential factors when they are attempting to implement the philosophy of market orientation. As literature about user involvement is scarce (Alam, 2002) and the research is still in its infancy, identification of the dimensions that constitute user involvement is likely to provide insights that can guide future research within the field.</td>
</tr>
<tr>
<td>Sample</td>
<td>Single case study – 38 customers and 4 employees</td>
</tr>
<tr>
<td>Type of respondents</td>
<td>Customers of TeliaSonera, employees of TeliaSonera and Ericsson Consumer Lab</td>
</tr>
<tr>
<td>Data collection</td>
<td>Workshops, field notes, and questionnaires</td>
</tr>
<tr>
<td>Length of study</td>
<td>December 2004 – November 2006 (2 years)</td>
</tr>
<tr>
<td>Key references</td>
<td>Alam (2002), Amabile (1996), Kristensson et al. (2003), von Hippel (2001)</td>
</tr>
<tr>
<td>Contributions/results</td>
<td>The contribution of this article is that it proposes six inherent elements, core dimensions, of a concept (user involvement) that is often referred to, but lacks clear definition. The empirical data gathered suggests that a user involvement project, set up for purposes of innovation, contains the following core dimensions: (CD 1) users identifying needs in their own setting of use, (CD 2) users identifying needs in different roles they have, (CD 3) users should be provided with analytical tools, (CD 4) users should be motivated and see the link between their involvement and the output of it, (CD 5) users should keep themselves in mind when generating ideas (CD 6) users should not have too much knowledge about technology.</td>
</tr>
<tr>
<td>Implications</td>
<td>Becoming market oriented, we argue, is beyond just listening to the retrospective accounts from customers but instead collaborating with active users that leads to a better understanding of latent needs. The traditional marketing activities are excellent for purposes of customization, and for collection of expressed needs; however, for innovation, and collection of needs that are difficult to articulate, new practices such as user involvement are suggested. Thus, this article concludes that user involvement may be a manifestation of proactive market orientation in new product development (cf. Narver et al., 2004) as it facilitates anticipation of these valuable but difficult to catch latent needs.</td>
</tr>
<tr>
<td>Authors and responsibility</td>
<td>Per Kristensson (33 %), Jonas Matthing (33 %), and Niklas Johansson (33 %)</td>
</tr>
</tbody>
</table>
Some analysis of the methodological overview

Based on table 2, it is possible to see patterns of the methodological choices made during 2001 and 2006. The study object is interesting to analyze, especially because it is different in the research studies. A study object refers to the actors’ perspectives chosen in the various research studies. (See the description of the Actor model in the licentiate thesis Appendix, section 2.5.) A summary of the study object for each research study is as follows:

- research study 1 – User (customer) and service provider perspective,
- research study 2 – Service provider perspective,
- research study 3 – User (customer) perspective,
- research study 4 – User (customer) perspective,
- research study 5 – Service provider perspective,
- research study 6 – User (customer) and service provider perspective, and
- research study 7 – User (customer) perspective.

There are three different types of study objects in the research studies: the user (customer) perspective, the service provider perspective, and a combination of the two. It is interesting to see the differences in study objects between the empirical studies and the theoretical studies. For the empirical research studies (1, 4, 7 and to some extent 3) the study object is foremost user (customer) perspective. For the theoretical research studies all three types of study objects are represented. This implies that self-service recovery concerns the user (customer) and the service provider perspective. The framework presented in the doctoral thesis (Figure 3) therefore has to involve these two perspectives. This will be further analyzed in chapter 4, section 4.6 and in chapter 5, section 5.1.

What is evident, but not surprising, is that five out of seven research studies were partly explorative-driven. As stated in the beginning of the licentiate thesis, studying the area of self-service recovery is much like visiting a new planet. It is possible to have ideas about what you might discover, but it is not certain what you will actually find. This implies the appropriateness for larger-scale studies to substantiate the findings from the explorative studies.

Likewise, five research studies were partly description-driven. Describing something being found exploratively is natural, explaining the fact that three studies (out of the five) were a combination of explorative- and description driven.
Three research studies are to be considered case studies. The remaining four research studies are conceptual (based on mental concepts) in their nature. A natural next step would be to use the findings in the conceptual studies for empirical-based studies and possibly reach a higher degree of validation for the conceptual findings.

In total 80 individuals have been supporting the three empirical-based studies, where 63 were customers and 17 were employees. Although it might not seem to be the most extensive empirical sample size, it is important to remember the quotation by Lee and Baskerville (2003:226):

“An increase in sample size is beneficial, but the benefits take the form of improved reliability of the sampling procedure, rather than improved generalizability of a sample to its population.”

The key references selected for each of the seven research studies are not exact. It is possible to discuss (if there is more than one author) and likely find the reference that is the most important for the study, but it seems to be more difficult as the second and third most influential reference is to be chosen. In addition, the references are not listed depending upon how many times they appear in the research study. The references in tables 3-9 are not listed according to which one is the most influential one, but only in alphabetical order.

Five references appear in two research studies. These references are Orlikowski (2000), Tax and Brown (1998), Wenger (2000), Winograd and Flores (1986), and Zeithaml (1988). Regarding the references listed as “Key references”, it is fairer to say that these references were important in the early stages of the research studies, but further explorations revealed other and sometimes more important references.

3.3.3 Generalizability

Another interesting topic closely related to Eisenhardt’s (1989; 1991) question of the appropriate number of case studies, was introduced by Lee and Baskerville (2003) when they made an attempt to clarify the concept of generalizability in information systems research. External validity of a theory, which is one type of generalizing, refers to whether or not it is possible to apply the theory to a different setting of where it was conducted, tested, and confirmed (Denk, 2002). It is seldom that researchers try to generalize unless they conduct a sta-
tical, sampling-based study (Lee and Baskerville, 2003). Interestingly pointed out by Lee and Baskerville (2003), induction is a process of reasoning just like generalizing. The key point, however, is a critique to the statistical, sampling-based research and the frequency of generalizing in this type of research. This is expressed in the following quotation (Lee and Baskerville, 2003:226; 237):

“An increase in sample size is beneficial, but the benefits take the form of improved reliability of the sampling procedure, rather than improved generalizability of a sample to its population…The only way in which a researcher (or practitioner) may properly claim that the theory is indeed generalizable to the new setting would be for the theory to be actually tested and confirmed in the new setting.”

One of the most important missions of academic research is discussed by Weick (1995) and relates to producing theory. Theory according to Weick (1995:378) is described in the following quotation:

“Theory is about the connections among phenomena, a story about why acts, events, structure, and thoughts occur. Theory emphasizes the nature of casual relationships, identifying what comes first as well as the timing of such events. Strong theory, in our view, delves into underlying processes so as to understand the systematic reasons for a particular occurrence or nonoccurrence.”

Although case study research with an interpretive approach is growing in importance among IS researchers there are still more IS researchers who use the positivistic approach (Chen and Hirschheim, 2004). One reason for this is that many journals find it difficult to scientifically judge an interpretative study. In order to overcome this bias for positive research, Chen and Hirschheim (2004) suggest three aspects for objective evaluation of research: intelligibility, novelty, and believability. Intelligibility refers to whether or not the study is understandable. Novelty is judged according to at least three ways: new insights, significance, and completeness of the research report. Believability concerns how well the arguments make sense. In addition, Walsham (1995) states that when discussing the possibility of generalizing an interpretative case study research, it is more appropriate to use “tendencies” rather than generalizations which refers,
more or less, to predictions. The three aspects for objective evaluation will be analyzed in light of this dissertation (see section 5.6 Validation).
4 A framework for self-service recovery based on strategic issues, collective knowledge and SST as an IT enabler

This chapter will present a framework for contributing to the answer of the overall research question in this doctoral thesis, “Why self-service recovery works?” The framework also elucidates the interaction between the three aspects - strategic issues, collective knowledge, and SST as an IT enabler.

4.1 Introduction

Between 2002 and 2004 a study was carried out at Metso Paper. The reason for the study was to investigate the development of the SymBelt Customer Center (SCC) which is an Internet-based service. The initiation of the study of Metso Paper and the development of the SCC was chosen because of the similarities with service recovery based on technology, i.e., self-service recovery. Due to the long period of study (2 years), many interesting questions arose in relation to self-service recovery, for example implementation, use, the fundamental ideas behind communities, and strategic decisions around the SCC. The phenomenon of self-service recovery will be emphasized in relation to the aspects of strategic issues, collective knowledge, and SST as an IT enabler.

In this dissertation, self-service recovery has been explored in the course of three aspects illustrated in the framework (Figure 3). With the purpose of comprehending each aspect more thoroughly, two or three key areas will be presented and discussed in relation to each aspect. The relation to the corresponding aspect has influenced the selection of the key areas. In addition, the selections have also been affected by the relationship among the three aspects. Most importantly, the appropriateness and potential contribution to self-service recovery has been influential in the selection of key areas.

4.2 Self-service recovery

Section 4.2 will focus on self-service recovery (Figure 11) including the key areas of “The process of service recovery” and “Absorptive capacity”. The purpose of “The process of service recovery” is to introduce the basics of service recovery and some of the potential implications derived from IT. The purpose of “Absorptive capacity”, conversely, is to explore the potential of knowledge in the work of self-service recovery. The focus is not on knowledge
per se, but rather on learning capabilities and how to apply new knowledge for improvement. To a great extent, this is what self-service recovery is about.

![Diagram](image)

**Figure 11:** The connection between the framework and section 4.2

### 4.2.1 The process of service recovery

In various industries, countries, and demographics, people are frequently dissatisfied with services or products they purchase. As a result, firms need to take action in order not to lose all of these unsatisfied customers. Valenzuela et al., (2005) found in their study of 270 people that 74% had been dissatisfied during the last year when purchasing a product or a service and that 59% of those dissatisfied complained to the company. Duffy et al., (2006) had similar results in their study of banking customers where 41% of all unsatisfied banking customers complained by either phoning or visiting the bank, compared to 44% in the Valenzuela et al. (2005) study.

Schoefer and Ennew (2005) explored the relationship between perceived justice in a service recovery process and consumers’ emotional responses. The result shows that the extent of an emotional response from a service encounter (i.e., positive or negative) varies in level of interactional, procedural, and distributive
justice. This advances the understanding of how emotions in post-consumption are formed. Valenzuela et al., (2005) are also interested in post-consumption but specifically in the relationship between customers’ service recovery evaluation and switching barriers. The results showed that positive switching barriers, in contrast to negative switching barriers, are related to service recovery evaluations. With that in mind, spending efforts and resources on service recovery may lead to more loyal customers. In fact, Valenzuela et al. (2005) found that compensation was the most important variable measuring service recovery efforts. In contrast, Duffy et al., (2006) state that apologies and compensation do not increase satisfaction, but listening and fixing the problem adds value to the service recovery encounter.

Surjadja et al., (2003) claim that the process of taking care of customers who experience a service failure is a difficult task because these customers are often more demanding when they are in the process of resolving the failure. This is where service recovery and self-service recovery become important.

Tax and Brown (1998) proposed a process model of service recovery consisting of the following four “actions” for companies to take after a service failure occurs:

- identification,
- problem-solving,
- classification, and
- improvement of the service offering.

Similar to Tax and Brown’s (1998) process model is Rayport and Sviokla’s (1995) virtual value chain, which includes the following four sequences:

- gathering,
- organizing,
- selecting, and
- distributing information.

It is interesting to note the similarity of the virtual value chain with the area of service recovery. Although there are obvious similarities between Rayport and Sviokla (1995) and Tax and Brown (1998), there are even more similarities with
Langefors (1973). Langefors’ (1973) definition of information systems contains the following subsystems for:

- collecting,
- storing,
- processing, and
- distribution.

Johansson and Kaiserlidis (2002) evolved from the service recovery process presented by Tax and Brown (1998) due to the implications of information technology, which resulted in four processes. The difference in this process compared to the notion of information systems is that “Storing” is not defined as a distinct process. Storing is considered as part of “Processing”. The following are the four processes:

- information acquisition,
- information processing,
- solution creation, and
- solution distribution.

According to Carlsson (2003), knowledge managing consists of the following four socially enacted knowledge processes:

- knowledge creation,
- knowledge organization and storage/retrieval,
- knowledge transfer, and
- knowledge application.

It is not surprising to see that the core processes of service recovery share great similarities with the virtual value chain (Rayport and Sviokla, 1995), the definition of an information system (Langefors, 1973), Johansson and Kaiserlidis (2002), and knowledge managing (Carlsson, 2003) when Heidegger (1977), according to Styhre (2006:90), states that,

“...knowledge and technologies are two human achievements, two social accomplishments, cut from the same ontological and epistemological cloth.”

66
Furthermore, Carlsson (2003) states that a firm’s ability to create new knowledge and to share and utilize that knowledge for problem-solving activities, making decisions, and taking actions, is vital for firm performance. Likewise, Tanriverdi (2005) argues that the focus should not only lie on knowledge resources but also on how to create, exploit, and renew them. Carlsson (2003) emphasizes, however, that in order for firms to gain competitive advantage, knowledge managing has to become network-focused because firms do not hold the essential knowledge-related resources and capabilities internally. Likewise, Malhotra et al., (2005) state that firms need to rely on business partners to share knowledge and to be able to respond to changes in the environment.

These similarities imply the appropriateness of implementing service recovery in information systems, or rather, it implies that service activities carried out in a self-service technology context or with the help of information technology is very much based on information or knowledge in a system.

In order to be aligned with the customer, the first thing an organization should do, according to El Sawy et al., (1999) is to understand the voice of the customer. Mistakes should not be hidden from customers; the organizational culture should instead treat mistakes as joint learning experiences. Smith (2005) argues for the same attitude in the organization when learning from mistakes. The culture in the organization should encourage mistakes to be reported and analyzed in order to learn lessons from the failure. El Sawy et al., (1999:328) state that value is created through the use of IT and the voice of the customer, which fundamentally changes the value logic;

“The new logic is based on value innovation and derives strategic direction from what is valued by the customer.”

Carr (2003) suggests that firms should stop focusing on opportunities made available by IT since IT is no longer a source for competitive advantage. Instead, they should spend efforts on protection against vulnerabilities in the availability of IT. As IT has become a natural part of human life, it has also become an important tool or enabler that people cannot be without. Contrary to Carr’s (2003) suggestion to stop focusing on opportunities, self-service recovery is not only about taking actions as a result of vulnerabilities and breakdowns but also about the connection between vulnerabilities, breakdowns, and opportunities. This is also in line with Smith’s (2005) declaration of what crisis
management is all about. Crisis management is a process whose purpose is to prevent failures, but if a crisis does occur, it reduces the impact. A similar recommendation comes from former US President Richard M. Nixon, exemplified in Martin (2005:348):

“In a crisis, be aware of the danger – but recognize the opportunity.”

4.2.2 Absorptive capacity

The area of “absorptive capacity” involves understanding the voice of the customer and shares the same foundational ideas as this dissertation’s view of how self-service recovery should function in an organization. Zahra and George (2002) reviewed previous literature in the field of absorptive capacity (ACAP) and present some of the definitions proposed by other researchers. These definitions describe absorptive capacity as the ability, skills or capabilities to value, assimilate, develop and apply problem-solving skills, deal with the tacit components of transferred technology, and learning capabilities in order to create and apply new knowledge for innovation. Zahra and George (2002) divide the concept of ACAP into two separate subsets: potential and realized absorptive capabilities. The first subset, potential absorptive capabilities, consists of acquisition and assimilation capabilities. Acquisition refers to (Zahra and George, 2002:189),

“A firm’s capability to identify and acquire externally generated knowledge that is critical to its operations.”

Assimilation refers to (Zahra and George, 2002:189),

“The firm’s routines and processes that allow it to analyze, process, interpret, and understand the information obtained from external sources.”

