The Customer's Role in New Service Development
Bodil Sandén

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To Torbjörn
and Melker
Abstract

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Given today's industry dynamics, new service development is becoming increasingly important to the competitiveness, growth, and survival of organizations. Unfortunately, new service development has proven to be a complex and difficult task. Numerous reasons are stated in the literature such as the difficulty of understanding and anticipating latent customer needs and insufficient market research techniques. By engaging a limited number of specially selected customers and working closely with them during parts or the entire development process, it is suggested that the stated problems can be minimized.

The overall objective of this doctor's thesis is to contribute to an increased knowledge of customer involvement, i.e., the role of customers as contributors and co-creators in new service development. The thesis draws on theory from market and learning orientation in conjunction with a service-centered model, and provides an extensive review of literature. The dissertation is based on four empirical studies from various service industries e.g., Staffing Services, Airline Services, and Mobile Telecommunication Services.

In this thesis it is argued that customer involvement aims at developing customer knowledge with an emphasis on sticky information such as customer latent needs. It is further argued that sticky information and insights cannot be detached from the social context in which they are generated. Therefore, the transfer of sticky information and knowledge requires deeper interactions and processes of communication. By allowing customers to innovate on their own or by spending time with them and actually taking part in activities with them, deep insights and new ideas have an opportunity to emerge.

A special emphasis is put on supporting techniques as these are the means by which customer information and knowledge are created. In addition, results are provided showing that customer involvement in innovation pays off. Companies that engage in collaborative innovation with customers can expect improved customer satisfaction, customer loyalty, and profit margin.

Key words: New service development, service innovation, new product development, customer involvement, user involvement, market orientation, market research
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# TABLE OF CONTENT

## 1. THE AREA OF RESEARCH

1.1 Introduction .............................................................................................................. 9
1.1 New Product and Service Development ................................................................. 10
   Problems and challenges .......................................................................................... 11
   Specific problems of NSD ......................................................................................... 14
   Summary ...................................................................................................................... 15
1.2 Customer Involvement in New Product and Service Development ...................... 16
1.3 Differences between NPD and NSD and Implications for Customer Involvement ... 17
1.4 Customer Involvement and Market Orientation ...................................................... 20
1.5 Customer Involvement and Marketing Research .................................................... 25
1.6 Summary of Points of Departure ............................................................................ 26
1.7 Outline of the Thesis ................................................................................................. 31

## 2. THEORETICAL FOUNDATIONS AND KEY CONCEPTS

2.1 The Logic of Services ............................................................................................... 34
   The debate on goods vs. services .............................................................................. 35
   A goods logic versus a service logic .......................................................................... 37
2.2 The Logic of New Service Development .................................................................. 38
   Previous NSD research ............................................................................................. 38
   NSD based on a service logic .................................................................................... 41
2.3 The Logic of Customer Involvement ........................................................................ 43
2.4 The Roles of the Customer in Value Creation and Innovation .................................. 47
2.5 Customer Involvement Continuums ......................................................................... 49
2.6 Defining Customer Involvement .............................................................................. 56

## 3. THE RESEARCH PROCESS

3.1 Introduction to the Research Process ....................................................................... 61
3.2 Background and Values ........................................................................................... 61
3.3 The Research Strategy ............................................................................................. 64
   Quantitative vs. qualitative research ........................................................................ 65
   Combining the two research strategies ..................................................................... 67
3.4 Research Design ....................................................................................................... 68
3.5 Empirical Studies and a Literature Review .............................................................. 72
   Service Guarantees and Service Development (SGSD): Case studies and a qualitative
   content analysis ........................................................................................................ 73
   The literature review (LR) - A database search on customer involvement .............. 75
   Customer Involvement in Swedish Organizations (CISO) – A Survey ..................... 77
3.6 Reflections on the Overall Research Process .......................................................... 79
3.7 Concluding Remarks ............................................................................................... 83

## 4. CUSTOMER INVOLVEMENT PRACTICE

4.1 A Structure of the Research Field .......................................................................... 86
4.2 Situational Factors Influencing Customer Involvement ......................................... 87
   Market factors .......................................................................................................... 87
   Cultural and organizational factors .......................................................................... 91
   Project factors .......................................................................................................... 93
   Summary of situational factors ............................................................................... 99
4.4 Strategic Decisions ................................................................................................. 99
   Strategic objectives and rationales of customer involvement .................................... 100
   Customer characteristics ......................................................................................... 103
   In what phases of the development process are customer involved ......................... 104
   Degree of customer involvement ............................................................................ 108
   Summary of Strategic Decisions ............................................................................ 111
4.4 OPERATIONAL DECISIONS..................................................................................................... 112
  Recruitment and customer motives ................................................................................... 112
  Supporting techniques ...................................................................................................... 117
  Summary of operational decisions.................................................................................... 133
4.5 PERFORMANCE .............................................................................................................. 134
5. CONTRIBUTIONS, IMPLICATIONS, AND FUTURE RESEARCH................................ 138
  5.1 CHARACTERIZING THE RESEARCH FIELD................................................................. 138
  5.2 RETURN TO THE RESEARCH QUESTIONS – MAIN CONCLUSIONS ......................... 141
    Customer involvement definitions and perceptions of practitioners ......................... 144
    Customer involvement practice in Swedish organizations ...................................... 146
    Tools and techniques ................................................................................................. 147
    The empirical relationship between customer involvement and results .................. 152
    Results in different phases of the development process and differences between service
    firms and manufacturing firms ................................................................................... 153
  5.3 RESEARCH CONTRIBUTIONS ..................................................................................... 155
  5.4 MANAGERIAL IMPLICATIONS....................................................................................... 157
  5.5 QUESTIONS FOR FUTURE RESEARCH........................................................................ 159
REFERENCES.............................................................................................................................. 161
APPENDIX A RESEARCH MATERIAL

  i  THE SGSD INTERVIEW GUIDE – MANAGERS , USED FOR PAPER I
  ii THE SGSD INTERVIEW GUIDE – FRONT LINE EMPLOYEES, USED FOR PAPER I
  iii THE SGSD INTERVIEW GUIDE – CUSTOMERS , USED FOR PAPER I
  iv LIST OF HITS ON CUSTOMER INVOLVEMENT IN THREE RESEARCH DATABASES, USED FOR PAPER
    III AND IV
  v OUTLINE OF CUSTOMER INVOLVEMENT PAPERS AND STUDIES FROM DATABASE SEARCH, USED
    FOR PAPER III AND IV
  vi OUTLINE OF EARLY AND ADDITIONAL CUSTOMER INVOLVEMENT PAPERS AND STUDIES, USED FOR
    PAPER III AND IV
  vii THE CISI SURVEY , USED FOR PAPER IV AND V

APPENDIX B PAPERS

  I THE ROLE OF SERVICE GUARANTEES IN NEW SERVICE DEVELOPMENT
  II OBSERVING CUSTOMER BEHAVIOR – A KEY TO SERVICE INNOVATION
  III NEW SERVICE DEVELOPMENT – LEARNING FROM AND WITH CUSTOMERS
  IV THE ROLE OF THE CUSTOMER IN NEW SERVICE DEVELOPMENT
  V CUSTOMER INVOLVEMENT IN THE PHASES OF THE PRODUCT AND SERVICE DEVELOPMENT
     PROCESS – IMPACT ON FINANCIAL PERFORMANCE
1. THE AREA OF RESEARCH

This chapter provides an introduction to the research presented in this thesis. In section one a brief introduction is given as well as the purpose of the chapter. The point of departure is new product and service development and section two highlights problems and challenges that are associated with development processes. To deal with some of the stated problems, recent research suggests that the customer ought to be more involved in the development process. Customer involvement, the main concept of the thesis, is presented in brief in section three. Previous research has shown that there are differences between NPD and NSD. The implications that these differences can have for customer involvement are discussed in section four. Section five discusses customer involvement in relation to the closely related concepts of market orientation and customer orientation. In section six, customer involvement is presented as a marketing research approach. A brief discussion on the research frontier of customer involvement, the research questions, and the purpose of this thesis are provided in section seven. This section is concluded with a summary of the major contributions of the research. The final section of this chapter presents an outline of the thesis.

1.1 Introduction

A few years ago BMW launched a toolkit on its website to harness the creativity of its customers. This toolkit allowed BMW’s customers to develop their ideas in terms of how the firm could take advantage of advances in telematics and in-car online services. From the 1,000 customers who used the toolkit, BMW chose 15 and invited them to meet their engineers in Munich. The customers were happy that the technical experts were interested in their ideas and that they were invited to Munich, so the customers did not want any money in compensation. Since then, some of their ideas have reached the prototype stage and BMW is now broadening its customer-innovation efforts.

This example illustrates the role of the customer as co-developer, innovator, and co-creator of value in new product and service development¹. The example also illustrates that by using appropriate

¹ In this thesis, New Service Development (NSD) includes all the activities that are needed to introduce a new service on the market and consequently New Product Development (NPD) includes all the activities that are needed to introduce a new physical good on the market. I am aware that innovation can be given a different meaning than NPD and NSD (see discussion in e.g., Sundbo, 1998). In this thesis, however, NSD and service innovation are used interchangeably, as are NPD and product innovation.
techniques and giving users the right tools, they can come up with new ideas and solutions that should not be rejected but taken seriously. The suggested ideas and solutions might not always be producible or realistic, but behind the solution is a manifestation of a perceived problem, need, or wish. In addition, certain customers are willing to contribute their knowledge and skills for free. This thesis highlights and discusses the former, current, and future role of the customer or user in new service (and product) development under the concept of *customer involvement* or *user involvement*.

The purpose of this initial chapter is threefold. First, it aims to introduce the area of research and present the key concepts that are in focus. Second, it aims to position the key concept of customer involvement in terms of other related concepts such as market orientation and marketing research. And finally, it aims to briefly describe and position the research presented in this thesis.

### 1.1 New Product and Service Development

Given today’s industry dynamics, new product and service development is becoming increasingly important to the competitiveness, growth, and survival of organizations (Cooper, 1993; Fitzsimmons and Fitzsimmons, 2000). While research into New Product Development (NPD) has thrived over the years, New Service Development (NSD) is a poorly researched and understood area within service marketing and management (Menor et al., 2002; Smith and Fischbacker, 2005; Stevens and Dimitriadis, 2005; Veflen Olsen and Sallis, 2006). A search in two online research databases reveals that in comparison to NPD, research on NSD is a fairly new and small research area. While a title search on “new product development” yielded 111 and 509 hits respectively, “new service development” only rendered 18 and 29 hits respectively. The research presented here focuses

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2 In the thesis it is argued that value is created when using, consuming, and experiencing the product or service (Grönroos, 2000a). By customer I mean the receiver and user of the product or service. As such, customer involvement and user involvement are used interchangeably throughout the thesis.

3 In the thesis, several concepts are used to describe development activities. “Innovation” and “new product and service development” are used interchangeably. In addition, I use “new service (and product) development” to emphasize the relative contributions made by this research.

4 Definitions on NPD often includes the development of new services, however, most NPD research has focused more on understanding the needs of and establishing methods for manufactured goods producers (Terrill, 1992) and most of the NPD processes and methods developed have been targeted to goods-producing firms (Cooper, 1990; Cooper and Kleinschmidt, 1991). Subsequently, in this thesis NPD refers to the development of physical goods.

5 The search was made January 11th, 2006 in the research databases of Emerald and Business Source Elite.
New product and service development offers great potential. Research has shown a strong relationship between new products and performance. According to Cooper (1993), new products that have been on the market for five years or less account for on average 40 percent of company sales. Also, new products have a similar impact on profit. A recent article on the best NPD practices reports that the average percentages for three-year old products are about 28 percent of sales (Cooper et al., 2004). Among the top 20 percent of companies, new products account for 38 percent of sales and 42, 4 percent of profits (Ibid.). The results for new services seem to be somewhat lower. Griffin (1997) found, based on a large sample of new manufactured goods and services that new services account for 24, 1 percent of sales and 21, 7 percent of profits in comparison to new manufactured goods that account for 34 percent of sales and 32, 4 percent of profits.

Unfortunately, new product and service development is a complex and difficult task. The failure rate for new products and services is high. Page (1993) found that the overall success rate of new product introductions is less than 60 percent, and declines as the cost and risk of developing new products increases; some 46 percent of all resources given to product development and commercialization is spent on products that are cancelled or fail to yield adequate financial return. Stevens and Burley (2003) argue that the failure rate of new products is somewhere between 40 and 75 percent. According to Cooper (1993), 35 to 44 percent of all products launched are removed from the market after a short period. New services are no exception. Many service development projects turn out to be less than successful and new services fail to meet expectations in terms of financial performance or the creation of customer value (de Brentani and Ragot, 1996; Cooper and Edgett, 1996; Griffin, 1997; Johne and Storey, 1998).

Problems and challenges

A number of reasons for failure are stated in theory. Cooper (1993) lists a number of reasons for new product failures including inadequate market analysis, product problems or defects, lack of effective marketing effort, higher costs than anticipated, competitive strength or reaction, poor timing of introduction, and, technical or production problems. Martin and Horne (1993) found that successful service firms fit their offerings...
with current businesses more than unsuccessful firms. Successful firms also
tend to allow champions to stay and manage NSD to a greater extent.
Some of the problems stated in theory represent common challenges;
some are specific for NPD and NSD. This thesis addresses those problems
that concern anticipating customer needs, customer research tools and
techniques, and some of the specific problems of NSD.

The exchange of information is the lifeblood of any innovation activity.
Successful new product and service development demands profound
information and knowledge of customers and their needs (Rothwell et al.,
1974; Cooper, 1993). Eric von Hippel, a pioneer within the user
innovation field, maintains that to solve a problem, necessary information
and problem solving capabilities must be brought together, virtually or
physically, at a single locus. Typically, the innovative firm has the problem
solving capabilities and the customer has the need information (von
Hippel, 2001). Traditionally, the innovative firm has used market research
techniques to acquire and transfer need information from customers to
firm. The underlying presumption has been that NPD decisions are more
effectively matched with market demand when they are guided by
information on user needs (de Brentani and Cooper, 1992; Cooper and
Kleinschmidt, 1987). As such, it has been suggested that the role imagined
for customers and users in NPD projects has been mainly passive and
mediated by techniques of market research (Prahalad and Ramaswamy,
2000).

Acquiring relevant information is constrained by costs. Need-related
information is frequently “sticky”, which means that it is costly to acquire,
transfer, and use in a new location (Thomke and von Hipple, 2002; von
Hippel, 2001). This makes it difficult and expensive to anticipate and
understand customer needs. In a study that aimed to identify important R&D
skills and knowledge, 120 R&D managers rated “understanding customer
needs” as the most important capability followed by monitoring market
developments, commercializing new technologies, and building cross-
functional teams (Gupta and Wilemon, 1996). In an earlier study by the
same researchers, “poor definitions of product requirements” was stated as
the primary reason for product development delays by 71 percent of the
respondents (Gupta and Wilemon, 1990).

Furthermore, the general trend of more heterogeneous consumer needs in
important markets makes new product and service development
increasingly difficult. According to von Hippel (2001), companies typically
engage in costly market research because they assume homogeneity of
needs within a market segment and thus can amortize the costs with many
consumers. However, recent research (Franke and von Hippel, 2002)
reveals that a large share (about 50%) of the total variation in customer needs will typically remain unaddressed in within-segment variation (Jeppesen, 2005).

Due to the difficulty of anticipating customer needs, critique has been posed that many of the conventional market research techniques often fail to deliver the level of detail that is needed to be able to respond to the current and future needs of customers and develop new products and services (Leonard, 1995; Lilien et al., 2002; Slater and Narver, 1998; von Hippel et al., 1999; Zaltman, 2003). Eliashberg et al. (1997), report on a survey of 154 senior marketing officers of U.S. corporations. Seventy-nine percent of the respondents stated that their NPD process could be significantly improved. A major complaint was that most of the products developed tended to be marginal contributors to the firm’s portfolio, rarely involving new or “breakthrough” ideas. Eliashberg et al. (1997), also assessed the range of market research methods that might enhance the output of NPD processes, classifying them by type of product sought (radically new vs. marginally new) and nature of the research method (traditional vs. non-traditional). They point out that traditional marketing research methods obtain information from respondents at the center of the market—respondents whose thinking is limited by their current experience and environment. It is also noted that the traditional methods have generally failed to produce radical new product breakthroughs, which has increased interest in non-traditional methods (Ibid.).

Traditionally, there has also been a view that customer information is best fed into the development process through the marketing department, rather than through direct contact between NPD personnel and customers. This has translated, to a large extent, into a matter of communication and integration between marketing and R&D departments. In a review of the literature of the Marketing and R&D interface, Griffin and Hauser (1996) identified a number of barriers to communication and cooperation including personality, cultural thought worlds, language, organizational responsibilities, and physical barriers. To break these barriers, multi-functional teams have been implemented and found to be crucial to NPD success. Griffin (1997) found that 60 percent of U.S. firms use a cross-functional stage gate process. It is important to note that the implementation of cross-functional teams should perhaps not be implemented as a universal solution in all development projects. In less innovative projects, e.g., service line extensions, service improvements, and style changes (Lovelock, 1983), functional teams may be sufficient enough. This line of argument is also supported by Griffin (1997). She found that over 84 percent of the more innovative projects use multi-functional teams in contrast to only 40-50 percent of the less innovative projects.
Investigating the development activities of complex new products, Eppinger and colleagues emphasize the importance of focusing on flows of information (rather than tasks) to make the development processes more efficient. The development of complex products typically involves numerous tasks and developments teams and therefore demands feedback and iteration in the development process (Eppinger, 2001). These examples of research into the communication and integration of organizational functions adopt an internal perspective and imply that customers are given a passive role as an information provider, but mainly a consumer, whose preferences, e.g., in terms of reactions to prototypes, are measured rather than used as direct design alternatives.

**Specific problems of NSD**

As the field of service research emerged, the view of the customer changed somewhat. In early service research, most scholars argued that services are activities, deeds or processes, and interactions (Lovelock, 1991) where the customer no longer plays a passive role, but instead plays a multifaceted active role of contemporary consumer and co-producer that influences the outcome of the service (Normann, 1984; Toffler, 1980).

While reading this thesis, it is important to distinguish between co-production, customer involvement, and customization. While customer involvement focuses on the role of the customer as co-creator and co-developer in the pre-launch process of innovation, customer co-production emphasizes the role of the customer as co-producer in the realization and delivery of the service. Customization on the other hand are the efforts taken to adopt the service to individual customer needs during the service delivery process.

Still, customer co-production and customization provide important arguments for involving customers in the development process. It can easily be argued in theory that if the customer influences the outcome and quality of service delivery, the customer should be a natural participant in the development process as it is in the development process where the prerequisites for the service are created (Edvardsson, 1996). If the service will allow for a high level of customization in the service delivery process, this needs to be taken into account in the innovation process.

This view, however, has not been particularly evident in NSD literature. In fact, the customer is to a large extent invisible in current research. NSD has mainly been characterized as ad hoc and based on a trial-and-error
type of approach (Shostack, 1984; de Brentani, 1989; Martin and Horne, 1993; Roth et al., 1997), resulting in “irreproducible methods, unpredictable success levels, and unsatisfactory development results” (Froehle et al., 2000, p. 5). Consequently, while NPD has numerous reliable tools, methods, and stage-gate processes, NSD is a relatively arbitrary and unstructured process.

Furthermore, because many services are realized in a customer-company interaction which often occurs at the same time as the customer experiences the service, it is problematic to obtain relevant feedback from service customers in advance and test and isolate a new service in a traditional laboratory (Thomke, 2003). And as many services are also tailored to individual buyers at the point of purchase (customization), it is difficult to test services through large samples. As a result, experiments with new services are most useful when they are conducted with real customers, engaged in real transactions (Ibid.).

**Summary**

In summary, the previously stated problems of new product and service development are as follows:

- it is difficult and expensive to acquire sticky need information,
- many market research techniques are reported insufficient,
- multi-functional teams are advocated to interpret customer information and transform it into new customer offerings,
- NSD is still very much a random and unstructured process, and
- many services are produced and consumed at the same time which makes them difficult to concretize and test throughout the development process.

By engaging a limited number of specially selected customers and working closely with them during parts or the entire development process, it is suggested that the stated problems can be minimized (Deszca et al., 1999; Leonard and Rayport, 1997; Martin and Horne, 1995; Prahalad and Ramaswamy, 2000; Thomke, 2003). In this thesis such activities are discussed under the concept of customer involvement.
1.2 Customer Involvement in New Product and Service Development

In the late 70s, research into the customer's role in new product and service development had its first major breakthrough with von Hippel's Customer Active Paradigm (von Hippel, 1978). Looking at the published articles on the subject, however, customer involvement has received increased attention since the beginning of the decade and is more relevant now than ever before. A clear indication of this popularity is the fact that building customer insight was the topic tied for first place in MSI research priorities 2006-2008.

According to our survey, innovation continues to be viewed as the prime engine of growth, but customers play a much larger role in shaping innovation strategy and execution. At the market level, there are substantial opportunities for innovation in emerging markets and in new segments of established markets. At the development level, customer insights are needed to drive innovation and product and service design (this topic tied for first place in member votes). (MSI, 2006)

The increased interest in customer involvement from managers is explained by Gerald Zaltman. He states the following in the preface of his book “How customers think: Essential insights into the mind of the market”:

While consumers have changed beyond recognition, marketing has not. These changes in consumer behavior include increased skepticism about business (especially marketing), more assertiveness, greater sophistication, less loyalty to companies and individual brands, and major concerns about privacy and security. The world has changed, but our methods for understanding consumers have not. We keep relying on familiar but ineffective research techniques and consequently misread consumers’ actions and thoughts (Zaltman, 2003, pp. ix-x)

In this thesis, customer involvement in new product and service development is defined as those processes, deeds and interactions where a development team collaborates with current (or potential) customers at the program, project and/or stage level of the development process, to uncover sticky information such as latent needs, develop customer knowledge, and develop new solutions accordingly⁶.

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⁶ At the end of chapter two, a deeper discussion on customer involvement definitions is provided and the reasoning behind this definition is given.
The basic idea of customer involvement is that sticky information and insights cannot be detached from the social context in which they are generated. Therefore, the transfer of sticky information and knowledge requires deeper interactions and processes of communication (Gales and Mansour-Cole, 1995; von Hippel, 1994). By allowing customers to innovate on their own or by spending time with them and actually taking part in activities with them, deep insights and new product and service ideas have an opportunity to emerge.

In a customer involvement project, users are in contact with, and may act within, the environments and/or situations in which a future innovation is meant to be used. Ideas generated by a user in the user’s own environment therefore seem more likely to contain those unique features that companies seek but which are difficult to detect. Needs and requirements are likely to be, more or less consciously and deliberately from the user’s point of view, automatically built into the ideas generated (Thomke and von Hippel, 2002).

The rationale for customer involvement in NSD is improved performance (Gales and Mansour-Cole, 1991). The underlying premise is that customer input (e.g., information, knowledge, ideas, prototypes, and/or solutions) in the various phases of the development process should influence the design of a new product or service to better fit customer needs. Customer involvement aims for a better output as firms ensure that the resulting new services and products offer added customer value and satisfy customer needs (Gupta and Wilemon, 1990; Iansiti and MacCormack, 1997). As a compact way of achieving success, the product or service should be able to generate a higher profit margin through a larger sales volume or by providing customers with a better value proposition. Furthermore, companies engage in customer involvement as a way of achieving a more favorable cost/time product development curve (Rothwell, 1994) and to reduce the uncertainty that usually surrounds the development process (Leonard-Barton, 1995) e.g., environmental, phase-related, and user requirement uncertainty (Gales and Mansour-Cole, 1995). In summary, the involvement of customer in development processes aims to improve both the process and the output.

1.3 Differences between NPD and NSD and Implications for Customer Involvement

NSD and NPD share many characteristics, but there are also differences. Generally it could be said that most development activities are organized
as projects. Most often there are several ongoing projects within an organization and these make up a program. A development project comprises two main phases: pre-launch and post-launch. Learning about customers’ needs, preferences, behavior etc. occurs in both phases but there are lower costs and strategic risk in the pre-launch phase (Cooper, 1998). Accordingly, the focus in this thesis is placed on learning with and from customers in the pre-launch phase of new service (and product) development.

In terms of the development process, the overall logic of most development processes is to start with a strategy phase and end with a commercialization phase (e.g., Scheuing and Johnson, 1989; Cooper, 1993). This logic is used in organizations even if they do not have an explicitly written formal process. There is a wide range of processes among companies from highly formal stage-gate processes to none at all and there are several opinions about how many different phases there are in a new service or a new product development process (e.g., Alam and Perry, 2002; Booz et al., 1982; Scheuing and Johnson, 1989; Veryzer, 1998a). It may also be difficult to make a clear distinction between various phases in the development process because of overlap and iteration (Smith and Eppinger, 1997).

NSD and NPD have been found to differ in terms of practice. Presenting findings from a survey on NPD best practice, Griffin (1997) found that NSD processes are generally simpler than those used to develop manufactured goods. A NSD process consists of nearly two steps less than those for manufactured goods. The relative focus in the NSD process is more on steps in the so called fuzzy front end of the process than the later stages. Both service and manufactured goods processes are most likely to include a development step. Concept generation is the next most frequently included step for NSD processes (Ibid.).

In this thesis, a pre-launch process including five phases is adopted (see Figure 1.1). The phases are the strategy phase, the idea generation phase, the concept development phase, the design phase, and the market test phase.

![Figure 1.1 A pre-launch process of five phases](image-url)
The strategy phase: The process is often initiated by defining the starting situation based on the firm’s objectives and strategies in general and the new product and service development strategy in particular. The strategic planning process and its results should direct the new product and service development efforts. The possibilities and challenges observed during the development process, however, have to be taken into consideration as well in strategic planning.

The idea generation phase includes two main activities: 1) generate new ideas and 2) allocate resources among those projects which have the most likelihood to succeed, also referred to as idea screening (Kelly and Storey, 2000). An idea occurs when technological possibilities are matched with market needs and expected market demand (Cooper, 1993). Ideas may be generated by the marketplace (market-pull ideas) or generated by research from science or technology (technology-push ideas). Ideas can result from formal or informal search procedures and may come from various sources, i.e., internal sources such as R&D, sales, marketing, and production or external sources such as customers, research organizations and consultants, competitors, investors, universities etc. While ideas from inside the company are the obvious place to begin, von Hippel (1977) argues that the majority of good, new ideas in many industries are derived from customers.

In the concept development phase the surviving ideas are developed into concepts. A concept is a description of a potential new service or product. A typical concept statement would include a description of a problem that a customer might experience, the reasons why the new service or product is to be offered, an outline of its features and benefits, and the rationale for its purchase (Scheuing and Johnson, 1989; Edvardsson, 1996).

In NSD, the design phase includes creating the prerequisites for the service internally. I agree with Edvardsson and Olsson (1996) who argue that the concept of service should be approached from the customer’s perspective. It is the customer’s total perception and experience of the outcome which is the service and determines whether the customer is satisfied or not. It can be said therefore, that “the main task of service development is to create the conditions for the right customer outcome” (Ibid., p. 145). As stated previously, many services are generated in a process where the customer participates and affects the outcome of the service in terms of value and quality. As such the service provider does not provide services but opportunities for services. Therefore, the role, participation, and responsibility of the service provider to the customer must be made clear and factors such as customization and varying customer behavior should be taken into account. Creating prerequisites involves designing a service
In developing new physical products, the market testing phase often includes the development of a prototype that is tested in typical usage situations. As for services, many of these are intangible, often existing only in the moment of its delivery. As stated previously, this makes it difficult to test and isolate a new service in a traditional laboratory. Furthermore, many services are tailored to individual buyers at the point of purchase, which makes it difficult to test these services through large samples. Therefore, it is suggested that new service tests should be conducted live, with real customers, in real transactions (Thomke, 2003). If necessary, feedback from the tests is used to adjust the new service before it is launched.

In terms of customer involvement, it seems as if a majority of firms have some contact with customers throughout the development process (Alam and Perry, 2002; Moore, 1987). Managers and researchers claim that the benefits resulting from improvements in the strategic, conceptual, and planning activities which typically precede the detailed design and development of a new product are likely to far exceed those that result from improvements aimed directly at the design process (Cooper, 1994; Khurana and Rosenthal, 1998; Reinertsen, 1999; Veryzer, 1998b; von Hippel, 1988). Yet, the common practice seems to be to involve customers later in the process (Cooper and Kleinschmidt, 1986; Feldman and Page, 1984; Veryzer, 1998a). The evidence is, however, not conclusive. Some research indicates that continual, informal, and in-depth contact with leading customers throughout the development process is a success factor (Maidique and Ziger, 1985). The research presented here investigates customer involvement in the entire development process; however, due to the potential of customer involvement in early phases, a special interest is directed to those activities.

1.4 Customer Involvement and Market Orientation

I agree with other researchers who maintain that customer involvement is closely related to the broader concepts of market orientation and customer orientation (see Alam and Perry, 2002). Market orientation, as an implementation of the marketing concept, stipulates that an organization must continuously monitor, analyze, and learn about customers’ current and future needs and preferences, the influence of technology, competition, and other environmental forces, adjust its actions based on
that knowledge and market events in order to develop superior solutions to customer needs and become competitive (Slater and Narver, 1995).

In a classic research article, Narver and Slater (1990) suggested that market orientation consists of three behavioral components: customer orientation, competitor orientation, and interfunctional coordination. Customer orientation and competitor orientation includes all activities involved in acquiring information about the buyers and competitors in the target market and disseminating it throughout the business. Interfunctional coordination comprises the business’ coordinated efforts to create superior value for the customers. In practice, this is usually done by appointing a multi-functional team (Griffin, 1997). Departing from this definition of market orientation, customer involvement is mainly a manifestation of a customer orientation - a way of working that aims to generate customer information and to learn from and with customers.

Another definition of market orientation is provided by Kohli and Jaworski (1990). They define market orientation as organization-wide information generation and dissemination and then finding appropriate responses related to current and future customer needs and preferences. According to the authors, the generation of market intelligence relies on a host of complementary mechanisms. It can be generated through formal as well as informal means and may involve primary data or secondary sources. The mechanism includes meetings and discussions with customers, analysis of customer databases, and formal market research such as customer attitude surveys. The generation of market intelligence involves not only obtaining customer opinions, but also careful analysis and subsequent interpretation of the forces that impose on customer needs and preferences (Ibid.). As such, market intelligence should be generated collectively by individuals and departments throughout the organization. Mechanisms must be developed to disseminate the intelligence effectively from one location to another in the organization. The dissemination of intelligence also ranges from formal to informal and intelligence may flow from and to various directions, depending on where it is generated. Responsiveness is the action taken in response to intelligence that is generated and disseminated, e.g., developing new products and services that respond to customers’ current and anticipated needs (Ibid.).

Based on Kohli and Jaworski’s (1990) definition of market orientation, I suggest that customer involvement is a market oriented approach that aims at developing customer knowledge with an emphasis on customer needs, behavior, changing requirements, and deep-seated dissatisfactions with current alternatives. Consequently, customer involvement can be used to infuse other business processes and activities than innovation (Sawhney et
al., 2005), such as, e.g., marketing communication. In this thesis, however, it is the NSD process that is in focus.

To uncover customer needs and develop solutions to solve customer problems, various competences within an organization are needed. Customer involvement in combination with multi-functional teams can improve the process of information dissemination. Collaborative innovation with customers puts pressure on the organization to address and respond to customers’ needs and demands.

Recent developments within the research field of market orientation have suggested a distinction between responsive market orientation (referred to as "customer led" in Slater and Narver, 1998) and proactive market orientation (Narver et al., 2004). A responsive market orientation focuses an organization on understanding the expressed needs of the customers in their served markets and on developing products and services that satisfy those desires. A responsive market oriented organization typically uses reactive techniques such as focus groups and customer surveys to enhance their understanding of customers. They also use techniques such as concept testing and conjoint analysis to guide the development (Leonard and Rayport, 1997).

In contrast, a proactive market oriented organization attempts to understand and to satisfy customers’ latent needs (Narver et al., 2004). Latent needs are stated to be current needs with the distinction that they are impossible for customers to articulate. According to Slater and Narver (1999), the concept is based on Levitt’s (1980) multi-level product concept. The ‘generic product’ is the core benefit to the customer. The ‘expected product’ is what the customer considers the minimum acceptable benefits. The ‘augmented product’ comprises benefits that a customer may never have considered, i.e., benefits that satisfy latent needs. The ‘potential product’ includes everything that might be done to attract and hold a customer. The point of departure is the difference between the expected product and the augmented product. The expected product addresses buyers’ expressed needs. The problem with this level of benefits is that they are available to all actors on the market, which typically results in a price competition because they are all providing the same thing. The augmented product concentrates on current needs that are not addressed. As these products go beyond customer expectations, the buyer has reason to pay a price premium (Slater and Narver, 1999).

A review of Levitt’s article from 1980 reveals that the concept of latent needs is not mentioned in relation to the multi-level product concept. That seems to suggest that someone else introduced the concept. Despite
searchers in research databases, I have not managed to locate the original source. I feel it might be useful, therefore, to explain how I interpret the concept in relation to other definitions of need, need satisfaction, and need fulfillment. The discussion is based on the review made by Oliver (1997) in his book “Satisfaction – A behavioral perspective on the consumer”.

Oliver (1997) examines the concept of need fulfillment from an historical perspective and reviews early research on motivational theories and theories of needs in the satisfaction process. Referring to the hierarchical motivation model suggested by Wahba and Bridwell, Oliver (1997, p. 142) argues that in motivation hierarchies, “needs are ordered on the basis of their role in attaining and maintaining the physical and psychological health of the individual” and a distinction is made between lower-order needs and higher-order needs. Lower-order needs are essential to preservation of life in that they are biological or instinctual. Higher-order needs are essential for the growth of the individual along the social, psychological, and/or spiritual lines. The model suggests that to activate higher-order needs, lower-order needs must be fulfilled. The definition of lower-order suggests that these needs are easy to express as they are biological or instinctual. This seems to suggest that latent needs (which are impossible to articulate) can be always characterized as high-order needs.

Furthermore, as customer can not articulate latent needs, it can be assumed that the customer is unaware of the latent need. As such, fulfillment of latent needs can only create satisfaction and delight and the lack of fulfillment of latent needs is unlikely to be a cause of dissatisfaction - perhaps less satisfaction, but not dissatisfaction. Based on their operation, latent needs can be referred to as monovalent satisfiers (Oliver, 1997).

Based on the previous information, to uncover and to satisfy latent needs is by definition to lead customers in their satisfaction. This effort implies being proactive (Narver et al., 2004). A proactive market orientation attempts to understand and to satisfy customers’ expressed and latent needs. It is claimed that focusing on expressed needs and latent needs makes it possible not only to create products ahead of competitors, but also to create them before the recognition of an explicit customer need (Hamel and Prahalad, 1991; Slater, 2001). A proactive market orientation also helps the service provider to differentiate their offer and protects it in part or in whole from price competition (Slater and Narver, 1999). Consequently, it is argued that a firm’s long-time performance is dependent on both customer satisfaction with the present offering, as well as the development of new products and services (Flint, 2002; Slater and Narver, 1995).
Narver et al. (2004), argue that the measure of market orientation has mainly focused on behaviors related to satisfying customers’ expressed needs rather than satisfying their latent needs as well. These lines of thoughts explain previous research stating that customer orientation has lead to incremental and trivial product development efforts, a decline in America’s industrial competitiveness, confused business processes, myopic R&D programs, and loss of industry leadership position. The argument is that the studied organizations have had a responsive market orientation rather than a proactive market orientation (Ibid.).

Using data from a sample of technologically diverse businesses, Narver et al. (2004), develop a measure of proactive market orientation, refine the extant measure of responsive market orientation, and analyze the relationship of a business’s responsive and proactive market orientation to its new product success. It was found that a responsive market orientation is not sufficient for any business to create and to sustain new-product success, and that a proactive market orientation plays an important positive role in a business’s new-product success. This is the only empirical study I have seen that addresses the distinction between responsive and proactive market orientation and more research is needed to validate the concepts.

In summary, building on the conclusion made by Kohli and Jaworski (1990) that market orientation could be seen as one of degree, i.e., a point on a continuum rather than being either present or absent, Slater and Narver (1999) suggest that the lower end of this continuum is presented by product oriented businesses, the middle by customer led businesses or responsive market orientation, and the high end by proactive market oriented businesses.

![Image of a continuum diagram with customer involvement on the product orientation – market orientation continuum.]

Market orientation entails continually learning about different aspects of the market such as expressed and latent needs, new technology,

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According to Kotler (1997) a product orientation is a philosophy were managerial emphasis is mainly based on producing superior products and modifying or improving them over time.
competition, and other environmental forces, and acting on that knowledge in order to develop superior solutions to customer needs and become competitive. According to my view, in relation to market orientation and customer orientation, customer involvement is seen as a proactive market orientation approach (see Figure 1.2), a way of working that builds on close collaboration and interaction between an organization and its customers/users in order to uncover customer needs, build customer knowledge and improve new product and service performance.

It is important to note that many organizations in practice attend to both current and latent customer needs and often use a combination of market research techniques, both reactive and proactive. In determining an organization's relative degree of market orientation it is a matter of looking at the guiding principles of its marketing efforts.

1.5 Customer Involvement and Marketing Research

As indicated in the former section, customer involvement is not only a closely related concept to market and customer orientation but also a marketing research approach. The American Marketing Association (2001) formally defines marketing research as,

...the function that links an organization to its market through the gathering of information. This information allows for the identification and definition of market-driven opportunities and problems. The information allows for the generation, refinement and evaluation of marketing actions. It allows for the monitoring of marketing performance and improved understanding of marketing as a business process.

Van Kleef et al. (2005), state three reasons for the importance of marketing research and customer research in particular. First, even though consumers may not always be able to express their needs and wants, it is important to understand how they perceive products and services, how their needs are shaped and influenced, and how they make choices based on them. Second, customer research helps to avoid potentially winning new service and product concepts being overlooked. As implied earlier, carrying out consumer research in the early stages of development is inexpensive compared to the risk of failure once the new service or product is introduced on the market. Finally, using formal consumer research techniques has the advantage of disseminating results more easily across departments in an organization. Knowledge obtained through formal
techniques is generally used to a greater extent, most likely because of its verifiability and credibility (Ibid.).

As stated previously, in development projects the generation of information about customer needs and preferences is essential. Acquiring innovation related market information is possible through various marketing research approaches (Adams et al., 1998). According to their characteristics, market research methods can be distinguished in terms of their degree of customer involvement. Salomo et al. (2003), argue that marketing research maintains a close relationship to the customer and elicits the maximum possible information from the customer. They believe that the most customer oriented marketing research is achieved by using qualitative, interactive, dialogue-oriented activities and intensive informal communication. Informal interaction with customers is perceived as an important way to acquire information in NPD projects (Moore, 1987). The unique capacity of informal and generally face-to-face communication is to facilitate the transfer of complex, ambiguous, and novel information and to provide the opportunity to capitalize on surprising and unexpected answers (Salomo et al., 2003).

I agree with the importance of marketing research and the arguments of van Kleef et al. (2005). The first argument, however, states that it is not always possible for customers to express their needs and wants. I believe the authors are implying that this type of information is sometimes impossible to obtain. In my opinion, it is to some extent a matter of selecting, modifying, or sometimes developing a market research technique that aims to uncover latent customer needs. Throughout the thesis I will therefore emphasize the marketing research techniques as these are the means by which customer information and knowledge are created.

1.6 Summary of Points of Departures

The purpose of the previous sections has been threefold. First, they aimed to introduce the area of research and present the key concepts that are in focus. Second, they aimed to position the key concept of customer involvement in proportion to other related concepts such as market orientation and marketing research. And finally, they aimed to briefly describe and position the research presented in this thesis. My points of departures can be summarized as the following:
many of the stated problems of NPD and NSD can be derived from difficulty to uncover, understand, and act on customer need information,

• NSD is still very much a random and unstructured process,

• customer involvement has been put forward as one approach that can address the stated problems,

• the basic argument of customer involvement is that sticky customer need information cannot be detached from the social context in which they are generated, therefore, deeper interactions and communications processes are needed,

• although the research presented here addresses the entire pre-launch development process, a special interest is directed to the early phases as improvements made here offer the greatest potential,

• involving customers in the development is a manifestation of a proactive market orientation and a customer orientation that aims to generate customer information, learn from and with customers, and build customer knowledge in order to improve new product and service performance,

• the main purpose of customer involvement is to uncover customer latent needs that can help create substantial competitive advantage, and

• a customer involvement approach is a market/customer research approach and various customer involvement supporting techniques can be used for other purposes than to infuse and improve development processes; however, in this thesis it is the NSD process that stands in focus.

In the next section, I will continue to describe, position, and delimit my research by attending to the research questions and the purpose of the thesis.

1.6 Research Questions, Purpose and Deliverables

The importance of developing a comprehensive understanding of customer needs, behavior, changing requirements, and deep-seated dissatisfactions with current alternatives in development activities has been widely acknowledged in the research literature. As mentioned previously, however, it is not until recently that customer involvement research has begun to flourish. In Sweden, e.g., this thesis is only one in a series of dissertations on the subject (see Björkman, 2005; Dahlsten, 2004; Kristensson, 2003; Magnusson, 2003; Matthing, 2004) and recently a
customer involvement management book was published by some of my colleagues (Edvardsson et al., 2006).

Available research on customer involvement in development activities states a number of strongly allied concepts of customer involvement, e.g., co-development, consumer involvement, customer active, customer competence, customer focus, customer input, customer interaction, customer involvement, customer orientation, customer participation, customer role, lead user, user innovation, user involvement, and user role.

To describe the empirical phenomenon and these concepts, a number of different parameters have been investigated, e.g., degree or intensity of customer involvement (e.g., Alam, 2002; Gruner and Homburg, 2000; Kaulio, 1998; Martin and Horne, 1995), customer characteristics (Gruner and Homburg, 2000; von Hippel, 1986), objectives of customer involvement (Alam, 2002; Anderson and Crocca, 1993), phases of the development process (Alam, 2002; Mullern et al., 1993; von Hippel, 1986), customer role in the process (Mullern et al., 1993; Wikström, 1996), modes of customer involvement (Alam, 2002; Ciccantelli and Magidson, 1993; Durgee et al., 1998; Gustafsson et al., 1999; Leonard and Rayport, 1997; Pitta and Franzak, 1996; Thomke, 2003; Ulwick, 2002; von Hippel, 1986, 2001), contributions (Neale and Corkindale, 1998, Prahalad and Ramaswamy, 2000), and the downside of customer involvement (Martin et al., 1999; Olson and Bakke, 2001). These research contributions provide us with a picture of the field where some aspects have been widely studied, such as the lead user concept, but numerous research gaps are left to fill. In my research, I have identified several important limitations of previous research.

First, customer involvement as a theoretical concept has not been extensively discussed and researched. Also, research into NSD has been scarce (Menor et al., 2002; Smith and Fischbacker, 2005; Stevens and Dimitriadis, 2005; Veelen Olsen and Sallis, 2006) and NSD efforts are still found to be more ad hoc and less formalized than NPD (Griffin, 1997). As stated previously, there are few proven tools, techniques, and processes that address NSD efforts (Cooper, 1990; Cooper and Kleinschmidt, 1991; Gustafsson and Johnson, 2003). Consequently, the research presented in this thesis addresses formal marketing research techniques that support customer involvement in NSP processes.

Much of the knowledge about customer involvement is grounded in case studies or quantitative data from specific industries. As such, large scale empirical evidence of the practice and effects of customer involvement across various industries is missing.
There have been few attempts to address the empirical relationship between customer involvement and performance. Although there is a general understanding that customer involvement occurs through a bilateral process of firm-customer interaction across the various phases of the development process, this understanding has not been formalized in terms of a theoretical construct. Few empirical studies have been conducted to investigate the differences or lack of differences between products and services in general, and in this context in particular. Based on the previous information, the overall purpose of the dissertation is to contribute to an increased knowledge of customer involvement in new service (and product) development.

Departing from the limited research on NSD with the stated practical problems of new product and service development and identified research gaps of customer involvement, the overall research question that has guided my research is as follows:

In what way could customer involvement improve, facilitate, or hamper the process and output of new service (and product) development?

The overall research question is divided into seven underlying research questions. In the thesis, I will argue that customer involvement is a theoretical concept and an empirical phenomenon. Consequently, two of the underlying research questions are of theoretical nature and concern the underlying logic of NSD and the concept ‘customer involvement’.

- What is the underlying logic of NSD and customer involvement?
- What is customer involvement: how is customer involvement defined in literature and perceived among practitioners?

The empirical research questions that are addressed in the thesis entail:

- How are customers involved in new product and service development in Swedish organizations?
- What tools and techniques are used to develop customer knowledge and how do these support customer involvement and improve and facilitate NSD?
- What is the empirical relationship between customer involvement and performance?
- What impact does customer involvement have on results in different phases of the development process?
• Are there differences between service firms and manufacturing firms in terms of new product and service development and customer involvement?

The stated research questions are illustrated in the research model in Figure 1.3. The model is divided into six boxes. The four boxes in the middle, illustrate a simple process of customer involvement including strategic and operational decisions, execution, and performance. In the background a distinction in terms of broken-line-boxes is made between 1) empirical dimensions including situational factors, and 2) theoretical dimensions including the concept ‘customer involvement’ and the underlying logic. The different sizes of the broken-line-boxes illustrate the relative interest paid to each topic within the boundaries of this thesis. The attention paid to each topic is explained by the researcher’s relative interest in the different topics.

![Figure 1.3 A simple customer involvement model](image)

The illustration of the customer involvement process gives the impression to be a linear process with four distinct phases. In reality, the process can be iterative and the phases can be carried out in part in parallel. Still, I have chosen this appearance as the research model also serves as an illustration of how chapter four in the thesis is structured.

By attending to the stated research questions, this thesis makes important contributions to the current knowledge of customer involvement in new service (and product) development and to the research fields of NSD, NPD, market orientation, and marketing research. This thesis...

• … proposes a definition of customer involvement in new product and service development. The definition is offered at the end of chapter two.
• ... provides an extensive review of literature on customer involvement in new product and service development. This is provided first and foremost in chapters three and four.

• ... provides a general overview of how and to what extent companies across a variety of industries involve customers in their development process. This overview is presented in chapter four.

• ... critically reviews market research techniques and tools from a NSD and customer involvement perspective. A general discussion on customer involvement techniques is held at the end of chapter four.

• ... provides empirical support that links customer involvement in different phases of new product and service development directly to companies’ profit margins. This discussion is held at the end of chapter four.

1.7 Outline of the Thesis

This thesis consists of one framework and five appended research papers. The specific purpose of the framework is to deepen the discussion on customer involvement, build a more comprehensive frame of reference, present the research contributions, and identify research gaps. Embedded in this purpose is the goal to describe my view on customer involvement in NSD. The framework is composed of five chapters.

• Chapter 1 aims to provide an introduction to the area of research and to briefly introduce the concept ‘customer involvement’ and the research questions that have guided the inquiry.

• In Chapter 2 the theoretical dimensions of customer involvement are addressed (the lower broken line box in Figure 1.3). The first three sections discuss the theoretical foundations and underlying logic of services, NSD, and customer involvement. Next, customer involvement is discussed based on the different roles that could be given to customers in value creation and innovation. The following section discusses customer involvement continuums and in the final section, definitions of customer involvement are discussed and reflected upon and a new definition that describes my view on customer involvement is proposed.

• In Chapter 3 the research strategy, design, and process are presented and discussed. Three studies are presented and reflected upon as well as the strengths and weaknesses of the presented research.
Chapter 4 aims to address the empirical dimensions of customer involvement (the upper broken line box and the four-phase process in Figure 1.1). The chapter is divided into four main sections: situational factors, strategic decisions, operational decisions, and finally performance.

In Chapter 5 an attempt is made to characterize the research field of customer involvement in innovation. Next, the research questions are addressed and the major conclusions from the research are summarized. Next, major contributions of the present research are presented followed by managerial implications. The final section addresses questions for future research.

The framework is written as a coherent text where the subject’s logic (in my opinion), rather than the traditional distinction between, e.g., theory, empiric, analysis etc., serves as the guiding principle. The reason for this strategy is my desire to present and discuss the research contributions of this thesis directly in relation to previous research and based on that ‘picture’ identify gaps for future research. This occurs first and foremost in Chapter 2 and 4.

As a logical consequence of this strategy, the summaries of appended papers are placed where they best fit (again, in my opinion) and are marked as framed sections. As a result, there is no single place in the framework where all appended papers are summarized. The appended papers are found in Appendix B I-V and consist of the following papers:


III. Matthing, Jonas, Bodil Sandén, and Bo Edvardsson (2004), “New service development: learning from and with customers,”


Appendix A i-vii present the instruments used in the appended papers and the results from a database search on customer involvement.
2. THEORETICAL FOUNDATIONS AND KEY CONCEPTS

The following chapter aims to frame, discuss, and define the concept of customer involvement. The chapter is divided into five sections. The first three sections discuss the theoretical foundations and underlying logic of services, NSD, and customer involvement. Next, customer involvement is discussed based on the different roles that could be given to customers in value creation and innovation. After that, customer involvement continuums are discussed and in the final section, definitions of customer involvement are discussed and reflected upon and a new definition that describes my view on customer involvement is proposed.

2.1 The Logic of Services

In order to capture and understand the logic and purpose of customer involvement, it is important to understand the NSD process and its underlying logic. To understand and differentiate that process from the NPD process, however, I find it necessary to describe how I look upon the concepts of services versus physical goods. Under the headings of “The logic of services”, “The logic of new service development”, and “The logic of customer involvement”, I attempt to capture the essence of these concepts.

Services have long been suggested to be different from physical goods. In an article on the development and emergence of services marketing thought, Brown et al. (1994), argue that the question about whether or not goods and services are different launched the goods versus service debate in the end of the 1960s. They felt that the debate, although primarily one-sided, represented a fundamental challenge to the existence of the service marketing field. The goods vs. service debate diminished around 1980 and the major outcome of this debate was service characteristics. Based on these characteristics, also known as IHIP due to the initial letter in each characteristic, a service was and often still is perceived as different from a physical good. The characteristics are (in short) the following:

- Intangibility. Because services are performances, rather than objects, they cannot be seen, felt, tasted, or touched in the same manner in which goods can be sensed.
- Heterogeneity concerns the potential for high variability in the performance of services.
Inseparability of production and consumption involves the simultaneous production and consumption which characterizes most services.

Perishability means that services cannot be saved or stored. (Zeithaml et al., 1985)

The debate on goods vs. services

Recently, the debate has been launched again, triggered by developments in both research and practice. In practice, services have come to dominate the economies of developed countries. In the U.S., the percentage of service output as a share of GDP is 55 percent; services as a share of personal consumption expenditures have grown from 40-60 percent from 1959 until today (Gustafsson and Johnson, 2003). Sweden is no exception. Recent statistics suggests that the service producers’ share of GDP is 47.9 percent (Swedish Ministry of Finance, February 23, 2007) and these numbers does not include the value-added services provided by manufacturing companies.

On industrial markets, there is also a shift from physical goods to service. To meet the changing, complex needs of customers and to respond to competitors' actions, manufacturing firms have long used services, such as after-sale services, financial services, training services etc. to support their products and create competitive advantage. As all firms offer services to varying degrees, however, it is no longer enough for manufacturing firms to just offer some generic services in order to ensure a competitive advantage. Realizing this, many manufacturing firms have left the strategy where services are supporting the product to a proactive service strategy (e.g., Frambach et al., 1997) where overall service offerings are used to support the customer (Mathieu, 2001).

The advancement toward services is a function of increased time demands, the development of self-service technologies, outsourcing, networking, and increased competition (Gustafsson and Johnson, 2003). Increased competition has made it difficult to compete on just product value. Instead, customers are looking for comprehensive solutions and memorable experiences often provided through services (Ibid.). As such, the percentage of service firms in the economy continuous to grow.

The public sector has also undergone changes and is now “serving rather than steering” (Denhardt and Denhardt, 2000). Denhardt and Denhardt (2000) describe the development in the public sector where the climate has
gone from focusing on controlling bureaucracies and delivering services, to a new, leaner, and increasingly privatized government. They argue that during the last two decades, a movement has emerged where the primary role of the public servant is to help citizens articulate and meet their shared interests rather than to attempt to control or steer society (Ibid.).

At the same time, in the research community voices have been raised stating that many of the IHIP characteristics may not be particularly discriminating between physical goods and services. It is suggested that these “service” characteristics can also be applied to physical goods to varying degrees (Edvardsson et al., 2005; Grönroos, 2000b; Lovelock and Gummesson, 2004; Vargo and Lusch, 2004a, 2004b) and that services and physical goods are perceived as becoming more and more similar in nature. There has been little empirical research to support these proposals, and therefore it is raised as a research question in this thesis and investigated in the context of NSD and customer involvement.

Are there differences between service firms and manufacturing firms in terms of new product and service development and customer involvement?

Despite the outcome of this debate, the fundamental basis for mainstream marketing may be changing as marketing is seen from a service-centered view (Vargo and Lusch, 2004a). To describe this view, a historical retrospect must be made.

Vargo and Lusch (2004a) suggest that there has been a shift in terms of primary resources. A distinction is made between operand resources and operant resources. **Operand resources** are resources that are modified to produce an effect. Historically, human activity has been concerned primarily with natural resources. As these resources are limited, economies that possessed natural resources were considered wealthy. In contrast, **operant resources** are the resources that produce the effects and are employed to act on operand resources. Operant resources are often invisible and intangible and constitute core competences or organizational processes. They enable humans to increase the value of natural resources and create additional operant resources. As humans began to realize that skills and knowledge were the most important types of resources, the relative role of operant resources began to shift in the late twentieth century (Ibid.).
A goods logic versus a service logic

Based on the type of resources that were considered primary, two different logics emerged; one goods-dominant logic and one service-dominant logic (Vargo and Lusch, 2004a). A synthesis of the two different logics is provided in Table 2.1. Vargo and Lusch (2006, www.sdlogic.org) are careful to point out that these logics are not theories, but should be seen as approaches, lenses, or perspectives on value creation (Edvardsson et al., 2005).

Table 2.1 The goods dominant logic vs. the service dominant logic (Grönroos, 2000b; Normann, 1984; Vargo and Lusch, 2004a)

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<td>Type of consumption</td>
<td>Output consumption</td>
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<td>Role of marketing</td>
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<tr>
<td>View of value</td>
<td>Value is embedded into</td>
<td>Value is co-created with</td>
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<tr>
<td></td>
<td>the product in production</td>
<td>the customer and valued</td>
</tr>
<tr>
<td></td>
<td>: value-in-production</td>
<td>during consumption:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>value-in-use</td>
</tr>
<tr>
<td>Resources</td>
<td>Tangible</td>
<td>Intangible</td>
</tr>
<tr>
<td>Customer interaction</td>
<td>Transactions</td>
<td>Relationships</td>
</tr>
</tbody>
</table>

Vargo and Lusch (2004a) suggest that a goods-dominant logic developed where the operand resources were considered primary. According to the goods logic, the purpose of economic activity is to make and distribute units of preferably tangible output, i.e., goods. The goods are embedded with value during manufacturing and standardized, produced away from the market, and stored until they are demanded (Vargo and Lusch, 2004a). Once the goods are distributed to the customer the consumption process starts. Consequently, there is a gap between production and consumption. According to this logic, the role of marketing is to bridge that gap by making distribution, marketing communication, pricing, and product decisions (Grönroos, 2000b). The goal is to maximize profit by decreasing cost and increasing the number of units of output sold (Vargo and Lusch, 2004a).

Over several decades, new perspectives have emerged that are based on a revised logic. Service logic is a logic that views services, rather than goods, as the focus of economic and social exchange. According to Vargo and Lusch (2004a, p. 2) services are defined as “the application of specialized competences (knowledge and skills) through deeds, processes, and performances for the benefit of another entity”. This definition perceives operand resources as primary and implies that all economies are service.
economies and that all businesses are service businesses. Seen from this perspective, goods are appliances for service delivery.

Most services are realized in a process wherein customers interact with resources of the service firm. The process and interactive nature of service implies that the customer plays a comprehensive role in the service organization, not only in receiving and consuming the service, but also as a participant in the production and delivery (Normann, 1984). The customer perceives the production process as part of the service consumption. In services, consequently, production and consumption are inseparable. As such, marketing becomes a part of the service production process where the main task is to make sure that the service production process and the service consumption process match so that consumers perceive good service quality and stay loyal to the service provider. With this perspective, traditional marketing activities such as marketing communication and pricing become supporting activities (Grönroos, 2000b).

The service-dominant logic can be seen as a management perspective that offers insight and assistance for any organization that needs to expand the competitive advantage beyond the core product solution to a customer problem (Grönroos, 2000b). A shift from operand resources to operant resources (Vargo and Lusch, 2004a), and from a goods logic to a service logic, however, has implications for how exchange processes, markets, and customers are perceived and approached.

2.2 The Logic of New Service Development

The role of customer as an active player in co-creating value has, or at least should (in theory) have, implications for how NSD is carried out. Through research, the IHIP characteristics were identified as distinguishing factors of services. As such it could be expected, due to the interactive nature of services and the customer’s role as both co-producer and consumer, that this would be reflected in NSD processes and research.

Previous NSD research

Johnson et al., (2000) reviewed the literature on NSD process models and distinguish between three types of models. Partial models are concerned with only parts of the NSD process. Translation models are based on the
Booz et al., (1982) NPD model. And finally, comprehensive models attempt to represent the NSD process holistically.

One example of a partial model is Shostack’s (1984) model of NSD which focuses on the activities necessary to create a service blueprint. Service blueprints are pictures or maps of service processes that permit the people involved in designing, providing, managing, and using the service to better understand them and deal with them objectively. A service blueprint simultaneously depicts the service process and the roles of consumers, service providers, and supporting services. In my opinion, the research on service blueprints takes the customer’s role as co-creator into account as it incorporates the customer’s actions on the same flow diagram as the rest of the operation. The stated activities to develop a service blueprint, i.e., definition, analysis, and synthesis, however, do not emphasize the customer as an active player. Consequently, to develop a service blueprint requires a customer perspective, but this does not necessarily mean that customers are invited to contribute in that process.

One example of a translation model is provided by Bowers (1989). Based on the BAH model (a seven-step process including NPD strategy, idea generation, screening and evaluation, business analysis, development, testing, and commercialization) by Booz et al., Bowers investigated 900 companies in banking, insurance, and health care. The purpose was to determine the number of businesses that actually employed the seven steps of the BAH model. Bowers concludes that fewer steps were commonly used in NSD. Bowers also found that banks, insurance companies, and hospitals use different models. For example, he found that hospitals’ idea generation phase was typically formalized, in contrast to banks.

Perhaps the most widely known NSD model is offered by Scheuing and Johnson (1989). This comprehensive normative model includes 15 stages and was developed based on the service marketing literature and discussions with service managers. The model indicates the interplay between the design and testing of the new service and is valuable because it illustrates the various internal and external activities and interactions needed throughout the NSD process. The model has been criticized, however, in terms of validity. Only 16, 5 percent of the 400 members of the Financial Institutions Marketing Association answered the survey and the results were not accounted for. It is not clear how the model changed or varied as a result of the empirical study (Edvardsson, 1996).

Tax and Stuart (1997) recognized the importance of integration of new services into existing service systems. Their comprehensive model includes
an audit of the existing service system, design in terms of processes, participants and physical facilities, risk assessment, and modification cycles.

Based on their review, Johnson et al., (2000) argue that, “Given the inherent differences between the production of goods and services, particularly the role of customer contact in service delivery, service intangibility and heterogeneity of demand, the application of NPD models to services might not suffice in adequately describing how new services are optimally developed” (p. 2). Furthermore, they argue that, “in the existing literature, the NSD processes studied usually ignore the unique characteristics of services and are based on a NPD process framework offered by Booz et al. (1982)” (p. 9).

Johnson et al., (2000) did their review seven years ago. What has happened since then? Has recent NSD research taken the service characteristics into consideration and given customers a more prominent role? Analyzing recent research, I found that recent research has focused on various aspects of NSD, e.g., evaluation of NSD activities (Storey and Kelly, 2001), critical antecedents of project learning and time-to-market (Blazevic et al., 2003), leadership (Johne and Harborne, 2003), literature review of organizing successful NSD (Jong and Vermeulen, 2003), inter-functional integration (Perks and Riihela, 2004), and market scanning (Veflen Olsen and Sallis, 2006). Furthermore, NSD has been analyzed from different perspectives, e.g., stakeholder perspective (Smith and Fischbacher, 2005) and decision-making perspective (van Riel and Lievens, 2004).