George and Zhara (2002) recognize that this first subset of absorptive capacity has received less attention in research than the second subset. As explored in research study 2 but more extensively in research study 5, “Strategic Choices in IT-Enabled Occasions of Knowledge Acquisition – The Role of Information Technology & the Effects on Service Development”, the focus lies on acquisition of knowledge. If the organization in question has routines and capabilities
to handle failures through service recovery, it would also be a good opportunity to identify and acquire knowledge, which later can be analyzed and interpreted in order to take appropriate actions. This is similar to the ideas in the first subset of absorptive capacity - potential capabilities.

The second subset, realized capabilities, focuses on knowledge transformation and exploitation. Knowledge transformation refers to (Zahra and George, 2002:189),

“A firm’s capability to develop and refine the routines that facilitate combining existing knowledge and the newly acquired and assimilated knowledge.”

Exploitation refers to (Zahra and George, 2002:189),

“The routines that allow firms to refine, extend, and leverage existing competencies or to create new ones by incorporating acquired and transformed knowledge into its operations. The primary emphasis is on the routines that allow firms to exploit knowledge.”

The idea in research study 5 was not only to explore the potential in acquiring knowledge (potential ACAP) but also to make use of the acquired knowledge for development purposes (realized ACAP). The same idea of potential and realized should apply to the notion of service recovery. Previous literature in the field of service recovery, however, has placed more attention on the “potential” aspects of service recovery, such as various types of complaining customers (Zeithaml and Bitner, 2000), various types of failures (Lewis and Spyropoulos, 2001), the most common actions following a failure (McDougall and Levesques, 1997), and the use of information technology in getting customers to share their opinions and concerns in relation to a failure (Brown, 1997; Shaffer, 1999). Likewise, Robertson and Williams (2006) explore the potential in self-adaptive software and illustrate how it is possible for software to recognize that is has failed and recover from the failure.

Tax and Brown (1998) do acknowledge the importance of making use of acquired knowledge for improving the existing service, but they do not go as far as to propose service recovery to be a capability for creating and apply new knowledge for innovation. This dissertation does not only focus on “potential”
aspects of self-service recovery, but also on the realized capabilities regarding self-service recovery. A similar approach is emphasized by Alam (2002) where he states that managers need to be more proactive in collaborating with potential users, from idea generation to launch of the new service. In particular, “potential” absorptive capacity in new service development as idea generation and idea screening are probably more useful than other stages in terms of user involvement.

Zahra and George (2002) also stress the potential in absorptive capacity as a source for a firm’s competitive advantage. Two of the most important aspects to achieve a competitive advantage in dynamic markets are innovation and strategic flexibility (Barney, 1991), which transformation and exploitation capabilities in ACAP can support. The knowledge creation part of absorptive capacity is an IT-driven capability. Zahra and George (2002) propose that firms with well developed capabilities regarding realized absorptive capacity, knowledge transformation, and exploitation are likely to reach a competitive advantage through innovation and development more than firms with a reduced amount of developed capabilities. Likewise, Chen and Edgington (2005), state that investments in knowledge creation are strategic in nature and lead to competitive advantage. This strategic link in ACAP, suggested by Zahra and George (2002) and Chen and Edgington (2005), will be emphasized in section 4.3.

4.2.3 Self-service recovery and the framework

The purpose of the framework is to contribute to the answer of the question “Why self-service recovery works?” Self-service recovery is unsurprisingly placed in the center of the framework and surrounded by important aspects which, by themselves and also in the relation among aspects, facilitate the understanding of why self-service recovery works.

Section 4.2 has been concerned with the knowledge gap in service recovery research and the appropriateness, from a theoretical and practical perspective, of making use of information technology (or self-service technology) in the work of service recovery. The similarities between service recovery, information systems, and knowledge management imply that self-service recovery is possible and also suitable when face-to-face encounters between the service provider and the customer are replaced with a self-service technology interface. In fact, the involvement of self-service technology in the work of service recovery does
not seem to be prohibiting but rather promising when, for instance, exploring absorptive capacity in light of self-service recovery.

Knowledge management, including absorptive capacity, collective knowledge and the link to strategic issues, together with the possibilities lying within SST as an IT enabler, has emerged as promising for service recovery and will be further explored later in this doctoral thesis (section 4.4).

4.3 Strategic issues

“…in the electronic economy, the rate of change will accelerate further and new information technologies will increasingly shape rather than support corporate strategies and create entirely new opportunities for value innovation.”

El Sawy et al. (1999:319)

The purpose with section 4.3 is to emphasize the strategic implications possible through self-service recovery. Section 4.3 covers the key areas of “Competitive advantage”, “IT as a strategic resource”, and “Avoiding technology – a strategic choice?” (Figure 12). The purpose of the key area of “Competitive advantage” is to comprehend whether self-service recovery has the potential to contribute to a competitive advantage or even sustained competitive advantage. The purpose of the key area of “IT as a strategic resource” is to grasp the importance of resources regarding competitive advantage in relation to self-service recovery. Finally, the purpose with the key area of “Avoiding technology – a strategic choice?” is to follow up on some of the skepticism concerning the role of IT in reaching a competitive advantage.

4.3.1 Competitive advantage

Prahalad and Hamel (1990) imply that the critical task for a firm’s management is to create an organization that is capable of creating products with a functionality that people cannot resist. Even better would be if firms could create valuable products that the customers have not even imagined. However, these are complicated tasks and need radical changes and reform management (Prahalad and Hamel, 1990). The real sources of competitive advantage are to be found in (Prahalad and Hamel, 1990:81),
“...management’s ability to consolidate corporate wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities.”

Figure 12: The connection between the framework and section 4.3

The core competence of an organization is extremely important in order for the firm and business to flourish. The core competence includes a number of aspects. They bind the existing business together and are the engine for new business development. Core competencies are the collective learning in the organization and primarily how production skills are coordinated and integrated in multiple streams of technologies. It is about how the work is organized and the delivery of value. Furthermore, core competence includes communication, commitment, and a positive attitude to work over organizational boundaries. Prahalad and Hamel (1990:91) stress,

“Core competencies are the wellspring of new business development. They should constitute the focus for strategy at the corporate level.”
According to F. Nilsson (1997), corporate strategy is concerned with how the objectives of the corporation are to be accomplished, which is supported and emphasized by Prahalad and Hamal (1990). A strategy, however, requires implementation before it can be considered to be successful. Therefore, functional strategy, how to accomplish the aim of the function, should receive greater attention in order to see the outcome of the well-thought strategy. The ideas in research study 6 could function as the starting point for a functional strategy when implementing a service recovery function in systems work.

Furthermore, firm resources are the strengths that can be used to grasp and carry out their strategies. Barney (1991:101) defines firm resources as,

“…all assets, capabilities, organizational processes, firm attributes, information, knowledge etc. controlled by the firm to conceive of and implement strategies that improve its efficiency and effectiveness”.

By sustained competitive advantage (Barney, 1991) means that the firm implements a value creating strategy that is not at the same time implemented by a competitor and the other firms are not able to duplicate the benefits of this strategy. Sustained competitive advantage does not refer to a state over time, but rather the inability by competitors to duplicate the strategy. It is likely, however, that a state over time is the result of competitors’ failure to reproduce a similar strategy. Not all firm resources have the potential of sustained competitive advantage. To have the potential, a firm’s resources must, according to Barney (1991:106), have the following four attributes:

• it must be valuable in the sense to conceive or implement strategies in order to improve the firms efficiency or effectiveness,
• it must be rare among the firm’s potential and current competitors,
• it must be imperfectly imitable, and
• “there cannot be strategically equivalent substitutes for this resource that are valuable but neither rare or imperfectly imitable”.

This is in line with Ray et al., (2005) who denote shared knowledge as valuable, rare, and costly to imitate IT capabilities. Likewise, Vargo and Lusch (2004) argue that knowledge and skills are considered resources. Moreover, Vargo and Lusch (2004:2) state,
"Essentially, resources are not; they become."

This follows the service-centered logic in that core competencies should be directed to potential customers that could gain from these competencies. Customers should be involved in developing convincing value propositions that meet certain customer needs and in so doing encourage the nurturing of a learning process between the customer and the firm. The service-centered logic implies that value is not embedded in output, but rather defined and co-created with the customer (Vargo and Lusch, 2004).

Self-service recovery, which implies a constant interaction with the customer or among customers, follows the service-centered dominant logic. Self-service recovery strives for being the capability to interact and learn from customers in order to serve customers better through continuous improvements. Consequently, Vargo and Lusch (2004:6) state that,

"Thus, a market-oriented and learning organization is compatible with, if not implied by, the service-centered model."

Self-service recovery is in line with the service-centered logic (Vargo and Lusch, 2004) and the four attributes proposed by Barney (1991) for resources to have the potential of sustained competitive advantage. The reason is that each user possesses unique characteristics, experience, and suggestion (knowledge) about what is wrong with the service and what needs to be improved. Self-service recovery is the enabler to interact and learn from and with the user. As the individual user is unique and valuable it is not possible to achieve the same result with another user, therefore, a self-service recovery process is imperfectly imitable and valuable due to the close relation and interaction with the user and the acquisition of user’s knowledge. Value is not built into the self-service recovery process, but is created through user involvement. Value-in-use (Vargo and Lusch, 2004) is enabled by IT in the work of self-service recovery. The importance of the individual user and the use of IT as an enabler for value creation activities, were particularly emphasized in research study 7 where six dimensions for user involvement were accentuated in order to innovate technology-based services.
4.3.2 IT as a strategic resource

The famous article written by Nicholas Carr (2003), “IT doesn’t matter”, put forward as the title suggests that investments in information technology are no longer a path to competitive advantage. Carr (2003) explains this by showing the similarities to the expansion of the railroad, telegraph lines, or power generators throughout the years. In the beginning they were all considered to be a source of competitive advantage, but as they become more widely spread and accessible they become part of the general business structure. Carr (2003) claims it is the same with information technology. Dehning et al., (2003) signals the same when stating that IT initiatives are likely to have a positive effect on profitability until the IT initiative becomes a competitive necessity within the industry. This proposition by Carr (2003) and Dehning et al., (2003) together with some of the references especially in Strategic Management makes it important to separate between IT and IS. The notion of, and relation between information systems (IS) and information technology (IT) according to Nilsson and Pettersson (2001:8) is,

“Information Systems concerns how people use information technology (IT) in different business activities.”

However, this dissertation builds on the notion that knowledge management can support the organization to become more competitive (Davenport and Prusak, 1998), which can be accomplished with information technology and manifested in information systems. Knowledge is therefore regarded as a resource in line with the resource-based view of the firm (RBV). The RBV of the firm proposes that knowledge as a non-imitable and rare resource determines the firm’s competitive advantage (Nonaka and Peltokorpi, 2006). Sustained competitive advantage is not possible to achieve through physical products or service procedures but in the design knowledge when creating these products or services (Van de Ven, 2005). Furthermore, Levina and Vaast (2005:336) state,

“According to the knowledge-based view of the firm, integrating various sources of expertise requires overcoming obstacles associated with knowledge embeddedness and tacitness. Nevertheless, doing so – and doing so better than the competition – can become a source of sustained competitive advantage.”
Carlsson (2003) states that knowledge, from a resource-based view, is appropriate when addressing the links between knowledge, knowledge managing, and firm performance. Studies concerning the relationship between knowledge and performance are not well covered (Nonaka, 1994).

Clemons and Row (1991) point out that a technological innovation can change the value of strategic resources, thus increasing the value of some resources while the value of other resources is decreased. Clemons and Row (1991:282) state that

“…since IT can improve the cost, timing, and quality of information flows and decision processes, it can radically change the transaction economics with far-reaching strategic results. Monitoring costs and hence, uncertainty can be decreased.”

One relevant question regarding how IT can manage interactions between activities in the organization is further explored in research study 6. The interaction between service recovery and service development is explored from a systems work perspective.

Benefits of innovative applications of information technology could be provided when the firm’s unique resources and activities could be exploited and if competitors could not imitate the firm (Clemons and Row, 1991). Preferably, both vertical and horizontal interactions should be supported by IT. Dehning et al., (2003:640) go a bit further when explaining the relation between successful and unsuccessful IT investments:

“Companies that use IT in a transform IT strategic role introduce radical business models that disrupt industry practices (e.g., bypassing select value chain participants) and market structures (e.g., creation of new market spaces) as a means to position themselves more favourably within an industry. The intended market changes are disruptive rather than incremental, and hence promise high, sustainable returns if successful. Often, however, such innovations prove unsuccessful (Weill, 1992) because of associated complexities and uncertainties, thus producing a high-risk, high-return investment scenario.”
In fact, Dehning et al., (2003) find positive, abnormal returns for firms in industries undergoing IT driven transformation, where IT takes on a transform strategic role.

Bharadwaj (2000:171) discusses a resource-based perspective on information technology capability and firm performance. IT is seen as an organizational capability and IT capability is defined as a firm’s

“...ability to mobilize and deploy IT-based resources in combination or co present with other resources and capabilities.”

Tanriverdi (2005) shows evidence that knowledge management is a critical organizational capability through which IT influences and leads to superior firm performance. Bharadwaj (2000) adopts Grant’s (1991) classification scheme for resources and classifies firm specific IT resources as IT infrastructure, human IT resources, and IT-enabled intangibles. Tanriverdi (2005), in short, means that the resource-based view of IT suggests that firms can and do differentiate themselves on the basis of their IT resources and by combining these resources.

Bharadwaj (2000) presents one of the first empirical tests of the resource-based view of IT. The empirical analysis examines the association between superior IT capability and superior firm performance and finds this relationship to be both significant and positive. This finding is important to managers of firms who should not only invest in IT, but also identify ways to create a firm-wide IT capability.

Ciborra discusses the requirements needed for information systems to become strategic, i.e., strategic information systems (SIS) (1994:4);

“Only if a firm’s SIS is valuable and imperfectly imitable, can it be a source of sustained competitive advantage”.

Ciborra (1994) questions and challenges the traditional and current approaches concerning the design of strategic information systems (SIS). Strategy formulation for businesses in practice differs from the “mechanistic” approach, characterized by Mintzberg (1990) as conscious and analytic, top-down and control-oriented, simple and structured and finally, separates between action and struc-
ture. Instead Ciborra (1994) means that the invention of SIS must be based on new foundations, both practically and conceptually.

One important aspect of successful SIS, according to Ciborra (1994), is that they are developed close to and serve the grassroots of the organization, where core competencies and skills are deployed daily. It is important to emphasize, however, the importance of SIS’s role in supporting the main business ideas of the firm. In addition, there are often more groups working with product development and marketing than traditional “grassroots”, who are affected by and have interest in IT-based SIS. The forces of these interest groups should not be neglected or underestimated in the innovation process of building an SIS.

To avoid easy imitation, intangible areas such as organizational issues must be taken into account. In addition, when developing SIS a prototyping way of working should be used and it is crucial that the end users participate in the development process. Furthermore, SIS that offers a long-term advantage should not only support transactions, but also in the long run the transformation of the whole business for the firm.

There are three general characteristics that an SIS must show to generate a sustained competitive advantage. It must

- be able to create value,
- be built by only a small number of firms, and
- not be perfectly imitable, i.e., other firms face disadvantages when implementing it.

Ciborra (1994) states, that an SIS must be able to create value. IT business value is defined as (Melville et al., 2004:287):

“The organizational performance impacts of information technology at both the intermediate process level and the organization-wide level, and comprising both efficiency impacts and competitive impacts.”

Ciborra (1994:15) advances the assumption that the development process of an SIS - that delivers a sustained competitive advantage - must be “managed as an innovation process”. To innovate means to create new knowledge about resources, goals, tasks, markets, products, and processes. To create new knowl-
edge, two alternative ways can be used, according to Ciborra (1994). The first way puts emphasis on the information provided inside the organization and is characterized by learning by doing and incremental decision-making. The second way is a process of radical learning and deals with the structures and frames in which market analysis, systems analysis, and requirements specifications take place. The contexts of both business policy and systems development are questioned, shaped, and restructured. A great deal of knowledge could be gained, and mistakes could be avoided by learning from other firms’ success and failure stories. These should then be considered in comparison to the processes, business ideas etc. of their own firm.

In the area of strategic IT, Mata et al., (1995:488) claim that primarily the focus has been on the

“…ability of IT to add economic value to a firm by either reducing a firm’s costs or differentiating its products or services.”