I found that a few studies have examined the NSD process and touched upon the customers' role. Kelly and Storey (2000) focus on early phases of the NSD process - the initiation strategies. The aim of the article is to investigate whether or not firms use systematic procedures to generate and screen ideas for new services. Based on a survey aimed at marketing managers in U.K. service firms, it was found that only half of the sample has a formal NSD strategy; idea generation is undertaken on an ad hoc basis and idea screening, although more prevalent, is failing to support the NSD strategy.

It is interesting to note that in terms of sources of new service ideas, marketing is ranked as number one followed by sales and competition. Marketing research is ranked as four, customer suggestions as number ten, and R&D as number 12 (Ibid.). It is not surprising to find marketing in first place as it was marketing managers that answered the survey. Kelly and Storey (2000) argue that previous research has found that whilst new product ideas generally enter the system via marketing personnel, their
original source is often difficult to ascertain. The fact that marketing and marketing research are treated as different sources indicates that market research is most often conducted by outside marketing agencies. It can be concluded from the study that most ideas come from internal sources or external sources other than customers. It is surprising that customer suggestions were ranked number ten, but again it is probably a matter of the market research techniques that were used; the ideas that were stated to come from marketing research could have come from customers although it was the market research agency that presented them to the company.

In another recent study, Alam and Perry (2002) emphasizes the role of the customer in NSD. They explore the various stages of the NSD process and how customer input may be obtained in the various stages of the development process. Based on a case study design and interview with managers and customers, a ten-step NSD process was revealed. Their research reveals that customer input was obtained in each stage of the development process. In particular, the highest frequency of customer input was reported in the three stages: 1) idea generation, 2) service design, and 3) service testing and pilot run. According to the authors this might indicate that detailed customer input might be critical and more important at these three development stages.

Summarizing previous research, I agree with the conclusion of Johnson et al., (2000). NSD research is still at large a reflection of NPD research. Service industries have been slow to integrate NSD as a formal business process. One plausible explanation is that the service marketing literature offers little guidance, terminology, or few practical rules that are clearly relevant to the development of services. Instead, service firms have been forced to depart from and adopt concepts, models, and theories that mainly build on product logic. NSD is still described as a primarily internal process and customers, treated as an external source, are only consulted during parts of the development process. Therefore, my conclusion is that the obvious role of the customer as both co-creator and consumer in service delivery is not evident in current NSD research.

**NSD based on a service logic**

Reviewing previous research, Day (1994a) presents two perspectives on competition. The dominant paradigm in the field of strategy builds on the competitive forces approach (Porter, 1980). Here, the point of departure is the intensity of competition and potentially profitable market segments; organizations seek out a position on the market that they could defend
either through a cost or differentiation position and by making wise investments and fixing of the prices. The second perspective, the capabilities approach\textsuperscript{8}, builds on the resource-based theory that distinguishes between two related sources of advantage: assets and capabilities. Assets are resources that could be given a monetary value and that the company has accumulated over time. Capabilities, on the other hand, are deeply embedded resources in the organizational routines and practices that cannot be traded and are difficult to imitate (Day, 1994a). Capabilities are accumulated through long-term and continuous learning and are defined as, “complex bundles of skills and collective learning, exercised through organizational processes that ensure superior coordination of functional activities” (Day, 1994a p 37).

Organizational capabilities have the potential to become a source of sustainable competitive advantage on a long-term basis. The capabilities approach locates a defensible position based on the difficult-to-duplicate resources the firms have developed (Rumelt et al., 1991). These resources, including integrated combinations of assets and capabilities, are refined slowly over time and limit the ability of the firm to adapt to change. Management’s task is to determine how best to improve and exploit these resources, although in times of turbulence the challenge of developing new capabilities becomes a priority (Day, 1994a).

The latter perspective forms the basis of how new product and service development is viewed in this thesis. Based on service logic, it is seen as one organizational capability that is necessary to move products and services through the value chain. New product and service development can play various roles in organizations, depending on what position the organization holds or would like to hold within that industry and on the intensity of competition within the industry. Following this line of reasoning, some organizations will carry out new product and service development poorly and instead try to build a competitive advantage based on, e.g., size or possessions of assets. Recent patterns, however, are in favor of companies that can “mobilize knowledge and technological skills and experience to create new products, processes and services” (Tidd et al., 1997, p. 4).

According to Vargo and Lusch (2004a), the service-centered view of marketing is customer-centric and market-driven. It implies that organizations can always do better at serving customers and improving financial performance. Marketing, and consequently new product and

\textsuperscript{8} The capabilities approach shares many of the same characteristics of the operant/operand resources described by Vargo and Lusch (2004a).
service development, is perceived as a continuous learning process, where organizations emphasize a deep understanding of the internal value-generating processes of the customer. This entails that organizations continually collaborate with and learn from customers in order to respond to their current and future needs. The goal is to render services that better match customer needs and to build a sustainable competitive advantage.

As stated previously, from a service-centered view, the basic role of marketing is to make sure that the service production process and the service consumption process match. From my perspective, the role of NSD is to continuously identify current and future customer needs and problems (e.g., through the means of customer involvement), create prerequisites for a service solution internally (Edvardsson, 1996), formulate and communicate value propositions to the customers, and to satisfy the needs and problems of customers in a way that maximizes value for the customer. Also, NSD activities should strive to improve performance and cultivate relationships with both current and potential customers.

The value propositions should be defined by, determined by, and co-created with the customer on the basis of value-in-use (Vargo and Lusch, 2004a). The term value-in-use refers to the fact that customers often perceive or experience and determine the richness of a service during and after its use or consumption. A service that does not fulfill the value propositions stated by the company, offers less value to the customer compared to one that does correspond with the propositions.

This description of a development process based on service logic represents my view of NSD. In the research presented here, I have almost exclusively focused on the customer’s role in new product and service development rather than the development process itself. In future research it would be interesting to develop and test a NSD model that is clearly based on service logic and involves customers in the development process.

2.3 The Logic of Customer Involvement

This section is devoted to describe and discuss the logic of customer involvement and aims to address the stated research question:

What is the theoretical foundation of customer involvement?
In my attempt to answer this research question, I revisit early research by Ives and Olson (1984) in the information systems field and von Hippel (1986, 1994) and Zaltman (2003) in the innovation field. Ives and Olson (1984) argue that existing research on user involvement in the design of computer-based information systems is poorly grounded in theory. They argue that user involvement to improve chances of successful system implementation “can be traced to theory and research in organization behavior, including group problem-solving, interpersonal communication, and individual motivation” (Ibid., p. 587). Particularly relevant areas of theory are participative decision-making and planned organizational change.

Participative decision-making (PDM) aims to increase the input of subordinates into management decisions that are related to their jobs. The expected benefits include increased job satisfaction and improved productivity. User involvement can be seen as PDM where users are seen as subordinates and the system designers as superiors. Based on a review of the literature, Ives and Olson (1984) find that user participation is expected to improve system quality by providing a more accurate and complete list of user requirements, providing expertise about the organization, avoiding development of unacceptable or unimportant attributes, and improving user understanding and acceptance of the system. I find that customer involvement in NSD can also be seen as a case of PDM where service developers aim to increase customer input in the development process and where the expected benefits are increased customer satisfaction and improved development productivity.

Theory on planned organizational change stipulates that success is dependent on the quality of the implementation process. Here, participation is viewed as a means for inducing attitude changes which are expected to facilitate organizational change. Involvement is seen as a way of decreasing resistance and increasing acceptance of change (Ibid.). Ives and Olson (1984) argue that information systems’ development can be considered a planned organizational change. The developers are change agents and the quality of the resulting system is dependent on the relationship between the staff and the user. This line of reasoning applies to customer involvement in NSD as well. Alam (2002) found that one of the objectives of customer involvement was rapid diffusion. User involvement in the NSD process was stated to accelerate the market acceptance of a new service and facilitate a rapid diffusion of the innovation.

Von Hippel (1986) takes his points of departure from previous research into problem solving which states that familiarity with existing product
attributes and uses, hampers an individual's ability to imagine novel attributes and uses. It is argued that, user insights into new product (process and service) needs and potential solutions are constrained by their own real-world experience. Von Hippel brings forward three main arguments based on previous research. First, an individual that is familiar with a complicated problem-solving strategy is unlikely to devise a simpler one when this is appropriate. Furthermore, an individual who uses an object or sees it used in a familiar way is strongly blocked from using that object in a novel way. And finally, research has shown that the success of a research group to solve a new problem depends on whether or not solutions used in the past will fit the new problem (Ibid.).

Von Hippel (1986) illustrates the difficult problem-solving steps a potential user must go through when asked to evaluate his or her need for a proposed new product. Since new products are generally components in larger usage patterns and a change in one component can change perceptions of and needs for some or all other products in that pattern, users “must evaluate the new product's potential contribution to these. [...] Next, users must invent or select the new (to them) usage patterns which the proposed new product makes possible for the first time, and evaluate the utility of the product in these. Finally, since substitutes exist for many multi-product usage patterns [...] the user must estimate how the new possibilities presented by the proposed new product will compete [...] with existing options” (p. 792).

Von Hippel (1986) means that even sophisticated consumer marketing research techniques such as multi-attribute mapping are affected by the constraint of users to the familiar. These methods frame user perceptions and preferences in terms of attributes but there is no mechanism to induce users to identify all product attributes relevant to a product category, especially attributes which are currently not a product. Methods such as focus groups do not encourage the identification of novel product attributes (Ibid.).

In a later article, von Hippel (1994) introduces the concept of sticky information. It is maintained that to solve a problem, necessary information and problem solving capabilities must be brought together at a single locus. For the innovative firm, the identification of customer needs is a crucial activity, which is constrained by the costs of acquiring the relevant information. Information that is costly to acquire, transfer, and use in a new location is defined as sticky.

Developers face the problem that customers hold an essential, but rather sticky, portion of information that is required for successful new product
and service development. Need-related information is frequently sticky, which means that the acquiring and transfer of need-related information can only be done at high costs. Adding to those costs is the fact that users’ needs will typically change during the use process (Rosenberg, 1982). This may require several information iterations between users and developers before a satisfactory service or product concept can be reached. These reasons make it difficult to use traditional question-based market research in order to uncover need-related information. Instead, researchers have suggested other sophisticated techniques that aim to uncover customer’s future and latent needs. These will be discussed under the heading “Supporting techniques” at the end of chapter 4.

Zaltman (2003) maintains that 95 percent of our decision making takes place in the subconscious mind based on images and metaphors rather than words. He argues that there is a great mismatch between the way consumers experience and think about their world and the methods marketers use to collect this information. Zaltman (2003) therefore calls for creative questioning that probes the unconscious values underlying consumers’ reactions to products and marketing campaigns. Drawing on recent multi-disciplinary research, Zaltman emphasizes the importance of memory, metaphors, and storytelling in customers’ decision making and the ways marketers might use these findings. He outlines efficient methods for developing a set of shared values in a target market by creatively interviewing a small sample of customers.

Based on the previous information, Flint (2002) argues that firms are told to refrain from asking customers directly what they will want in the future. This leads them to question customer information all together. Flint argues that the kinds of customer information usually collected for development purposes are incomplete as they focus too much on product attributes. Customers have a difficult time predicting what attributes they will value in the future, especially in rapidly changing, highly technical markets. Thus, it is no wonder that asking customers to make those predictions is often unsuccessful. Flint suggests that by spending time with customers and actually taking part in activities with them, while retaining the researcher/intelligence generator role, deep insights can emerge (Ibid.).

Customer involvement entails a different approach to value creation in new product and service development. In a development project where the customer is involved to a high degree, value is created interactively between the parties. This implies a refined role distribution, a longer relationship, and the opportunity to acquire new knowledge (Wikström, 1996) as opposed to the traditional value-chain that views value creation as linear and transitive (Ramirez, 1999).
In summary, the reasons why customers are constrained by their previous experience and why need-related information is frequently sticky and costly to transfer help to explain the difficulty of anticipating customer needs. In addition, a large percentage of customers’ decision making takes place in the subconscious mind. This makes it important to emphasize memory, metaphors and storytelling in the efforts of developing new customer knowledge. Customer involvement is expected to provide a more complete and accurate list of customer needs, behavior, changing requirements, and deep-seated dissatisfactions with current alternatives, and therefore improve innovation. Customer involvement is also expected to induce attitude changes which are expected to facilitate the diffusion of the new innovation. Together these factors help to explain and motivate the importance of and my focus on customer involvement in development processes.

2.4 The Roles of the Customer in Value Creation and Innovation

In previous sections, I have attempted to describe the underlying logic of services, NSD, and the theoretical foundations of customer involvement. The purpose was to start framing the concept of customer involvement and motivate the area of research. Next, I will continue to outline the concept of customer involvement based on the different roles given to customers in value creation and new product and service development.

Referring to the literature on strategic management and quality management, researchers have identified five roles for customers in value creation. These entail the customer as a resource, co-creator, buyer, user, and product (Lengnick-Hall, 1996; Nambisian, 2002). The first two are at the input side of the value creation process while the last three take place at the output end of the process. The customer as a buyer and a product is less relevant for new product and service development (Nambisian, 2002) since emphasis is placed on the customer as an object rather than a partner in value creation (Lengnick-Hall, 1996). Consequently, in this section I place emphasis on the customer’s role in new product and service development as a resource, co-creator, and user. The discussion will show that in this context, these roles are largely interconnected.

From a new product and service development perspective, the customer as a resource relates to the customer as a source of innovation (Nambisian, 2002). According to Lengnick-Hall (1996), the role of the customer as a resource has mainly focused on the customer as a supplier of information and wealth to firms. According to Martin et al., (1999) customers can
supply companies with place, time, labor, and output. By supplying place, the customer offers companies to, e.g., study the use of a product in a natural environment. Time and labor includes participating directly in new product and service development activities, including, e.g., the design and prioritization of product and service attributes, and the establishment of development process priorities (Nambisian, 2002). Customers’ input into the development process could be in terms of knowledge, skills, and competences (Prahalad and Ramaswamy, 2000), values, experiences, and descriptions of needs and new ideas (Nambisian, 2002; von Hippel, 1986), prototypes (Voss, 1985), and solutions (Lilien et al., 2002; von Hippel, 1986).

As discussed in previous sections, customers also play a valuable role as co-creators of new services and products. As previously indicated, this can be done in a variety of ways. In the development of physical goods, customers can, e.g., validate architectural choices, design and prioritize product features, and specify product requirements (Nambisian, 2002). In NSD customers co-create new services by providing input in terms of the following: giving feedback on financial data, stating needs, problems, and solutions, criticizing existing services, identifying gaps in the market, providing a list of service attributes, stating new service adoption criteria, showing reactions to concepts, liking the preference and purchase intent of all the concepts, helping the producer in go/kill decisions, jointly developing and reviewing blueprints, suggesting improvements by identifying fail points, observing the service delivery trail by firm personnel, participating in a simulated service delivery processes, and suggesting final improvements and design change (Alam and Perry, 2002).

The role of customer as co-creator is perhaps more evident in industrial contexts than in consumer contexts (Garvin, 1988). The software industry, e.g., Microsoft, often invite customer organizations to help develop new software (Prahalad and Ramaswamy, 2000). There is evidence from the consumer market as well where consumers have engaged in, e.g., idea generation (Magnusson et al., 2003), concept testing (Page and Rosenbaum, 1992) and consumer idealized design (Ciccantelli and Magidson, 1993) on various consumer markets, e.g., mobile communication, games, cars, clothing etc.

Customers as users relate to the role as primary receivers and users of services and goods. Here, according to Nambisian (2002), customers can create two valuable outcomes: product testing and product support. The role of customer in testing new services and products is not new. Prior studies have established the highly productive role customers can play in testing (Dolan and Mathews, 1993) and examples can be found in both
industrial and consumer contexts. Customer involvement in testing allows firms to detect problems early in the development process. Furthermore, by involving a diverse set of customers, companies can gain a rich understanding of how the service or product is used and perceived in a variety of user contexts. As users, customers are also uniquely qualified to provide support for other users, based on their knowledge or expertise on various aspects of usage (Nambisian, 2002). Up until now, few firms have taken advantage of this opportunity. Through the Internet, however, there are a number of user communities where users exchange experiences, knowledge, and practical tips (Prahalad and Ramaswamy, 2000).

In this thesis I argue that customer involvement aims to make the most of the customer's role as a resource, co-creator, and user in order to not only improve the innovation output (i.e., new customer solutions) but also to improve the actual innovation process by providing, e.g., resources.

2.5 Customer Involvement Continuums

The possibility of engaging the customer as a resource, co-creator, and user in various development activities is utilized to various degrees in innovating firms. In this section I will discuss the intensity or degree of customer involvement. I will argue that this is an important issue when defining customer involvement.

The point of departure is an exhibit (see Table 2.2) presented by Prahalad and Ramaswamy (2000, p. 80) that describes 'The evolution and transformation of customers'. In short, the exhibit explains that over time, the customer's role in value creation has changed from passive buyers (objects) to active partners and players. The authors argue that, due to the Internet, customers are now provided with crucial information that increases their knowledge about both service and supplier alternatives. As customers' knowledge increases, so does the demand for a customized or even personalized offer. Moreover, using the Internet, customers are able to engage themselves in a dialogue with suppliers and other users of products and services. The customer can initiate a dialogue on its own or together with other users. As a consequence, companies are no longer controlling the dialogue. This development has resulted in a new marketplace where the customer plays an active role in the value creating process. For the company, the customer has become a new source of competence (Ibid.).
Table 2.2 The evolution and transformation of customers (adapted from Prahalad and Ramaswamy, 2000, p. 80)

<table>
<thead>
<tr>
<th>Time frame</th>
<th>Nature of business exchange and role of customer</th>
<th>Managerial mind-set</th>
<th>Company’s interaction with customers, and development of products and services</th>
<th>Purpose and flow of communication</th>
<th>Customer as a Passive Audience</th>
<th>Transacting with individual buyers</th>
<th>Lifetime bonds with individual customers</th>
<th>Customers as co-creators of value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970s, early 1980s</td>
<td>Customers are seen as passive buyers with a predetermined role of consumption</td>
<td>The customer is an average statistic; groups of buyers are predetermined by the company.</td>
<td>Traditional market research inquiries, products and services are created without much feedback.</td>
<td>Gain access to and target predetermined groups of buyers. One-way communication</td>
<td>Persuading predetermined groups of buyers</td>
<td>Transacting with individual buyers</td>
<td>Lifetime bonds with individual customers</td>
<td>Customers as co-creators of value</td>
</tr>
<tr>
<td>Late 1980s and early 1990s</td>
<td>Database marketing: two-way communication</td>
<td>Shift from selling to helping customers via help desks, call centers, and customer service programs, identify customer problems, redesign products and services based on feedback</td>
<td>Providing for customers through observation of users; identify solutions form lead users, and reconfigure products and services based on deep understanding of customers.</td>
<td>Relationship marketing: two-way communication and access.</td>
<td>Customers are seen as passive buyers with a predetermined role of consumption</td>
<td>Transacting with individual buyers</td>
<td>Lifetime bonds with individual customers</td>
<td>Customers as co-creators of value</td>
</tr>
<tr>
<td>1990s</td>
<td>Relationship marketing: two-way communication and access.</td>
<td>The customer is an individual statistic in a transaction.</td>
<td>Shift from selling to helping customers via help desks, call centers, and customer service programs, identify customer problems, redesign products and services based on feedback</td>
<td>Providing for customers through observation of users; identify solutions form lead users, and reconfigure products and services based on deep understanding of customers.</td>
<td>Customers are seen as passive buyers with a predetermined role of consumption</td>
<td>Transacting with individual buyers</td>
<td>Lifetime bonds with individual customers</td>
<td>Customers as co-creators of value</td>
</tr>
<tr>
<td>Beyond 2000</td>
<td>Customers are co-developers of personalized experiences. Companies and lead customers have joint roles in education, shaping expectations, and co-creating market acceptance for products and services.</td>
<td>The customer is a person; cultivated trust and relationships.</td>
<td>Shift from selling to helping customers via help desks, call centers, and customer service programs, identify customer problems, redesign products and services based on feedback</td>
<td>Providing for customers through observation of users; identify solutions form lead users, and reconfigure products and services based on deep understanding of customers.</td>
<td>Customers are seen as passive buyers with a predetermined role of consumption</td>
<td>Transacting with individual buyers</td>
<td>Lifetime bonds with individual customers</td>
<td>Customers as co-creators of value</td>
</tr>
</tbody>
</table>

It is important to bear in mind that the exhibit not only illustrates the role of the customer over time but also illustrates the variation among the firms operating on today’s markets. It is my firm belief that relatively few firms invite customers to be co-creators in their business processes and that there are firms that apply to all four columns in the previous table. Following this line of reasoning (and based on previous discussions on product oriented, responsive, and proactive market orientation, the different roles of the customer in value creation and new product and service development) a customer involvement continuum can be hypothesized based on degree. The degree of involvement refers to the amount of
influence the customer has over the final product (Ives and Olson, 1984). Here, it is important to note that the continuum refers to the customer’s role in the pre-launch development activities and not the customer’s role in service delivery.

Alam (2002) has proposed one customer involvement continuum for NSD. In investigating 12 service firms, Alam (2002) suggests a continuum where passive user participation is at the least intense end of the continuum and representation is at the extremely intense end of the continuum. He found that the respondents reported four levels of involvement:

- Passive acquisition of input: customers initiate to provide input into the development process, e.g., a new idea, concept, or solution. Input is acquired passively and customer involvement is low.
- Information and feedback on specific issues: the service developers approach the customer to obtain information on specific issues at various stages of the development process. The intensity of customer involvement is somewhat high.
- Extensive consultation with customers: at this level, service developers initiate customer input by means of planned processes with specific and predetermined objectives. Examples are detailed interviews, focus groups, and group discussions. The intensity of customer involvement is relatively high.
- Representation: customers are invited to join the development team. Customer involvement is extremely high.

In my opinion, this continuum can be criticized on two points. First, Alam (2002) adopts a management perspective and departs from whether or not the involvement of customers in the development process is an active or passive act from the firm’s point of view. Following this line of reasoning, Alam describes the least intense side of the continuum when a customer approaches a company with a new product or service idea as passive acquisition of customer input.

From my point of view, the locus of initiative is of minor importance when determining the degree of customer involvement. Rather, it is the customer’s role, involvement, and actions in the development process that is of importance. New observations from customer involvement pioneers reveal that firms sometimes provide their customers with toolkits and shift large parts of the development activities to the customer, also known as toolkits for user innovation (von Hippel, 1998, 2001; von Hippel and Katz, 2002). If a customer approaches a firm with a new idea, prototype, or
even a solution and the parties initiate a co-operation, I would consider the degree of customer involvement as high and therefore place it at the opposite side of the continuum in contrast to Alam (2002). Again it is the customer’s involvement, rather than who is passive and active, that should determine the degree of customer involvement.

The continuum can also be criticized because “no customer involvement” is not an option. Hypothetically, there are firms that do not involve their customers at all in the development process. Such a scenario cannot be placed in Alam’s (2002) continuum. A possible explanation is perhaps given by the 12 specific service firms participating in Alam’s study.

Jeppesen (2005) provides another example of a customer involvement continuum and lists three different approaches according to their degree of opportunities for consumer involvement (OCI), which is defined as “the level to which users are allowed to influence the development of a product” (Ibid., p. 349). The three approaches are as follows:

- **Listening to Consumers:** this is the weakest form of OCI and the role of the consumer in development is limited to that of a simple information provider who delivers feedback voluntarily or when asked to do so by market researchers. Collecting complaints, interviews, and focus groups are common practices in this approach. Problems with these methods can include the information gatherers filtering the voice of the consumer through their own biases, consumers constantly forming new preferences, and customers may change their opinion by the time the actual product is released.

- **Interaction with Advanced Users:** advanced users include lead users who are users who present strong needs that will become general in the marketplace months or years in the future, and expert testers who are able to spot errors and mistakes in prototypes during testing. Due to their focused set of characteristics, their frequent use of the product and their active information processing, advanced users will recognize benefits and shortcomings faster and more accurately than mainstream consumers.

- **User Toolkits for innovation:** the objective of this approach is to assist consumers in carrying out certain need-related tasks. Consequently the problem-solving tasks are relocated to the consumers and consumers are left with the opportunity to carry out design work (Ibid.).
Jeppesen’s (2005) customer involvement approaches can also be criticized on a few points. As in the case of Alam (2002), this approach does not include “no OCI”. Furthermore, it is clear that the last two approaches focus mainly on the two distinct techniques, i.e., the lead user method and toolkits for innovation. As such, other customer research techniques and ways of working are ignored.

Another categorization of the degree of customer involvement is provided by Ives and Olson (1984). They proposed a user involvement continuum based on previous research on customer involvement in information systems development. At one extreme, system designers make assumptions about requirements and ignore user input. At the other extreme, users design various systems and accept them on user defined criteria of quality. Six categories are listed:

1. No involvement. Users are unwilling or not invited to participate.
2. Symbolic involvement. User input is requested but ignored.
3. Involvement by advice. User advice is solicited through interviews or questionnaires.
4. Involvement by weak control. Users have sign-off responsibility at each stage of the system development process.
5. Involvement by doing. A user as design team member or as the official liaison with the information system’s development group.
6. Involvement by strong control. Users may pay directly for new development output from their own budget or the users’ overall organizational performance evaluation is dependent on the outcome of the development effort. (Ives and Olson, 1984, p. 590)

I find these categories attractive as they range from no customer involvement to a scenario where the customer/user has a great influence over the new product or service. Inspired by the different roles customers have in value creation, I chose to elaborate on the customer involvement continuum provided by Ives and Olson (1984). An illustration of the discussion is provided in Figure 2.1.

![Figure 2.1 A customer involvement continuum (based on Ives and Olsen, 1984)](image-url)
In the first scenario “no involvement”, customers play the role of buyers. New products and services are developed by organizations through technology push. This school of thought suggests that innovation is driven by science, and thus drives technology and application. In other words, scientific discovery triggers a sequence of events which ends in diffusion or application of the discovery (Munro and Noori, 1988). According to Morone (1993), technology push occurs when the introduction of a new technology precedes the development of a new product or service according to the business strategy. Using this approach new customer solutions are designed on behalf of customers.

In the second scenario, “symbolic involvement”, customers play the role of a subject of interest. Firms collect and analyze internal information about customers, e.g., complaints and sales reports, and use that as guidance in their development efforts. No data is collected specifically to support the development process. The developers, perhaps, see themselves as customers and test concepts and prototypes during the development process. This approach also entails designing customer solutions on behalf of customers.

The customer plays the role as a provider of information in the third scenario “involvement by advice”. Organizations encourage customers to give feedback on services and products through the use of help desks, call centers, and customer service programs. Traditional market research and inquiries are carried out (in-house or by external market research firms) to infuse the development process. Information is collected on customer perceived problems and prototypes are redesigned based on the feedback. Data on customers, general theories, and models of customer behaviors are used as a knowledge base for design. Still, products and services are developed on behalf of customers, although customers contribute indirectly by providing information used in decision making (Kaulio, 1998).

In the fourth scenario “involvement by weak control”, customers play the role of experts in parts of or in the entire development process. One example is Honda, which have worked closely with customers in different phases of the development process for 25 years. The customer has a veto right meaning that the project must get acceptance from the customers to continue to the next phase (Edvardsson and Gustafsson, 1999). Various market research techniques are used to support the different phases of the development process such as concept testing, beta tests, and prototyping.

In the fifth scenario “involvement by doing”, customers play the role of co-developers. The firm and lead customers have joint roles in education,
shaping expectations, and co-creating market acceptance for products and services. Here, customers are part of the enhanced network - they are collaborators and co-developers. Customers take part, not only by telling their problems, needs, and wishes, but also by being actively included in the entire development process. In some cases, customers are given a position in the development team as in the case of British Telecom, Honda, and Citibank (Edvardsson and Gustafsson, 1999). One technique where customers are give a more prominent role in the development process is toolkits for user innovation (Thomke and von Hippel, 2002; von Hippel, 2001; von Hippel and Katz, 2002). A description of this method is described in the subsection ‘Supporting techniques’ in chapter four.

In its most extreme case, “involvement by strong control”, the customer adopts the role of sole developer. Here, the customer takes on the responsibility and develops a new solution on his or her own. One manifestation of this is the operation system Linux. The project was initiated in 1990 by Linus Thorvalds. At the time as a university student, he couldn’t afford the operation system he wanted so he wrote a test program – the core of Linux – and placed it on the Internet with free access and an open source. A few people showed an interest and today Linux is used and continuously developed by millions of users all over the world.

It is important to note that the degrees of user involvement should not be seen as discrete categories. In reality, the role given to customers in new product and service development can differ within the boundaries of a project, a program, or generally over time. In my opinion, however, the customer involvement categories provided by Ives and Olson (1984) and the continuum previously described with emphasis on the different roles customers can play in development activities, can be useful when determining the degree of customer involvement. It can form a basis for situations where one wants to distinguish between attitudes the organizational members hold towards the customers and behaviors of the members as a reflection of their attitudes. The continuum can also form the basis for firms when communicating with and recruiting customers to development projects. I will return to customer involvement continuum later in the thesis and account for our empirical findings concerning the continuum.

Based on the discussion of degree of involvement, the scope of customer involvement could be defined in different ways which constitutes one of the research questions in this thesis:
I have found both in previous research and through meetings with practitioners that customer involvement is perceived in at least two different ways. First, it can be argued that customer involvement includes all types of communication with customers during the service development process. According to this view, firms that give their customers roles as providers of information, experts, co-developers, and sole developers all have involved customers in their development activities. This means that customer involvement entails all customer research techniques regardless of, e.g., the objectives and whether or not the way of working is formal or informal. In short, according to this view:

\[
\text{customer involvement} = \text{customer research}
\]

Second, customer involvement can also be defined as something different than general customer research. From this perspective, the purpose of the endeavor is of the utmost importance. Focus is placed on acquiring sticky information with an emphasis on latent needs.

\[
\text{customer involvement} = \text{customer research to uncover sticky information}
\]

By definition, this makes it difficult to draw a distinct line between what is and is not customer involvement based on the continuum. Rather, it becomes a matter of the stated objectives and the techniques used to uncover customer information. As we will see next, both of these views are evident and there is confusion in the literature in terms of what customer involvement really is and how it should be defined.

## 2.6 Defining Customer Involvement

The notion of ‘customer’ can be given different meanings. Often in marketing literature, the customer is the person or organization that has needs and wishes that can be fulfilled with an offering (Edvardsson, 1997). A customer can also be defined as an individual, company, or other entity which buys goods and services produced by another person, company, or entity. The terms customer, user, and consumer are often interchangeable in the literature. ‘Users’ are the individuals who actually use the product or experience the service. When the customer and the user is the same individual, he or she is referred to as a consumer. In consumer markets the
customer can be a household or a single individual, while in industrial markets the customer is a company or organization where different people have different roles. In this thesis, ‘customer’ refers to the receiver and user of the offering. Consequently, ‘customer’ and ‘user’ are used interchangeably in the thesis. The customer/user can be a consumer, an organization, or sometimes both. The role as user is emphasized as value is determined by the customer on the basis of value-in-use (Vargo and Lusch, 2004a).

The term ‘involvement’ or ‘involve’ can have several meanings. Based on the concept of ‘customer involvement,’ ‘involvement’ or ‘involve’ means contain as a part, to include, or to engage as a participant (dictionary.com).

‘Consumer involvement’ or ‘customer involvement’ is an established concept within the consumer behavior literature. It refers to “consumers’ perceptions of importance or personal relevance for an object, event, or activity” (Peter and Olson, 1996, p. 101) and is a motivational state that energizes and directs consumers’ cognitive processes and behaviors as they make decisions. According to Zaichkowsky (1985), consumer involvement may be divided into three categories: (1) advertising involvement, referring to the level of attention customers pay to an ad, (2) product involvement, referring to customers’ personal subjective opinions on the product or the level of emphasis customers have given to a product, and (3) purchase involvement, referring to the degree of relativity and importance customers consider in purchase situations.

As opposed to the consumer involvement notion in the consumer behavior field that focuses on consumers’ perceptions and mental state, customer involvement in NSD focuses on observable behavior and activities. A review of articles on the subject showed that the literature states the following strongly allied concepts of customer involvement: co-development (Anderson and Crocca, 1993; Neale and Corkindale, 1998), consumer involvement (Pitta and Franzak, 1996), customer active, customer competence (Prahalad and Ramaswamy, 2000), customer focus, customer input (Callahan and Lasry, 2004), customer interaction (Gruner and Homburg, 2000), customer involvement, customer orientation, customer participation (Martin and Horne, 1993, 1995), customer role, lead user (von Hippel, 1986; von Hippel et al, 1999), user innovation, user involvement (Alam, 2002; Gales and Mansour-Cole, 1995), and user role. Consequently, the choice of concept (customer involvement) for this thesis might be questioned due to the presence of the same concept (consumer or customer involvement) in a closely related field and the existence of a number of allied concepts. ‘Customer involvement’ or ‘user involvement’, however, is also an established concept within Information
Systems development (e.g., Barki and Hartwick, 1989; Ives and Olsen, 1984) and within the fields of NPD and NSD (Alam, 2002; Jeppesen, 2005; Neale and Corkindale, 1998; Ritter and Walter, 2003). This fact explains the motives for the choice of concept in this thesis.

An analysis of previous research reveals that explicit definitions of these concepts are often absent, which makes it difficult to distinguish the concepts. There are, however, a few explicit definitions. These are listed in Table 2.3.

In analyzing definitions of customer involvement (and related concepts), two aspects are noticeable. First, few definitions state the purpose of customer involvement. In my opinion, the results of a customer involvement project will only be as good as the stated purpose of the project and the way it is carried out. In one of our studies, e.g., we found that the main reason why marketing and R&D managers carry out customer involvement projects is that it provides an opportunity to market the organization and the new products and services (see Appended Paper IV). If a project manager sees a marketing opportunity as the main benefit of customer involvement, he or she will carry out and analyze the project based on those premises. During the project, the project manager will not manage to uncover sticky information and latent needs as this is not the purpose of the project. Consequently, it is argued that a definition of customer involvement would benefit from a stated primary purpose.

Table 2.3 Definitions of customer involvement concepts

<table>
<thead>
<tr>
<th>Authors</th>
<th>Concepts and definitions</th>
</tr>
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<tbody>
<tr>
<td>Anderson and Crocca (1993, p. 49)</td>
<td>Co-development is a project that brings engineers employed in a large commercial technology company together with users and customers specifically “to (a) evaluate new technology and work practice and (b) explore market and product requirements”.</td>
</tr>
<tr>
<td>Barki and Hartwick (1989, p. 55)</td>
<td>User involvement “to a set of behaviors or activities performed by potential users during the system development process”.</td>
</tr>
<tr>
<td>Joshi and Sharman (2004, p. 47)</td>
<td>Customer knowledge development is “the development of an understanding of customer preferences”.</td>
</tr>
<tr>
<td>Kaulio (1998, p. 148)</td>
<td>User involvement is “the interaction between customers and the design process”.</td>
</tr>
<tr>
<td>Martin and Horne (1995, pp. 44-45)</td>
<td>Customer participation is “as the direct, overt participation by the customer, their overall involvement”.</td>
</tr>
<tr>
<td>Neale and Corkindale (1998, p. 419)</td>
<td>Co-development is “a process where the technology originator and the customer become intimately involved in an integrated or joint development project, where both parties contribute their expertise to the development project”.</td>
</tr>
<tr>
<td>Ritter and Walter (2003, p. 484)</td>
<td>Customer involvement is the extent a customer participates in the NPD of a supplier from the idea stage to the prototype testing stage.</td>
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</table>
Second, the definitions ignore the different levels (i.e., program, project, or phase levels) of new product and service development, and limit the definitions to only include the project level. In principal, a customer involvement approach can be short term or long term, and can be used once in a development phase, in a single development project, or form the basis in the overall development program.

Based on the previous discussion, drawing on research in NSD and NPD (e.g., Johne and Storey, 1998; Martin and Horne, 1993, 1995), market orientation (e.g., Day, 1994a; 1994b, 2002; Sinkula, 1994), as well as on exploratory field interviews with R&D managers, customer involvement in NSD is defined as those processes, deeds, and interactions where a development team collaborates with current (or potential) customers at the program, project, and/or stage level of the development process, to uncover sticky information such as latent needs, develop customer knowledge, and develop new solutions accordingly.

The definition emphasizes activities and behavior as customer involvement aims to facilitate the process of market sensing (Day, 1994b, 2002), that is, the generation and dissemination of market intelligence and the organization wide responsiveness to it (Kohli and Jaworski, 1990). From an output perspective, the literature states that customer involvement is suggested to result in important benefits such as reduced cycle times, superior services, and user education (e.g., Alam, 2002). In this definition, however, to emphasize the continuous process of organizational learning, emphasis is placed on developing customer knowledge. Emphasis is also placed on anticipating customers’ latent needs as these provide important sticky information which is said to offer great potential in terms of innovativeness and competitiveness (von Hippel, 1986; Narver et al., 2004).

The previous discussion serves to illustrate that customer involvement is a tricky notion. As noted, there is confusion in the literature in terms of what customer involvement really is and how it should be defined. The two different views of customer involvement described in the last section are both evident in the literature. Supporters of the first view (customer involvement = customer research) are, e.g., Alam (2002), Jeppeson (2005), and Martin and Horne (1993, 1995). Supporters of the second view (customer involvement = customer research to uncover sticky information) are, e.g., von Hippel (1986, 2001), von Hipple and Katz (2002), and Thomke and von Hippel (2002).

In this thesis customer involvement is given different meaning in different parts of the thesis. The previously proposed definition supports the second view that customer involvement is different from traditional customer
research as it is a proactive approach to learn from and with customers with the main purpose of uncovering latent needs. An earlier version of this definition is also apparent in Matthing et al., (2004, Appended Paper III) and in Sandén et al., (2004, Appended Paper IV). In other parts of the thesis (cf. Björlin-Lidén and Sandén, 2004, Appended Paper I), however, the other view that customer involvement includes all types of communication with customers during the development process is evident. The explanation is twofold. First, the confusion can in large part be explained by the concept and how it is perceived in practice. When interviewing managers and developers, most respondents claim that they involve customers in their development process. When describing how they do it, however, it appears that a majority include the customer by means of traditional market research techniques. Therefore, even though I essentially argue that customer involvement is a proactive approach that entails more than limited communication with customers, occasionally when communicating with practitioners I feel forced to use a wider definition of customer involvement. Second, in my early work on customer involvement, these thoughts had not seen the light. Consequently, the proposed definition is the result of a long research process.
3. THE RESEARCH PROCESS

This chapter aims at explaining the background, design, and process of the presented research. It is divided into seven sections. The first section provides a short introduction. This is followed by a section on my research background and values. The third section presents the research strategy using a multi-method approach with a combination of qualitative and quantitative data collection methods. Section five discusses two empirical studies and a review of literature. Reflections on the overall research process are given in section six. In the final section, some concluding remarks are made.

3.1 Introduction to the Research Process

In the search for answers to the stated research questions, I have been brought face to face with a choice of which method or methods to use and which way to address the research questions. In this section, I provide a description of the research strategy, design, and process that lay the foundations for my research.

Based on Bryman’s (2001) stated factors that affect how social science is carried out, the starting point of this chapter is my role as a researcher and how the values I hold and the interests I have contributed to the choice of research area, research questions, research strategy, and design.

3.2 Background and Values

Values mirror the researcher’s personal opinions or feelings. For a long time, it was expected that a social scientist should be free of values and be objective in his or her research. According to Bryman (2001), today’s situation is somewhat different as one has grown to know that it is impossible for a researcher to have total control over his or her feelings. Feelings can appear in many phases of the research process including the choice of research area, the shape of research questions, the choice of methods, the choice of data collection techniques, the realization of data collection, the data analysis, the interpretation and the conclusions (ibid.).

It is further stated by Bryman (2001), that the reader has a right to know something about the objectives, expectations, hopes, and attitudes that the
researcher brings out in the field, since these will affect not only how the researcher perceives things but also what the researcher will notice. I agree with Bryman (2001). It is my firm belief that my background and values have affected my research. As such, I found it necessary to provide the reader with a short description of my research background and values.

In the beginning of my Ph.D. studies in 2000, I was encouraged to study new service development because little research had been carried out within that field (see Alam and Perry, 2002). I found the subject intriguing as it is a complex process that includes different competencies such as marketing, engineering, behavioral science etc. It also includes both rational and irrational aspects. There is also the general effort of trying to foresee the future that fascinates me. I was particularly interested in how a market orientation was practiced in NSD and what role the customer played in the development process. I learned that even though research supports the significance of market-oriented new product and service development, there is little research about how to operationalize and implement market-oriented new product and service development (see Kok et al., 2003). As such, I focused the beginning of my research on market research tools and techniques as these are tools used to implement a market orientation and sometimes a practical manifestation of customer involvement in NSD. Tools and techniques are the means by which customer information is obtained and new knowledge is developed. The specific research questions included, what tools and techniques are used to develop customer knowledge and how these support customer involvement and improve and facilitate NSD.

A few months into our doctoral studies, my colleague Ph.D. Sara Björlin Lidén and I initiated a project where the initial driver of the project was our common will to write a conference paper and attend a research conference together. Consequently, we sat down and talked about Sara’s area of research (service guarantees) and my area of research (customer involvement in NSD). While discussing these topics, we speculated about whether or not service guarantees could be used as a tool to improve the NSD process. From what Sara could tell from her review of literature on service guarantees, this had not been the subject of any research. Due to the explorative nature of the subject, we designed and adopted a case study approach that aimed to identify if and how service guarantees support NSD. The study is presented in Appended Paper I and the method used in the study is described in detail in the section ‘Service Guarantees and Service Development (SGSD): Case studies and a qualitative content analysis’.
At about the same time two of my supervisors, Anders Gustafsson and Bo Edvardsson, were invited by Jon Sundbo, to write a book chapter. They decided to use empirical data (here referred to as Observing Customer Behavior, OCB) from a previous article they had published together with Fredrik Ekdahl (see Gustafsson et al., 1999). The empirical data was based on a project that SAS had carried out with the Boston-based consultant agency Doublin Group, in which they used video-based observation to develop an increased understanding of SAS’s customers and boost NSD. The data was provided by Erik Kiaer at Doublin Group and Fredrik Ekdahl, who worked for SAS at the time. I was invited to participate in the project. This resulted in the article “Mapping Customer Behaviour: A Key to Successful New Service Development and Innovation” (Gustafsson et al., 2002). The main focus of that article was to generally describe how video-based observations can be used as a foundation for NSD. Appended Paper II is a revised version of that paper. The reason I chose to revise the article for this thesis is that I wanted to analyze SAS’s video-based observations specifically from a customer involvement perspective.

During the entire research process I have had rewarding discussions with two of my colleagues, Jonas Matthing and Per Kristensson, who also wrote their dissertations on customer involvement (see Kristensson, 2003; Matthing, 2004). A few years into the research process we had taken a general interest in how customer involvement as a concept is perceived in practice and defined in theory. We were particularly interested in the questions of what characterizes customer involvement techniques and in what way they support new service development. Following these lines of thought Jonas and I initiated a project that aimed to examine new approaches that facilitate learning from and with the customer in NSD.

After ad hoc searches for customer involvement research, we recognized the need to carry out a systematic search for previous research on customer involvement. There were two reasons for this need. The main reason was that we wanted to get an overall and clear picture of the research field. Also, we hoped to find additional research that had escaped our previous attempts to identify publications on customer involvement. More details about the study are provided under the heading ‘The Literature Review (LR) – A database search on customer involvement’. Empirical data from a project called Customer Driven IT (CuDIT) were also used in the project and were provided by Jonas Matthing, Per Kristensson, and Peter Magnusson. Our work resulted in Appended Paper III.

After a few years of research, my colleagues and I found it surprising and frustrating that there were no studies, neither from a product nor a service context, which reported on how firms generally involve their customers.
We were curious about several issues: how many companies state they develop new products and services, what roles do they give to their customers in the development process, by what means are they involved, what techniques do they use, and what are the stated rationales for customer involvement? We had also realized that there were few studies that had actually investigated the empirical relationship between customer involvement and performance. In the fall of 2003, therefore, a study (here referred to as Customer Involvement in Swedish Organizations, CISO) was initiated in co-operation with Professor Michael D. Johnson, and two of my supervisors, Professor Anders Gustafsson and Associate Professor Lars Witell, that aimed to investigate the role of the customer in new product and service development in general and the relationship between customer involvement and performance in terms of, e.g., profit margins. Some results from the study are provided in Appended Paper IV and V and a description of the method used in this study is provided in the subsequent section ‘Customer Involvement in Swedish Organizations (CISO): A Survey’.

3.3 The Research Strategy

While the previous section aimed to describe the research process from a more personal perspective, the following two sections aim to describe the research process from a more theoretical and practical perspective.

Bryman (2001) makes a distinction between two research strategies: qualitative and quantitative research. The former concentrates on words and observations to express reality and attempt to describe people in natural situations. In contrast, the quantitative approach grows out of a strong academic tradition that places considerable trust in numbers representing opinions or concepts. Within the social and behavioral sciences, it has been argued that quantitative and qualitative research are competing and even contradicting views of how the social reality should be inquired. An alternative standpoint suggests that quantitative research and qualitative research are appropriate for different kinds of research problems (Bryman, 1997; Tashakkori and Teddlie, 1998). This implies that the research questions should be the point of departure for determining the method or methods to be used.

In this thesis the latter of the two standpoints is accepted, implying that quantitative and qualitative research strategies are viewed, and used, as two facets of a systematic way of conducting research. This standpoint also embraces the use of both quantitative and qualitative research for testing
or verifying existing theories, as well as for extending or generating theories (Meredith, 1998).

**Quantitative vs. qualitative research**

Qualitative research is often described as suitable when studying episodes, actions, norms, and values from the perspective of the subjects under study (Bryman, 1988). The aim is to understand a phenomenon as a whole, i.e., as a complex system that is greater than the sum of its parts (Patton, 1990). Many qualitative researchers try to get close the study object and conduct the study in the natural setting. Also, there is an underlying time-perspective that is apparent in all social life. The close relation to the study objects and the time-perspective apparent in the research strategy make qualitative research suitable for studying organizational change processes (Bryman, 1988). The primary research methods used in qualitative research are ethnography/participant observation, in-depth unstructured interviews, focus groups, language-based methods, and the collection and qualitative analysis of text and documents (Bryman, 2001).

According to Amaratunga et al., (2002) the quantitative research process is directed toward the development of testable hypotheses and theories which are generalizable across settings. Quantitative research is concerned with how rich, complex descriptions of the specific situation under study will evolve. Quantitative research can be described as focusing on specific factors, most importantly measurement, causality, generalization, and replication (Bryman, 2001). The measurement process entails the work of developing indicators based on the concepts under study. This type of research has been criticized by qualitative researchers mainly building on the assumption that a natural science model does not fit the study of the complex social reality (Ibid.). Methods used in quantitative research include, e.g., surveys, simulation, and experiments.

In the literature, quantitative research and qualitative research are often described as dichotomies in a number of ways. Some of these are described in Table 3.1. Bryman (2001) states, that the presented dichotomies are not as distinct as many researchers describe. Following this line of reasoning, this thesis rests on the assumption that the presented dichotomies should be viewed as continuaums rather than discrete categories on which a number of positions could be accepted and adopted.
Table 3.1 Stated differences between quantitative and qualitative research. Interpretation of Bryman (1988, p 36) and Holme and Solvang (1997, p 76-77)

<table>
<thead>
<tr>
<th>Quantitative</th>
<th>Qualitative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observer: The research observes from the outside and tries not to get involved. The differences in variables can be calculated afterwards.</td>
<td>Participant/actor: The researcher observes from the inside. She knows that she will influence the result just by being there. She may even participate.</td>
</tr>
<tr>
<td>Systematic and structured observations, e.g., surveys with close-ended questions.</td>
<td>Unsystematic and unstructured observations, e.g., in-depth interviews with open-ended questions.</td>
</tr>
<tr>
<td>Nomothetic: seeks to establish general findings that are independent of time and space.</td>
<td>Ideographic: seeks to place finding in specific spaces and in certain time periods.</td>
</tr>
<tr>
<td>Social reality is seen as static and external to actor.</td>
<td>Social reality is seen as processual and socially construed by actor.</td>
</tr>
<tr>
<td>Data are considered to be hard and reliable.</td>
<td>Data is considered to be rich and deep.</td>
</tr>
</tbody>
</table>

Analyzing the research presented in this thesis based on the differences presented in Table 3.1, the relationship between myself as a researcher and the investigated have mainly been distant. Of course in the personal interviews I conducted I came closer to the respondents than I did while sending out and receiving surveys, but I still would not describe a one-hour interview and a few phone calls as grounds for a close relationship.

In my research I have played the role of an observer. As I have studied processes and activities in retrospect, I have not influenced the results directly. At the same time, I hope that the results of our research have been found to be useful and I hope that we have been able to influence attitudes and behaviors of the people responsible for customer involvement, new service development, and service guarantees.

As I have stated previously, the research problem at hand has been the point of departure when designing a study and deciding what data collection methods to use. As such, different studies have had different purposes. The SGSD study, for example, aimed to discover theories and was based on in-depth interviews and a content analysis of guarantee reports. The CISO study on the other hand aimed more at verifying a theoretical customer involvement construct developed by us based on previous research, logical thinking, and a dialogue with customer involvement experts. A survey with close-ended questions was used to get a more general picture of how customers were involved in development activities.
Tashakkori and Teddlie (1998) emphasize that most quantitative researchers do not share the belief of a static world, but rather agree on the understanding of reality as socially constructed. I also see the reality as socially constructed; still I believe that the respondents’ answers on a survey represent (at least in part) their reality. As such the results of the survey tell me something about the studied phenomenon - not everything perhaps and not even the most important thing, but still something.

As described in a previous section, I believe that quantitative research and qualitative research are two compatible research strategies that can be used separately or in combination. In the following section, the combination of quantitative and qualitative research will be discussed.

Combining the two research strategies

As can be seen in the elaboration of possible differences between quantitative and qualitative research presented previously, these two research traditions are not as different as many researchers describe.

Bryman (2001) argues that there seems to be two versions of the debate on quantitative and qualitative research, which has implication in terms of how researchers perceive the possibility of combining the different types of methods. I agree with the technical version that argues that the distinction between quantitative and qualitative method is more definite than it should be. This version departs from the different methods’ strong points and sees quantitative and qualitative research as two compatible research strategies that can be used separately or in combination (see Sechrest and Sidani, 1995). There is a consciousness that quantitative and qualitative research is associated with distinct epistemological and ontological fundamental assumptions, but these connections are not perceived as fixed and unavoidable. Scientific methods are perceived as autonomous. From this perspective, a combining strategy is both possible and desirable (Bryman, 2001).

The research presented in this thesis rests on the assumption that research into customer involvement in new product and service development demands a view of quantitative and qualitative research as different techniques, as compatible, and belonging to a paradigm of choice (Nilsson, 2002). Depending on the knowledge needs of the research field, different research strategies are available - quantitative, qualitative, or a combination of both. Furthermore, one of the ambitions of this research process has been to conduct and develop an understanding of both
qualitative and quantitative research. I agree with Nilsson (2002) who believes that a researcher should have an understanding of both research traditions. This is best achieved by adopting a multiple research strategy.

It is apparent from former sections that both qualitative and quantitative methods involve different strengths and weaknesses. Consequently, in the choice of a research strategy there is no ideal solution - only a series of compromises. Patton (1990, p. 13) stated that “research, like diplomacy, is the art of the possible”. According to Yin (1994), the choice of research strategy should be a function of the research situation. Each research strategy has its own specific approach to collecting and analyzing empirical data, therefore each strategy has its own advantages and disadvantages. Although each strategy has its own characteristics, there are overlapping areas which bring complexity to the process of strategy selection.

3.4 Research Design

In this section, the choice of a combined research strategy is elaborated upon in terms of the chosen research design. The research presented here rests on a combination of scientific data collections methods. Following Yin’s (1994) recommendation, the choice of data collection techniques has first and foremost been based on the research situation and the research questions.

All research questions, except one which is of a more theoretical nature (What is the underlying logic of NSD and customer involvement?), rest on findings from empirical studies. The studies have been carried out in order to provide empirical grounds to discuss the research questions and also to contribute to an increased knowledge of customer involvement in new service (and product) development.

The connections among research questions, empirical data, and the appended papers are summarized in Table 3.2. The first column represents the research questions stated in the first chapter. The second column shows the empirical data used to provide answers to the research question. As stated in subsection 3.2, the abbreviations in Table 3.2 stand for,

- SGSD – Service Guarantees and Service Development: Case studies and a qualitative content analysis
- OCB – Observing Customer Behavior
- CuDIT – Customer Driven IT
The final column states the appended papers where the results are displayed and discussed.

Table 3.2 Connections between research questions, empirical data, and the appended papers.

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Empirical Data</th>
<th>Appended Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>What techniques are used to develop customer knowledge? How do different tools and techniques support customer involvement and facilitate new service development?</td>
<td>SGSD</td>
<td>Paper I</td>
</tr>
<tr>
<td></td>
<td>OCB</td>
<td>Paper II</td>
</tr>
<tr>
<td></td>
<td>CuDIT</td>
<td>Paper III</td>
</tr>
<tr>
<td></td>
<td>CISO</td>
<td>Paper IV</td>
</tr>
<tr>
<td>How are customers involved in new product and service development in Swedish organizations?</td>
<td>CISO</td>
<td>Paper IV</td>
</tr>
<tr>
<td>What is customer involvement: How is it defined in the literature and perceived among practitioners?</td>
<td>SGSD</td>
<td>Paper III</td>
</tr>
<tr>
<td></td>
<td>OCB</td>
<td>Paper IV</td>
</tr>
<tr>
<td></td>
<td>CuDIT</td>
<td>Paper IV</td>
</tr>
<tr>
<td></td>
<td>CISO</td>
<td>Paper IV</td>
</tr>
<tr>
<td>What is the empirical relationship between customer involvement and performance?</td>
<td>CISO</td>
<td>Paper IV</td>
</tr>
<tr>
<td>What impact does customer involvement have on results in different phases of the development process?</td>
<td>CISO</td>
<td>Paper V</td>
</tr>
<tr>
<td>Are there differences between service firms and manufacturing firms in terms of new product and service development and customer involvement?</td>
<td>CISO</td>
<td>Paper V</td>
</tr>
</tbody>
</table>

An overview of the empirical data used in respective paper is provided in Table 3.3. My role as a researcher in the collection of empirical data and the research project has been different. I have not taken part in OCB and CuDIT. I have participated in SGSD and CISO. The latter are presented in greater detail in subsequent sections. Besides these studies, I have participated in four additional studies that focus on technology readiness. As these are not presented as part of the thesis, however, these studies are only briefly mentioned here. More information on them is available in the publications resulting from the studies.

Perhaps in an ideal world, the research presented in a dissertation would be based on one or a few interrelated studies and an overall research design. Instead, the research presented in this thesis is based on four separate studies. A combination of factors has contributed to this research approach, e.g., research funding, my own research interests, shared research interests, chance, and luck. Still, in relation to the dissertation as a whole, the separate studies can be said to form a multi-method approach.
In particular, findings from qualitative interviews have been used to infuse the development of the survey in the CISO study.

Table 3.3 Empirical data used in the Appended Papers

<table>
<thead>
<tr>
<th>Paper</th>
<th>Co-authors</th>
<th>Empirical data</th>
<th>Data collected by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper I</td>
<td>Sara Björn-Lidén</td>
<td>SGSD</td>
<td>Bodil Sandén</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sara Björn-Lidén</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Åsa Wahlgren</td>
</tr>
<tr>
<td>Paper II</td>
<td>Anders Gustafsson</td>
<td>OCB</td>
<td>Erik Kier</td>
</tr>
<tr>
<td></td>
<td>Bo Edvardsson</td>
<td></td>
<td>Fredrik Ekdahl</td>
</tr>
<tr>
<td>Paper III</td>
<td>Jonas Matthing</td>
<td>CuDIT</td>
<td>Jonas Matthing</td>
</tr>
<tr>
<td></td>
<td>Bo Edvardsson</td>
<td></td>
<td>Per Kristensson</td>
</tr>
<tr>
<td>Paper IV</td>
<td>Lars Witell</td>
<td>CISO</td>
<td>Anders Gustafsson</td>
</tr>
<tr>
<td></td>
<td>Anders Gustafsson</td>
<td></td>
<td>Bodil Sandén</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lars Witell</td>
</tr>
<tr>
<td>Paper V</td>
<td>Lars Witell</td>
<td>CISO</td>
<td>Anders Gustafsson</td>
</tr>
<tr>
<td></td>
<td>Anders Gustafsson</td>
<td></td>
<td>Bodil Sandén</td>
</tr>
<tr>
<td></td>
<td>Michael D. Johnson</td>
<td></td>
<td>Lars Witell</td>
</tr>
</tbody>
</table>

A multi-method approach is widely called methodological triangulation (Erzberger and Prein, 1997). Triangulation means looking at the same phenomenon, or research question, from more than one source of data. “Information from different angles can be used to corroborate, elaborate or illuminate the research problem. It limits personal and methodological biases and enhances a study’s generalizability” (Decrop 1999, p158). Denzin (1978) distinguishes among four types of triangulation:

Data triangulation involves the use of a variety of data sources in a study. Data triangulation was mainly practiced in the SGSD study where both primary data from interviews and secondary data in terms of companies’ internal documents were used to analyze how service guarantees can support NSD. In this particular case, data triangulation was also used by combining our field notes from interviews with transcripts from recorded interviews.

Investigator triangulation is concerned with using several different researchers to interpret the same body of data. This is best carried out by working in teams. This has been a conscious approach in my research effort and is clearly reflected in the author list of the appended papers. Not only is it more fun to work together but it is also my firm belief that the results always get better by adding one, two, or perhaps three researchers.
Theoretical triangulation involves using multiple perspectives to interpret a single set of data. This has not been a prominent strategy in my research. I have mainly used the marketing discipline in my interpretations. Some of my co-workers and supervisors, however, come from different disciplines (e.g., operations management) and have occasionally added different perspectives to our work. Within the marketing discipline, different research fields have assisted us in the analysis and interpretation of the collected data, e.g., new product development, marketing orientation, and service marketing.

Perhaps the aspect most often associated with triangulation is method triangulation. Hammersley (1996) suggests three ways in which a multiple research strategy can be carried out. Triangulation is when a quantitative approach is used to confirm a qualitative approach and vice versa. Support is used when one research strategy is used as support or help while the other strategy is put into practice. Complement is when the two research strategies are used with the purpose of getting different aspects of an investigation to fit each other.

As stated previously, the studies presented here were not designed as a single multi-method approach. They were separate studies, however from my perspective and in relation to the dissertation as a whole, the combination of data collection techniques were used as triangulation, support, and complement. In the CISO study, I had the opportunity to test and confirm some of the findings from the case studies of SGSD and OCB, and findings from CuDIT (triangulation). I also used findings from previous studies on customer involvement (SGSD, OCB, CuDIT, and additional studies we had made) as support when we developed the CISO survey. The different empirical studies and the review of literature have also been used as complements in terms of attending to the research questions, particularly:

- What techniques are used to develop customer knowledge? How do different tools and techniques support customer involvement and facilitate new service development?
- How are customers involved in new product and service development in Swedish organizations?
- What is customer involvement: How is it defined in literature and perceived among practitioners?

It can be concluded that although four separate studies are reported in this thesis, findings from the qualitative research have been used as support for and complement to quantitative research (Bryman, 2001). Furthermore,
the qualitative research has also assisted in the interpretation of results from the quantitative study (Ibid.). In the following section the major studies of this research are presented in greater detail.

3.5 Empirical studies and a Literature Review

In subsequent sections, the major studies that form the foundation for the research are outlined in terms of methodological aspects. A summary of the studies and my role in them are presented in Table 3.4.