They also state, however, that this is not the same thing as IT being a contributor to sustained competitive advantage. When a firm is implementing a strategy that does not reduce costs or increase revenues they are at a competitive disadvantage. More specifically, Ray et al., (2005) state that delivering quality customer service, which seems to be more related to an increase of revenues rather than to a reduction of costs, is now an essential part of a firm’s strategy. Moreover, Ray et al., (2005) claim that information technology resources and capabilities are becoming more and more important for this mission.

4.3.3 Avoiding technology – a strategic choice?

One reason for the fairly low use of the SymBelt Customer Center in the Metso Paper study is that people sometimes prefer talking to each other using a telephone or in a face-to-face manner instead of using new technology, particularly when problems are critical and complicated. Although encouraged by the service provider, it was not compulsory for the customer to use the Internet-based service (SCC). The business development manager compared the SymBelt Customer Center with the display in a car telling you when it is time for service. In a multinational company like Metso Paper it is difficult to uphold good communication with all customers around the world. If it is difficult to visit the customer in a face-to-face manner then the SymBelt Customer Center was suggested to be a good replacement.
Mata et al., (1995) discuss the “create-capture-keep paradigm” which is when firms convince customers to adopt a new technique that makes them tied to the same supplier. This will make customers of the firm/supplier unwilling to change to another supplier because of switching costs. This was probably not one of the main reasons for the development of the SymBelt Customer Center (SCC) but, nevertheless, the SCC is a tool that demands some training by its users in order to be valuable. Therefore, switching to a different tool (i.e., customer center) from a different supplier will be costly.

However, Mata et al., (1995) state that a “create-capture-keep” strategy will not make customers more willing to stay and therefore it is not a source of sustained competitive advantage. They believe that there are three reasons why the “create-capture-keep” strategy will not work. The first reason is that customers usually can anticipate whether or not a specific technical solution will make them “captured”. The second reason is that firms that take advantage of high switching costs for customers will likely gain a reputation as dishonest to other potential customers. The third reason why the “create-capture-keep” approach is not likely to work is that the number of options for customers to obtain IT has increased dramatically. However, as Mata et al., (1995:490) state,

“Perhaps the only way that customers switching costs could be a source of competitive advantage for a firm selling IT is if the IT in question is absolutely unique, if it is absolutely essential to a customer’s business operations, if there are currently no other suppliers of the IT, and if it is unlikely that there will be any additional suppliers of the IT in the near future.”

This dissertation argues for a similar view as proposed by Mata et al. (1995). Instead of treating IT as the cause of competitive advantage, IT should be seen as an enabler. IT requires an organizational understanding and acceptance in order to realize it’s full potential.

Powell and Dent-Micallef (1997) adopt the same approach as Mata et al. (1995), which is a resource-based view. Powell and Dent-Micallef (1997), however, study the linkages between information technology and firm performance. The resource-based approach helps to explain why some companies perform well while other companies with the same type of IT do not. They also emphasize
the question of why successful IT users fail to generate sustained competitive advantage.

Powell and Dent-Micallef (1997:383) present the following three hypotheses that are built upon the expectation that technology resources behave as commodities and therefore do not explain differences in performance across firms:

- human resources complementary to IT create embedded advantages that explain significant performance variance among firms,
- business resources complementary to IT create embedded advantages that explain significant performance variance among firms, and
- technology (IT) resources do not explain significant performance variance among firms.

The results show that IT, if used in the right way by the right people can be an advantage for productivity, but can be a disadvantage if used in a wrong way by the wrong people. Powell and Dent-Micallef (1997:395) conclude and agree with Mata et al., (1995) by stating that,

“Management is the difference producing the critical, distinctive advantage.”

In order to be successful, firms cannot only invest in IT but must also make sure that IT is merged with other resources, especially human resources. The resource-based view of the firm is based on two fundamental assertions (Mata et al., 1995:491):

“1) …that the resources and capabilities possessed by competing firms may differ (resource heterogeneity); and 2) that these differences may be long lasting (resource immobility).”

In order to understand the path leading to competitive advantage, the authors present a model describing a resource-based model of competitive advantage. This model is then used to analyze the attributes of IT and to find out which attribute can be a source of competitive advantage. When analyzing the four attributes of IT, namely, access to capital, proprietary technology, technical IT skills and managerial IT skills, they conclude that the last attribute, managerial
IT skills, is the only attribute likely to be a source of sustained competitive advantage.

4.3.4 The “Strategic issues” aspect of the framework

There seems to be a connection between resources (for instance IT, SST, and knowledge) working as the prerequisite for competitive advantage and the potential of sustained competitive advantage. The starting point in this reasoning is resources. Without the adequate resources it is not possible to reach a competitive advantage. The question then is whether IT, SST, or knowledge is the adequate resource for the work of self-service recovery? It was concluded that IT, if referring to a machine or a computer, will not be a contributor to competitive advantage, but if the possibilities of IT or SST can enable discussions between users leading to a sharing of collective knowledge, it could potentially be a source of competitive advantage.

In the Metso Paper study, the SymBelt Customer Center was perceived to be valuable for users involved in the development. However, once the Internet-based service were completed and launched it was hardly ever used. It is possible that the resources (the information system and the collective knowledge residing within the information system) were not valuable enough. One function in the SymBelt Customer Center was a user forum where users were given the opportunity to address questions and issues that were going to be answered by employees at Metso Paper. The discussion leading to this solution also included the possibility for users to interact with other users, but it was never implemented. It is possible that this decision affected the outcome of the SymBelt Customer Center, but probably not significantly.

A user forum, ideal for problem solving (i.e., self-service recovery) discussions, will never be valuable if no one ever contributes to the discussion. If, however, a user forum is active and creative in helping users with problematic issues, it is reasonable to believe it will be regarded as valuable. Valuable, in this context, is therefore closely connected to collective knowledge existing in the user forum and, in turn, to the creation of value through the sharing of solutions to problems. This process of value creation is enabled by IT.

4.4 Collective knowledge

Prahalad and Ramaswamy (2000:80) were among the first to address the evolution and transformation of customers:
“Thanks largely to the Internet, consumers have been increasingly engaging themselves in an active and explicit dialogue with manufacturers of products and services. What’s more, that dialogue is no longer being controlled by corporations. Individual consumers can address and learn about businesses either on their own or through the collective knowledge of other customers.”

One crucial resource for users engaged in self-service recovery is knowledge from other users. With the evolution of the Internet, users now possess the capability to interact with users from various parts of the world, increasing the possibility of receiving help from users with similar problems. Section 4.4 will focus on the key areas of “Perspectives on knowledge”, “Electronic networks of practice”, and “User involvement” (Figure 13). The overall purpose of the aspect of “Collective knowledge” (section 4.4) is to comprehend the perspectives on knowledge, the enabler behind creation, and the sharing of collective knowledge. The purpose of the key area of “Electronic networks of practice” is to illustrate the possibilities of online discussion forums regarding self-service recovery. The purpose of the key area of “User involvement” is to explain some of the implications and potential for involvement of users in development activities.

4.4.1 Perspectives on knowledge

El Sawy et al., (1999) declare that traditional strategic approaches for value creation are about to change. They describe several reasons for this belief, such as knowledge intensity and IT-intensive strategic options. Knowledge intensity refers to the speed of new knowledge creation and knowledge transfer. IT-intensive strategic options refer to the possibilities in virtual networks where physical distribution relationships are no longer needed. Small companies can compete against bigger and stronger companies by building interactive relationships with customers and suppliers using the Internet.

Knowledge, an IT-enabled intangible, is an example of an IT-based resource (Bharadwaj, 2000), but unlike other resources knowledge has the potential to create new knowledge (Zuboff, 1984). Carlsson (2004) declares that knowledge as a resource within the resource-based view of the firm can be treated as an object, which can be transferred, decomposed and recombined, codified, and
used to create value for a firm. Vargo and Lusch (2004) conclude and confirm that knowledge is the foundation of competitive advantage.

The other perspective of knowledge as a resource focuses on the context where the knowledge is created, shared, integrated, and put to use – “knowing”. Tanriverdi (2005) breaks up knowledge resources into three parts: product, customer, and managerial knowledge. Product knowledge is research, development, and operations resulting in products and services. Customer knowledge is knowledge about the needs, preferences, and buying behaviors of customers or the market as a whole. Managerial knowledge is knowledge concerning how to manage business units of the firm. These three parts are the main strategic knowledge resources of multi-business firms. Knowledge in this dissertation is explored in light of self-service recovery, involving both “knowing” and knowledge as an object.

Nonaka (1994) describes knowledge by comparing it to data and information. Data are raw numbers while information is data arranged in meaningful patterns. Knowledge is more than information because it also includes beliefs,
perspectives, values etc. On a more detailed level, knowledge can be described as either tacit or explicit where tacit knowledge is difficult to articulate and transfer but where explicit knowledge is easier to articulate, codify, and transfer. It is argued that collective knowledge is the total of individual knowledge but it is also argued that collective knowledge is created and held through continuous social interactions and not reducible to individuals (Nonaka and Peltokorpi, 2006). Both tacit and explicit knowledge is created and exist simultaneously at three levels: individual, group, and organizational level. Knowledge creation is a process starting with an individual who acquires and processes tacit knowledge in relation to organizational knowledge, resulting in a contribution to the knowledge base of the organization (Nonaka, 1994). According to Smith (2005), the ability to learn in the organization is the best protection against vulnerabilities.

A major shift in using ICT and computer-based IS will probably move from economies of scale or economies of scope to becoming more knowledge oriented and will concern how to gain and sustain competitive advantage through “economies of knowing” (Carlsson, 2004).

Knowledge management is often (Nonaka and Peltokorpi, 2006) defined according to Hedlund (1994:76) as,

“The generation, representation, storage, transfer, transformation, application, embedding and projecting group and organizational knowledge”

A knowledge management system is a type of information system that supports knowledge management (Kankanhalli et al., 2005). Kankanhalli et al., (2005) assert that two knowledge management systems have been identified in research: the repository model and the network model. The repository model focuses on knowledge reuse by creating knowledge databases, i.e., electronic knowledge repositories (EKR) while the network model focuses on knowledge exchange through a socialization process among people. A technological help in the network model is electronic networks of practice.

In “Managing Knowledge into Competence: The Five Learning Cycles of the Competent Organization” (Sanchez, 2001), key concepts concerning knowledge
are presented. The chapter starts with an updated definition of contemporary management thinking (Sanchez, 2001:3):

• “managing organizational knowledge effectively is essential to achieving competitive success, and
• managing knowledge is now a central concern – and must become a basic skill – of the modern manager.”

Sanchez (2001) introduces a model containing five learning cycles. These cycles represent the processes through which (Sanchez, 2001:4),

• “individuals in organizations create knowledge,
• individuals and the groups they work in interact to create shared knowledge and to generate new knowledge, and
• groups use their knowledge to undertake coordinated action and to jointly develop new organizational competences.”

Garud and Kumaraswamy (2005), however, found that efforts to encourage knowledge accumulation, reuse, and renewal might in fact generate negative consequences. Forces, destructive and innovative, influence processes at different levels in the knowledge system of an organization and need to be balanced to create a virtuous circle. Virtuous circles are explained by involving Nonaka and Takeuchi’s (1995) knowledge spiral (Garud and Kumaraswamy, 2005:10):

“The knowledge spiral is based on employee interactions which result in repeated conversations of knowledge between its tacit and explicit forms. As such interactions and conversations occur, knowledge spirals up from the individual to the collective levels of the organization, thereby generating a virtuous circle.”

Bock et al., (2005) found that individuals tend to keep knowledge to themselves thereby obstructing individual knowledge from being transformed to organizational knowledge. This is not surprising because people who share knowledge risk loosing their unique expertise, their value in the organization and even so, risk their professional reputation should the answer be incorrect (Bock et al., 2005). Even more interesting is that Bock et al., (2005) found that extrinsic rewards result in a negative effect on individuals’ attitudes for sharing knowledge. Kankanhalli et al., (2005) refer to opportunity costs when explaining why
people avoid putting knowledge into knowledge management systems. Opportunity costs are time and effort put into codifying and inputting knowledge into knowledge management systems rather than spending time and effort on other tasks.

Kankanhalli et al., 2005) found that the most important motivator for sharing knowledge is the enjoyment in helping others.

As hinted by Sanchez (2001), there is an increased awareness of the importance of acquiring customer-held knowledge in terms of customer feedback. Service recovery processes have been identified as one type of significant occasion for external knowledge acquisition (Research study 2).

4.4.2 Electronic networks of practice

Firms are starting to see the potential in fostering online discussions among groups of people. The reason is that firms do not possess adequate knowledge within the firm and must actively engage in creating new connections to other firms or individuals to acquire knowledge (McLure Wasko and Faraj, 2005). For the customer, online discussions create added value in the form of knowledge exchanges about usage or new ways of using the product as well as problem discussions and problem solving, all of which are activities that advance the total customer experience.

Depending on whether participants involved in online discussions work together or have common interests, meet face-to-face, are geographically isolated etc., research has found several definitions for these engaging discussions. The term community of practice refers to a tightly knit group of people who are engaged in a shared practice, discuss frequently, and mostly face-to-face (Lave and Wenger, 1991). Networks of practice, on the other hand, refers to a larger group of people sharing knowledge, but not necessarily tightly knit, and who do not know each other and do not meet face-to-face (Brown and Duguid, 2000). Electronic networks of practice are similar to networks of practice except that sharing of knowledge for the most part takes place through computer-based communication technologies (McLure Wasko and Faraj, 2005).

This dissertation is primarily focused on McLure, Wasko, and Faraj’s (2005) definition of electronic networks of practice when referring to knowledge shar-
ing in online communities. The formal definition of an electronic network of practice is (McLure, Wasko, and Faraj, 2005:37),

“…a self-organizing, open activity system focused on a shared practice that exists primarily through computer-mediated communication.”

This implies that the network is created voluntarily by some of the participants, maybe a person from a company or an individual with a particular interest, and it is open for everyone who is interested in helping others with problems common to the practice through computer-mediated communication. McLure, Wasko, and Faraj (2005) also emphasize that electronic networks of practice are different to traditional communities where people often know each other and feel obliged to return favors if being helped. In electronic networks of practice participants may never receive a favor from someone they helped. McLure, Wasko, and Faraj (2005) found that participants contributing to the network of practice are not more committed than participants not contributing. Instead, participants share knowledge in networks of practice when it enhances professional reputation and because participants enjoy helping others (McLure, Wasko, and Faraj, 2005).

In addition, relational capital is argued to influence participation in the network. Relational capital refers to participants of a network who can identify themselves with the collective and trust other people in the network thereby feeling obliged to participate in the knowledge sharing in the network. Most important though, is to build the electronic network of practice around a few but skilled participants, who create what McLure, Wasko, and Faraj (2005) refer to as, the “critical mass”. The “critical mass” upholds the usefulness and knowledge sharing of the network, making the network more likely to stay alive.

McWilliam (2000) presents a number of explanations of why online communities increase in numbers and popularity. Online communities offer the participants a place with codes of behavior for conversation of common interests. Furthermore, when these conversations are stimulating and valuable for the participant it can lead to relationships based on trust and encouragement for others to participate in the online community (McWilliam, 2000). In fact, the more stimulating the communication taking place in the online community, the stronger the community (McWilliam, 2000) and consequently the stronger
perceived value for the participants. Nonaka and Peltokorpi (2006) emphasize socialization, i.e., contextual values and social relations, in understanding individual action. However, not only are online communities advantageous for customers, but they can also be a valuable source for the product firm (Carlsson, 2004). Malhotra et al., (2005) found that collaborative information that is broad ranging and of high quality, tends to be helpful in the creation of new knowledge. The key for firms intending to provide their customers with an online community is to make topics that are interesting to customers so they will have opinions about it, and be excited enough to share their opinions (McWilliam, 2000). If the community flourishes, it is possible for the firm to take advantage of this valuable source of knowledge. Carlsson (2004) divides external knowledge acquisition into two approaches:

- knowledge harvesting, and
- knowledge creation.

Two examples of the previous approaches are direct analysis from information in online communities and user involvement in new product development. According to Carlsson (2003), the following three different types of networks exist where activities like knowledge harvesting and creation can occur, i.e., knowledge managing:

- extra-networks,
- inter-networks, and
- open networks.

Extra-networks are closed networks designed and administered by the company. This type of network is suitable for R&D activities where invited customers are allowed to be part of this network, sometimes only for a couple of days. Inter-networks are similar to extra-networks but different in that this type of network is open for everyone. The third type of network is the open network where participation is open for everyone and not designed or administered by a company. This type of network is dependent on people’s willingness to share and contribute ideas and creativity to the network where the community resides. However, an open network is difficult for firms to use as a knowledge source since it is not designed or administered by the firm (Carlsson, 2003).
McWilliam (2000) refers to a poll in 1997 where 42% said that their activities in online communities were related to their professions. Based on the results in this poll, it seems understandable that the service recovery activities (often problem-solving) of computer hardware and software are common in online communities. Computer hardware and software are becoming increasingly critical, regardless of the profession. Whether the network is characterized as an extra, inter, or open network, users and firms are beginning to see the usefulness in these knowledge sources. Users are turning increasingly to online communities to find solutions to problems, and firms now use the Internet as an enabler for involving users in new product and service development activities through the use of networks (Carlsson, 2003).

Prahalad and Ramaswamy (2000) use Cisco as an example of self-service recovery when customers are being invited to Cisco’s on-line service. A knowledge base and a user community reside in this service, and through interaction they help each other to solve problems without any involvement by Cisco. Although some companies have on-line services or other types of networks, customers are increasingly building their own networks for problems-solving activities or other types of knowledge sharing thanks to the Internet (Prahalad and Ramaswamy, 2000).

4.4.3 User involvement

The importance of user participation and user involvement during development has been discussed in IS research for many years (Barki and Hartwick, 1994; McKeen and Gumaraes, 1994; Hunton and Beeler, 1997). From the beginning of the 1960s researchers and practitioners argued for the importance of user participation in the development process of information systems (Barki and Hartwick, 1994). Although user participation has been greatly emphasized, the empirical evidence of the benefits is not overwhelmingly evident (Ives and Olson, 1984). Likewise, in the services marketing field, Alam (2002) claims that some researchers believe that input from users is not important in the development process because users seldom provide any good insight.

It is argued that the reason why empirical evidence is absent is research design weaknesses and the presence of affecting contextual variables among user participation and critical outcome criteria (Barki and Hartwick, 1994). A better understanding of the difference of the “user participation construct” would be an important step towards addressing the problems of methodological weak-
nesses and affecting variables when studying user participation (Alavi and Joachimsthaler, 1992). Likewise, Magnusson et al., (2003) state that it is not enough only to ask the customers what type of services they want; customers needs to play an active part in the development process in order to see the benefits of user involvement. Further on, they state (Magnusson et al., 2003:122) that,

“For technology-based self-services, it is rather meaningless to ask users what they want because they do not normally know what is possible to produce.”

Examined by Barki and Hartwick in 1989, the difference of participation and involvement has justifiably been investigated. They claim user participation is concerned with assignments, activities and behaviors during development. Vroom and Jago (1988) define participation as “taking part” or when you contribute to something. Involvement, on the other hand, is a subjective physiological state concerning the importance and personal relevance of an information system to the user. Barki and Hartwick (1994) stress the importance of differentiating between the physiological states used in involvement and other physiological states, primarily attitude. Alam (2002) presents a framework with the following four key elements for describing types of user involvement:

- objective/purpose of involvement,
- stages of involvement,
- intensity of involvement, and
- modes of involvement.

Magnusson et al., (2003) touch upon these elements in their study of end user involvement in generating ideas for telecom services. Based on expert evaluations in three different criteria’s – originality, user value, and producibility – ideas generated from end users were judged to be more original and holding a higher degree of perceived value than experts’ own ideas. However, end users ideas were judged to be more difficult to turn into commercial services (Magnusson et al., 2003).

Even though empirical evidence of the benefits of user participation is somewhat lacking, Barki and Hartwick (1994) as well as Andersen (1994) discuss potential benefits of user participation such as the possibility for users to influ-
ence the design of the new system and thereby satisfying their needs and desires. Even though user participation is not the only factor influencing satisfaction, the study by McKeen and Gumaraes (1994) showed a direct relationship between user participation and user satisfaction. Barki and Hartwick (1994) also claim that a feeling of ownership may appear among participating users. In addition, users participating in the development process may develop a better understanding of the abilities and potentials of the new system. Hunton and Beeler (1997) argue that the implementation of the right participation strategy should be based upon organizational restrictions and limitations.

Although empirical evidence of the benefits of user involvement might be somewhat limited, it seems that many service firms are under pressure to interact and acquire input from potential users. The reason why user involvement is important is because service firms need to offer services that are timely and in accordance with user needs (Alam, 2002). In addition, Alam (2002) claims that user involvement is more important in the service innovation process than for product innovation. In fact, user input and/or user involvement leads to better innovation and new product success (Alam, 2002). Matthing (2004) found that users’ technology readiness (TR) affected the outcome of service innovation. Users with a high level of TR were better in creating innovative ideas than users with low TR. Most important though, is the fact that Magnusson et al. (2003), Matthing (2004), and Kristensson (2003) all found that customers involved in the process of creating service ideas generated more original ideas with greater potential than professional service developers.

Carlsson (2004) suggests the following three critical questions to be addressed before involving customers in the creation phase of new product development:

1. What type of customers should be involved and how do we communicate with these customers?
2. What incentives can generate and promote customer participation?
3. What type of knowledge do we need in order to be integrated into our internal NPD-process?

Carlsson (2004) discusses the advantages in using information and communications technology (ICT) and knowledge management systems to enhance a firm’s absorptive capacity. In order to make the new product development process much faster and more coherent with customer expectations, Carlsson
(2004) states that one opportunity in new product development is to use the Internet for customer involvement. Nambisan (2003) argues in favor of Carlsson (2004) to use information technology in the process of new product development but in a more radical way. Nambisan (2003) believes that the IS field has “come of age” and should attempt to become a reference discipline to other fields such as new product development research. The reason why new product development is appropriate is that IT-based collaboration and communication systems are critical for NPD success (Nambisan, 2003).

4.4.4 The “Collective knowledge” aspect of the framework

It is critical in the fast and accelerating pace of the business community to respond quickly, or even better, to respond before significant occurrences take place. Striving for proactive action is difficult but not impossible. As was explored in research study 5, a proactive strategy is not only possible for the greater mass of the user group, but will also result in acquisition of both explorative and exploitative knowledge. The proactive strategy is the ability to detect problems immediately and distribute the solution to the greater mass which has not yet experienced the problem, thus, being proactive.

This strategy requires constant interaction with the user and among users to acquire collective knowledge. This is a demanding task especially when knowledge acquisition takes place in a face-to-face manner. In spite of this, information technology has created new possibilities to support communication and discussion between the provider and the user and among users. Fortunately, many of these discussions enabled by IT are open to the public, meaning that sources of knowledge are accessible and acquisition of knowledge is possible.

The electronic networks of practice that host discussions and communications have been realized mainly due to the development of the Internet. Information technology and information systems, manifested as the Internet, are not only supporting business activities, but also creating new possibilities. These possibilities enable users to operate and work unaccompanied, i.e., self-service.

4.5 SST as an IT enabler

The rapid development within the area of IT, together with an increased focus on services in the business landscape, have revamped the industry and accordingly research to become a blend of two previously separated areas. The areas of services and IT are today so closely bound together that one cannot be sepa-
rated from the other. Due to the merging of various areas and various perspectives, the infusion of technology into services has created new opportunities but also complications. Section 4.5 will cover some of these issues through the key areas of “The infusion of IT in industry”, “Creators of technology and technology users – different perspectives”, and “Merging two fields with different definition of services” (Figure 14).

Figure 14: The connection between the framework and section 4.5

The purpose of “The infusion of IT in industry” is to provide a short description of the role of IT and its development from being a support for business activities to becoming an enabler of value creation activities which have changed the role of the user. The purpose of “Creators of technology and technology users – different perspectives” is to give a short introduction and
explanation to some of the problems regarding technology use. This issue is closely related to the next key area, “Merging two fields with different definition of services”. The purpose with the last key area regarding the aspect of “SST as an IT enabler” is to explain some of the differences between the field of Information Systems and the field of Services Marketing/Management in terms of services. In addition, suggestions to overcome some of these differences will be discussed and in particular the suggestion to create a new science - Services Science.

4.5.1 The infusion of IT in industry

The infusion of technology in the global economy is undoubtedly comparable with other great advances in the 20th century like the steam engine and electricity. Like previous inventions this has completely changed the way we do business. Much in the same way that the telephone made it possible to organize and communicate in large buildings or between cities, the infusion of technology and especially the Internet has changed even more the way companies are organized and communicate. David and Wright (1999:19) explain the change in business:

“…the development of Internet technology has opened the door to an entirely new class of organization-wide data processing applications as well as enormously enhanced the potential for collective and cooperative forms of work organization.”

Davenport (1993) introduced the notion of “IT as an enabler” for process innovation, stating that specific IT capabilities are useful when fulfilling certain process objectives. One of the most important enablers stemming from the rapid development of information technology is the Internet. Litan and Rivlin (2002) present a summary of the impact of the birth of the Internet stating their belief that the Internet will result in a decrease of costs and will influence other areas of business in productivity gains. The decrease in costs will be associated with production and distribution of goods and services. This is probably most notable in the service industry where there is little need for physical transportation. Music, for example, has the potential to be delivered to customers with the help of the Internet, which has been proven by many services like Napster© and the iTunes Music Store©. Chesbrough and Spohrer (2006:37) provide another example where they use the FedEx online tracking system to show
advantages for customers involved in the service and by using information technology:

“By utilizing an online tracking system, FedEx can respond to customers’ needs very rapidly, without any human intervention on its part. The customers, who enter all of the information, do not mind, because they get the latest, accurate, and authoritative information.”

The key in getting customers to participate, according to Chesbrough and Spohrer (2006), is to make the service operation more transparent for customers.

Although the infusion of technology has revamped the global economy in many ways, a debate of the productivity increase has been occurring among researchers (Brynjolfsson and Hitt, 1996; Brynjolfsson and Hitt, 2000; Coase, 2000). To a large extent what fueled the discussion were the famous words by Solow (1987), known as the Solow paradox:

“You can see the computer age everywhere but in the productivity statistics.”

Despite the fact that businesses argue they seldom see positive results from the investment in information technology; explanations of the opposite lie outside the discussion of productivity. One of the reasons why the infusion of technology has spread so fast and so widely is the importance of utility (Research study 3). Litan and Rivlin (2002:69, free translation) share the same opinion when stating,

“… the potential utility is the utility in businesses, to decrease and improve overall service.”

When making decisions about investments, it is difficult to know whether or not the investment will result in better profits. Still, companies continue to make large investments regardless of the uncertainty. Investments, therefore, can not be decided on the productivity factor alone. Håkangård and Nilsson (2001) believe that one solution to the productivity paradox would be to put more effort into new and innovative business processes and assign more resources to developing user knowledge, thereby increasing the productivity level. Van de Ven (2005:365) is on the same track when stating the following:
“Advances in information technologies and the growth of a knowledge-based service economy are transforming the basis of technological innovation and corporate competition.”

Tanriverdi (2005) states that one reason why it is difficult to see the causal link between IT and firm performance is because the link is too long. Intermediate organizational capabilities need to be taken into consideration when studying the relationship between IT and firm performance.

One reason why companies continue to invest in information technology is new business opportunities made possible by the development of information technology. Mainly due to the development of the Internet, companies realized the potential to change existing services or completely create new services within this new context. Whether it is a free service like finding a book at the library, or a complex and expensive service like stock market trading, the Internet itself is based on services. Fisk captures this influence in the following quotation (1999:1):

“Further, there is virtually no aspect of the service economy that has not been altered by information technology.”

Still, the Internet needs to develop in order for companies and customers to take full advantage of its potential. Litan and Rivlin (2002:67) put attention to the following three issues concerning the development of the Internet:

- a growth of people using the Internet,
- effects related to more intense use of the Internet, and
- an increase of speed on the Internet.

The Internet is today the foundation for many services, i.e., services that were not previously available to customers but are available now in a new context. This change of the service context has had its difficulties since many services traditionally enclose a high degree of human involvement. Consequently, the interaction between the customer and the service provider has changed. The service provider has been replaced by an electronic substitute, i.e., an IT enabler intended for the interaction between the customer and the service provider. Rather than contemplate the customer as only a co-producer (Vargo and Lusch, 2004), the customer has now evolved into a sole-producer (Figure 15) enabled
by information technology (IT), which is in line with Echeverri and Edvardsson (2002).

![Figure 15: Co-producer and sole-producer](image)

### 4.5.2 Creators of technology and technology users – different perspectives

The interesting part about the blend of two previously separated areas is the difference in perspectives among people representing these two areas. Fisk (1999:3) grasped this problem in the following quotation:

> “The creators of technology tend to have vastly different perspectives on technology than the users of technology. To technology creators, technology is a goal in its own right. To technology users, technology is a means to solve problems.”

What Fisk is reflecting on in the previous quotation is the difference in perspectives among creators of technology compared to technology users. This is similar to the comparison of technology creators and service creators. Creating a service based on IT demands a closer cooperation between these two groups; working separately with various perspectives and goals is not the best way to develop a service based on IT. Håkangård and Nilsson (2001), from the field of Information Systems, share the same opinion as Fisk (1999) that the Information Systems needs to become even more interdisciplinary sharing knowledge with other disciplines such as Computer Science, Business Administration, and Behavioral Sciences.

In the sense of creating connections between services and IT, there is evidence of models and methods used to bridge the gap between the two areas, i.e., meta
modeling (cf. Nilsson, 1999). What is missing though, are theories dedicated to the combination of services and IT. The two fields are sometimes unfamiliar with the other field’s research. For example, Human-computer-interaction (HCI) is well-explored and significant stream of research within the field of Information Systems, but not visible in the field of marketing. Meuter et al., (2000:50) in the Journal of Marketing state:

“Although extensive academic research has explored the characteristics and dynamics of interpersonal interactions between service providers and customers, much less research has investigated customer interactions with technological interfaces.”

The problem, also addressed by Nilsson (1995; 1999), is connected to problems with communication between various actors within a company. We have to realize that all levels, corporate, organizational, and information systems are equally important. Laudon and Laudon (1994) give their opinion about the situation:

“Information systems have become so vital to the management, organizations, operation, and the products of large organizations that they are too important to be left to technicians.”

Fisk shares the same opinion about the connection between technology and organizations; IT is to be regarded as an enabler for the organization. Fisk (1999:7) declares the same opinion when stating,

“For the customer, technology is merely the means to the end and not the end in itself.”

But more importantly, there has to be good communication among management, organizations, operation, products or/and services, and technicians. If not, communication will shatter and the bridge between, for example, service developers and system developers will result in far from optimal solutions. Research study 6 explores the potential in the idea of merging service recovery and service development closer to system developers in systems work.
4.5.3 Merging two fields with different definition of services

During the last few years, the definition of services has concerned many researchers, especially from the Services Marketing/Management field. Lately the IHIP (inseparability, heterogeneity, intangibility, and perishability) characteristics of services have received criticism for not being completely accurate in describing the difference between services and products. One reason for the criticism is the introduction of Internet-based services, e.g., self-service technologies etc., where these new type of services have rather different characteristics from “traditional”, non Internet- or technology-based services.

According to a service analysis and design perspective, services are different from products when looking at the following three characteristics (Chesbrough and Spohrer, 2006; Gustiene and Gustas, 2006; Sheth et al., 2006):

- lifecycle and ownership,
- service requester and service provider, and
- dynamic and static.