Table 3.4 Summary of major studies presented in this thesis

<table>
<thead>
<tr>
<th>Purpose</th>
<th>SGSD Case studies and content analysis</th>
<th>LR Literature Review</th>
<th>CISO Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identify the role of service guarantees in new service development</strong></td>
<td>Identify additional research and review previous research</td>
<td>Investigate the role of the customer in new product and service development</td>
<td></td>
</tr>
<tr>
<td><strong>1. Review of literature</strong></td>
<td>2. Initial interviews</td>
<td>1. Review of literature</td>
<td></td>
</tr>
<tr>
<td><strong>2. Research design</strong></td>
<td>3. Data collection</td>
<td>2. Generation of hypotheses</td>
<td></td>
</tr>
<tr>
<td><strong>3. Data analysis</strong></td>
<td>4. Results and conclusions</td>
<td>3. Research design</td>
<td></td>
</tr>
<tr>
<td><strong>4. Analysis</strong></td>
<td>5. Write conference paper</td>
<td>4. Selection of respondents</td>
<td></td>
</tr>
<tr>
<td><strong>5. Results and conclusions</strong></td>
<td><strong>6. Write conference paper</strong></td>
<td>5. Development of questionnaire</td>
<td></td>
</tr>
<tr>
<td><strong>9. Write research article</strong></td>
<td></td>
<td>8. Research and conclusions</td>
<td></td>
</tr>
<tr>
<td><strong>10. Write research article</strong></td>
<td></td>
<td>9. Write research article</td>
<td></td>
</tr>
<tr>
<td><strong>11. Write research article</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Numbers from the study</strong></td>
<td>1 host case</td>
<td>294 hits in databases</td>
<td></td>
</tr>
<tr>
<td><strong>2 micro cases</strong></td>
<td>2 micro cases</td>
<td>104 relevant articles</td>
<td></td>
</tr>
<tr>
<td><strong>31 in-depth interviews</strong></td>
<td>1 content analysis of 41 guarantee reports</td>
<td>52 relevant articles(without duplicates)</td>
<td></td>
</tr>
<tr>
<td><strong>1 content analysis of 41 guarantee reports</strong></td>
<td>1 content analysis of 41 guarantee reports</td>
<td>15 additional articles</td>
<td></td>
</tr>
<tr>
<td><strong>294 hits in databases</strong></td>
<td><strong>294 hits in databases</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>104 relevant articles</strong></td>
<td><strong>104 relevant articles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>52 relevant articles (without duplicates)</strong></td>
<td><strong>52 relevant articles (without duplicates)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>15 additional articles</strong></td>
<td><strong>15 additional articles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spring 2000 until Fall 2001</strong></td>
<td><strong>Spring 2000 until Fall 2001</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sara Björklén-Lidén</strong></td>
<td><strong>Sara Björklén-Lidén</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Anders Gustafsson</strong></td>
<td><strong>Anders Gustafsson</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Michael Johnson</strong></td>
<td><strong>Michael Johnson</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lars Witell</strong></td>
<td><strong>Lars Witell</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I have contributed in…</strong></td>
<td><strong>Design Review and analysis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Analysis and interpretation</strong></td>
<td><strong>Review and analysis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Research publication</strong></td>
<td><strong>Redevelopment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>I have not contributed in…</strong></td>
<td><strong>I have not contributed in…</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*See Appended Paper V for details.
Service Guarantees and Service Development (SGSD): Case studies and a qualitative content analysis

The purpose of this study was to identify how service guarantees may support NSD. The selection of the research context was influenced by an article in Sloan Management Review, where it was identified that the size of the compensation of the guarantee has to be large enough to allow for service improvements. Hart et al., (1992) identify that in B2B companies, the rate of the service guarantee payout is higher than in B2C businesses, and they also recognize that each payout is likely to be more painful as there usually are fewer customers and higher fees related to each customer within a B2B setting. The authors also imply that the focus on achieving and maintaining service quality would be high in B2B. They specifically state that “in part because of the particularly high cost and hard-to-quantify nature of their work, management consulting firms in particular have been adventurous in exploring the unconditional guarantee”. Based on these findings, we chose the Temporary Work Businesses and Staffing Services (TWBSS) industry, where the same patterns could be anticipated.

At the time, no research had been conducted on this subject (to our knowledge) and we wanted to develop an understanding of how a service guarantee is managed and if and how it contributes to service development. Consequently, we decide on a case study approach as this research strategy focuses on understanding the dynamics presented within a single setting (Eisenhardt, 1989). Yin (1994, p. 23) proposes that a case study is an empirical inquiry that “investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used”. The need for case study research often arises from a desire to understand complex social phenomena. The method makes it possible to achieve a holistic and meaningful portrait of real events. The primary interest of the case study researcher is in questions that concern processes (why and how something happens) and questions that concern understanding (what, why, and how) (Ibid.).

According to Yin (1994), case study research can be based on single or multiple case studies and can involve numerous levels of analysis. Following the case study process described by Yin (1994), we chose a multiple case study approach using one host case and two micro cases. The case companies were selected based on several criteria: they have all offered service guarantees to their customers for at least a year, they are part of the same industry, and they are based on similar service contexts. The selection of the host case was determined by accessibility of data. The host case company offered free access to employees, customers who had
invoked the guarantee, and internal documentation from different guarantee processes.

A case study typically uses multiple methods and tools for data collection from a number of entities by a direct observer in a single, natural setting that considers temporal and contextual aspects of the contemporary phenomenon under study, but without experimental controls or manipulations (Benbasat et al., 1987; Yin, 1994). The methods and tools employed include both quantitative and qualitative approaches as well as obtrusive and unobtrusive methods (Benbasat et al., 1987; Eisenhardt, 1989; Yin, 1994). In this study, data were gathered through personal interviews at the three case companies, and by conducting a content analysis of documented guarantee reports collected within the host case. The interviews were carried out with the use of three interview guides (see Appendix i-iii), and all informants were selected based on their knowledge or experience of service guarantees. A total of 31 in-depth interviews were conducted with 20 customers, three customer managers, two personnel managers, two recruiters, one business development manager, two office managers, and one regional manager. The interviews were also recorded and summarized.

Sara Björlin-Lidén and I, as well as three Masters Students, Åsa Wahlgren, Åsa Göransson, and Karin Åberg collected the evidence that included both qualitative and quantitative data (see Eisenhardt, 1989). The students helped us with customer interviews while Sara and I did the interviews with staff and personnel. This is a weakness in the study, but as the main focus of the study was to explore the role of service guarantees in new service development, the main focus of the study was placed on internal routines and processes. Consequently, the customer interviews were of less importance.

We also carried out a content analysis of all guarantee reports filed by the host company. The content analysis aimed at identifying situations where guarantee reports contain information on actual service improvements. A total examination of 41 reports was conducted.

Data from the case studies was analyzed multiple times. First we did a within-case analysis (Eisenhardt, 1989) where we structured the data in detail based on important dimensions that were derived from the literature (on services, service recovery, service guarantees, and new service development), our current knowledge, and common sense. In the within-case analysis we also analyzed data based on two perspectives: firm – customer, and similarities and differences. Finally, we searched for cross-case patterns (ibid.) including similarities and differences. The findings are
the result of an iterative analysis process where Sara and I, first separately and later together, analyzed and interpreted data from both informants and guarantee reports. The research identified the different roles of service guarantees in three service processes: the service process, the recovery process, and the development process. These roles have yet to be tested in other cases and contexts to make a fair assessment of its reliability and external validity.

The literature review (LR) - A database search on customer involvement

An important study in the present dissertation is the review of literature. In January 2003 the first search in online research databases was carried out together with Ph.D. Jonas Matthing. The main reason for this search was to gain an overall and clear picture of the research field. We had also hoped to find additional research that we had missed in our previous attempts to identify publications on customer involvement.

First we made a list of relevant concepts that we had come across in the ad hoc collected research publications. To narrow the search, additional keywords in terms of 'development', 'innovation', and 'design' were added. These were used as keywords in a search in two on-line databases: Emerald and Business Source Elite. The choices of databases were based mainly on access. These were the two major marketing databases provided to us by the university library.

We also decided on a few criteria. The search was restricted to peer-reviewed articles published no later than ten years ago (at that time 1993). The time restriction was set because of practical issues. It is generally difficult to get access to full text articles that are published before 1993. Also, we planned to use the list of references to determine important publications published before 1993. Once we had done the search, we made a quick scan and publications where the titles and abstracts did not fit this specific research area were discarded. We also removed duplicates. The next step was to develop a frame of analysis. This was followed by the actual review where we read the papers and used the frame of analysis to describe and categorize the research. Using the lists of references in the identified publications, snowball sampling was used to identify the most influential research papers published before 1993 and to identify additional publications on the subject. The results of this search are presented in Appended Paper III.
Almost three years later in December 2005, I redid the search. For this search I removed one keyword, ‘customer consideration’, added four additional keywords (customer knowledge development, customer role, user innovation, and user role) and added one additional database (ScienceDirect). Table 3.5 shows the number of publications on customer involvement at the time. The total number of hits is put in brackets.

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Emerald</th>
<th>Business Source Elite</th>
<th>ScienceDirect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-development</td>
<td>0 (2)</td>
<td>0 (9)</td>
<td>1 (4)</td>
</tr>
<tr>
<td>Consumer involvement</td>
<td>0 (15)</td>
<td>2 (2)</td>
<td>0 (2)</td>
</tr>
<tr>
<td>Customer active</td>
<td>4 (11)</td>
<td>0 (1)</td>
<td></td>
</tr>
<tr>
<td>Customer competence</td>
<td>0 (21)</td>
<td>0 (2)</td>
<td></td>
</tr>
<tr>
<td>Customer focus</td>
<td>0 (55)</td>
<td>0 (3)</td>
<td>2 (4)</td>
</tr>
<tr>
<td>Customer input</td>
<td>2 (2)</td>
<td>11 (14)</td>
<td>4 (6)</td>
</tr>
<tr>
<td>Customer involvement</td>
<td>7 (8)</td>
<td>15 (20)</td>
<td>4 (7)</td>
</tr>
<tr>
<td>Customer knowledge development</td>
<td></td>
<td></td>
<td>6 (8)</td>
</tr>
<tr>
<td>Customer orientation</td>
<td>2 (14)</td>
<td>5 (20)</td>
<td>3 (12)</td>
</tr>
<tr>
<td>Customer participation</td>
<td>0 (1)</td>
<td>0 (1)</td>
<td></td>
</tr>
<tr>
<td>Customer role</td>
<td>1 (2)</td>
<td>0 (1)</td>
<td></td>
</tr>
<tr>
<td>Lead user</td>
<td>2 (2)</td>
<td>11 (16)</td>
<td>5 (6)</td>
</tr>
<tr>
<td>User innovation</td>
<td>7 (7)</td>
<td>0 (1)</td>
<td></td>
</tr>
<tr>
<td>User involvement</td>
<td>0 (1)</td>
<td>7 (9)</td>
<td>0 (2)</td>
</tr>
<tr>
<td>User role</td>
<td>2 (2)</td>
<td>1 (1)</td>
<td></td>
</tr>
<tr>
<td><strong>Total number of hits</strong></td>
<td>17 (131)</td>
<td>67 (113)</td>
<td>20 (50)</td>
</tr>
<tr>
<td>- Duplicates</td>
<td>-8</td>
<td>-29</td>
<td>-4</td>
</tr>
<tr>
<td><strong>Total hits without duplicates</strong></td>
<td>9</td>
<td>38</td>
<td>16</td>
</tr>
</tbody>
</table>

The search included a number of duplicates within each database: 8 in Emerald, 29 in Business Source Elite, and 4 in ScienceDirect. When comparing the results of the three databases 11 duplicates were found and removed. In total the search yielded 52 articles on customer involvement in new product and service development. A list of these articles is found in Appendix iv.

When studying the search results, I found that 12 articles stress customer involvement but more as a spin-off from other research issues, or just as a reference point relating to other issues. An additional article was found to be only a short paragraph. However, 39 publications focus on activities or
processes of customer involvement. These papers are listed and summarized in Appendix v.

An obvious limitation to the procedure is the limited time frame and the fact that it only considers articles and therefore disregards books and conference papers. An additional limitation is given by the data bases as not all relevant journals are included in these. Through snowball sampling and ad hoc collection, however, we have identified additional research (e.g., research published before 1993). A list of some of the most important references is provided in Appendix vi and further relevant papers are highlighted in chapters 2 and 4.

Customer Involvement in Swedish Organizations (CISO) – A Survey

In the fall of 2003, in co-operation with my two supervisors, Professor Anders Gustafsson and Associate Professor Lars Witell, as well as Professor Michael D. Johnson, University of Michigan, I initiated a study that aimed to investigate the role of the customer in new product and service development in general and the relationship between customer involvement and performance. As I stated previously, we had discovered that such a study was missing in the research conducted so far.

Initially we developed a theoretical customer involvement construct based on previous research. To establish the face validity of the construct, and in keeping with standard approaches to the development of scales (Bearden, Netemeyer, and Mobley 1993), we developed a large set of potential items that characterize the supporting and inhibiting factors and the degree of customer involvement. Guidance was obtained from field interviews, construct definitions utilized in marketing, and previous research on the subject. Most of the items were close-ended, although some open-ended questions were included to elicit verbal comments. Most items required a rating on a ten-point Likert scale ranging from strongly disagree (1) to strongly agree (10), or 0 percent of the projects (1) to 100 percent of the projects (10).

For measure validation, the items were pre-tested with five colleagues in our department to remove any items least connected to the constructs and to improve sentence wording. To further test the preliminary questionnaire, a pilot study was carried out. An e-survey was distributed to member companies (n = 100) of the business network AFSMI. We collected 30 sets of responses from the companies. On the basis of their
comments, we refined some items and developed the final research instrument that included 52 questions (see Appendix vii).

Our sample of companies included Swedish firms from various manufacturing and service industries. The survey was sent by email to R&D and marketing managers in 5027 Swedish firms taken from an external data base (PAR Affärsregister AB). Beforehand, there was no possibility of screening the firms that perform development activities within their business. Our email contained instructions that only managers who were involved in the development of new products and services and also worked for a company that used customer information in the development process should participate in the survey. As an incentive for filling out and returning the questionnaire, respondents were promised an executive summary of the major findings of the study.

A total of 1539 surveys (21% of the sample) did not reach the intended party and were cut from the sample. The percentage of surveys that did not reach the intended respondents is similar to recent surveys using direct mail questionnaires (Baker and Sinkula, 2005). Two reminders were mailed to non-respondents, one and two weeks after the initial mailing. This procedure yielded a response rate of 10.5 percent (366 respondents). Telephone interviews were conducted with 100 managers of the non-respondents to find out how many of the companies in our sample conduct development projects. Of the 100 managers, 37 percent say that their company does not conduct any development projects. An additional 6 percent of the non-respondents say that their company performs development projects, but that they have no knowledge of these projects. If these results are extrapolated to our whole sample of firms, this means that 1795 of the companies surveyed do not conduct any development projects and that 306 of the marketing managers in our sample do not have any knowledge about the development projects in their company. This results in an effective response rate of 26.4 percent.

As a last step of our data collection procedure, financial performance of the companies was gathered from a financial database. For most companies data were available for the last 4-year period, but for 65 companies there were no publicly available data. The responding firms represent manufacturing and service firms in the following industries: wood, pulp and paper, chemicals, plastic products, fabricated metal products, machinery and equipment, electrical and optical equipment, construction, hotels, transport, renting and real estate, computers, construction services, and business services. The major industries represented in our study are construction services (20%), construction (11%), machinery and equipment (7%), fabricated metal products (7%),
and wood, pulp and paper (6%). The firms range in size from only a few employees to several thousands of employees. About 76 percent of the firms mainly work in a business-to-business market and 24 percent are actors in the consumer market. The average firm in our sample has 290 employees, a turnover of 40 million U.S. dollars, and has a profit margin of 3.36 percent.

Partial Least Squares (PLS) was chosen to estimate the conceptual model of the relationship between customer involvement and profitability. PLS is an estimation procedure that integrates aspects of principal-components analysis with multiple regressions (Wold, 1982). All the constructs in our conceptual model were modeled as reflective constructs. Because PLS makes no distributional assumptions, we used jackknifing to evaluate the significance of the paths in our measurement model (Chin, 1998). The standard approaches to estimate reliability and validity were applied (see Fornell and Larcker, 1984).

In my opinion, the research is always limited by the way you chose to formulate your questions. This is particularly true in surveys with questions with fixed answers. In retrospect I feel that there are a few questions we should have formulated differently and some aspects we forgot. For example, it would have been obvious to include new product/service success as a subjective measure of performance. Furthermore, I wish we would have added a long list of market research techniques and asked the respondents to select and rank the five most frequently used techniques.

3.6 Reflections on the Overall Research Process

Any research method will have inherent flaws and will limit the conclusions that can be drawn (Scandura and Williams, 2000). This thesis has, like any other study, limitations. One fundamental reason for these limitations is that we are usually unable to study the totality of a population of individuals in either quantitatively or qualitatively oriented research. In the following section some reflections are made concerning the quality of the research presented in this thesis. These reflections are important since neglecting them may limit the ability to base conclusions (ibid.).

Gummesson (2000) provides the structure for this discussion. In his book “Qualitative methods in management research” he lists eight quality
criteria that can be used to assess the quality and value of the finished research.

The first criterion states that readers should be able to follow the research process and be able to form his or her opinion about the value of the performed research. I think my writing is straight forward and I prefer reading texts with a clear structure, so it has been my ambition to present the entire research process in such a way that the reader is able to judge the research. I hope and believe that the descriptions of the research questions, the purpose, the research process, the data collection methods, the results, the conclusions, and the research contributions are quite clear. Critique can be posed that the case descriptions from the SGSD study could have been presented in greater detail. However, the choice to write research articles with an introductory framework rather than a monograph has minimized the scope to provide such detailed descriptions. For the same reason I have chosen not to provide examples and go into detail about how the qualitative data was analyzed.

The second criterion suggests that the researcher should present his or her paradigm and pre-understanding of the subject (Gummesson, 2000). Unfortunately, I did not document my pre-understanding of the subject before I started the research project and I have found it difficult to write about my pre-understanding in retrospect. As such I have made a conscious decision and chosen to give only a short description of my background and pre-understanding. This description was provided under the heading “3.2 Backgrounds and Values”.

The third criterion deals with the trustworthiness of the presented research and includes e.g., correct factual information, correct representation of what has been said in interviews, and presentation of all relevant data etc (Ibid.). Again, the format of scientific papers offers limited scope to go into detail and present all relevant information concerning the research process. I believe that the methodological descriptions provided in our research papers, however, fall well within what is customary in the scope of scientific papers in the research field.

The fourth criterion concerns satisfying access (Ibid.). As described previously, I have not been involved in the data collection in two of the studies: SAS and CuDIT. Of course, at times this has been frustrating as I have not possessed all knowledge about how the data was collected, what the results were, and why the study was designed the way it was etc. In the CuDIT case, however, Jonas Matthing answered all my questions and we did the analysis of the material together. The article about SAS was written a few years after the actual study was conducted and at the time I was
involved, the contact person at SAS, Fredrik Ekdahl, had resigned. From my perspective, this is one of the main critiques of my research. From my perspective, however, there are other advantages. Working together with other researchers gave me material that had been inaccessible during this time frame. Also, different researchers possess different interests and skills and therefore complement each other; the results are often better than it would have been if the researchers had worked on their own.

In terms of the other studies (where I have been involved in the entire process), access has not been a major concern. In the SGSD study, however, we only had access to the customers in one of three companies and as such this became our host case and the other two companies became two micro cases. With another research focus, this could have been perceived as a problem; however, as our concern was mainly the internal processes of managing the service guarantees and the NSD process, limited access was not perceived as a threatening problem.

The fifth criterion concerns generalization and validity. These concepts have their origins in the quantitative research tradition. It has therefore been argued that they should not be used in the evaluation of qualitative research. One standpoint, however, is that one can assimilate the terms reliability and validity in the qualitative research without changing the meaning of the concepts, but that one defuses the questions that concern measurement. I accept this standpoint and therefore I maintain that these concepts, in their widest definitions, can be used for both qualitative and quantitative research.

Validity is often divided into external and internal validity. External validity refers to how generalizable findings are across times, settings, and individuals (Scandura and Williams, 2000). In terms of assessing the external validity, the sample plays a decisive role. In the CISO study, the sample was taken from an external database (PAR Affärsregister AB). We sent out the survey by e-mail and found that a total of 1539 surveys (21% of the sample) did not reach the intended party and were cut from the sample. Furthermore, the response rate was quite low at 10.5 percent (366 respondents). Telephone interviews were therefore conducted with 100 managers of the non-respondents to find out how many of the companies in our sample conduct development projects. The results showed an effective response rate of 26.4 percent. In conclusion, the insufficient sample, the limited number of companies in the sample that actually develop new products and services, and the low response rate affected the external validity in a negative way.
By nature the generalization of case study results is limited. In the SGSD study, however, we identified eight different roles that the service guarantee can play in three service processes: the overall service process, the recovery process, and the NSD process. Although, these roles were identified in a case study context in the TWBSS industry, I am confident that these roles can be identified in other service settings as well. As such I maintain that the external validity of these findings is quite high.

Internal validity can be described as the degree to which the research describes reality - in other words if the study measures what is intended (Merriam, 1994). To improve the internal validity of our research we sought viewpoints and comments from others during the research process. For example, we tested the interview guide and the survey in advance to see if the formulated questions stimulated answers or thoughts in the “right directions”. In the SGSD study we also let the interviewees examine our presentation, interpretations, and conclusions before we published our findings.

According to Yin (1994), the role of reliability is to minimize errors and biases in a study. My colleagues and I have tried to correct any errors we have found but possible errors could still be found by others. The reliability describes the extent to which the same results can be obtained if the study was carried out again. Since qualitative research describes a specific person’s perceptions on certain questions which can change over time, the reliability is by nature low. As validity and reliability are closely related, however, the reliability can be enhanced by improving the validity (Merriam, 1994). The reliability in itself can also be improved by asking clearly formulated questions in a standardized way to minimize the risk of misinterpretations.

In my research, and particularly in this chapter, I have tried to openly and freely describe the overall research process in terms of procedures, limitations, and flaws. In the end, I leave it to the readers to determine the overall validity and reliability of my research.

The sixth criterion suggests that the research should contribute in terms of new and increased knowledge, be meaningful, and be of value to academia, employers, and society (Ibid.). It is my firm belief that customer involvement in new service (and product) development is a burning and important question for competing companies. This has been confirmed time and time again by the attention my colleagues and I receive when we present our research, the relative ease of getting funds to support further research, and the relative ease of getting our research published. It is also my firm belief that the research presented in this thesis adds to current
knowledge of customer involvement. The major contributions of the research were listed at the end of chapter one and in the final chapter these will be discussed in more detail.

The seventh criterion states that the research process should be dynamic. This includes questions such as the following: Has the researcher shown to have learned through reflection and in dialogue with others? Has the researcher been creative and open to new information and new interpretations? Has the researcher shown the ability to be deeply involved and yet keep a healthy distance? And has the research been aware of changes that have occurred during the research process (Ibid.)? I believe the answers to these questions are yes, but I find it difficult to pinpoint specific examples to support my argument. Throughout the thesis you will find examples of some of the reflections I have made during the process. Also, in a former paragraph I argued that there are important benefits in terms of working with other researchers. I strongly feel that I have learned a great deal from my co-workers and that the results would not have been the same if we had not conducted the research together.

The eighth and final criterion suggests that the researcher should have certain personal traits including commitment for the research, integrity, honesty and courage to state his or her opinion, flexibility, openness, and an ability to take the consequences of changed conditions (ibid.). Again, it is my feeling that I possess these traits but I also feel that some of these traits have not been tested because the results we reached were not controversial or threatening and fortunately we have been spared from any changed conditions.

3.7 Concluding Remarks

A frequent question when reflecting over the research process is what could have been done differently. This is of course a hypothetical question and it could be answered in two ways. The first answer, that takes the circumstances that have surrounded my research process for granted, is that the changes I would have made are more on a detailed level in terms of excluding some questions here and including other questions there etc. Overall, I am pleased with my research and the opportunity I had to focus on research gaps in areas that interested me. I think my colleagues and I have carefully planed and conducted well thought-out research that has contributed new and relevant knowledge to the already existing knowledge of customer involvement in development activities.
The second answer does not take into account any of the circumstances surrounding my research process and is therefore perceived as an ideal research process based on my current knowledge and interests. Knowing what I know now I would have focused more on the means by which customers are involved in innovation activities. I would have designed a longitudinal case study that allowed me to study one medium sized innovative organization for several years. In this context I would have tested different customer research techniques, evaluated the results and consequences, and analyzed how these were perceived among the participants. I would have adopted both a management and a customer perspective. I also would have used a variety of data collection techniques including observation, surveys, content analysis, field experiments, and interviews. This is based on what I know today, however, and I would not have known that unless I had made the journey I did.

As a final remark, I would like to return to Bryman (2001) who argues that traditionally it has been expected that researchers should be free from values and objective in his or her research. Preferably, one would like to assert that research that is a reflection of personal opinions and preconceived ideas should not be regarded as valid and scientific, since it is directed by subjective factors. Bryman argues that this view is not particularly trustworthy in today’s research society, as one is more aware that it is virtually impossible for a researcher to be in total control over his or her feelings and values. To deal with these issues, it is suggested that the research should reflect on the influence such factors can have on research (Ibid.).

I am an advocate for the customer. Consequently, I want customer involvement to work and to result in better products and services, delighted customers, and more competitive organizations. I believe that researchers in general are driven by ideas and a will to do things right and to make things better. Sometimes we do not know much about the studied phenomenon, so we observe, explore, and generate new theories. We formulate hypotheses and test theories. The drive, however, is always to make things better. My drive and my belief in the customer involvement idea do not necessarily mean that I am not open for critique, problems, and inhibiting factors of customer involvement. On the contrary, these factors become drivers for future research. If customer involvement does not lead to the expected results, I want to find out why. What are the causes and how can these be resolved? During my research process I have occasionally been criticized for not being critical enough. I hope that is not the case in this thesis. It is obvious to me that customer involvement is not always an appropriate approach depending on the context. I have also argued that that the people who manage customer involvement efforts will
influence the results depending on what objective they set for the endeavor and how they carry out a customer involvement project. Finally, I would like to add that during the course of this research my colleagues and I have tried to correct or minimized any errors we have found.
4. CUSTOMER INVOLVEMENT PRACTICE

This chapter is divided into five sections. The first section presents a descriptive model that illustrates how I have chosen to characterize the research field of customer involvement. Section two highlights and discusses the situational factors, including market factors, cultural and organizational factors, and project factors which influence and explain the practice of customer involvement. The third section emphasizes the strategic decisions involved in customer involvement projects and discusses issues such as objectives, customer characteristics, and where and to what extent customers are involved in development activities. Operational decisions, in terms of how to recruit and motivate customers and what tools and techniques to use during the process, are discussed in section four. The fifth section is devoted to the empirical relationship between customer involvement and results.

4.1 A Structure of the Research Field

Figure 4.1 is a modified version of the research model presented in the first chapter. In contrast to Figure 1.1, theoretical aspects are excluded in this figure as these were discussed in the previous chapter. Furthermore, execution is not included because experiences from this phase are rarely reflected upon. Particular findings from this phase are therefore addressed in the other sections. In addition I have listed important strategic and operational decisions. The model should be seen as a descriptive model that provides the structure of this chapter.

Figure 4.1 A structure of the research field of customer involvement
The chapter serves several important purposes. First, it collects, reviews, and discusses previous empirical research on customer involvement. In relation to this research, major findings from our research are presented, analyzed, and discussed in brief. Altogether, the empirical findings presented in this chapter aim to shed some light on the research question stated next. Finally, unfulfilled research gaps are identified and raised as areas for future research.

4.2 Situational Factors Influencing Customer Involvement

The process of customer involvement unfolds in several contexts such as a market context, an organizational context and, more immediately, in the context of specific development projects. Therefore, the situation in which a development project is carried out has an important role to play in determining the effectiveness of the process (Dougherty and Hardy, 1996). This section is divided into three subsections. Market factors include industrial and consumer markets and goods and service dominated markets. Organizational and cultural factors highlight important norms and values that might influence the practice of customer involvement. And finally, project factors address the affect of new product and service innovativeness and project uncertainty on customer involvement.

Market factors

Although the use of customer information has been identified as a key success factor for development activities, the possible differences in the use of customer information in various market contexts is rather unknown. This subsection highlights the influence of market factors on customer involvement.

Previous research suggests that customers are given a more prominent role in various business processes in industrial settings than in consumer settings (Garvin, 1988). In a survey to 161 managers of product development that aimed to investigate NPD practices in business versus consumer companies, Hanna et al., (1995) found that there were marked similarities between the two groups. Both groups emphasized three factors which contributed to product failure/success: a strong commitment from
top management, staying close to the customer, and performing adequate market analyses. Some differences, however, were also identified. Business product companies tend to organize along cross-functional lines, place a heavier emphasis on customers as sources of ideas, and place heavier emphasis on finding new uses/markets for their products. Consumer companies, on the other hand, use product management/development groups to a greater extent, provide the marketing department with more decision-making authority, and focus more on radically new products and line extensions (Ibid.).

Our research (see Appended Paper IV, a summary is provided in the adjoining frame section) supports the conclusions drawn by Garvin (1988). We found that a majority (51.8%) of the B2C companies involve customers through the use of traditional market research techniques and give the customers the role of informants (see Diagram 4.1). Twenty-seven percent of the respondents state that they use customers as experts during part of the development process and six percent work with customers as partners.

![Diagram 4.1 The degree of customer involvement in consumer and industrial markets](image)

In a B2B context, most respondents (46%) indicate they use customers first and foremost as experts. Eleven percent work with customers as partners and seven percent state that a majority of their new products and/or services are actually developed by customers. The results confirm that customer involvement as a work practice is most common for companies operating on the industrial market, which is natural as long term

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9 Diagram 4.1 is an operationalization of the customer involvement continuum proposed in section ‘2.5 Customer Involvement Continuums’. As opposed to the customer involvement continuum that highlights six different customer roles, the diagram only stresses five roles. To limit the number of items in the survey, we chose not to distinguish between ‘customer as a buyer’ and ‘customer as a subject of interest’; instead we decided to merge these two roles into one role named ‘no customer involvement’.
relationships with few customers are one of the characteristics of industrial markets (Webster, 1991). Also, the products and services on the industrial market tend to be more complex and need to be customized to a greater extent than consumer products and services (Ibid.).