During a product or a service lifecycle, the ownership is different between products and services. Products have a clear start and end in the lifecycle and can never be repeated, whereas services have a clear start and end in the lifecycle, but can be repeated over and over again for various service requesters.

During the lifecycle, products are not communicating with a receiver. Services, however, are always characterized by a communication loop between a sender (Requester) and a receiver (Provider) (Chesbrough and Spohrer, 2006). Lin et al., (2005) discuss knowledge transfer in knowledge management and the relation between sender and receiver in a knowledge transfer. They (Lin et al., 2005:199) state:

“Each sender is endowed with a piece of knowledge in which a receiver is interested. Specifically, the receiver hopes to derive benefits, or in other words, value, from utilizing the knowledge...we assume that the value of knowledge provided by the sender is realized when the receiver has assimilated and put in use the knowledge, which has brought about outcomes attributable to the use of knowledge.”
As more interaction becomes digitalized, problems involving transfer of tacit knowledge are growing. While explicit knowledge is relatively easy to transfer, explicit knowledge often results in incomplete information on the receiver side as well as the sender side (Lin et al., 2005). The ability to understand and take appropriate actions in order to build information structures for knowledge sharing, will be the key to establishing a competitive edge (Lin et al., 2005).

The characteristics of products are therefore more static than services. Services can be defined by using static and dynamic characteristics; services are more dynamic since communication is necessary between the requester and the provider, much like the difference between information technology (IT) and information systems (IS).

Edvardsson et al. (2005) investigated how the phenomenon “service” is portrayed within service research and then suggested a new way of portraying service. In order to accomplish the aim of the study 16 (11 answers) internationally recognized experts (within the services field) were asked two questions regarding the definition of services and the appropriateness of the IHIP characteristics. Based on the results, Edvardsson et al., (2005:118) then suggest a new way of portraying service:

- “service is a perspective on value creation rather than a category of market offerings;
- the focus is on value through the lens of the customer; and
- co-creation of value with customers is key and the interactive, processual, experiential, and relational nature form the basis for characterizing service.”

Moreover, they state that on a general level the service definition is a perspective and on lower abstraction levels a general service definition does not exist. However, according to the “Service Oriented Architecture” (SOA), which is an architectural style on a low abstraction level between software agents, services are vital and also possible to define. The purpose of using SOA as a business mapping tool is to ensure that the services that are created, properly represent the business view and are not just what technologists think the business services should be. According to He (2003) a service is,
“...a unit of work done by a service provider to achieve desired end results for a service consumer. Both provider and consumer are roles played by software agents on behalf of their owners.”

According to Wikipedia.org regarding the SOA architecture, service is defined as:

“(Ideally) a self-contained, stateless business function that accepts one or more requests and returns one or more responses through a well-defined, standard interface. Services can also perform discrete units of work such as editing and processing a transaction. Services should not depend on the state of other functions or processes. The technology used to provide the service, such as a programming language, does not form part of this definition.”

A natural question based on SOA’s view of service definition is whether or not these definitions can contribute to the existing discussion of defining services within the Services Marketing/Management field? According to the Oxford American Dictionary a definition is:

“...a statement of the exact meaning of a word, esp. in a dictionary” or “an exact statement or description of the nature, scope, or meaning of something.”

The suggestion from Edvarsson et al., (2005) within the Services Marketing/Management field was to describe a service as a perspective and that on lower abstraction levels a general definition does not exist. However, according to the SOA architecture, a definition of service is necessary on a lower or at least on a more technical abstraction level. One reason why a service definition is necessary is that when developing a service, primarily Internet-based services or other type of self-services based on technology, SOA architecture, for example, may be used as the underlying foundation when creating the service. Whether or not it is important to have the same service definition on a higher abstraction level and on a lower abstraction level is not fully investigated, but would probably make the development process less problematic. In terms of service definition, perspective is given as one explanation for the difference between the Service Marketing/Management field and the service-oriented
analysis approach from the Information Systems field. While the service-oriented approach views services as the means leading to an end, the Services Marketing/Management field sees services as the end of business operations (Gustiene and Gustas, 2006).

Arguing for services to be a perspective rather than a set of characteristics is not important here; nor is it important to argue for the “best” way of defining services. Rather, it is important to have an understanding of the differences in the definition of services when developing technology-based services.

Sheth et al., (2006) provide a semantic perspective on services sharing the essence in both the Services Marketing/Management definition and the SOA definition of services, which also supports a broader perspective of a service (Sheth et al., 2006:57):

“A service is a provider-client interaction that creates and captures value.”

However, Sheth et al., (2006) develop the definition even further when acknowledging IBM’s Senior Vice President Paul Horn’s suggestion to also include human and software assets in the definition. Therefore, Sheth et al., (2006:57) define a service as,

“Value proposition provided to an organization and its definition includes the following: technical description of the implementation technology; organizational description of the people and their roles involved in developing, rendering, managing, or supporting the service; and the business or organizational value it renders.”

To conclude, in line with the emerging Services Science perspective, a more universal definition of services is required which takes the perspective of various stakeholders. As the Sheth et al., (2006) definition of service suggests, people from various areas are involved in IT-enabled services making the need even more obvious for creating a unified field within academia reflecting the real world.

One suggestion to overcome the problems of varying perspectives in service research is presented by Chesbrough and Spohrer (2006) when they suggest a
new field called Services Science. The main reason, from an academic point of view, is that service research has difficulty getting federal funding because it is not seen as a separate intellectual discipline (Chesbrough and Spohrer, 2006). Chesbrough and Spohrer (2006) suggest that this new science should include topics and interests universally across various types of services. Services science could be the uniting discipline for many stakeholders. They suggest the following to be included in Services Science (Chesbrough and Spohrer (2006:37):

- “Close interaction of supplier and customer,
- nature of knowledge created and exchanged,
- simultaneity of production and consumption,
- combination of knowledge into useful systems,
- exchange as processes and experience points, and
- exploitation of ICT and transparency.”

Bitner and Brown (2006) also discuss the emerging field of Services Science and put forward what they believe to be the main issues in this new science. They mention the combination of services and technology and service innovation as two important issues for Services Science. The difference from Chesbrough and Spohrer’s (2006) suggestions is that Bitner and Brown (2006) focus on what is of importance for a business school rather than what is of importance for a new science with various stakeholders other than in the Services Marketing/Management field. If the Services Science initiative is striving to be a uniting discipline for many stakeholders, it is important for each stakeholder to contribute evenly to the progress. If not, the less accountable stakeholders will likely lose confidence in the expected benefits of this uniting science. It is therefore promising to see that Bitner et al., (2006) use a joint effort and assemble from Services Marketing, Information Systems, Computer Science, and Engineering to address some of the challenges and foundations of the Services Science journey.

It is not only academics who see the benefits in research about services, but also countries. Sheehan (2006) reports that several countries are starting to promote, through incentives, service innovation with IT as an enabler. Bitner and Brown (2006) refer to an OECD report “Promoting Innovation in Services”, where key characteristics for service-sector innovation are presented. The report states that services and service innovation are becoming increasingly knowledge-based and dependent on knowledge acquisition from external
sources. Service innovation is also dependent on competent and skilled employees, which implies that entrepreneurship is important.

4.5.4 The “SST as an IT enabler” aspect of the framework

Although opinions about the productivity gains from IT vary between optimistic and pessimistic, it is obvious that IT has enabled new opportunities for businesses. In particular, the Internet has stimulated and encouraged people to think differently resulting in new advances and new companies that were not possible to create before the birth of the Internet. Whether the Internet has resulted in a shift of the total economy towards more business occurring on the Internet, or an increase of the total economy, the answer is most likely both. From a self-service recovery perspective, however, this is not the most important question to address. What is more interesting, is the change of service recovery due to the infusion of IT.

SST as an IT enabler has not only opened up new opportunities but has also contributed with greater complexity. In some situations it is better to interact in a face-to-face manner than through an SST interface. Who would, for instance, prefer to interact with a computer rather than a service employee when trying to get a recommendation for a tie to accompany the suit you are about to buy? However, sometimes it is not possible to provide customers with a service employee when problems occur. In other situations it is better to enable the customer to self-service rather than provide a service employee to take care of the problem. Regardless of the situation, SST as an IT enabler has had an impact on service recovery making it necessary to understand and make use of the full potential this combination can render.

4.6 Concluding remarks

The theoretical framework for understanding why self-service recovery works (Figure 3) is now a comprehensible whole, consisting of strategic issues, collective knowledge, and SST as an IT enabler.

The theoretical framework, including the three aspects, involves all three types of study objects (see chapter 3, section 3.3.2). Strategic issues concern mainly a service provider perspective. As evident in the Metso Paper study (RS 4), strategic decisions regarding the SymBelt Customer Center were the main reason why it was shut down. Strategic issues are mainly seen from a service provider perspective. The main perspective on collective knowledge is the user (cus-
tomer) perspective because the characteristics of collective knowledge in this doctoral thesis focus on communication among users (customers) and not among service providers. SST as an IT enabler is seen from a user (customer) and a service provider perspective. The reason is to be found in research study 1, which entails a user (customer) perspective and a service provider perspective. In addition, research study 6, which involves SST as an IT enabler, is also concerned with a user (customer) and a service provider perspective.

During the first research study (RS 1) it was obvious that a self-service technology (SST) context existed and that, outside the self-service technology context, service recovery was put into practice and moderately successful. However, service recovery in the self-service technology context did not exist at all. Instead of utilizing the potential in SST, the technical solution was considered to be troublesome and time consuming because of constant breakdowns and long repair times. SST was not used as an IT enabler for the work of service recovery, possibly due to a lack of resources. At the time when the self-service technology solution was put into practice, it was considered to complement the existing organization and not to be a separate business unit. As a consequence, when breakdowns occurred it was considered to be a problem for the existing organization and additional work for employees working close to the self-service technology solution.

In addition, while service recovery outside the self-service technology context was moderately successful one, but very important, activity in the service recovery process was not working; to make use of the knowledge acquired. Acquisition of knowledge was working properly, but the acquired knowledge ended up lying as a pile of paper in an office. It is therefore reasonable to believe that the process of service recovery did not include improvement activities but only complaints.

In the Metso Paper study (RS 2 and 4) the initial idea concerning the SymBelt Customer Center (SCC) was close to the idea of self-service recovery. The SCC was thought to be a connecting hub where users could report disturbances, receive help from Metso Paper and other users, and find drawings of the SymBelt Shoe Press Roll etc. From a theoretical perspective, the idea concerning the SymBelt Customer Center was in fact to involve all three aspects from the framework (Figure 3). The initial idea was suggested because of the fact that IT enabled new opportunities for supporting customers of the SymBelt Customer
Center. The investment was also considered to be strategic and leading to a competitive advantage because no other competitor had anything similar. In addition, the investment in the SCC was also made due to a belief that it would improve the relationship with distant users. The collective knowledge aspect was also part of the idea due to the suggestion to connect various users for exchange of ideas, experience, and solutions to problems etc.

However, only the SST as an enabler aspect was exploited appropriately. The idea of turning the SCC into a competitive advantage was soon abandoned. Likewise, the idea to realize the potential in the collective knowledge residing among users was also turned down because of a fear that users would reveal sensitive details, leading to a loss of control.

In research study 7 where Ericsson Consumer Lab and TeliaSonera were participating, the main purpose was not to explore self-service recovery, but user involvement in service/product development. However, the suggestion in the dissertation to advance the relation between service recovery and self-service recovery with service development implies a need to understand issues concerning development. Theoretical and practical support exists for innovation, development, and creation activities to generate and/or keep a competitive advantage. The line of reasoning was similar at the participating companies, but the question was focused on how to develop new services close to the user’s needs, and in so doing reach a competitive advantage. The suggestion was therefore to involve users and exploit the potential in collective knowledge, which would advance towards a market-oriented approach.

The method for involving users was not possible to achieve without the use of mobile phones, i.e., self-service technology. SST was the enabler for the method used in this study (RS 7). The intention was also to implement market orientation in the method, which required a somewhat broad acquisition of collective knowledge together with an understanding of users’ needs in relation to the context. These needs together with a representation of the context were available and possible to acquire and understand through the utilization of self-service technology.

To conclude, self-service recovery, enabled by SST as an IT enabler, is a value creation activity built upon collective knowledge and user involvement, which
denotes that value, in relation to self-service recovery, follows the notion of value-in-use (Vargo and Lusch, 2004).
5 Summary and contributions

The purpose of this chapter is to correspond to the knowledge gap identified in chapter 1. From the discussion of knowledge gap in the service recovery literature, the most important gap concerns the introduction of the self-service technology context. Previously, service recovery took place in a face-to-face context. With the introduction of the self-service technology context, however, the requirements for service recovery have changed dramatically to a user-to-machine context (Figure 15). Corresponding to these changes called for a new research direction, which was made through the introduction of a framework. The main purpose of the framework is to answer the overall research question in this doctoral thesis, “Why self-service recovery works?”

This chapter will begin with answering the research questions posed for research studies 4-7. Then, the relationships between the aspects in the framework, in relation to self-service recovery, will be discussed. This is in line with the intention of using a framework (Miles and Huberman, 1994). Based on this declaration, a new definition of self-service recovery is proposed, adhering to the knowledge gap. This is followed by the academic contributions of the doctoral thesis, including the Information Systems field and the Services Marketing/Management field. Next, the managerial implications based on the contributions of this dissertation are discussed from a practical point of view. Finally, this chapter ends with sections covering validation and future research, which includes post doc research.

5.1 Answering the research questions

Before the overall research question is answered, the sub-questions will be addressed. In chronological order the research question of the fourth research study will be presented first. Then, the research question of the fifth research study will be presented, etc.

The research question relating to the fourth research study is,

What sources of value are important when evaluating Internet-based services?

We propose that in a business-to-business context a relationship perspective, emphasizing both the supplier and the customer firms, is necessary in order to comprehend the perceived value of complementary services. In contrast to
Amit and Zott (2001), we suggest that the four dimensions (efficiency, lock-in, complementarities and novelty) of the model should not only be used as value creation sources, but moreover as value evaluation dimensions. In addition, we propose the nature of the core product should be used as a source of value in Internet-based services.

This study has shown that the nature of the product, the SymBelt Shoe Press Roll, is important for value evaluation. We therefore suggest that instead of using complementarities as a source of value evaluation nature of the core product should be used when evaluating an Internet-based service. In this study it is evident that the SymBelt Shoe Press Roll is extremely important for customers of Metso Paper and their perceptions of value regarding the SymBelt Customer Center. The overall purpose of the SymBelt Customer Center is to reduce the risk of breakdowns and expand failure support. This was supposed to lead to an improved operational outcome of the SymBelt Shoe Press Roll. So far, this has not proven to be the case for either customers or the supplier.

The theoretical contribution in this paper is the suggestion to replace complementarities with nature of the core product when evaluating the value creation sources (Amit and Zott, 2001) in Internet-based services. The reason behind the change lies within the fact that Internet-based services are considered to be complementarities, which justify a replacement of complementarities when evaluating value creation sources of Internet-based services. The findings show that because of the importance and the influence of the product for value evaluation of the Internet-based services, nature of the core product qualified as part of the value creation sources.

This research study made it evident that self-service recovery is sometimes not functioning to its full potential. Why self-service recovery did not work in this case study was not the main focus in the article, but turned out to be important for the development of the framework (Figure 3).

This study’s contribution to the framework and the overall research question is foremost concerned with regards the strategic issues affecting the outcome of self-service recovery (Figure 9). Although users perceived the SymBelt Customer Center to be valuable and although collective knowledge (though rather limited) and SST as an IT enabler were part of the self-service recovery solution
in the Metso Paper study, the decreasing strategic support from business management was a contributing factor why it was later shut down.

The research question of the fifth research study is,

*How can IT-based external knowledge acquisition from customers be used for service development purposes?*

Based on the findings in research study 2 the aim of this paper was to explore the potential opportunities and outcomes of various service recovery strategies. Through the use of IT the potential of customers as a source of knowledge for service development activities was accentuated. Depending on the chosen service recovery strategy, various opportunities will appear that can be used for service development activities. Information acquisition is the first step in service recovery. This is the step where failures are identified and information is gathered to understand the problem and the customers affected. Depending on the type of information acquired, various opportunities will be viable. If the IT-based service recovery system offers opportunities for customers to decide what to report rather than to offer feedback, which the service company determines, more exploitative opportunities will appear from that particular information.

The contribution of this paper, on a general level, is the connection between service recovery and service development. On a more specific level, the contribution rests in the potential development opportunities and outcomes that various service recovery strategies can render possible. The link between development opportunities and the first step in service recovery, acquisition, is the most important contribution of this paper. Depending on which service recovery strategy one chooses, the type of knowledge acquired will be either exploitative or explorative in nature affecting the possibilities for development activities.

The contribution from this research study to the framework (Figure 9) and the overall research question is twofold. The opportunities residing in collective knowledge for the work of self-service recovery are significant. Even without any intervention from a company it is possible for users to solve problems in electronic networks of practice. This also implies the necessity for using SST as an IT enabler when taking advantage of collective knowledge in self-service.
recovery, which is the second contribution. Without SST as an IT enabler the possibilities lying within collective knowledge will diminish, but together they are powerful for self-service recovery.

The research question relating to the sixth research study is,

*What is the connection between service recovery and service development from a systems work perspective?*

This paper emphasized the relation between service recovery and service development, i.e. service change. Unlike research study 5, the relation between service recovery and service development is not of primary concern, but rather its contribution lies in the relation between service change and systems work. From a systems work perspective it is possible to engage in service recovery as well as service development processes. These processes should not be carried out because of an internal need for maintenance of the system; these processes should instead be carried out because of concern for the customer. Failures and problems that occur in a system will have a direct effect on customer perceived value. This paper suggests a more customer-oriented perspective on systems work, where value is emphasized in light of service recovery and service development.

The theoretical contribution of this paper is primarily the introduction of service change in systems work, which implies that the contribution is foremost towards the information systems perspective. Further, systems work, which is the interaction between systems usage and systems maintenance of an information system, shares similarities with both service recovery (correction) and service development (improvement). The contribution, deriving from service recovery and service development, is foremost the effect on customer value and value creation in systems work.

The contribution to the framework (Figure 9) and the overall research question in research study 6 is the capability received through the use of SST as an IT enabler (systems work) in relation to self-service recovery. In particular, the exploration of value creation, deriving from the infusion of service recovery and service development, has enlightened the focus on correction and improvement in systems work.
The research question to the seventh research study is,

*How can user involvement, in a self-service technology context, contribute to new ideas?*

Customer involvement refers to a situation where the customer takes part as an active collaborator together with the company in the beginning of a new service development project. Through a mutual learning process, knowledge is created about how the company can serve customers in a better fashion, and/or the customer can produce ideas for improvements of existing services or radically new services. After some time of collaboration, it is assumed that the customer achieves insight into what value the technology might actually be able to produce. The customer needs thus surface and as a consequence, new knowledge about technology in combination with the customers’ own situation and experience. The customer as a co-producer not only implies finding ideas for improved services, but also strengthening new customer relationships, gaining knowledge about customer failures and mistakes, and making insights about the environment where a customer uses a certain service.

Mobile phones (SST) were the enabler for carrying out this study and it is also part of the answer to the research question. The initial idea for this study evolved through a previous study (Kristensson, Magnusson and Matthing, 2002; Magnusson, Matthing and Kristensson, 2003) where results showed that users were highly innovative compared to company experts. As mobile phones develop rapidly new possibilities arise for user involvement, which include photo, video, and voice recording. In the study, users contributed with new ideas from their own situation and experience much due to the possibilities of the mobile phones. Based on the collection of user generated ideas and prototypes for mobile phone services together with several workshops with senior managers from telecom firms six core dimensions for user involvement projects are proposed.

The contribution to the framework (Figure 9) and the overall research question is that research study 7 strengthens the importance of SST as an IT enabler when taking advantage of the possibilities of collective knowledge. The study also turned out to provide insights into users’ own situation and experience, which often began with describing a problem and then suggesting possible solutions. This implies the benefits of involving users in the work of service recovery and self-service recovery through the utilization of SST. Users needs
(manifested, for instance, in expressed problems or lack of solutions) are best understood themselves and as results shows (Kristensson, Magnusson and Matthing, 2002; Magnusson, Matthing and Kristensson, 2003) it is therefore appropriate that they find their own solutions to satisfy their needs.

The overall research question in this dissertation is,

**Why self-service recovery works?**

The answer to this question is found in the answers of the sub-research questions that represent the research studies previously presented. It is important, however, to emphasize that an unconditional answer to the overall research question is difficult to reach. Depending on the context or specific conditions in various situations, it would not only be incorrect but also unwise to propose only one unconditional answer. Rather, the answers provided in this dissertation should be considered an effort and contribution to describe and explain self-service recovery (cf. section 1.4.1 in chapter 1).

All of the answers are connected to the framework presented in the beginning of the doctoral thesis (Figure 3). The three aspects - SST as an IT enabler, strategic issues, and collective knowledge - are the essence of the framework. In addition, the study object, which differs in the research studies (Table 3-9), contributes to the framework because of the attention to three perspectives, the user (customer) perspective, the service provider perspective, and a combination of the two.

In research study 4, where the study object is “user (customer) perspective”, users perceived the SymBelt Customer Center to be valuable. Users’ opinions, however, were not determining the future of the SymBelt Customer Center, but instead, strategic decisions.

Research study 5 focused on the service provider perspective regarding study object. The possibilities enabled by IT, of collective knowledge through various service recovery strategies for service development activities are accentuated, possibilities that concern and affect the service provider.

The study object in research study 6 is in fact double. It is both a user and service provider perspective. The reason is that systems work concerns a serv-
ice provider perspective and customer value concerns the user (customer) perspective. Both are important, however, when studying the consequences of customer value in terms of systems work.

Research study 7 entails a user (customer) perspective regarding the study object. User involvement leading to user suggested ideas for mobile phone services was possible to create and acquire through SST as an IT enabler (the mobile phones). Based on the experience derived from the study, six core dimensions for user involvement were proposed.

The research studies are connected to the framework (Figure 9), which also implies a relation between the three aspects in the framework. The relationships between the aspects, manifested by the relationship between collective knowledge, strategic issues, and SST as an IT enabler are also important to recognize for comprehending why self-service recovery works. As a consequence, the answer to the overall research question in the doctoral thesis is also to be found in the relationships in the framework.

5.2 Relationships in the framework

For service organizations service recovery alone has been a well-known and well-used response when failure has occurred for users. The difference between service recovery and complaint handling has not been significant in many organizations, yet considered necessary in the research literature. The reason could be explained by the lack of service improvement activities in service recovery. Service recovery is not only about helping a customer in a troublesome situation but also, more importantly, about improving the service and making sure problems do not occur again. Self-service recovery, then, is concerned with how service recovery activities, enabled by self-service technology, can be accomplished by the user alone.

The overall research question “Why self-service recovery works?” does not only take the user into account but also the company perspective. Users should be provided with resources to help themselves, but in doing so opportunities and ideas for development activities may appear, which would be of strategic interest for the company involved. The relationships between the aspects in the framework are yet to be described, but still it is clear that the framework proposes an extension of both service recovery and self-service recovery to become more extensive than previous suggestions. In particular, the inclusion of
strategic issues implies a management or business perspective, but self-help, enabled by self-service technology through collective knowledge also implies a customer or user perspective.

As a result, it is reasonable to suggest that one answer to the overall research question is that self-service recovery, as comprehended in the framework (Figure 3), ought to be beneficial for the user (customer) as well as for the business (management) in order to work.

5.2.1 Availability

Traditionally, service recovery has been used as a tool to support the service firm when a failure has occurred. Often service recovery is triggered by a complaint followed by actions taken by a company. In order to satisfy the angry user reimbursements and apologies are common, which sometimes results in an even more satisfied user than before the failure occurred. Occasionally, the company uses the information gathered from the situation with the angry user to improve the service offering, thereby avoiding the failure to occur again. This section will focus on the relationship between collective knowledge and SST as an IT enabler.

With the introduction of information technology and self-service technology solutions, traditional ways of service recovery are no longer effective or constructive for a service provider engaged in an IT-context (Duffy et al., 2006; Harris et al., 2006). IT does not only support service recovery but is now an enabler for a new kind of service recovery - self-service recovery. Instead of only relying on users’ willingness to share their concerns with the service provider, it is now possible to acquire knowledge about complaints and suggestions for improvements through other sources, for instance, electronic networks of practice. Not only is this a valuable source for the service provider, but it is also valuable for the users of the service provider. Users now have various options when running into trouble. They can contact the service provider or they can turn to electronic networks of practice and receive help from other users. Instead of using traditional channels for complaints and suggestions for improvements, users now have other accessible options when in need of help or when helping others.

Consequently, the benefit of new channels to use for complaints and suggestions is affecting self-service recovery considerably through the availability of
knowledge in electronic networks of practice. In particular, knowledge acquisition in self-service recovery is now more available due to the relationship between collective knowledge and SST as an IT enabler.

Research study 5 accentuates the relevance and availability of external knowledge acquisition, enabled by information technology, for service recovery as well as service development processes. This translates into the assertion that IT enables the availability of knowledge, but the relevance of knowledge is merely a combination of creation capabilities and the effects manifested in service recovery and service development processes.

Research study 7, on the other hand, seems to focus more on the relevance of knowledge, as the aim was to involve users in innovating new technology-based services. However, the study was also dependent on acquisition of knowledge from users’ own situations and experiences in order to reach the innovation stage. The solution for making users’ latent needs visible and comprehensible was the use of mobile phones as the enabler (SST as an IT enabler) for making the knowledge available.

The relationship between collective knowledge and SST as an IT enabler in relation to self-service recovery, according to the argumentation in this section, is labeled availability of knowledge (Figure 16).

![Figure 16: Relationships in the framework for understanding why self-service recovery works – Availability](image-url)
5.2.2 Improvement

SST as an IT enabler, strategic issues, and collective knowledge propose new possibilities in the work of self-service recovery. So far, one of the advantages has proven to be the availability of collective knowledge through, for instance, electronic networks of practice. Consequently, acquisition of collective knowledge has opened up doors for further enhancements in various self-service recovery activities, where one opportunity rests in the last part of self-service recovery, *improvement*. This section will focus on the relationship between strategic issues and SST as an IT enabler.

*Improvement* is a highly important issue for companies striving for competitiveness (Barney, 1991; Vargo and Lusch, 2004). New possibilities regarding strategic issues appear when taking advantage of SST as an IT enabler in the work of self-service recovery.

The need to develop services and products that adhere to the desires of the user has been one of the driving forces behind user involvement. The difficulties in user involvement are many, but one problem has been to know how to involve users. This problem is accentuated in research study 7. As was revealed in this study, however, problems close to the users’ own situation and experience were often the trigger for new ideas. As was accomplished in research study 6, connecting self-service recovery (problem-solving) with service development (new ideas) activities will strengthen the importance of the final phase of service recovery, *improvement* and would also adhere to the relation between user defined problems and new ideas from research study 7. Likewise, in terms of development activities, service recovery could function as the generator for new ideas that derive from individual user needs. Connecting service recovery and service development will increase the value benefits for both of these processes.

If *improvement* is an important strategic issue as well as co-creation through user involvement, then self-service recovery could be suitable for this mission. The connection between self-service recovery and service development propose strategic implications for self-service recovery. Self-service recovery is not only a tool for correction of problems but also a contributor to value creation activities, i.e., *improvement* and development. The relationship between SST as an IT enabler and strategic issues leading to capabilities for improvement are sup-
ported by the three levels of development work in organizations (Tolis and Nellborn, 1999; Österle, 1995).

The relationship between strategic issues and SST as an IT enabler in relation to self-service recovery, according to the argumentation in this section, is improvement (Figure 17).

![Figure 17: Relationships in the framework for understanding why self-service recovery works – Improvement](image)

5.2.3 Proactivity

Knowledge has become a vital resource in an increasingly competitive market. Carlsson (2003:199) states that

“In the knowledge economy, ICT⁶ and CBIS⁷ (especially KMS⁸) will also be used to gain and sustain competitive advantage through economies of knowing”.

In the perspective of self-service recovery, what is possible when the availability of knowledge is better than ever, signifying new promises for improvement? After an improvement or a solution to a problem has been found, the next step is to distribute the improvement or solution to the affected users (Research study 2). The same procedure takes place when other users run into similar

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⁶ ICT - Information and Communications Technology  
⁷ CBIS – Computer-Based Information Systems  
⁸ KMS – Knowledge Management Systems
problems. As was explored in the self-service technology context of research study 2, it is possible to be proactive and distribute the solution to all users running the same software or preferably using the same service instead of only the affected users. This section will focus on the relationship between collective knowledge and strategic issues.

Accordingly, a proactive self-service recovery is therefore dependent on the attentiveness among users operating in electronic networks of practice as well as the speed and reach of distribution. Or likewise, the attentiveness, speed, and reach at the company responsible for the self-service recovery solution.

The ability to perceive self-service recovery as valuable depends on the knowledge existing in the electronic network of practice and the availability to acquire that knowledge. As an example, self-service recovery through an electronic network of practice operated by users to get help in troublesome situations or to avoid running into troublesome situations (proactivity), is not worth more than the amount of valuable knowledge in the network. If the collective knowledge in an electronic network of practice is not valuable enough for the participants to solve problems the network will perish and so will self-service recovery (Carlsson, 2004; Malhotra et al., 2005; McLure Wasko and Faraj, 2005; McWilliam, 2000). Consequently, electronic networks of practice need to have contributors with valuable knowledge who make the knowledge available for other users. As an electronic network of practice provide solutions to problems for more and more users the reputation will make the network flourish even more.

From a company perspective, self-service recovery and particularly a proactive self-service recovery through electronic networks of practice could lead to business advantages. Companies can no longer rely on the knowledge within the organization and as a result they are becoming increasingly dependent on external sources of knowledge. Through the evolving of electronic networks of practice, however, knowledge from external sources has become more available than ever before. This can in fact lead to strategic opportunities in the work of self-service recovery. Realizing a proactive self-service recovery will also cause many users to avoid troublesome situations, which could potentially lead to less dissatisfaction. Depending on the type of service recovery strategy chosen (Research study 2; Research study 5) it is possible, through the use of SST as an IT enabler, to acquire knowledge through external sources, which in turn can lead to possibilities for acting proactively.
The relationship between collective knowledge and strategic issues in relation to self-service recovery, according to the argumentation in this section, is \textit{proactivity} (Figure 18).

![Figure 18: Relationships in the framework for understanding why self-service recovery works – Proactivity](image)

5.2.4 Concluding remarks regarding the relationships – towards value creation

“Availability”, “Improvement” and “Proactivity” have been identified as relationships in the framework for understanding why self-service recovery works (Figure 18). However, only “Availability” and “Improvement” have an effect on whether self-service recovery will work or not. Availability of knowledge will improve the possibilities for users to interact with other users with similar problems and potentially also interact with users capable of solving their problems. Without “Availability” of knowledge, capabilities for users to solve problems will radically decrease. This implies a connection between “Availability” and “Improvement” because self-service recovery often begins with problems and progresses into improvements of the imperfect service. Failing in doing so will not only affect users’ expectations regarding the ability of the self-service recovery solution to \textit{create value}, but also the capabilities to recognize problems and distinguish what and how to improve.

“Proactivity” on the other hand, does not have the same influence to make self-service recovery work as “Availability” and “Improvement”, but could likely
lead to a *creation of value*. Being proactive in terms of self-service recovery implies that the solution is distributed not only to users who are aware of the problem, but also to every user who could potentially benefit from the solution. Consequently, avoiding problems by distribution of solutions through a proactive self-service recovery is a *value creation* activity because it involves a problem-solving activity. Choosing a different self-service recovery strategy, however, will not cause self-service recovery to stop working, but it will have an effect on *value creation*.