Appended Paper IV:
The Role of the Customer in the Development Process


Most of the research on customer involvement is based on case studies and conducted in a single industry setting. Our knowledge about the extent which customer involvement is practiced, the type of customers involved, how they are involved, and the perceived benefits and problems etc. is limited. Consequently, the objective of the paper is to provide a baseline analysis of the role organizations assign to the customer in the new product and service development process.

The sample for our investigation of customer involvement practices included Swedish firms from various industries and of various sizes. The survey included 52 questions and was distributed via e-mail to R&D and marketing managers. The 366 companies that responded constitute an effective response rate of 26.4 percent. The responding firms represent both goods and service firms. The major industries represented in our study are construction services (20%), construction (11%), machinery and equipment (7%), fabricated metal products (7%), and wood, pulp and paper (6%). About 76 percent of the firms mainly work in a business-to-business market and 24 percent are actors in the consumer market.

Results display that 60 percent of the respondents state that they carefully select customers with a particular expertise. This is in contrast to previous research that states that traditional market research techniques collect information from users at the center of the target market. We found that 27 percent state they do not make any special selection of customers. We also found that companies rely heavily on internally collected information, such as information from sales personnel or customer complaints. The second most used technique is observations followed by the lead user method. Surveys and interviews were stated as least common techniques.

Surprisingly, we found that the primary reason why the respondents engage in customer involvement seems to be that it provides an opportunity to market the organization. According to the literature, the main advantage of customer involvement is the possibility to develop deep customer insights in terms of customers’ expressed and unexpressed needs, preferences, and behavior. The primary problems associated with customer involvement were stated to be increased workload, followed by the perception of customer involvement as being difficult and complicated.

We found some important differences between B2B companies and B2C companies. About a third of the companies on the consumer market involve customers with a special expertise. About a fourth of the companies do not make a special selection of
customers and about 14 percent choose to involve financially attractive customers. About half of the B2C companies involve customers through the use of traditional market research techniques (see customers as informants). About a fourth of the companies use customers as experts during part of the development process and 6 percent of the companies work with customers as partners during the development process. B2C companies use internally collected information, observations, and interviews most frequently. They also use surveys to a greater extent than companies operating on a business market. Companies on the business market, on the other hand, are more likely than companies in the consumer market to use customers with a special expertise. They first and foremost involve customers as experts and are more likely to involve customers as partners. Seven percent state that a majority of their new products and/or services are actually developed by customers. B2B companies use internally collected information, observation, and lead user method.

This study makes contributions to the body of knowledge about customer involvement. First, it offers a general overview of how and to what extent companies, across a variety of industries, involve customers in their development process. Second, it also points out that some problems and possibilities with customer involvement that are pointed out in research, are not perceived so severe or important for the general population of companies.

In categorizing markets, a distinction is often made between goods dominated markets and service dominated markets. The positive relationship between market orientation and business performance has been replicated for both small and large firms in manufacturing as well as service settings. There is, however, disagreement regarding the relative size of the effect for physical goods as opposed to services (Gray and Hooley, 2002). Gray and Hooley (2002) argue that the relationship should be stronger for service firms, due to the greater dependence on customer interactions. The findings of a meta-analysis presented by Cano et al., (2004) support this argument. For the same level of market orientation, business performance was found to be higher in service firms than in manufacturing firms. In contrast to these findings, Kirca et al., (2005) found that market orientation and business performance have a stronger relationship for manufacturing than for service firms. The authors suggest that one reason for the discord is that research designed to directly compare market orientation within manufacturing and service firms is scarce (Ibid.).

Based on the dissonance of previous research and the recently intensified goods versus service debate, we raised the following research question in section 2.1 The Logic of Services:
In our research, we investigated the impact of customer involvement on results in different phases of the development process and analyzed similarities and differences between manufacturing companies and service providers. Our findings are highlighted in section 4.4 Strategic decisions under the heading ‘In what phases of the development process are customers involved’.

It can be concluded that there have been few studies on customer involvement that have analyzed differences in terms of market factors. Our research confirms previous findings that customers are given a more prominent role in industrial development activities than in a consumer setting.

In the future, I believe that the practice of customer involvement will increase, particularly in consumer markets. The main reason for this belief is the great potential of the Internet as a communication channel and market. Current web-based user innovation techniques have their weaknesses, e.g., software is still embryonic and panels are still being developed (Dahan and Hauser, 2002). As new sophisticated Internet tools and techniques are developed, however, it is possible to reach and engage a large number of customers without significantly compromising the richness of the interaction (Sawhney et al., 2005). These techniques will be cost efficient and will have low entry barriers, which will put their capabilities directly into the hands of the development team (Dahan and Hauser, 2002). This discussion is continued further when discussing ‘Supporting techniques’.

Cultural and organizational factors

The decision of an organization to involve customers in the development process is based on the organizational norms and values concerning potential benefits and risks of customer involvement. Involving customers offers several potential benefits that are referred to here as supporting factors. The logic is that if an organization has a belief that customer involvement will lead to one or a number of benefits, they are more prone to involve customers.
There are supporting factors for an organization to engage customers, but there are also a number of inhibiting factors. In our research, we identified and investigated a number of supporting and inhibiting factors. These are listed in Table 4.1.

Table 4.1 Supporting and inhibiting factors of customer involvement

<table>
<thead>
<tr>
<th>Supporting factors</th>
<th>Inhibiting factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Customers are more innovative and create better products and services.</td>
<td>• Organization structure and culture hampers customer involvement.</td>
</tr>
<tr>
<td>• Customer involvement saves money.</td>
<td>• Customer involvement is difficult and complicated.</td>
</tr>
<tr>
<td>• Customer involvement reduces time-to-market.</td>
<td>• Lack of appropriate methods/techniques</td>
</tr>
<tr>
<td>• Customer involvement provides a good marketing opportunity.</td>
<td>• Increases work load and demands more resources in terms of time and money.</td>
</tr>
<tr>
<td>• Customer involvement creates more user friendly goods and services.</td>
<td>• Increases project uncertainty.</td>
</tr>
<tr>
<td>• Competitors involve customers.</td>
<td>• Customers might steal our ideas.</td>
</tr>
</tbody>
</table>

Through case studies, von Hippel has shown that lead users have invented the majority of products in various industries (von Hippel, 1978; 1982; 1986; 1988). This conclusion is supported by other studies (e.g., Shaw 1985). A recent study suggests that ordinary customers, given the right opportunities, can be more innovative and provide more user-friendly service ideas than R&D personnel (Magnusson et al., 2003).

Time-to-market is an important factor when developing new products and services. Delays may be expensive or may even lead to missed opportunities. By bringing customers into the development process, firms can ensure that an offering satisfies customer needs, yet this may result in a longer lead time. Consequently, involving customers may result in a trade-off between speed and market fit. Stalk and Webber (1993) argue that one of the largest problems with cycle time reduction programs is that firms often pursue speed without considering how faster development processes affect the fulfillment of customer requirements. It is possible to claim, however, that gathering customer information may actually reduce time-to-market. Anticipating customer needs early in the development process makes the process move more swiftly (Iansiti and MacCormack, 1997).

Finally, involving customers in the development process may be a marketing opportunity (Alam, 2002). Involvement makes the customers feel more important and it may make them more loyal to the company. In some cases customers have even been prepared to pay in order to have early access to versions of a product (Prahalad and Ramaswamy, 2000).
The most obvious inhibiting factor may be the current organizational structure and culture. There are examples in the literature where companies have discontinued customer involvement even though benefits were gained in terms of better products. Respondents in one case company explained, after having tested the lead user method, that they did not like the customers having too much input and that the generated product concepts were too ambiguous and simplistic. The R&D department did not want to change their way of working and prestige made it difficult to accept customer input (Olson and Bakke, 2001).

Other sources have found that customer involvement is difficult and complicated (Nambisian, 2002) and that it leads to increased work load for a company. Consequently, it is also said to demand more resources in terms of time and money (Gales and Mansour-Cole, 1995; Lilien et al., 2002; Nambisian, 2002). For inexperienced companies, customer involvement is a new way of working which may be perceived as complicated and therefore they may be reluctant to begin the process.

Results from the CISO-study (see Appended Paper V) displayed that inhibiting factors show a negative relationship to customer involvement and supporting factors show a positive relationship. The results also revealed that the supporting and inhibiting factors show a stronger relationship for service firms than for manufacturing firms. For manufacturing firms, inhibiting factors have a non-significant relationship to customer involvement while the supporting factors have a marginally significant relationship to customer involvement. This is in contrast to service firms, where both inhibiting and supporting factors have strong significant relationships to customer involvement. One interpretation is that service firms are more influenced by the norms and values of customer involvement than manufacturing firms because the maturity of the development process is lower in service firms (Griffin, 1997; Martin and Horne, 1993), and there are lower levels of adopted development tools (Froehle et al., 2000).

**Project factors**

The literature on customer involvement in new product and service development suggests that the need for customer involvement is dependent on two interrelated factors that can be derived from the project level: degree of innovativeness and degree of project uncertainty. Empirical research has shown that radical products (with a high degree of innovativeness) entail greater risk (e.g., Olson et al., 1995). In this
subsection, previous research on these factors will be highlighted and reflected upon.

The literature reveals several ways to define innovativeness. In a critical review of the innovation and innovativeness typology, Garcia and Calantone (2002) highlight the confusion in terms of typology. They identified 15 constructs and 51 scale items in 21 empirical studies. These were analyzed from a marketing and technological perspective as well as from a macro level (market) perspective and a micro level (company) perspective. In their conclusion, Garcia and Calantone (2002, pp. 126-127) propose a typology where a distinction is made between new vs. existing technology and new vs. existing markets. A four-field matrix illustrates the argument.

![Figure 4.2 A proposed innovation typology (based on Garcia and Calantone, 2002)](image)

Based on the dimensions, three types of innovations are identified:

- ‘Incremental innovations’ incorporate product improvements (features, benefits, price, manufacturing, and process) into innovation using existing technologies targeted towards existing markets.
- On a macro level, ‘really new’ product innovation results in either market discontinuities or technology discontinuities but not both, and result in both types of discontinuities on a micro level. Really new products include new technologies in existing markets (product line extensions or new product lines) or existing technologies in new markets (also new product lines).
- On a rare occasion, a radical innovation will emerge. It will result in discontinuities in both the existing market structure and the existing technology structure. Examples of radical innovations are the steam engine and the World Wide Web (Ibid.).
A similar argument is presented by Leonard-Barton (1995). She suggests that the range of information to be imported from the market is dependent on two basic factors: the maturity of the technological design underlying the product line and the degree of alignment between the proposed product line and the current customer base. It is argued that a variance along these two dimensions determines the level and types of uncertainty faced by new product developers and consequently the types of information needed. Based on these dimensions, five generic situations are suggested (see Figure 4.3).

Figure 4.3 NPD processes at the extremes (Leonard-Barton, 1995, p. 184)

Leonard-Barton (1995) describes these as the following:

1) User-driven enhancement, i.e., an improved solution to a known need. Developers are guided by the knowledge that lower costs, more features, or better quality is likely to win in the marketplace. Customer research can be used.

2) Developer-driven development, i.e., a new solution to a known need. Market demand rather than technology drives product development; however, potential users' ability to translate their felt needs into a request for a particular solution decreases from bottom to top of Figure 4.3 because the relationship between their needs and the potential for a given technology to satisfy them becomes increasingly ‘obscure’. The development is driven by professional developers and the target is current users.
3) User-context development, i.e., a new solution to an unexpressed need. Developers immerse themselves in a user environment, and the possibilities inherent in the user context drive new product and service development.

4) New application or combination of technologies, i.e., a novel solution to an identified need. Technology rather than market demand drives product development. Developers apply mature technology to a new domain to attract a new set of users.

5) Technology/market co-evolution, i.e., an evolving solution to an uncertain need. Technologists develop an application for which they initially target the wrong market. Technology potential and market need have to coincide in both time and place for the necessary synergy to occur. Such developments are therefore both expensive and inefficient.

According to Leonard-Barton (1995), these various scenarios or situations require different interactions with the market. In the lower left part of Figure 4.3 where current customers are targeted for an extension of a well-established product line, the major activity is inquiry which uses, e.g., surveys and focus groups. In situations located on the diagonal from upper left to lower right (situations 2, 3, and 4) potential users can be identified but there is no directly analogous product on the market. Empathic design is a set of tools that aim to create new product or service concepts based on a deep (empathic) understanding of unarticulated user needs. The design is based on actual observed customer behavior, direct interactions between professional developers and potential users, and draws upon existing technological capabilities. And finally, when there are no certain technologies or customers (situation 5 Technology/market coevolution), information from the market must be sought through experimentation, future scenarios, and extrapolation of trends (Ibid.).

The discussion held by Leonard-Barton (1995) is supported in various studies. Veryzer (1998a) found that secrecy concerns and the proprietary nature of radically new products restricted the amount of information that could be provided to customers about them. He also found that it was not always easy for customers to comprehend or appreciate the radically new products or the implications of these innovations for their businesses or lives. It was found that these factors limit the degree to which the process may be customer driven.

Furthermore, in a fairly recent study, Callahan and Lasry (2004) analyzed data from 55 product development projects in the computer telephony integration industry. They measured product newness in terms of market newness and technological newness. They found that the importance of
end-user input in product development increases up to a certain point but then decreases for products that are new to the company developing them.

![Graph showing the importance of customer input for incremental, really new, and radical products](image)

*Figure 4.4 The importance of customer input for incremental, really new, and radical products (Callahan and Lasry, 2004, p. 116)*

In summary, in terms of customer input in development projects with various degree of innovativeness, several researchers support the argument that the greatest potential of customer input is when developing really new products and services. Customer input seems to be of limited use in terms of radical innovation, while it is widely used in terms of satisfying expressed needs of the customers. I find the discussion on new-product definition situations held by Leonard-Barton (1995) useful and relevant in terms of customer involvement. Customer involvement, as I see it, shares many of the same characteristics of empathic design. Customer involvement aims to develop new products and services based on (expressed and) unexpressed customer needs; it draws on existing technological capabilities and on situations where current and/or potential users can be identified. In my opinion, however, customer involvement does not necessarily involve direct observation of customer behavior although an understanding of customer behavior and context is of essence. A deeper discussion on empathic design and customer involvement techniques is held further ahead in this chapter, in subsection 4.4 Operational Decisions under the heading “Supporting techniques”.

As stated previously, innovativeness and project uncertainty are intimately related because the development of highly innovative products entails greater risk (e.g., Olson *et al.*, 1995). Comparing U.S. and Chinese state-owned enterprise manufacturers, Lin and Germain (2004) examined the effects of environmental context (technological turbulence), industrial context (production technology routineness and product complexity), and
organizational structure (formalization and decentralization) on customer involvement in NPD. The results displayed that customer involvement in NPD is positively predicted by product complexity and formalization, and inversely predicted by decentralization.

Gales and Mansour-Cole (1991) investigated user involvement in 44 innovation projects from an information processing perspective. They found that user involvement increased as projects progressed from idea generation to implementation, and increased the more uncertain and unpredictable the project was. These results contradict previous findings as they do not uncover that the importance of customer input decreases for radically new products (Callahan and Lasry, 2004; Leonard-Barton, 1995). However, it is likely that a majority of the studied innovation projects resulted in really new products/services rather than radical innovation which might explain the results.

In a later publication, the same authors extend the discussion somewhat and argue that customer involvement is dependent upon known and unknown uncertainty in projects and on the environmental context (Gales and Mansour-Cole, 1995). Known uncertainty refers to gaps in information. Under high known uncertainty, project managers are likely to increase customer involvement. Project characteristics, project stage, project interdependence, external environment are all potential sources of uncertainty in a project, while the frequency of customer interactions and the number of customers contacted reduce uncertainty. Contacts with a large set of potential customers are likely to provide developers with novel information and reduce uncertainty (Ibid.).

When studying previous research, in my opinion, there seem to be close to an agreement that the greatest potential of customer involvement is when developing really new products or services (new to the firms in terms of market newness or technology newness). Customer involvement can also be used in incremental innovation, however, as incremental innovation first and foremost address expressed customer needs, customer involvement can be found to be an expensive approach.

In our studies we did not specifically investigate innovativeness and project uncertainty. The reason is that our main interest was to investigate the role given to customers on a more general basis and the empirical relationship between customer involvement and results. This required an investigation of new product and service development and customer involvement on a program level rather than a project level.
Summary of situational factors

In this section a number of situational factors that affect the use, practice, and effects of customer involvement in new product and service development were discussed. The situational factors were divided into three types: market factors, organizational and cultural factors, and projects factors. The discussion can be summarized as the following:

- Our research confirms previous findings that customer involvement is more widely practiced in industrial markets than in consumer markets.
- The literature on customer involvement lists a number of supporting factors (e.g., reduced time-to-market and better new products and services) for involving customers in development projects, but there are also a number of inhibiting factors (e.g., increased work load and project uncertainty).
- Not surprisingly, our research shows a negative relationship between inhibiting factors and customer involvement; supporting factors show a positive relationship. Consequently it can be concluded that the norms and values held by members of the organization will influence the implementation of customer involvement.
- Furthermore, supporting and inhibiting factors show a stronger relationship for service firms than for manufacturing firms.
- In terms of new product and service innovativeness and project uncertainty, the greatest potential of customer involvement is when developing really new products or services (new to the firms in terms of market newness or technology newness) in contrast to incremental innovation and radical innovation.

4.4 Strategic Decisions

In this section I argue that there are four main strategic decisions that need to be made when planning a customer involvement project. First of all it is important to state the strategic objectives of the customer involvement project and decide what the customer should contribute (Nambisian, 2002; Ulwick, 2002). This will influence the type of customers who are most appropriate to involve (Enkel et al., 2005; Gruner and Homburg, 2000), which part of the development process the customer should be involved (Alam and Perry, 2002; Enkel et al., 2005; Veryzer, 1998a), and to what extent the customers should be involved (Alam, 2002; Gruner and Homburg, 2000). The following subsections address these issues.
Strategic objectives and rationales of customer involvement

Before initiating a customer involvement project, it is important to state the strategic objectives of the endeavor. Based on the objectives of the new product and service development project or program and available resources, decisions should be made in terms of what the customer should contribute. The stated objectives in terms of customer contributions will influence the rest of the project in terms of the customers who are selected for the task, how much and when they are involved, and by what means.

The rationale behind a higher degree of customer involvement in the development process is improved new product and service performance and ultimately better business results (von Hippel, 1988). Customer involvement,

... leads to the identification of information on customer needs, disseminates the information throughout the critical function areas within a company and translates this information into auspicious new products and services. (Enkel et al., 2005, p. 425)

A number of studies on factors explaining new product success and failure have been conducted, of which Rothwell et al., (1974) and Maidique and Zirger (1985) identified intensive communication with the customer as a determinant of new product success. In a study of time-to-market in 12 large technology-based firms, Gupta and Wilemon (1990) found that poor definitions of product requirements were stated as the primary reasons for product development delays. When asked how to improve and accelerate the product development process, companies emphasized the importance of early market testing and active customer involvement. In a service setting, Alam (2002) identified the following six objectives of user involvement: superior and differentiated services, opportunity for user education, rapid diffusion, improved public relations and building, sustaining long-term relationships, and reduced cycle time.

Based on literature, I find that there are at least three reasons for involving customers in new product and service development, and all of the reasons are related to the common goal of better customer knowledge. First, what makes it difficult to understand customer needs is the “sticky” and difficult-to-transfer information that customers possess in context (von Hippel, 2001). There is information that is well known to the customers but is difficult for them to express. Consequently, customer involvement provides an opportunity to learn from the customers, with the customers, and about the customers. Second, the benefits of a product that is new to a market are difficult to verbalize. Customers are naturally more familiar
with their own context and are better at evaluating the value in use of a product (Vargo and Lusch, 2004a).

Finally, customer involvement facilitates organizational learning (Neale and Corkindale, 1998; Sinkula, 1994). As knowledge about the market increases, customer involvement becomes an intangible resource embedded within the firm, making it an important competitive advantage that is difficult to imitate (Day, 1994b). Organizational learning occurs as individuals acquire intelligence, share the intelligence throughout the organization, achieve a shared interpretation of the intelligence, and alter organizational behaviors based on the shared interpretation (e.g., Day, 1994a, Sinkula, 1994; Slater and Narver, 1995). Organizational learning is valuable to a firm and its customers because it supports the understanding and satisfying of customers’ expressed and latent needs through new products, services, and ways of doing business (Day, 1994a; Sinkula, 1994). Organizational learning makes it possible to not only create products ahead of competitors, but also create products before the recognition of an explicit customer need (Hamel and Prahalad, 1991; Slater and Narver, 1998).

**Customer characteristics**

A traditional approach strives to obtain need information only from representative users at or near the centre of the intended target market, and assign the task of generating ideas for solutions leading to new products to manufacturers (Lilien *et al.*, 2002). Embedded in this approach is the view that company employees are best fit to translate needs into solutions that fit customers’ stated needs. Lilien *et al.*, (2002) argue that the value of assigning idea generation to manufacturers is not supported by research.

Customer involvement research suggests that the types of customers who are most conducive may vary according to market characteristics. In slow-mowing industrial markets, “average users” may provide satisfactory input to the development process (Gales and Mansour-Cole, 1995).

Goldenberg *et al.*, (2001) found that ideas based on solution spotting are superior to those associated with prior need assessment. The lead user process takes a different approach than traditional methods, collecting information about both needs and solutions from the leading edges of the target market and from markets facing similar problems in a more extreme form (von Hippel, 1986). Lead users are users who face needs that will be in a marketplace months or years before the general marketplace and are
positioned to benefit significantly by obtaining a solution to those needs (Ibid.).

Morrison et al., (2000) explored the characteristics of innovation, innovators, and innovation sharing by library users of an information system (OPAC) in Australia. Evidence from previous research and logic suggested that innovation by users would be found concentrated among lead users. It was found that innovating users had a high leading-edge status (LES) relative to other users. LES is defined as “the degree to which an organization use and apply technology innovations in new and different ways to solved problems faced by the organization, and the degree to which they perceive the benefits of new product earlier than the rest of the marketplace” (Morrisson et al., 2004, p. 352). They also found that 26 percent of the users modified their systems in both major and minor ways and that many innovation users freely shared their innovations with others (Ibid.).

Recently, Morrison et al., (2004) further developed and investigated their lead user construct - the LES. Results display a strong relationship between LES and, e.g., time of adoption and help to explain how users with high LES can contribute in both predicting and accelerating early product adoption.

As of now, the practice of the lead user process has first and foremost been applied in high technology industrial markets and been studied by means of case study research. According to Pitta and Franzak (1996), actors on the consumer market and services market do not have easy access to lead users. Typically, consumer products are sold in a retail situation which separates the manufacturing company from the customer and makes clear two way communication between manufacturer and customers difficult. In consumer services, there may be more personal contact. A significant number of services like insurance and banking, however, may be impersonal as these are often carried out using technology rather than face-to-face service encounters (Bitner et al., 2000). The investigation of the practice and value of the lead user process on consumer and service markets and larger empirical studies would add to case study findings (e.g., Urban and von Hippel, 1988; von Hippel, 1988).

In CuDIT, ordinary users, technically advanced users, and professional product developers were given the task of creating ideas for future mobile phone services. The results displayed that ordinary users create significantly more original and valuable ideas than technically advanced users; professional developers and advanced users created more easily realizable ideas (Kristensson et al., 2002; Kristensson et al., 2004;
Magnusson et al., 2003; Matthing et al., 2004 Appended paper III). The majority of the people participating in the study were university students, and therefore it is a legitimate question to ask how ordinary these customers really were. Additional research is therefore needed to validate the findings.

Gruner and Homburg (2000) explored the relationship between customer characteristics and new product success in a machinery context. Four customer characteristics were identified from interviews: technically attractive customers, financially attractive customers, customers in close relationships, and lead users. Results displayed that financially attractive customers, lead users, and close customers had a positive impact on new product success. Technically attractive customers on the other hand had a negative impact on new product success. A possible explanation for this variance is that technically attractive customers have needs that are different from those of the market in general and therefore can mislead the company (Ibid.).

Enkel et al., (2005) suggest additional customer types and for customers to make contributions in different parts of the NPD process:

- **Requesting customers** provide ideas for new products, often by means of complaints and suggestions. As complaints are based on current products, new product information is rather limited.
- **Launching customers** are integrated from the development phase to participate in development activities.
- **The reference customer** supplies application experience from prototype testing.
- **The first customer** enters the development process in the late phases of pre-announcement and market launch.
- **Lead users** could cover all stages of the NPD process.

In our investigation of customer involvement in Swedish industry (see Appended Paper IV), a majority (52 percent) of the companies that actively involve customers primarily involve customers with some type of expertise, e.g., lead users. Ten percent of the companies choose to primarily work with financially attractive customers, while 27 percent of the companies do not make any special selection of customers. For 6 percent of the companies, the strategy is to work with the customers who are interested in co-operation or to co-operate with the customers who are available at a specific moment.
Furthermore, we found that companies in the business market are more likely than companies in the consumer market to use customers with a special expertise. This is consistent with the findings presented by von Hippel (1986). Companies in the consumer market work with customers from the segment of financially attractive customers to a greater extent. A possible explanation for the selection of financially attractive customers could be that customer involvement is seen as an opportunity to build and sustain long-term relationships (Alam, 2000), something that ought to be particularly interesting with financially attractive customers as the purpose of any business is to attract and satisfy customers at a profit (Drucker, 1954).

In summary, a majority of the current research on customer characteristics in new product and service development has concentrated on the lead user concept. Recent research has identified and tested customers with additional competences or attractiveness. More research is needed, however, as is implied in this section. Our research on the subject adds to the current knowledge base as we investigate multiple industries and types of companies. The research suggests that a majority of the firms make conscious decisions in terms of what customers they engage. But still, almost 30 percent do not make any special selection of customers.

**In what phases of the development process are customer involved**

The third strategic decision on customer involvement deals with the phases of the development process where customer should be involved. There is confusion in the literature and the evidence is not conclusive in terms of where in the development process customer involvement is more effective. Some researchers claim that it is more effective in the so-called fuzzy front-end of the process (von Hippel, 1988; Reinertsen, 1999). The common practice, however, seems to be to involve customers later in the process (Cooper and Kleinschmidt, 1986; Feldman and Page, 1984; Veryzer, 1998a).

Veryzer (1998a) found that customer research in the development of discontinuous new products is rather limited during the initial stages of the process. Fifty-five product development projects in seven firms were analyzed from the computer telephony integration industry and four general phases of the development process were identified: concept generation and exploration, technical development and design, prototype construction, and commercialization. The results showed, that in the first two phases relatively little formal research was conducted. It was not until
the prototype phase that the first true opportunity arose to assess customer reaction to the product, its benefits and capabilities, and how it operated. Customer research during the commercialization phase aimed at refining design and clarifying marketing issues. Even though the same methods were used as in earlier phases, they tended to be more formal in the commercialization phase. Veryzer (1998a) argues that the results need to be tested on larger populations as the findings are based on a small sample. Also, this research was based on projects that develop discontinuous new products. Further research is needed to explore other types of new products along the incremental and radical continuum (Ibid.).

Additional research reports that customer involvement is used in both early and later phases of the development process. Based on field interviews and statistical analyses of 310 vice presidents and R&D managers, Gruner and Homburg (2000) explored the relationship between the intensity of customer interaction in different phases of the NPD process and new product success in a machinery context. They found that the intensity of customer interaction in idea generation and product concept development yielded significant effects on new product success. The positive effect of the interaction in the idea generation was weaker compared to the product concept development stage. As such, the authors suggested that customer information is more valuable in the more concrete phases. Furthermore, they found no significant results in the project definition and engineering phases. This was consistent with previous research by Cooper (1993). The intensity of customer interaction in the last two phases of prototype testing and market launch, yielded significant results. Customer interaction in the prototype testing phase displayed the largest significant effect of all phases (followed by product concept development). Suggested explanations are that in this phase, it is still possible to adapt the design to customer requirements, and that customers are able to provide very detailed and precise information regarding an existing and working prototype. Finally, it was found that market launch had the smallest significant effect. This is no surprise as changes of physical products are no longer possible at this stage (Gruner and Homburg, 2000). One limitation of this study is that it is restricted to a business-to-business context in a single industry. The focus of the study is also on physical products. Consumer goods and services can pose different problems than industrial goods.

From a financial business-to-business service context, Alam and Perry (2002) distinguished ten stages in the development process. When investigating the role of the customer, they found that customers contributed to all of the stages. In particular, the three stages of idea
generation, service/process system design, and service testing/pilot run reported the highest frequency of customer involvement.

In reviewing early research we found that there had been few attempts to investigate the impact of customer involvement in different phases of the development process. As such we formulated the following research question:

What impact does customer involvement have on results in different phases of the development process?

Our results display that customer involvement contributes to profitability in all phases of the development process (See Appended Paper V, a summary is provided in the adjoining framed section). The finding is slightly different from the findings of Gruner and Homburg (2000) and Martin and Horne (1993).

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The primary goal of this article is to better understand how customers add value to the development process and how this value differs for manufacturing and service firms. An additional goal of this research is to identify the phases of the development process where customer involvement has particular impact.

Based on a search in three research databases an extensive review of research on customer involvement was carried out. Based on the review of research and previous findings from qualitative interviews with managers on customer involvement, we developed a conceptual model, formulated research hypotheses, and developed a questionnaire including 52 items.

Our sample of companies included Swedish firms from various manufacturing and service industries. The survey was sent by email to R&D and marketing managers in Swedish firms taken from an external data base. We obtained 366 responses. An analysis of non-respondents results in an effective response rate of 26, 4%. Also, objective financial data for the responding companies were obtained.

The empirical investigation of our conceptual model contrasting manufacturing and service firms shows an interesting pattern of similarities and differences between customer involvement and profit margin. Overall, it was found that the degree of customer involvement has a similar positive impact on a firm’s actual profit margin for manufacturing and service firms.
We also found that the strategy phase is a weakness for manufacturing and service firms. Customer involvement in this phase has the largest improvement potential, as performance is relatively low and the impact on profit margin is high. In other phases of development the implications for goods and services are quite different. One of the strengths or competitive advantages for the manufacturing firms is the idea generation phase where there is a high impact on profit margin. In contrast, customer involvement in the later phases of the process has a smaller impact on profit margin because even though customers know what their problems are with the present product or what they would like to see in a future product, their expertise diminishes as the firm moves towards a technical solution. Apart from the strategy phase, service companies have two more potential problem areas - the concept phase and the design phase. In these phases, companies use a low degree of customer involvement but increased usage would have a large impact on profit margin.