It seems then that “Availability” and “Improvement”, and not “Proactivity” are important relationships for making self-service recovery to work. Still, “Availability”, “Improvement” and “Proactivity” influence self-service recovery because of their relationship to “Value Creation”. Figure 19 illustrates the fourth relationship. It is different from the other three relationships (Figure 18) because it is not the result of a dual relationship, but of a triple relationship. It is essential that self-service recovery is a *value creation* activity otherwise it will hardly work.

![Figure 19: Value creation through self-service recovery](image)

Important to note, though, is that a requirement for achieving availability, improvement, proactivity and value creation is dependent on the aspects in the framework (Figure 3). The aspects of strategic issues, collective knowledge and SST as an IT enabler facilitate relationships, which could be described as influ-
encing factors (Figure 20). The triple relationship, value creation, is also considered to be an influencing factor. Proactivity, however, is different compared to availability, improvement and value creation because it is an indirect or mediated factor (Docherty and Stymne, 1995; MacKinnon, Krull and Lockwood, 2000). Proactivity does not influence the outcome directly as availability, improvement and value creation, but through value creation\(^9\). Proactivity influence value creation because a relationship exists between proactivity and value creation (Figure 19). These four influencing factors affect the outcome, which refer to why self-service recovery works\(^{10}\).

![Figure 20: Influencing factors, i.e., the relationships, (shaded in grey) affect the outcome (Why self-service recovery works).](image)

The operationalizing of outcome, i.e. why self-service recovery works is whether or not the process of service recovery has been accomplished (Tax and Brown, 1998). As was evident in research study 1, which builds upon Tax and Brown’s (1998) definition of the process of service recovery, the problems in identifying service failures in the self-service technology context resulted in a lack of self-service recovery. The process of service recovery is further explored in chapter 4 (section 4.2.1). Further research of the operationalizing of self-service recovery including the influencing factors (Figure 20) is required for a

\(^9\) Value creation as an influencing factor is considered to be a mediator factor in mediation models (MacKinnon, Krull and Lockwood, 2000)

\(^{10}\) The discussion on influencing factors in this outcome model for why self-service recovery works is an important question regarding internal validity of theoretical models (Denk, 2002)
more precise understanding of the outcome. The influencing factors in figure 20 should rather be considered propositions in this current state of knowledge.

5.3 Proposing a new definition of self-service recovery

The licentiate thesis contains a framework (Figure 2) for describing self-service recovery and the doctoral thesis contains a framework (Figure 18) for understanding why self-service recovery works. It is worth noting, though, that an unconditional answer to the overall research question is difficult to reach. Depending on the context or specific conditions in various situations, it would not only be incorrect but also unwise to propose only one unconditional answer. Rather, the answers provided in this dissertation should be considered an effort and contribution to describing and explaining self-service recovery.

The framework (Figure 18) represents the answer to the overall research question in this dissertation, namely, “Why self-service recovery works?” Consequently, the framework (Figure 18), when combined with the framework from the licentiate thesis (Figure 2), should be sufficient for describing self-service recovery and for proposing a definition. Service recovery was defined in the licentiate thesis as a set of actions a service provider can take in order to repair a failure in the service (Tax and Brown, 1998; Zemke, 1995; Scheuing and Christopher, 1993; Levesque and McDougall, 2000).

Self-service technology, on the other hand, was defined as when the customer with the aid of technology creates and consumes the service with no human interaction (Bitner et al., 2000; Meuter et al., 2000; Parasuraman, 2000). In the licentiate thesis, self-service recovery was defined as follows (Johansson, 2004:3, Appendix B):

“The activities that a customer and a service provider undertake, with the aid of technology, in order to recover from a service failure in the marketspace.”

The definition found in the licentiate thesis posits that self-service recovery is dependent upon a customer-service provider interaction. Moreover, the activities undertaken are supported by technology and take place in a marketspace, i.e., over computer networks through electronic on-screen meetings. As the framework (Figure 18) in the doctoral thesis has evolved so has the notion of self-service recovery. Consequently, the definition declared in the licentiate
thesis is still valid, but it is also necessary for the definition to evolve to qualify as a representation of self-service recovery in the doctoral thesis.

Based on the findings in the two frameworks in this dissertation, particularly the framework in the doctoral thesis (Figure 18), and the answers of the two overall research questions, self-service recovery is defined as

“The capability, enabled by self-service technology, of turning user problems into solutions and improvements by means of sharing knowledge between users, in order to create value.”

The definition is grounded in Figure 18. “Capability” refers to capabilities rendered possible by resources in line with the resource-based view of the firm (RBV). Capability and the RBV view of the firm is part of the “Strategic issues” aspect. The next part of the quotation, “enabled by self-service recovery”, was explored in the “SST as an IT enabler” aspect. “Solutions and improvements” is grounded in the relationship between “SST as an IT enabler” and “Strategic issues”, i.e., “Improvement”. “Proactivity”, which was suggested as the relationship between “Strategic issues” and “Collective knowledge” in relation to self-service recovery, refers to the distribution of a solution (preferable and achievable in some situations and contexts) due to a strategic choice (cf. Johansson and Kaiserlidis 2002; Johansson and Kaiserlidis 2005; Johansson, Kaiserlidis and Gidhagen, 2005). Further, “by means of creation and sharing of knowledge between users” was explored and identified as important in “SST as an IT enabler”, “Collective knowledge”, and in the relationship between these two aspects in relation to self-service recovery, i.e., “Availability”. Finally, “in order to create value” refers to the triple relationship (Figure 19), which also implies that self-service recovery is a value creation activity.

Once again it is important to state that depending on the context or specific conditions in various situations, self-service recovery may possibly appear different making both definitions valid. One major difference between the two definitions is that the definition in the licentiate thesis proposes an interaction between a user and a service provider in the work of self-service recovery, while the definition in the doctoral thesis put forward an interaction between users. Both of these definitions, however, qualify as a representation of self-service recovery. Another significant difference is that the new definition emphasize that self-service recovery is not only concerned about recovery, but also, im-
provement. SST as an IT enabler implies a connection to improvement rather than returning to the same previous state (Davenport, 1993).

Moreover, the definition also implies an expansion of the previous definitions (Tax and Brown, 1998; Zemke, 1995; Scheuing and Christopher, 1993; Levesque and McDougall, 2000) of service recovery, not only because of the change of context into a self-service technology context, but also because of the incorporation of strategic issues, collective knowledge, and SST as an IT enabler in relation to self-service recovery. This has been necessary in order to be able to manage a new context adopting a user-to-machine situation.

5.4 Academic contributions

Self-service recovery in this dissertation is based predominantly on the scientific fields of Information Systems (IS) and Services Marketing/Management (SM). The IS and SM fields have different research traditions so it has been challenging trying to combine knowledge from those two fields. Consequently, the academic contributions are divided into the field of Information Systems followed by the field of Services Marketing/Management. In each field the contributions will be explained through an epistemological approach using concepts within a larger context within a certain research area. These three epistemological constructs are, according to Törnebohm (1985), classified as developing complexes in theory of science. This means that a complex has the ability of developing or evolving over time. This is in line with evolving the definition of the self-service recovery concept in section 5.3, which is one of the main contributions of this dissertation. Further on, a specific research area can be studied from several scientific fields, which is often labeled as multidisciplinary research.

5.4.1 Information Systems field

Service recovery is a familiar concept in both practice and in academia, but it is foremost in the field of Services Marketing/Management. The contribution of this dissertation to the Information Systems field is the introduction of an existing concept, i.e., use of IT-systems in a new context (Figure 21). In this case, use of IT-systems refers to self-service recovery. Use of IT-systems (con-
cept), and in particular the focus in this dissertation on the user (customer) perspective and IT as an enabler, are familiar sub-concepts in the field of Information Systems. The new IT-context is referred to as a self-service technology context. Service recovery functions as the research area for the self-service technology context regarding the concept of self-service recovery as a use of IT-systems.

![Diagram](image)

Figure 21: Existing concept (use of IT-systems) in a new context (self-service technology) in the Information Systems field

Although the user perspective (Langefors, 1995) is one of the most frequent perspectives applied in the field of Information Systems, it still seems as though people outside the field of Information Systems and also some users of information systems still believe the focus is more on technology and not on the user of information systems (Fisk, 1999; Laudon and Laudon, 1994). The contribution to the field of Information Systems regards the utilization of the service-centered view in self-service recovery to be customer-centric and market driven (Vargo and Lusch). Vargo and Lusch (2004:6) further explain the service-centered view in the following quotation:
“This means more than simply being consumer oriented; it means collaborating with and learning from customers and being adaptive to their individual and dynamic needs. A service-centered dominant logic implies that value is defined by and cocreated with the consumer rather than embedded in output.”

As noted by researchers such as Fisk (1999) and Laudon and Laudon (1994), self-service recovery emerges as a contribution to the field of Information Systems, partly because of the utilization of the service-centered view (Figure 19). However, it would be possible to argue for the fact that the field of Information Systems is close to what Vargo and Lusch (2004) define as the service-centered view. If one uses an operating system as an example, it is easy to see that value is created when the user in fact uses the software and not when it is built-in into the operating system. Then again, there still seem to be good enough reasons behind what Fisk (1999) and Laudon and Laudon (1994) put forward. What is most accurate, then? The truth is probably somewhere in between. There is no doubt that the field of Information Systems inherits a user perspective. El Sawy et al. (1999), for instance, declare that mistakes should not be hidden from customers; the organizational culture should instead treat mistakes as joint learning experiences. Furthermore, El Sawy et al., (1999:328) state that value is created through the use of IT and the voice of the customer, which fundamentally changes the value logic:

“The new logic is based on value innovation and derives strategic direction from what is valued by the customer.”

The service-centered view is about how the user can get support for daily activities, how the user can realize new ideas, how the user can fulfill needs, i.e., how the user can create value. Value-in-use (Vargo and Lusch, 2004) corresponds to the service-centered view and, as stated previously, this dissertation supports the notion of value-in-use (Vargo and Lusch, 2004). Value-in-use means that value is not built-in but is created when, for instance, the user is working with computer software. This implies that the enabler for value-in-use is in fact the user and the computer software. Without the software it is impossible in this example to arrive at value-in-use. Consequently, one critical piece for value-in-use is the IT enabler (Davenport, 1993). This posits an inter-dependence between value-in-use and the IT enabler when operating in an IT-based context. Likewise, self-service recovery is about how to create value for users. Value is created when users interact with other users in a value-in-use fashion enabled
by SST as an IT enabler. This line of argumentation is an essential contribution of this dissertation.

5.4.2 Services Marketing/Management field

Service recovery is a familiar term in the Services Marketing/Management field (see Tax and Brown, 1998; Zemke, 1995; Scheuing and Christopher, 1993; Levesque and McDougall, 2000), but few studies have discussed service recovery in an SST or IT context (Surjadi et al., 2003). Harris et al., (2006) referred to and explained the term of “self-recovery” in a few words, stating that the customer recover unaccompanied. Apart from this rare occurrence (i.e., self-recovery), the term self-service recovery, i.e., service recovery in a self-service technology context, has not been explored extensively in the Services Marketing/Management field. The contribution from this dissertation to the Services Marketing/Management field is therefore the introduction of a new concept, i.e., self-service recovery in an existing context - self-service technology (Figure 22). Service recovery functions as the research area for the self-service technology context regarding the concept of self-service recovery.

The notion of self-service recovery as presented in this dissertation is an expansion of the existing research area and not only because of the self-service technology context, but also due to the framework (Figure 18). The framework is a contribution because of certain aspects such as strategic issues, collective knowledge, and SST as an IT enabler. These aspects have not been identified in close proximity to self-service recovery in previous research.

With the understanding that this dissertation contributes to the comprehension of service recovery through expansion it is also important to underline the suggestion for self-service recovery to not only focus on recovery but also on improvement. SST as an IT enabler implies an expansion of self-service recovery to encompass improvement rather than only returning to the same state, as is implied by recovery. It was evident in research study 7 that many ideas from users arose due to perceived problems, suggesting that problems are, at times, the trigger for ideas and consequently suitable for improvement activities. The suitability of a process where user perceived problems are taken care of (service recovery or self-service recovery), but at the same time used as input for improvement activities, is supported by the service-centered view including market-oriented innovation. This is an important insight and contribution of this dissertation.
The self-service technology context also sheds light on situations where human interaction is absent (Figure 15). When firms engage in development activities together with the customer it is valid to describe it as user involvement or co-creation. With self-service recovery, however, the user alone is engaged in development activities, then it may be valid to describe the user as a sole-producer (Echeverri and Edvardsson, 2002). This line of reasoning is also a contribution to the redefinition of the concept of self-service recovery in this dissertation (section 5.3).

5.5 Managerial implications

This dissertation contributes to answer the question of why a company would invest in resources and time in order to obtain a self-service recovery solution. Even with the opportunities that self-service recovery can provide when working properly, it is still difficult for managers to receive the right amount of support in a business for this investment if no other company has done the same. During six years of studying self-service recovery, however, a remarkable
difference among companies’ investments in self-service recovery solutions has been noticed.

In the beginning of my research Microsoft was exemplified for their innovativeness regarding a proactive service recovery strategy and in particular acquisition of information from software failures, and now a number of large companies offer self-service recovery solutions. Cisco and Mozilla (referred to as “public community” rather than large company) are two examples of organizations that not only make use of the fundamental ideas in the Microsoft example, but also have explored new possibilities.

Cisco has emphasized the three aspects in their self-service recovery solution. The complete solution is, not surprisingly, enabled by the Internet and aims to provide the user with enough resources for being a self-service solution. Cisco has drawn upon the possibilities lying within collective knowledge when providing customers with a knowledge base and a user community. Through interaction it is then possible for users to help each other to solve problems without any involvement from Cisco. It is reasonable to believe that Cisco considers this solution to be of value for its users and potentially also cost-effective, pointing to the strategic nature of self-service recovery.

Mozilla has implemented a solution in the Firefox 2.0 browser, not only building on the Microsoft self-service recovery solution, but also emphasizing the ability to react quickly after a service breakdown giving the user the possibility to resume the browsing session. It is explained as (www.mozilla.com)

“The Session Restore feature restores windows, tabs, text typed in forms, and in-progress downloads from the last user session. It will be activated automatically when installing an application update or extension, and users will be asked if they want to resume their previous session after a system crash.”

It is important to state that while this dissertation emphasizes the relation between self-service recovery and development/improvement, an important part of self-service recovery is still to help users with problems and provide them with satisfying solutions, which is illustrated by the Firefox feature. It is important to emphasize that self-service recovery is dependent on the skills of the
user, however, which is highlighted in the following quotation by Vargo and Lusch (2004:11):

“However, for these services to be delivered, the customer still must learn to use, maintain, repair, and adapt the appliance to his or her unique needs, usage situation, and behaviors.”

This requires both physical and mental skills (Vargo and Lusch, 2004:13)

“…to be successful at self-service, the entity must have sufficient physical and mental skills and/or the appliances (embedded with knowledge) to make self-service possible. Organizations that recognize this can find opportunities in developing offerings that enable the entity’s increasing self-service.”

Given the fact that empirical examples of self-service recovery are increasing together with more research explaining and exploring the requirements and the potential with self-service recovery it is likely that even more managers will receive support for self-service recovery investments. Consequently, this will result in an increase of companies that realize the benefits in investing resources into self-service recovery solutions.

In terms of self-service recovery research, it would be beneficial if more studies focused on self-service recovery instead of service recovery alone. Self-service recovery is, undoubtedly, a fast growing solution among companies but it is not very common in research literature. This will likely change, but right now it is more exciting to study companies than existing research literature in the area of self-service recovery. One problem with research concerning service recovery is the rather narrow perspective, which could be explained by the fact that Marketing and Management are basically the only fields involved in research concerning service recovery. As IT and SST solutions are growing in number, however, the area of service recovery should also be of interest to other, more technology oriented fields.

The lack of research regarding self-service recovery has implications for education as well. Students enrolled at Karlstad University often request not only a base education from textbooks, but also more connection to what companies actually do. In general textbooks should mirror the operations of companies,
but if no textbooks exist on the subject of self-service recovery even though companies are using it, students’ education will not be complete.

5.6 Validation

As discussed in chapter 2, three aspects for objective evaluation of research have been suggested (Chen and Hirschheim, 2004) and will be used as a base for the discussion on validation of research. These three aspects are intelligibility, novelty, and believability. Due to the characteristics of this dissertation, where the licentiate thesis and the doctoral thesis are similar in structure consisting of research studies, various types of objective evaluation have been carried out. The research studies have gone through various types of evaluations and received judgments from reviewers sufficient enough to be published in books, in conferences, and in journals. Everything else, except the research studies written in the licentiate thesis and the doctoral thesis, has not received the same type of evaluation. However, various rounds of evaluations have taken place at seminars in the Department of Information Systems at Karlstad University and in the Swedish Research School of Management and Information Technology (MIT). In addition, the licentiate seminar, where the scientific community extensively evaluated the licentiate thesis including research studies 1-3, contributed to the number of objective evaluations of this dissertation.

All of these evaluations have contributed to the intelligibility aspect, i.e., if the study is understandable, because evaluations have been followed by revisions, where clarification and explanations have been improved. It would be reasonable to claim that an adequate level of intelligibility has been reached, but it is always possible to improve. Delivering a dissertation within the given time restraints, however, priorities must be made.

The second aspect of objective evaluation is novelty, which focuses on the study’s contribution and its importance. The research studies have been evaluated based on contribution and importance, but the weight in comparison to other evaluation aspects is not known. What is known, though, is the fact that research concerning service recovery is both extensive and profound, but very little has been said about self-service recovery. Given the fact that an increasingly number of services are becoming self-services realized by information technology, this would make it justifiable to assume that research concerning self-service recovery is needed and of importance. However, although the combination of service recovery and self-service technology seems to be in demand,
it is more problematical to assume that the contribution in this dissertation would be of equal interest.

The last aspect of objective evaluation suggested by Chen and Hirschheim (2004) is believability, i.e., how well the arguments make sense. Research in general, but qualitative case studies in particular, depend greatly on arguments and accurate descriptions of the case setting. It would be fair to place conceptual studies further down the continuum. When no empirical data have been collected as evidence for the study, it is possibly even more important to make sense in the arguments. On the contrary, it would be possible to claim that conceptual studies are easier for making sense through arguments. An empirical study often provides a model for analysis, which is later used for analysis of the collected data. A conceptual study, on the other hand, only presents preferred parts of existing theory in relation to arguments to support the conceptual ideas. A conceptual study is therefore less restricted than an empirical study, which is more restricted due to the analysis.

Whether this dissertation shows evidence of believability or not, and regardless of whether the study is empirical or conceptual is up to the author but judged by the reader.

In addition to the objective evaluation aspects suggested by Chen and Hirschheim (2004), Håkangård and Nilsson (2001) propose the following three criteria of “good” research:

• originality,
• credibility, and
• ability to communicate.

The only difference in the objective evaluation aspects suggested by Chen and Hirschheim (2004) is the second criteria, credibility. Originality is what Chen and Hirschheim (2004) refer to as novelty, and ability to communicate is a combination of intelligibility and believability. Håkangård and Nilsson (2001:19) explain credibility as,

“Is the knowledge valid? We seek to obtain an honest description of the scientific contributions and a critical, questioning approach to the gathered material – to be able to trust the results.”
This quotation leads to an interesting topic discussed among several top scholars in the IS community and touches upon the objective evaluation aspects (Chen and Hirschheim, 2004) and the three criteria for “good” research (Håkangård and Nilsson, 2001). Davenport and Markus (1999) and Robey and Markus (1998) argue that if the IS field manages to produce both rigorous and relevant research it will satisfy the needs of both practitioners and researchers in the IS community. The opposing opinion is offered by Senn (1998) who claims that rigor and relevance are at opposite ends from each other. Robey and Markus (1998:14), however, clearly draw the line between the world of practice and academics by stating that,

“...academic research requires a commitment to scholarly values and ethical principles, which are inconsistent with the crass commercialism and economic exploitation of knowledge.”

In addition to the reflections from Benbasat and Zmud (1999) when they claim that as much as 80% of management research might be irrelevant to practitioners, Davenport and Markus (1999) and Lyytinen (1999) provided more insightful comments about the rigor and relevance debate. Since Lyytinen originates from a Scandinavian research community, he claims he was surprised about the lack of attention in the Benbasat and Zmud (1999) study to institutional issues and its respective variation between European and North American research. Lyytinen (1999) believes that institutional policies and incentives for IS research are needed in order to attain long-term research perspectives and establish good relations with industry, which he believes is the only way to attain relevance in IS research. This is also the standpoint of Mathiassen (2002) who argues for collaborative practice research, but acknowledges that the institutional settings and incentives discourage researchers from engaging in collaboration with practitioners. Moreover, Lyytinen (1999) is not overly enthusiastic about Davenport and Markus’ (1999) suggestion of more publications in journals like Harvard Business Review. Lyytinen (1999:27) states,

“For example, the fashionable use of Heidegger in understanding design or use of IT is neither possible nor useful unless the reader can work through Heidegger’s thick concepts and ideas. My nightmare would be to emasculate Heidegger and dress him into the HBR format.”
Lee (1999) agrees with Davenport and Markus (1999) that Benbasat and Zmud (1999) did not go as far as was necessary in their analysis on relevance. The reason for this, Lee (1999) states, is that Benbasat and Zmud only paid attention to the perspective of positivism. Contrary to Davenport and Markus (1999) and Benbasat and Zmud (1999), Lee (1999:29) suggests the following in order to produce more relevant research for practitioners:

“Inquiry in the natural sciences pursues the goal of truth in formal propositions; inquiry in the professions pursues the goal of effectiveness in actions. Inquiry in the natural sciences produces knowledge about what the world is; inquiry in the professions produces knowledge about how to intervene in the world and change it in order to satisfy real-world needs. Clearly, if we wish our research to be relevant to practitioners, then we ought to consider doing our research in a way that emulates inquiry in the professions, whether in addition to or instead of doing research in a way that emulates inquiry in the natural sciences.”

According to the discussion it seems difficult to be both relevant and rigorous. The suggestion from Walsham (1995) could perhaps adhere to the desire to be both relevant and rigorous. Walsham (1995) suggests that it is more appropriate to use “tendencies” rather than generalizations for case study research. Regarding the framework for understanding why self-service recovery works, (Figure 18) it would be incorrect to consider the framework evidence, rather, it should be considered a tendency. No other claims are made regarding generalizations. It is important, though, to emphasize that the intention of this dissertation has been to give an honest description of the scientific contributions together with a critical approach to the data acquired during the studies.

5.7 Future research

It would be interesting to take the research findings a bit further and make the transition from theory to practice but also explore and perhaps answer more of the questions that have appeared during the years of studying self-service recovery.
5.7.1 New research questions

Several interesting questions have emerged during the years of studying self-service recovery. These are some of the questions that would be stimulating to explore further:

• Why is self-service recovery not common in theory and in practice?
• What is the success rate of users helping other users compared to when users get help from a company?
• Is the satisfaction rate higher when a user has been helped by other users versus when a user receives help from a company?
• Is it possible to find more examples other than Cisco, feasible to study, that have inherited the aspects in the framework (why SSR works?) in a self-service recovery solution?

These questions emerge as important when developing self-service recovery even further. What are the reasons why self-service recovery is not common? If it would be possible to prove that more problems are being solved and that users are more satisfied when getting help from another user through self-service recovery, it would then be justifiable to invest in self-service recovery solutions. However, getting involved in these questions requires a suitable sample. Perhaps it would be more suitable to study the Cisco case instead of searching for another one.

Another possible research direction would be to carry out a quantitative study based on the mediation model for why self-service recovery works (Figure 20). This would require an operationalizing of the influencing factors and a selection of a representative sample of recovery situations in different organizations. The benefits, however, would be an even better understanding of the influencing factors affecting the outcome, i.e., why self-service recovery works.

5.7.2 Post doc research

The Swedish Research School of Management and Information Technology (MIT) have given me the opportunity and resources to participate in an inspiring, impressive and remarkably successful research education. Discussions within the MIT board about extending the relationship with doctoral students through post doc funding are both welcomed and of great interests. In case the post doc opportunity becomes a reality, two early drafts pointing out possible research directions are therefore provided. The first one is directed towards the...
advancement of Services Science and the second one suggests a practice-oriented direction, which falls under the label “Commercialization of research products” within “Post doc research”.

1. Services Science from an enterprise information systems perspective

The key issue on today’s management agenda is to find solutions for creating business value out of the portfolio of information systems used in service organization (cf. Keen, 1997; Lucas Jr., 1999). The concept of “enterprise information systems” stands for all kinds of information systems that support business processes in enterprises or companies. A challenge for future research in the area of “Management and IT” is to investigate the business effects of enterprise information systems in service organizations. One interesting aspect for studying Services Science is from an enterprise information systems’ perspective.

A possible research question on enterprise information systems could be:

• Which effects could be attained by various strategies to manage enterprise information systems within and among service organisations?

Because of the combination of the field of Services Marketing/Management and Information Systems in my research, it is of great interest for me to take part in the progression of the new field of Services Science, especially because Karlstad University intends to launch a profile of a Master’s program during the year of 2007 for Services Science. As this science seems to establish its foundation by contributions from the field of Information Systems and Services Marketing/Management from various universities around the world, it would be inspiring and appealing to visit a university aspiring to form a Services Science field.

The Department of Information Systems at Karlstad University has a strong and longstanding relationship with the School of Economics & Information Systems at the University of Wollongong and particularly Dr. Rodney J. Clarke. During a visit to Karlstad University, Dr. Clarke informed me about the commitment by the University of Wollongong to establish a Master Program of Services Science. In line with the interest to take part in the progression of the field of Services Science it would be exciting to visit, learn, and hopefully contribute not only to the establishment of the Master Program of Services Sci-
ence, but also to the inspiring stream of research that seems to possess a blend of business and IT at the University of Wollongong.

Two leading actors in the progress of Services Science are the Service Research Center (CTF) at Karlstad University (KaU) and the Center for Service Leadership at Arizona State University (ASU). The close relationship with CTF and my recent visit to ASU is something I hope could be beneficial for University of Wollongong as well as Karlstad University when establishing a Master Program of Services Science.

This is also in line with the intentions within the Swedish Research School of Management and Information Technology (MIT), which is to encourage and strive to become even more international in various research activities. As a member of the board of the research school of MIT discussions concerning post doc research have in fact touched upon whether or not a requirement for funding should be to visit a university abroad. The necessity of movements of researchers and lecturers in academia has been discussed many times and also in the field of Information Systems (National Agency for Higher Education, 2004). Although it may be more difficult for some people to move within the country or even around the world, it is valuable for the development of the individual as well as for the development of the academic society to improve the rate of movements.

2. Commercialization of research products regarding self-service recovery (SSR):

The aim of this project is to develop a software solution built upon the theoretical findings in this dissertation. One problem with self-service recovery through collective knowledge in electronic networks of practice, is the technical construction making the knowledge somewhat unstructured and seldom reused by the participants. In addition, one electronic network of practice is seldom responsive to similar discussions and solutions in another electronic network of practice. Participants are not advised in any way to formulate a structured explanation to the problem or solution, leading to difficulties when trying to compare the solution to similar problems. The solution would therefore be a type of self-service recovery accessible through any computer regardless of the physical location, the electronic network of practice, or the type of operating system. The approach and subsequently the question representing this project is
explorative in the sense that “how” self-service recovery works is more important than “why”.

The solution is built upon existing search engines but its strength should be the presentation of the result of the search - the solution to the problem. The key for this solution to function properly is, to begin with, an uncomplicated classification of the problems and ratings of provided solutions. Furthermore, the classification structure must state to what extent the problem has been solved. As it is now, participants can read through several pages of discussions hoping to find the solution, but sometimes realize that the discussion did not lead to any solution. This classification structure needs to be spread across various discussion forums and recommended by the administrators present. Once the structure has been adopted, the search engine will be more accurate in finding solutions to the problems. In order to overcome the unwillingness of the discussion forums to proliferate the knowledge outside of their forums, the search result will give credit to the discussion forum that was the source of the solution.

The project could be divided into several phases:

**Phase 1 – Initialization phase**
Define the content of the classification structure. The classification structure needs to clearly state the problem in well-defined terms, and whether or not the problem has been solved, and to what extent the problem has been solved.

**Phase 2 – Test of search engines and enhancement of search results**
Adjust the classification structures’ content with search results to reach the most desirable match.

**Phase 3 – Develop the software for search and presentation of problems and solutions**
Instead of searching only for the solution it should be possible to search for the problem as well. The advantage in searching for a problem, rather than the solution, is that the problem is well defined according to the classification structure. Solutions are often not as defined as problems, making solutions more difficult to find. Most important though, is the fact that every problem defined will, to a certain degree, hold a solution. Phase 3 would also benefit from the ideas and potential of the Ozlab prototyping tool (Pettersson, 2003) in the
development of the software. The user interface is one possible area to improve using the Ozlab approach.

**Phase 4 – Present the software solution to leading discussion forums and convince them to adopt the classification structure**

As soon as discussions contemplating the classification structure have been made real tests of the software solution will begin.

**Phase 5 – Gather data around the solution**

Interesting questions concerning the solution are related to credibility, reliability, accuracy, and rate of solutions provided to problems.
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Appendix A: The Research Studies

During the years a number of versions of the included research studies has evolved, been reviewed and presented at various conferences. All versions can be found in the “Bibliography”. Notes concerning the history of some of the included research studies will begin the presentation of the seven research studies included in the dissertation.

Since the licentiate thesis seminar took place (March 24, 2004) the second research study, “Service Recovery Strategies in IT-based Service Systems – Information Technology and Embedded Knowledge” has been published (with small changes but with one more author, Mikael Gidhagen) in a book entitled Studies in Business Networks – Some Thoughts on IT and Internationalization, editors: Peter Thilenius and Amjad Hadjikhani, 2005.

A previous version of the third research study has been presented at the 10th European Conference on Information Technology Evaluation 2003, ISBN: 0-9544577-3-0, held in Madrid, Spain. The paper is called “A Conceptual Model to Assess and Evaluate Use of a New ICT-based Service”. Niklas E. Johansson and Ulrika Mollstedt are the authors of the paper, which was presented at the ECITE 2003 conference.

An early version of the fourth research study has been presented at the American Conference on Information Systems (AMCIS) 2004.

The first version of the fifth research study was presented at the QUIS 9 conference, held in Karlstad, Sweden. The name of the paper was “New Service Development and IT-based Knowledge Generation”. The second version was awarded “Outstanding research paper” at the 5th International Academy of E-Business Conference, 2005. The paper was then selected for publication in the E-Business Review.

An early version of research study 6, entitled “Service Recovery in a Self-Service Technology Context - A study of Service Recovery through an Airline Company”, was presented at the 2005 SERVSIG conference in Singapore.

A previous version of research study 7 has been presented at the 30th PDMA Conference, Atlanta, USA.
Included research studies


Self-Service Recovery

Services, by their very nature, are seldom error free. Service recovery is a set of actions a service provider can take in order to repair a failure. Many services are also Internet-based, meaning that the user produces and consumes the service alone. Self-services enabled by IT, referred to as self-service technology (SST), are characterized by an interaction between a user and a machine rather than between two humans. Consequently, solving a problem due to an error in the self-service is no longer conducted between two humans interacting in a face-to-face manner, but between a user and a machine. Therefore, a new type of service recovery adhering to the self-service technology context is needed and introduced as a new term in this dissertation:

Self-Service Recovery (SSR) is defined as the capability, enabled by self-service technology, of turning user problems into solutions and improvements by means of sharing knowledge between users in order to create value.

This dissertation has two purposes regarding self-service recovery: to describe what it is, and to understand why it works. The purposes have been addressed by evolving two frameworks to describe self-service recovery and understand why self-service recovery works. The contributions of this dissertation reside in the frameworks, which enhance our understanding of self-service recovery as a value creation activity through not only recovery, but also through improvement and development of the service in question.