One important contribution from our study is that we link customer involvement in different phases of product and service development directly to companies’ profit margins. Few studies have focused on whether or not it is beneficial to involve customers in the development process. Several researchers have studied the relationship between market orientation, innovation, and performance but their focus is on how market orientation as an abstract concept influences innovation. Our empirical research is the first to relate the degree of customer involvement in the development process to an objective measure of profit margin.

We found that the benefit of customer involvement varies according to the phase of the development process. For development in manufacturing firms, the reward from customer involvement is highest in the early phases (strategy and idea generation) of the development process. Consistent with previous research by Gruner and Homburg (2000), it seems that companies should rely more on their own skills during the technical development of the product than on the technical solutions of customers.

For service firms, the pattern over the five phases of the development process is more complex. The impact of the first phase (strategy) is rather large, then it decreases in the idea generation phase, and then it becomes larger in phase three and four. Generally, it seems as if the reward from customer involvement is highest in the later phases of the development process. During the early phases of service development, developers often have problems describing the service to customers. Customers therefore have difficulty providing valuable feedback to developers before the service has reached a certain degree of concreteness. Since the customers can not fully understand the intangibility of the service concept in these phases, the possibility of them contributing is limited.
Previous research on the effects of customer involvement in different phases of the development process draws a complex picture and our research adds to the complexity. While we found that customer involvement in all phases contributes to profitability, previous research establishes a more dichotomous approach stating that customers should not be involved in certain phases. Additional research is needed to study the relationship between customer involvement in different parts of the development process and performance.

**Degree of customer involvement**

A majority of organizations appear to have some contact with customers during the development process (Martin and Horne, 1993; Moore, 1987). In section 3.5 ‘The customer involvement continuum’, I introduce the subject of intensity or degree of customer involvement. While that discussion aimed to prove that customer involvement as a concept can be given different meanings, this section aims to present relevant empirical studies on the subject and identify future research issues.

In the previous section, Alam’s (2002) customer involvement continuum was discussed. His empirical analysis showed that most companies fall in the middle of the continuum or more toward the intense end of the continuum. The two most preferred levels of involvement were extensive consultation and feedback on specific issues. The investigated companies’ degree of customer involvement was chosen because it was perceived as less expensive, less time-consuming, and much easier to manage (Ibid.). I find it interesting that the decision about how much to involve customers seems to be based only on practical and resource-based criteria, rather than in conjunction with the potential benefits customer involvement can offer.

Building on von Hippel’s (1979) terminology of user dominated and manufacturer dominated, Voss (1985) suggests five categories:

- **User developed, not transferred.** The user handles all four stages of the innovation process and distributes the software commercially.
- **User developed, transferred.** The user handles the first three stages and the supplier then handles commercial diffusion.
- **User innovation, supplier developed.** The user recognizes the need and generates the idea for the solution.
- **User initiated supplier innovation.** The user expresses the need and the supplier handles the rest of the process.
• Supplier innovation. The supplier handles all four stages without user involvement, except of course later as a commercial customer.

The typology is based on which of the two parties (user or manufacturer) dominate in each of the four phases of the innovation process: need recognition, idea formulation, development, and commercial diffusion. In analyzing 63 descriptions of software innovations, Voss (1985) found that there was extensive user involvement in the development process with significant participation in every phase. Nineteen of the innovations were user active. Of these, eight innovations were launched on the market by users. Forty innovations were in the supplier active category. Nine of these were user initiated. Overall, it was found that users played a role in the development process in 28 out of 59 cases.

In a study that compared successful and unsuccessful NSD projects within the same firm, Martin and Horne (1995) found that customer participation was relatively low in both the successful and less successful projects. The results also displayed that customer participation was significantly greater in the successful projects compared to the unsuccessful.

Building on relationship marketing theory, which suggests that customer relationships should be managed consciously in portfolios and findings from three case studies, Lagrosen (2005) suggests a framework for customer involvement in different levels of relationships.

<table>
<thead>
<tr>
<th>Level of relationship</th>
<th>Longitudinal customer relationship</th>
<th>Lateral customer involvement</th>
<th>Suitable methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactional</td>
<td>Only in the early phases</td>
<td>Design for the customer</td>
<td>Surveys, focus group interviews, observation</td>
</tr>
<tr>
<td>Facilitative</td>
<td>In the early phases, in the testing phase, and occasionally in the other phases</td>
<td>Design with the customer</td>
<td>QFD, Delphi method, conjoint analysis, prototype testing, beta testing, team customer visits</td>
</tr>
<tr>
<td>Integrative</td>
<td>In all phases</td>
<td>Design by the customer</td>
<td>Integrated product development teams including representatives of both the supplier and the consumer</td>
</tr>
</tbody>
</table>

Table 4.2 A proposed framework for customer involvement in different levels of relationships (Lagrosen, 2005, p. 433)
I agree with Lagrosen’s (2005) argument that depending on the nature of the relationship with a customer, the customer plays a corresponding role in development processes. Lagrosen investigated customer involvement in small companies; it would be interesting to investigate if larger companies practiced the customer portfolio thought in their customer involvement processes.

In the CISO study (See Appended Paper IV), we empirically investigated the customer involvement continuum (based on Ives and Olsen, 1984) presented in chapter two. However, in contrast to the customer involvement continuum that highlights six different customer roles, we chose to only stress five roles. We found it difficult to operationalize and distinguish between ‘customer as a buyer’ and ‘customer as a subject of interest’ without adding a negative tone to the item and we also felt a need to limit the number of items in the survey. As such we chose to merge those two roles into one named “no customer involvement”.

We found (see Diagram 4.2) that 14 percent of the investigated companies do not involve customers in their development processes; their products are developed based on the company’s core competence and/or new technology. Thirty-three percent of the companies maintained that customers are involved by means of market research activities such as surveys, focus groups, and interviews. The most common way to involve customers is as experts in part of the process (36.5 percent). The highest degrees of customer involvement are also the least common ways to use customer information in the development process. About 13 percent view their customers as partners where they contribute with knowledge and competence throughout the entire process. And finally, an additional 3.6 percent stated that a large proportion of their new products and services are actually developed solely by customers.

![Diagram 4.2 Degree of customer involvement in Swedish organizations](image-url)
In addition to investigating the degree of customer involvement on an overall level, we investigated the actual mode of collaboration with customers. The respondents were asked to rate the extent to which they carried out certain activities related to collaboration with customers. Most common was frequent meetings with customers followed by collaboration with the customer in different phases throughout the development process and systematic customer involvement.

In summary, we found that the extent to which firms involve their customers in development activities varies; however, the great majority of the firms end up on the lower end and in the middle of the customer involvement continuum. Because of its potential, we find this somewhat disappointing but not surprising. The literature states a number of difficulties with customer involvement, such as the not-invented-here syndrome (Olson and Bakke, 2001), the fact that it is resource demanding (Nambisian, 2002), and the possible lack of appropriate methods and techniques. These factors might explain the still limited practice of customer involvement.

It will be interesting to follow future research to see if customer involvement will be intensified over time or if it will be constant. Furthermore, it would be interesting to see the variation of customer involvement in different development projects within the company. Are decisions to involve customers based on the specific needs in a development project or are they based on the organizational culture?

**Summary of Strategic Decisions**

In this section, four strategic objectives of customer involvement were identified and discussed. These include customer involvement objectives, customer characteristics, where in the process customers should be involved, and to what extent. Some important conclusions from this section are as follows:

- The main objectives of customer involvement are to deepen the knowledge of the customer and translate this knowledge into new and improved products and services.
- A majority of the research on customer types has focused on the lead user concept. These users face needs well ahead of the general marketplace and would benefit significantly by obtaining a solution to those needs. As such they should be identified and used to infuse
the development process. A majority of the conducted research on lead users has been based on case studies in industrial markets.

- New research, from a service setting, found that ordinary customers developed more original and user-friendly ideas than technically advanced customers and professional developers.
- Almost 30 percent of companies do not make any special selection of customers to involve in their development process.
- The evidence is not conclusive in terms of where in the development process customer involvement is more fruitful. Our research suggests that customer involvement in all phases contributes to profitability.
- The effects of where in the process customers were involved differed between manufacturing and service firms. For manufacturing firms the reward from customer involvement is highest in the early phases whereas in service firms the reward is highest in the later phases of the development process.
- The role given to customers in development efforts varies. We found that customers were most frequently given the role as experts or informants.
- Fourteen percent of companies do not involve their customers at all.

4.4 Operational Decisions

Operational decisions include how to actually carry out customer involvement projects and operationalize the strategic decisions. This section is divided into two subsections. The first subsection discusses how customers are recruited and their motives to participate. This section also highlights the limited research conducted on the subject from the customer’s perspective. The second subsection discusses the means by which customers are involved in the process, i.e., the formal customer research techniques that support customer involvement.

Recruitment and customer motives

Up until now there has been little research that has focused on how customers are selected and recruited. As previously mentioned, a majority of the research on customer characteristics have focused on lead users. It is also in this field that the majority of research on recruitment is found.
In the lead user method (von Hippel, 1986), emphasis is placed on identifying and recruiting lead users. The method is described as a four-step process where the first task involves identifying an important trend that is associated with a promising new product or service opportunity. The second task is to identify lead users who lead that trend in terms of experience and intensity of need. Next, needs data from the lead users are analyzed. And finally, lead user data are projected onto the general market of interest.

Von Hippel (1986) maintains that identifying lead users is different depending on the type of market. In consumer markets with respect to specific trends, lead users can readily be identified by appropriately designed surveys. Those found to place a significantly higher value on important attributes are the users who anticipate obtaining the highest net benefit from a solution to the need. They are therefore lead users with respect to this trend. It is usually straightforward in the case of industrial goods because a given firm’s position in terms of trends is usually well known to industry experts. Consequently, the firm has only a few major potential customers and often knows the characteristics of each user quite well (Ibid.).

Lead users can also be identified by searching for users who develop their own solutions to their perceived problems. R&D is expensive and users who conduct such activities obviously have a lot to gain from a solution. The problem with these lead users might be that they have solved their problem but they do not have the need or the desire to help commercial firms (Ibid.). This leads us to the subject of customer motives.

There are obvious reasons why firms might be interested in customer involvement. It is more difficult to understand what drives customers to be interested. Recent developments in the market have made it easier for customers to communicate with corporations and other customers. According to Prahalad & Ramaswamy (2000), the Internet has proven to be an important tool for customers (industrial as well as consumers) to engage in an active and explicit dialogue with manufacturers of products and services. Consumers can now initiate a dialogue and the market has become a forum in which consumers play an active role in creating and competing for value. Individual users can address and learn about businesses either on their own or through the collective knowledge of other users through, e.g., user communities. As a result, the dialogue is no longer controlled by the corporations (Ibid.).

According to Nambisian (2002), customer involvement in new product and service development is almost always voluntary. Building on earlier
research and research into virtual customer communities, Nambisian (2002) identifies three types of benefits that customers can realize by engaging themselves in development work. First, service or product related benefits can include benefits such as feelings that their involvement is necessary to guarantee product and service quality, a possibility to lobby and influence the firm to incorporate certain features and attributes, increased knowledge, and a possibility to satisfy creative urges and curiosity. Second, community-related benefits are benefits that originate from the community of users. Strong social identities are developed within these communities as well as interpersonal relationships among users. These relationships provide a sense of belonging and identity that allows customers to share innovative and value-creating ideas with others and discuss other issues and problems. Third, medium-related benefits relate to the positive experience of the medium itself, i.e., experiences that can lead to more intense participation in new product and service development (Ibid.).

It can be assumed that many of these benefits can be obtained in other customer involvement settings besides virtual customer communities. Schneider and Bowen (1995) found several potential incentives for customers to be involved as co-creators and co-producers, including enhanced self-esteem because of increased control, more discretion and opportunities to make choices, and greater product customization.

One of the few attempts made to discuss customer involvement from a customer perspective is provided by Brockhoff (2003). In a conceptual article, he suggests that the locus of initiative of customer involvement in NPD is relevant when identifying different types of involvement. In services, producer-customer interactions come naturally because one distinguishing factor of many services is that they are created in an interaction. Sometimes these interactions can be initiated by the company, and sometimes by the customer. Service failures are one situation where interactions can be initiated by the customer (in terms of a customer complaint).

In this thesis, emphasis is placed on customer involvement initiated by an organization; however, Appended Paper I (see summary in the adjoining framed section) describes how unsolicited information from customers can be used to infuse NSD. Appended Paper I focuses on how customers can provide input to NSD processes through the use of service guarantees.
The Role of Service Guarantees in Service Development


Service development has proven to be an important but difficult task for companies competing through services. Key aspects of product development, for instance systematization and customer involvement, are found to be relatively low in service development projects. Consequently, systematic and efficient use of customer interaction opportunities is important, since these situations may contribute with information that can infuse the service development process. Service failure is one such situation, as the heterogeneous, abstract and perishable nature of many services increase the possibility that some things will go wrong, as a result of the delivery system, the actions of the employees, or the customers themselves.

Service guarantees are a formalized recovery technique that is used for dealing with service failures and learning from the experience. The guarantee has been argued to influence customers' willingness to complain, and thereby aid the company in identifying customer needs and improve the service according to those needs. The understanding of the role of service guarantees in developing the service is limited as no studies have been conducted on the subject. Therefore, a study was designed with the aim to describe and analyze how a service guarantee may support service development.

Methodologically, we chose an exploratory approach to the study because this study delves into unexplored territory. Data was gathered though 31 in-depth interviews with customers and employees within three companies. The case companies were selected based on several criteria: they have all offered service guarantees to their customers for at least a year, are part of the same industry, and are based on similar service contexts. The selection of the research context was influenced by an article in Sloan Management Review, where it was identified that the size of the compensation of the guarantee has to be large enough to allow for service improvements. Hart et al., (1992) identify that in B2B companies, the rate of the service guarantee payout is higher than in B2C businesses, and they also recognize that each payout is likely to be more painful as there usually are fewer customers and higher fees related to each customer within a B2B setting. The authors also imply that the focus on achieving and maintaining service quality would be high in B2B. They specifically state that "in part because of the particularly high cost and hard-to-quantify nature of their work, management consulting firms in particular have been adventurous in exploring the unconditional guarantee". Based on these findings, we chose the Temporary Work Businesses and Staffing Services (TWBSS) industry, where the same patterns could be anticipated.

Determined by accessibility of data, we selected a host case. The host case company offered free access to employees, customers who had invoked the guarantee, and internal documentation from different guarantee processes. In addition to the interviews, we also carried out a content analysis of all guarantee reports filed by the host company. The content analysis aimed at identifying situations where guarantee
The literature on service guarantees states that service improvements will occur since the guarantee makes service failures too costly for the company. However, even if the costs in theory force the company to improve, the mere presence of a guarantee does not secure service improvements. Our review shows 29 guarantee reports where people filled out the form, acknowledged the problem, and solved it on a short-term basis. From a service development perspective, these claims contain inadequate information and complicate service improvement. In three reports, reflections are made that the problem could occur again and affect other customers, but no measures had been taken to prevent such occurrences. There is, however, concrete evidence that in nine out of 41 reports, a redevelopment and improvement of the service offer had been made.

Service guarantee assure customers of economic reimbursement and that the company will take responsibility for failures. The guarantee influences customers to contact the company and indeed file a complaint. For the service firm, it provides an opportunity to not only interact with customers and to uncover first and foremost the dissatisfaction with the current service, but also to provide additional information in terms of, e.g., needs, behavior, and changing requirements. Information can be used to infuse the NSD process.

The main contribution of the article is that it focuses on the situation after the service guarantee has been invoked, which separates our study from the more common pre-purchase studies of service guarantees. This has been done with a service development perspective. The guarantee has contributed to NSD through its influence in three service processes: the service process, the recovery process, and the development process itself.

Brockhoff (2003) maintains that since customers have different levels of expertise, they should be chosen according to their ability to appreciate the degree of newness of the future product as well as their potential phase specific contributions. As well, the costs involved on the customers’ side can call for a reward, and these costs might be influenced by the involvement of other customers (Ibid.). In terms of reward, the initial example of the customers who were invited to participate in BMW’s innovation process stated that under certain circumstances customers are willing to participate for free, and there are yet other examples where customers are willing to pay to try a prototype, e.g., Windows’ beta versions.

An additional study that addresses customer involvement from the customer’s perspective is provided by Franke and Shah (2003). They analyze the context of which members of sports-related user communities develop consumer product innovations. Focus is placed on how user
innovators gather information and assistance necessary to develop their ideas and how they share and diffuse the resulting products. It was found that almost a third of the members report to have innovated. Over 40 percent of the innovations were stated to solve urgent problems for the innovators and about 15 percent of the innovations were considered to be a completely new product by their innovator. Furthermore, it was found that innovators spend more time in the community and have been members for a longer period. Other members contributing to the innovation was stated by 63.5 percent of innovators (Ibid.). Based on Franke and Shah’s (2003) research, it is interesting to note how willingly users share information, knowledge, and innovations among each other.

In a similar empirical context, Lüthje (2004) investigated 153 users of outdoor related consumer products. In conformity with the findings of Franke and Shah (2003), Lüthje (2004) found frequent innovation by consumers and the possibility to efficiently identify those who innovate.

Research into customer recruitment, customer motives, and a general focus on the subject from the customers’ perspective has been scarce. In a customer involvement project the customer is given the role of co-developer and is considered a valuable resource, and sometimes an equal partner. Furthermore, due to this nature of the subject, I found it surprising that so little research from a customer perspective has been carried out. On the other hand, the research presented in this thesis is no exception. In retrospect, it would have been interesting (and probably tactical) to adopt a more developed customer perspective as it is a large research gap to fill. I can only speculate about the general reasons for this lack of research, but I found that for customer involvement to occur, the value of such a task must be proven and presented to the developing firm. As such, the firm was the obvious starting point for me. Therefore, I found it logical to mainly adopt a management perspective.

**Supporting techniques**

I argue that the purpose, choice, and use of market research techniques and ways of working are clear indications of a firm’s market orientation. The techniques (tools, methods, and ways of working) are the means by which information is collected and customer knowledge is developed. As such, I found this research question particularly interesting:
This research question is attended to in four appended papers (I, II, III, and IV). Appended Paper I, II, and III discuss specific customer research tools and techniques, while Appended Paper IV describes organizations’ use of different techniques in general. I will briefly discuss these papers here; however, the major part of the section discusses customer research on a general level.

Despite the importance, it seems unclear which specific techniques are most appropriate to support the development process. Tidd and Bodly (2002) provide a number of reasons for this. First, there seems to be a gap between managers’ perceptions of criteria for successful innovation and reality. The authors refer to one study that showed that only 7 percent of managers were aware of the main findings of customer research and only half of these had made attempts to change their ways of working based on the research results. Second, there is a widespread lack of formal predevelopment activities based on such criteria. And finally, development processes have not been altered to reflect the changing environment (Ibid.).

At the same time, there has been a lot of criticism that many of the traditional market research techniques (such as surveys, focus groups, and interviews) tend to result in minor improvements rather than innovative thinking and breakthrough products (e.g., Flint, 2002; Leonard-Barton, 1995; Slater and Narver, 1998; von Hippel et al., 1999). This problem is said to arise because customers have trouble imagining and giving feedback about something that they have not experienced (Leonard and Rayport, 1997; Lilien et al., 2002; Ulwick, 2002; von Hippel, 1986). Lilien et al., (2002) refer to research by Dunker (1945) on problem solving that showed that individuals are strongly constrained by their real-world experience - an effect called “functional fixedness.” Thus, those who use an object or see it used in a familiar way are blocked from using that object in a novel way. This fixedness effect has also been displayed in innovation practice (Ibid.).

Hyysalo (2003) argues on the basis of a proposed theoretical model that user needs co-evolve with the changing social and technical environment. Therefore, user needs should not be treated as something that already exists and is waiting to be collected. He further argues that common techniques, such as user interviews, and user-centered design methods,
operate mainly with pre-established representations of use, e.g., descriptions, sketches, mock-ups, and scenarios, which form only a part of the users’ applications of new technologies.

Lundkvist and Yakhlef (2004) criticize the information-processing approach as it assumes that the necessary information for reducing uncertainty in NSD processes exists and belongs to the customer. It is further argued that the information-processing approach identifies new product or service development as only a matter of finding where the required information is located and communicating it from where it is to where it should be using language. Instead, the authors advocate a conversational approach that regards customers’ involvement in innovation in terms of conversational exchanges among customers and developers during which new ideas are co-created and a commitment to action is established. I agree with the arguments presented by Hyysalo (2003) and Lundkvist and Yakhlef (2004) and recent research stating that customers’ new service or product preference formation, rather than being a pre-existing state that directs the course of the development project, will evolve through customer engagement with specific new product ideas, concepts, and prototypes across the stages of NPD (Hamel and Prahalad 1991, 1994). As such, customer involvement should be seen as a continual approach and be based on interaction and dialogue.

Empirical research on differences between customer research techniques

I have found three recent empirical studies that discuss and analyze differences among customer research techniques. Lilien et al., (2002) compared outcomes of projects using more conventional approaches (including market data collected by outside organizations, data from focus groups with major customers and from customer panels, and information from lab personnel) with outcomes produced by lead user projects at 3M. They found that ideas generated in lead user processes had forecast sales after five years that were more than eight times higher than the sales of the contemporaneously funded projects: $146 million annual sales on average versus $18 million. They also found that lead user projects had significantly higher novelty, addressed more original and newer customer needs, and also had significantly higher forecasted market share in year five (on average, 68% vs. 33% for non-LU ideas) than did those from more conventional methods.

Lilien et al., (2002) also refer to a survey of 154 senior marketing officers of U.S. corporations. Eliashberg et al., (1997) assessed the range of market research techniques that might enhance the output of NPD processes, classifying them by type of product sought (radically new vs. marginally
new) and nature of the research method (traditional vs. nontraditional). Their conclusion is that traditional marketing research methods collect information from customers at the center of the market, i.e., respondents whose thinking is limited by their current experience and environment. They also note that these traditional methods have generally failed to produce radical new product breakthroughs, leading to an interest in non-traditional methods (Eliashberg et al., 1997).

Tidd and Bodiley (2002) investigated the effect of market research techniques for high novelty projects. They found that focus groups, partnering customers, and lead users are considered to be more effective in the concept development phase for high novelty projects. They also found that for concept development, only about one third of the firms exploit user developers or customer partnerships, but those that do rated them as being highly effective. I find it interesting that focus groups, often described as a traditional market research technique, yield such positive results in terms of high novelty product. This finding somewhat contradicts the general opinion on the subject.

A classification scheme

The previous discussion indicates that different market research techniques are appropriate under different circumstances. This makes it interesting and useful to categorized customer research techniques according to different criteria. Recently, van Kleef et al., (2005) proposed a classification scheme for consumer research techniques in the early stages of NPD. The classification scheme is based on three performance dimensions with specific criteria:

1. Information source for need elicitation. In consumer research, stimuli are used to guide participants in revealing their opinion. An important distinction can be made between the type of stimulus that is used to elicit consumer needs, which can be need or product-driven, and the familiarity of the stimulus.

2. Task format. Task differences in methods can be responsible for differences in elicited consumer needs. A distinction is made between the evaluation of a) multiple products versus a single product and b) the type of response required of participants including associations, perceptions, preferences, and solutions.

3. Need actionability. Actionability refers to the ability of information to indicate specific actions to be taken in order to achieve the desired objective. In assessing the actionability, a distinction is made among product characteristics (measurable and physical product properties), product attributes (characteristics customers infer from
the product), and perceived product benefits, and values (beliefs about oneself and the perception of oneself by others) (Ibid.).

Based on the classification scheme, they review ten of the most common customer research techniques used in the early stages of NPD. A summary of the review is provided in Table 4.3.

Table 4.3 Ten techniques described on stimuli, task format, and actionability (free from van Kleef et al., 2005, p. 191)

<table>
<thead>
<tr>
<th>Methods</th>
<th>Stimuli</th>
<th>Multiple or single products</th>
<th>Task format</th>
<th>Self-articulated/directly derived</th>
<th>Structure of data collection</th>
<th>Actionability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category appraisal</td>
<td>Product-driven</td>
<td>Familiar</td>
<td>Multiple products</td>
<td>Perceptions/preference</td>
<td>Indirectly derived</td>
<td>Structured</td>
</tr>
<tr>
<td>Conjoint analysis</td>
<td>Product-driven</td>
<td>Unfamiliar</td>
<td>Multiple products</td>
<td>Preference</td>
<td>Indirectly derived</td>
<td>Structured</td>
</tr>
<tr>
<td>Empathic design</td>
<td>Free elicitation</td>
<td>No stimuli presented</td>
<td>No product evaluation: observation</td>
<td>No judgments asked</td>
<td>Indirectly derived</td>
<td>Unstructured</td>
</tr>
<tr>
<td>Focus group</td>
<td>Product- or need-driven</td>
<td>Familiar/Unfamiliar</td>
<td>Multiple/Single products</td>
<td>Preference</td>
<td>Self-articulated</td>
<td>Unstructured</td>
</tr>
<tr>
<td>Free elicitation</td>
<td>Product-driven</td>
<td>Familiar</td>
<td>Single products</td>
<td>Association</td>
<td>Self-articulated</td>
<td>Unstructured</td>
</tr>
<tr>
<td>Information acceleration</td>
<td>Product-driven</td>
<td>Unfamiliar</td>
<td>Multiple products</td>
<td>Perceptions/preference</td>
<td>Self-articulated</td>
<td>Structured</td>
</tr>
<tr>
<td>Kelly repertory grid</td>
<td>Product-driven</td>
<td>Familiar</td>
<td>Multiple products</td>
<td>Perceptions</td>
<td>Self-articulated</td>
<td>Unstructured</td>
</tr>
<tr>
<td>Laddering</td>
<td>Product-driven</td>
<td>Familiar/Unfamiliar</td>
<td>Multiple products</td>
<td>Perceptions/preference</td>
<td>Self-articulated</td>
<td>Unstructured</td>
</tr>
<tr>
<td>Lead user technique</td>
<td>Need-driven</td>
<td>Familiar</td>
<td>Multiple/Single products</td>
<td>Solutions</td>
<td>Self-articulated</td>
<td>Unstructured</td>
</tr>
<tr>
<td>Zaltman metaphor elicitation technique</td>
<td>Need-driven</td>
<td>Unfamiliar</td>
<td>No product evaluation</td>
<td>Association</td>
<td>Self-articulated</td>
<td>Unstructured</td>
</tr>
</tbody>
</table>

The review reveals that the methods primarily differ in their degree of actionability and their ability to develop ‘out of the box’ ideas. The classification scheme of these techniques supports the statement that the methods are not direct substitutes. Rather, their appropriateness depends on the purpose for which they are implemented and the innovation strategy. I found the classification scheme of van Kleef et al., (2005) useful.
as it can assist managers to review, categorize, and select appropriate techniques to use.

Other tools to help managers select the right tools or techniques in the process of need assessment in NPD are provided by Kärkkäinen et al., (2001). They argue that to be able to select the right tools for a certain task and use them in a correct way it is necessary to consider a number of aspects. These include purpose and goals of need assessment, the phase of the development process, available resources, time schedule, current knowledge, and the most significant problems. The authors suggest four selection aids in the form of classification schemes to help in the selection of tools:

- The purpose: i.e., goal of the tool, needed input information, and received output information.
- The process: i.e., what phase of the customer need assessment process, e.g., define starting situation, gather data, structure, and analysis, and set development targets for the product.
- The problems: i.e., unclear customer concept, knowledge gaps, few interactions between customer and company, internal communication, and screening.
- The resources: i.e., human resources and estimated time table.

Both studies by van Kleef et al. (2005) and Kärkkäinen et al. (2001) were developed in a NPD context. In future research it would be interesting to investigate the usefulness of these tools in service contexts. Perhaps there are other aspects, or criteria that are particularly important in a service setting. Furthermore, the focus of these studies was on early phases of the development process. I can see that a classification scheme and additional selection tools would be useful in the latter phases of the development process as well.

A departure from the customer involvement continuum presented in section ‘2.5 Customer Involvement Continuums,’ techniques can be categorized in terms of the degree of customer involvement in the process. In the simplest way, a distinction can be made between techniques that exclude the customer and techniques that include the customer. The underlying logic is that customers are included if they are the main source of the collected information, and customers are excluded if they are not the main source. Departing from this view, all techniques that collect primary data from customers could be characterized as supporting customer involvement techniques. This criteria supports the view
“Customer involvement in NSD = Customer research” described in ‘2.5 Customer Involvement Continuums’.

Reactive and proactive techniques

Another way to categorize market research techniques and distinguish between supporting and non-supporting customer involvement techniques is to focus on the aim of the development activities. Johnson (1998) distinguishes between reactive and proactive techniques. Reactive techniques aim to chart the customer’s relation and attitude towards the current offer, and include techniques such as focus groups, in-depth interviews, and critical incident techniques (Ibid.). These techniques are useful when a company wants a deep understanding of how the customers view the offer and the service provider. Appended Paper I focuses on service guarantees and how these can be used to support NSD. Service guarantees can for instance be categorized as a reactive tool as these are invoked once the service has been consumed (Björlin Lidén and Sandén, 2004).

The other set of techniques involves trying to predict what product or services the customer would want to have in the future. A technique that aims to uncover these needs is characterized as proactive. According to Johnson (1998), proactive techniques aim to get a deeper understanding of the customers, i.e., the values that lie behind choosing a product. The proactive methods are much more demanding since they require new ways of thinking.

One type of method that falls under this category is observation. It is a proactive technique as it focuses on and analyzes customers’ use of current products or services (Deszca et al., 1999; Slater and Narver, 1998) in order to uncover latent needs and identify, e.g., usage problems. Observations of customers can be carried out using various techniques. One such technique is empathic design (Leonard and Rayport, 1997). In empathic design product developers, trained anthropologists, and ethnographers observe potential customers in their own environment. Empathic design has three important attributes. First, it captures the non-verbal cues people give of their feelings as well as spontaneous, unsolicited comments that are stimulated by an actual product, service, or prototype. Second, trained observers with knowledge of technical possibilities can see solutions to unarticulated needs or problems which users could not conceive. And finally, empathic design occurs in a natural setting and does not interrupt the usual flow of activity.
The observation of customers in real situations can access five types of information which traditional market research cannot. First, what trigger is used? What is it that makes people use the product or service? Are they using it in the way that is intended and expected? Second, how does the user interact with the environment? Third, does the user reinvent or redesign the product or service to better suit his/her own purpose? Fourth, how do intangible attributes of the product or service influence the user? And finally, observation could uncover users encountering a problem which they do not realize can be fixed or may not even view as a problem (Leonard-Barton, 1995; Leonard and Rayport, 1997).

Another example of observational technique has been developed by Echeverri (2005). The point of departure is the practical and theoretical problems of validity in measuring and analyzing the dynamic, interactive, and fuzzy nature of services. To explore these aspects of services, Echeverri (2005) designed a study, in a public transportation context, and develops a method that is based on video recordings of observational data and a complementing “think-aloud” method. Two samples of customers were studied. The first group consisted of eight individuals with functional disorders. The second group was people without any functional limitations. The customers were equipped with a mobile microphone to document customer cognitions, emotions, and behavior during a trip from their homes to a chosen destination. During the trip, a second person (a researcher) followed the traveller and documented the trip using a mobile video camera. The participants were encouraged to use the think-aloud methodology to document spontaneous perceptions of the travel experience. In the video, the researchers were able to observe the passengers’ mobility, behavior, and gestures, as well as physical objects that formed elements of the service process. The customers were utilized to collect data, to sort out what were relevant data, and to interpret the data. Based on this information, the researchers were able to identify the most significant aspects of the trip. The results displayed a number of environmental and processual factors that are critical for the customers and that the method provides a tool for getting close to the essence of the service phenomenon (Ibid.).

It is important to note that the purpose of this study was not primarily to capture customer latent needs. In my opinion, however, the method described by Echeverri (2005) can be used for such purpose. Also, Echeverri (2005) argues that the method is suitable to capture customers’ real-time perceptions of a service. As such, I highlight it here as a proactive and supportive customer involvement technique. A deeper discussion on observational techniques and an empirical example is provided in
### Paper II: Observing Customer Behavior


The importance of identifying and satisfying customer needs has long been argued in marketing and innovation literature. In literature, a distinction has been made between customers’ expressed and latent needs. Recently, it has been argued that market oriented organizations have mainly focused on satisfying expressed needs of the customer, typically by using verbal techniques such as focus groups and customer surveys, to gain understanding of the use of current products and services. These techniques have been used by most organizations and criticized as an insufficient way to attract and to retain customers. Instead it is argued that market oriented businesses should combine the traditional market research techniques with other techniques better equipped to discover customers' latent needs and to drive generative learning. One such technique is observation of customers' use of products or services in normal routines. By observing in context, companies acquire information about customer needs that is not available from traditional market research. The purpose of this article is to explore and analyze observation as a customer involvement approach and how it can be used as a basis for new service development. An illustrative example is provided from the airline industry, where SAS together with a consumer research company collected thousands of hours of video recordings to closely examine passenger activities throughout the entire travel experience.

According to literature, observation provides a practical means of getting at the customer's point of view, including both the cognitive, social, and cultural processes. It is argued that by observing customer behavior in real situations, the company gets a more objective picture of customers' real needs and a better understanding of the situations they are “forced” into and expect them to understand and like. However, the technique also has some drawbacks. First, the time and expense involved in the iterative development and market testing of products is extensive. Furthermore, market dynamics, beyond satisfying customer needs, are not addressed. Third, people tend to act differently when they are aware they are being observed. Fourth, the technique relies upon well trained observers who can convert observations to innovative solutions. And finally, observation techniques cannot be used to capture cognitive elements such as attitudes, preferences, beliefs, or emotional elements of customers.

The empirical data used in the article is collected at SAS. In the end of the 1990s SAS experienced the effects of a global recession and a slowdown in air travel. Also, the company faced deregulation in its home markets and abroad. To face these challenges and realizing the possible gains that succeed in reformulation of the fundamental concept of air travel, SAS turned to a well-known consumer research company, and designed a project to develop a strategy that placed the user in the center. A multi-team was formed including internal functions such as top
management, product development, technical services, marketing, flight and ground personnel and external resources with skills in design and advertising, social science and anthropology. Next 1 500 hours of video and 2 000 photos were collected of customers in the most important part of the travel experience. Most of the analysis was performed by the consumer research company at their home office. The analysis divided data into three distinct categories: procedural, personal, and planning activities. These categories were later divided into a number of subcategories. For example personal activities were divided into resting, working, entertaining, socializing, and personal care. By identifying the numerous activities that occur throughout the travel experience and mapping the underlying patterns and structures that guide these activities, the understanding of customer needs and expectations increased and a number of design principles and guidelines were developed. Next, brainstorming was used to come up with new service ideas. These sessions resulted in 150 new ideas ranging from small modifications in the service system to offering new options for the customers in the service process.

Our critical analysis of the SAS study identifies both benefits and detriments. The benefits include, e.g., that the use of observation (that had not been used previously at SAS) added new aspects that had not been covered by more traditional market research techniques. Also, the design allowed the study of customer behavior at an extraordinary level of detail. Critique towards the SAS study is given on three essential points. First, the analysis was almost exclusively done by the external consultants, this in spite of the multi-team appointed at SAS. As such, SAS limited the opportunity to really learn from their customers and to make it an embodied knowledge within the firm. Second, the role given to the customers could be questioned. The customers were neither included in the multi-team, nor in the analysis and interpretation phase. Customers could have been asked to provide explanations for their recorded behaviors, information that could increase the knowledge even more. Finally, an additional limitation of the SAS study is its focus on key activities in the travel process rather that the entire process. Embracing the whole customer experience, it becomes apparent that the journey cuts across multiple services and companies. To be truly customer oriented, SAS should focus on the entire customer process and collaborate with other companies involved in the process. Otherwise, there is a risk that SAS misses out on the truly critical incidents in the travel process and that customers, fairly or unfairly, will blame SAS for the service failure.

These examples serve to illustrate the distinction between reactive and proactive techniques. There are of course other examples of proactive techniques, a few of which have already been mentioned previously in the thesis, e.g., toolkits for user innovation (von Hippel, 1998; 2001; von Hippel and Katz, 2002; Thomke and von Hippel, 2002) and the lead user method (e.g., von Hippel, 1986; von Hippel et al., 1999). Some additional techniques include history and fundamental national factors, value segmentation, comparing non-comparables, projective techniques, and means-end chain analysis. For a description of these techniques, see Johnson (1998).
I find that the distinction between reactive and proactive techniques support the view that customer involvement is not equivalent to customer research as it focuses on uncovering sticky information such as customers’ latent needs (customer involvement = customer research to uncover sticky information described in ‘2.5 Customer Involvement Continuums’).

A new approach
One customer involvement approach is described in Appended Paper III (A summary of Appended Paper III is provided in the adjoining framed section.). As previously mentioned, CuDIT (Customer Driven IT) was designed as a field experiment that aimed to assess the contributions made by users compared to professional service developers and to examine how the implementation of user involvement affected the outcome. During a period of 12 days, three different groups were assigned the task of generating ideas for end user telecom services. One group consisted of professional designers, whereas the other two consisted of ordinary users. The users in one of the groups coped with idea creation by themselves, whereas the other group consulted a service design expert at two controlled meetings who provided feedback regarding technical feasibility. The results displayed that involving users makes the ideas more original and with a higher perceived user value, but the users’ ideas are less producible on average. Additional publications on CuDIT are Magnusson (2003), Magnusson et al. (2003), Kristensson (2003), Kristensson et al., (2004) and Matthing (2004).

Appended Paper III:
New Service Development: Learning from and with customers


NSD relies on the complex task of understanding and anticipating both expressed and latent customer needs. To facilitate proactive learning about the customer, recent findings stress customer involvement in the development process and observations of customers in real action. In this article it is argued that the inseparable nature of customers as both producer and consumer and the tendency of NSD to fall back on informal and ad hoc efforts make it natural and vital to include the customer in the innovation process. By adopting a proactive approach and involving customers early and intensively, service firms can facilitate learning and reduce the risk of being imitated and surpassed by competing organizations. However, the literature holds a limited number of articles on customer involvement in new service development. Hence, the aim of the study is to examine new approaches that facilitate learning from and with the customer in NSD.
Empirical data is collected from a field experiment from the Swedish mobile phone services market. The design of the study departs from the nature of service that precepts value-in-use and by borrowing from relevant techniques within new product development that supports learning from customer co-creation. The aim of the study was to stimulate customers to come up with new mobile service ideas. The study was designed as a classical experiment including a control group, treatments, and independent judges to evaluate the outcome, where customer involvement was compared to the normal working routines (product developers getting information from the marketing department). In total 86 persons participated in the experiment, 57 men and 29 women.

The experiment included three phases: initiation, idea generation, and completion. The aim of the initial meeting was to motivate the participants by establishing a creative tension by introducing the scope of the study and offer a basic lecture on a technique used to develop these types of services. A user toolkit including a mobile phone with access to the technical platform was demonstrated and handed out to the customers along with a diary to keep notes and the task of inventing new service ideas that would add value for them. The idea generation phase lasted for 12 days. During this time a help-desk was at their service and after six days a check was made via mobile phones to see how work proceeded. A meeting initiated the third and final phase. All equipment was returned and the participants were asked to write down descriptions of their generated service ideas in a pre-defined service description format. Diaries were collected and interviews were made to increase the understanding of the customer context and behavior.

Using the service descriptions, four panels of judges (an internal service developers panel, an external technical experts panel, a sales and marketing panel, and a customer panel) rated the 429 service ideas in terms of originality and user value using a ten-point scale. The results displayed that customers’ service ideas were found to be more innovative in terms of originality and user value that those of professional service developers. Furthermore, we learned that there are several problems associated with customer involvement. Even though results displayed 429 ideas and the customers’ ideas were found to be more innovative, the company did not implement this way of working. One reason could be that the company’s current structures, processes, and culture prevent them from continuing with customer involvement in the proposed form.

The study makes significant contributions to several important and interrelated research fields such as product and service innovation, market research and adherent techniques, market orientation, and organizational learning. First, it offers one way to operationalize and implement market orientation and organizational learning in a technology-intense NSD context. Second, current research on customer involvement in new product and service development was reviewed and summarized. Based on this and conclusions from research on market orientation and organizational learning, a definition of customer involvement in service innovation was proposed. Third, based on previous research on customer involvement, a customer involvement study based on experiment, diaries, and interviews that strive to capture latent customer needs, was designed and tested. Finally, we also displayed results to support the belief that customer involvement in NSD, if properly managed, obtains valuable customer information and has a positive effect on the innovativeness of the created service ideas.
I argue that CuDIT provides an interesting study and an interesting customer involvement approach for several reasons. First, the design departs from the nature of service that directs value-in-use. In CuDIT real-time perceptions made by customers were captured in their natural environment (Deszca et al., 1999; Martin and Horne, 1995; Prahalad and Ramaswamy, 2000; Senge, 1990; Thomke, 2003). Second, focus was placed on information-processing activities (Day, 1994a) in one of the early phases of the innovation process, as this has been emphasized as perhaps the most important activity (e.g., Alam and Perry, 2002; Cooper, 1993; Martin and Horne, 1993), and also a determinant of later market success (Goldenberg et al., 2001; Lilien et al., 2002). Third, the idea generation process was followed by interviews with all the participants so that we could probe the ideas and prototypes created (see Lynn et al., 1996) in order to understand in more detail how learning may occur (see Tyre and von Hippel, 1997). Fourth, a number of group meetings with the research and development (R&D) department from the telecommunications company were held to discuss the study, its results, and the insights from a learning perspective (see Olson and Bakke, 2001). And finally, CuDIT builds on and borrows from other relevant techniques within primarily NPD that support learning in customer co-creation.

**Internet as a facilitator of customer involvement**

Recent developments in new information and communications technologies such as the Internet and high-speed broadband connections have facilitated collaborative innovation with customers. Not only does it transform firms’ internal development processes, but it also impacts firms’ interactions with potential users of new products and services. Customers’ broadband connections at home and work, combined with emerging Internet panels of willing respondents, mean that development teams can reach customers more quickly and less expensively.

Dahan and Hauser (2002) reviewed six web-based customer research methods. They depict three capabilities of these methods. *Communication* entails rapid interaction between development teams and respondents and among respondents themselves. *Conceptualization* utilizes the graphic and audio capabilities of multimedia computers to visualize virtual products and product features. *Computation* enables adapting web-pages in real time while participants are responding.

In their conclusion, Dahan and Hauser (2002) maintain that virtual customer methods are still in their infancy: they rely on virtual prototypes rather than physical prototypes, the software is still embryonic, panels are still being developed, and their representativeness is still being tested. They
also state that advances in new information and communications technology are “expanding the efficient frontier of the accuracy versus cost/time tradeoff” (p. 350) and that virtual customer methods not only bring more customer input to the innovation process, but also encourage a greater number of concepts to be explored and tested with customers. (Ibid.).

A more recent study on the subject is provided by Sawhney et al. (2005). They argue that the Internet enhances the ability of firms to engage customers in collaborative innovation in essentially five ways:

- Extended reach: the Internet is a global medium that reduces the constraints of geography and distance.
- Enhanced interactivity: Internet-based virtual environments allow firms to engage a much larger number of customers without significant compromises on the richness of the interaction.
- Greater persistence: The physical and cognitive effort needed for the firms as well as customers is far lower in virtual environments, so the interactions can be more frequent and more persistent.
- Increased speed: In virtual environments, customer interactions can happen in real-time, and with a much higher frequency.
- Higher flexibility: customers participating in a discussion group or a community can choose their level of involvement. Firms can allow customers to interact with them at different levels of commitment based on their interests and perceived payoffs from interaction, and they can modify their level of participation as their commitment increases over time.

The extended reach, enhanced interactivity, greater persistence, increased speed, and higher flexibility of virtual environments produce three key benefits for collaborative innovation with customers. The direction of communication goes from a one-way import of information and knowledge to an interactive dialogue. The richness of the interaction increases because virtual communities of users allow firms to tap into social knowledge in addition to individual customer knowledge. And lastly, the size and scope of the audience increases as firms can participate in interactions mediated by third parties who are able to reach competitors’ customers or potential customers who have no relationship with the firm (Ibid.).

Based on two case studies of best practice firms (Ducati and Eli Lilly), Sawhney et al. (2005) conclude with three themes in Internet-based collaboration with customers. First, the case companies used the Internet as an integrated platform for engaging customers by means of multiple
techniques to support different stages of the innovation process and to acquire different types of knowledge. Second, both companies underwent significant organizational transformation as they embraced collaborative innovation with customers. Finally, it was found that third parties played an important role as intermediaries in facilitating customer involvement in innovation because they allowed the firms to expand their vision beyond their current customers and web site (Ibid.).

Together Sawhney et al., (2005) and Dahan and Hauser (2002) pinpoint important advantages of using web-based customer research techniques. Although virtual customer methods are still in their infancy, it is my firm conviction that once the techniques becomes more sophisticated and the panels more representative, these techniques will be an important complement to traditional and face-to-face techniques. In addition, the continual development of new information and communications technologies will not only facilitate customer involvement in new product and service development, it will also facilitate the adoption of a service-centered view of marketing as it emphasizes continual collaboration with customers to co-create value (Vargo and Lusch, 2004a).

Additional empirical findings
In the CISO study, we investigated the following techniques: internally collected information and knowledge about customers, surveys, customer interviews, observations, and the lead-user method (see Diagram 4.3). Internally collected information was given the highest ratings or highest frequency of usage, followed by observation. The lead user method was found to be the third most commonly used technique. From previous interviews with Swedish managers, however, we know that the lead-user process is not a well known technique so we defined it as “working with leading customers”, which is a more general definition than the one provided by von Hippel (1986). Surveys and interviews were stated as the least common techniques.

Diagram 4.3 displays the variation in the use of different techniques among companies operating under different market characteristics. B2C companies use surveys and internally collected information to a greater extent than companies in the business market. On the other hand, B2B companies use the lead user method more often than B2C companies. This is consistent with previous research on lead users, which mainly has been carried out in an industrial context (e.g., von Hippel, 1986). The variation was also found to be consistent with our results concerning different degrees of customer involvement. B2C companies tend to use their customers more as passive informants compared to B2B companies.
that more actively engage their customers. We found no significant variation among companies in different markets in terms of customer interviews and observations.

We can conclude from this discussion that there are a number of market research techniques available, that different techniques will provide different information, and that their appropriateness depends on the purpose for which they are implemented. From a new product and service development perspective, the true mission of market research is to develop customer insights - a fresh and not-yet-obvious understanding of customers that can become the basis for competitive advantage. To improve our ability to understand customers and to develop customer insights, qualitative research and quantitative research must be combined. While qualitative research generates insights, quantitative research validates these insights. Techniques, however, are tools. It can be assumed that how they are used and for what purpose they are used will influence results. Consequently, the objectives of the task and the attitudes and behavior of the team members will determine the success of a customer involvement project in building customer knowledge.

In this subsection, issues for future research have been raised. Additional research questions include the following: To what extent do the objectives and attitudes surrounding a market research technique influence the outcome? How are traditional market research techniques perceived among managers? What methods are most efficient in terms of uncovering latent needs? Does a service setting impose specific demands on customer research techniques? Do “new” customer research techniques provide different information than traditional customer research techniques?
Summary of operational decisions

Operational decisions of customer involvement include 1) how to motivate and recruit customers and 2) which tools, techniques, and ways of working to use. Some important conclusions from this section are:

- Research on customer recruitment to collaborative projects is limited. Available research is found in the description of the lead user process. This is based on four steps including: 1) identification of important trends, 2) identification of customers leading that trend, 3) analysis of need data, and 4) application to the general market.
- By contributing in collaborative innovation, customers can obtain three types of benefits: service or product related, community-related, or medium related benefits that might serve as motivational factors.
- Customer involvement projects can be initiated by either firms or customers. In this thesis emphasis is placed on customer involvement that is initiated by a firm.
- Previous research shows that users frequently innovate on their own and these users share certain characteristics that make it possible to identify them.
- Previous research indicates that results from customer research are rarely acted upon.
- Traditional market research tends to result in minor improvements rather than innovative thinking and breakthrough products.
- User needs co-evolve with the changing social and technical environment and customer preferences are likely to evolve during the various stages of innovation.
- The lead user method has been found to contribute to new products with high novelty.
- Customer research techniques that support development processes can be selected based on various criteria, e.g., purpose and goal, need, the process, problems, and resources.
- The classification of customer research techniques supports the statement that the techniques are not direct substitutes. Consequently the use of a combination of techniques is recommended.
- The SAS study discusses a video-based observation study from a customer involvement perspective. The discussion identifies several potential areas for improvement from a customer involvement perspective.
CuDIT is a customer involvement approach developed and tested in a service setting. The results displayed that involving ordinary users makes the ideas more original and hold a higher perceived user value, but the users’ ideas are less producible on average in contrast to professional developers and users with an interest in technologies.

New developments in information and communication technologies facilitate collaborative innovations with customers. Web-based techniques, however, are still in their infancy.

Internally collected information and observation are the most common techniques among Swedish organizations.

4.5 Performance

This section is devoted to the subject of whether or not customer involvement pays off. I have touched upon this subject previously in the chapter, and here I will expand that discussion and summarize the findings. Based on the findings from the review of literature, we can conclude that few attempts have been made to examine the empirical relationship between customer involvement and business results. With this in mind, we formulated a research question that we address in Appended Paper IV and V:

Previous research provides some evidence supporting the link between the use of customer information and market success. Martin and Horne (1993) investigate the use of customer information in the later phases of NSD such as concept development, business analysis, pre-launch testing, and launch. Results show that the studied firms used customer information in all phases of the service development process. They also found a greater overall use of customer information among successful firms compared to unsuccessful firms. This classification of successful and unsuccessful was based on the respondents’ own classification of the success of their development process.

Gruner and Homburg (2000) investigate the relationship between customer interaction and product success. In their study of the German machine industry, they identify that companies with high performing projects (based on self reports of the quality of the new product, financial new product success, quality of the NPD process, and inexpensiveness of
the new product ownership) outperform companies with low performing projects in terms of customer interaction during the development process. Conclusions are made that customer interaction is related to product development success in some phases (idea generation, concept development, prototype testing, and market launch), but not in all phases (project definition and engineering) (Ibid.).

Joshi and Sharma (2004) investigate customer knowledge development which is a process of developing and understanding new product preferences that unfold through the iteration of probing and learning activities across the stages of the pre-launch phases. In their empirical research on Canadian manufacturing firms, they find that customer knowledge development enhances new product performance (Ibid.).

To summarize the available empirical evidence, customer involvement seems to have an impact on project success and this effect appears to vary with the different phases of the development process. The available research also shows some deficiencies; all of the studies previously mentioned use subjective performance measures and are conducted within a specific industry.

In Appended Paper IV we provide results from subjective measures of performance. In this part of our investigation we defined a company with a high degree of customer involvement as a company that on average practices the different modes of collaboration, i.e., that have organizational routines aimed to involve the customer to a large extent. The different facets of organizational performance that were investigated were changes during the last three years concerning market share, financial performance, customer satisfaction, customer complaints, and customer loyalty.

We found that all companies during the last three years had perceived major improvements. This is true for all companies without considering their degree of customer involvement (see Diagram 4.4). But a comparison of companies with a high degree of customer involvement and a low degree of customer involvement shows that companies that collaborate heavily with their customers have perceived much larger improvements in results. There are statistically significant differences concerning many results; market share, financial results, customer satisfaction, customer complaints, and customer loyalty. On an overall level, we can conclude that companies utilizing a higher degree of customer involvement in their development process perceived larger improvements in their performance during the last three years. An analysis reveals that these differences among companies with different degrees of customer involvement are larger for
B2B companies compared to B2C companies. This could be attributed to a higher degree in the use of techniques such as the lead user method in B2B companies, but it could also be attributed to the lower sample size for B2C companies.

![Diagram 4.4 A comparison of improvements of performance measures between companies with different degrees of customer involvement (* p<0.05; ** p<0.01)](image)

In all identified research studies, the measures of practice and performance come from the same data source - an informant in the company. As a result, we identified the need for research using separate data sources where the customer involvement practice comes from the company informant, while the performance measures come from an objective financial database. In Appended Paper V we link customer involvement in different phases of product and service development directly to companies’ true profit margins (net sales less cost of goods and services sold, and selling and administrative expenses before depreciation is deducted). A paired, industry-matched, baseline analysis was performed as an initial test of the effect of customer involvement on financial performance.

We assume that firms in the same industry (same two-digit SIC code) and of similar size are subject to similar economic and competitive factors. Within each industry we matched companies of similar size and profit margin for the year 2000. The primary difference among the companies was that one company had a higher degree of customer involvement. The mean value of customer involvement over the five different phases of the product and service development process was used to differentiate between high and low degrees of customer involvement. Companies were only matched if they were similar in size, displayed a higher mean value of customer involvement, and were more likely to use explicit tools and
methods. Altogether 58 matched pairs for manufacturing and 51 matched pairs for service firms were assembled.

Table 4.3 A paired comparison of profit margin among companies with a high and low degree of customer involvement in the product and service development process (*p < 0.05)

<table>
<thead>
<tr>
<th>Year</th>
<th>Manufacturing firms</th>
<th>Service firms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>Difference</td>
</tr>
<tr>
<td>Year 2000</td>
<td>6.30</td>
<td>1.40</td>
</tr>
<tr>
<td>Year 2001</td>
<td>4.31</td>
<td>0.61</td>
</tr>
<tr>
<td>Year 2002</td>
<td>2.98</td>
<td>1.01</td>
</tr>
<tr>
<td>Year 2003</td>
<td>3.06</td>
<td>2.31*</td>
</tr>
</tbody>
</table>

Table 4.3 illustrates the differences in profit margin for the matched sample of companies with a high versus low degree of customer involvement in product and service development respectively. On average, the profit margins for the sample of firms decrease from about 6 percent in 2000, to 3 percent in 2003. But the difference between companies with a high and low degree of customer involvement increases over the four years. This baseline analysis provides empirical evidence that customer involvement affects the product and service development process as shown by the variation in financial performance. The appearance of statistically significant differences in profit margin, one year earlier for services, is an indication that customer involvement was advantageous earlier for services than for manufacturing firms.

When contrasting manufacturing and service firms, the results show an interesting pattern of similarities and differences between customer involvement and profit margin. Overall, we find that the degree of customer involvement has a similar positive impact on a firm’s actual profit margin for manufacturing and service firms. The implication is that a company that effectively involves their customer in the development process can expect a higher profit margin in the future. The new products and services should provide a better fit to existing and future customer needs, and thereby generate higher margins that reflect the capturing of this added value.

Our research makes important contributions to the customer involvement field. It is the first to relate the degree of customer involvement in the development process to an objective measure of profit margin. Our analysis controls for the accumulated effect of previous business results, which insures that our findings reflect recent development activities in the firms.
5. CONTRIBUTIONS, IMPLICATIONS, AND FUTURE RESEARCH

This chapter is divided into six sections. In the first section, an attempt is made to summarize and characterize the research field in three phases and various research streams. In section two, a return is made to the stated research questions and the main conclusions of the research are drawn. Section three is devoted to a discussion on the contributions made through this research. Managerial implications are discussed in section four while the final section five addresses areas for future research.

5.1 Characterizing the Research Field

Based on the review of literature presented in this thesis, I will here attempt to characterize the research field of customer involvement in innovation. This attempt is first and foremost based on 1) the searches I have made in research databases and 2) additional references I have come across by snowballing or by chance (e.g., colleagues’ recommendation). In total I have included 118 research publications.

A few conclusions can be drawn from the body of literature. First, a number of parallel research streams have contributed to the current body of knowledge on customer involvement in innovation. Diagram 5.1 shows

![Diagram 5.1 Number of publications on customer involvement from four different research streams](image)

A few conclusions can be drawn from the body of literature. First, a number of parallel research streams have contributed to the current body of knowledge on customer involvement in innovation. Diagram 5.1 shows
the number of research publication per year from various research streams. The two most influential research streams include innovation and NPD. They account for approximately 75 percent (45 and 30 percent respectively) of the research publications. Other research streams have also contributed such as management information systems (MIS) (12 percent) and NSD (9 percent). The remaining streams include market orientation, engineering design, and market research. Together they account for 4 percent.

Furthermore, while innovation and NPD researchers have contributed with a relatively steady stream of publications during the time period, studies of user innovation in Information Systems was most common during the 1980s.

Gustafsson et al., (1999) was one of the first articles to address user involvement in a service innovation setting. It was not until Alam’s (2002) article was published, however, that research on customer involvement in service innovation really accelerated. According to database searches from 2002 to 2005, an additional 9 research articles were published on the subject. I have found an additional ten academic papers, 6 dissertations, and the first book on the subject (Edvardsson et al., 2006) that for various reasons were not yielded in the database searches.

Figure 5.1 shows my effort to characterize the area of research. The vertical axis shows the time frame that ranges from 1994 to 2006. The bold boxes characterize previous customer involvement research in terms of three phases: The Release, The Exploration, and The Boom. The previously discussed research streams are included in the illustration as well. Finally, I have added the ‘The Lead User Track’ as it is perhaps the most researched concept and evident contribution of customer involvement research.

The Release: Early research into customer involvement argued for its right to exist. The debate about the relative importance of market demand versus technological opportunity (technology push vs. market pull) reached a critical stage in the middle of the 1970s. During this period, a few influential articles were published that sided with the market demand argument.

One was provided by Rothwell et al. (1974). It was the first comparative study of product success and failure and was conducted during the early 1970s in the U.K. The investigators identified 43 product success and failure pairs in the chemical and scientific instruments industries. The SAPPHO study concluded that product success was primarily related to the following five factors: understanding of user needs, attention to
marketing and publicity, efficiency of development, effective use of outside technology and external scientific communication, and seniority and authority of the managers responsible for the development of the product (Ibid.).

Another influential article was provided by von Hippel (1979). He found that user-dominated innovation accounted for more than two-thirds of first-to-market innovations in scientific instruments and in process machinery used in semiconductor and electronic subassembly manufacturing. The readiness of a customer-active innovation may vary from “description of need” to a ready and tested product. Furthermore, it was found that customer-driven innovation varies considerably according to the nature of the business. This is largely due to how much detailed expertise and information is needed to produce innovation (Ibid.). Two additional studies from this period are Voss (1985) and Shaw (1985). Both reported that users were active and played important roles in developing successful new products.
The Exploration: The exploration phase ranges from the mid 1980s until 2001. During this period additional pieces of the customer involvement puzzle were laid out and the contours of the research area began to clear. The research focused on various aspects such as methods and techniques (e.g., toolkits for user innovation, concept testing, consumer idealized design, and empathic design), the customer’s role in innovation process, contextual factors, and customer involvement influence on, e.g., new product success. It was also during this period that the concept of lead user was launched - a notion that still receives great research interest. The great majority of the research conducted during this period is based on an information processing approach (see Gales and Mansour-Cole, 1995; Thomke and von Hippel, 2002).

The Boom: As indicated by Diagram 5.1, Alam’s (2002) study was also the starting point for a general increased research interest in user innovation. This was due mainly to a concentrated group of Swedish researchers that were early to pick up on three important trends: the shift from cost cutting in the 1980s and the beginning of the 1990s to the growth through innovation in the end of the 1990s and beginning of 2000, the ongoing debate on the service-centered logic among service researchers, and the great potential of the Internet as a means to collaborate with customers in innovation activities. During this period, old perspectives have been criticized (see Lundkvist and Yakhlef, 2004) and new perspectives have been sought (see Lagrosen, 2005).

Although we could see an increased customer involvement interest in 2002, I think we can expect an even greater interest in the future as user innovation has been ranked as the top research priority by MSI from 2006 to 2008. A search in Business Source Premier seems to confirm my belief. A title search (on user + innovation; user + development, customer + innovation, and customer + development) in publications from 2005 and 2006 yielded 72 hits and a quick scan through the abstracts suggests that the majority of these papers focus on customer involvement in innovation (although quite a few were short commentaries or paragraphs). As customer involvement begins to flourish, we can expect more focused research in terms of filling remaining research gaps.

5.2 Return to the Research Questions – Main Conclusions

By trying to answer the overall research question of in what way could customer involvement help improve, facilitate or hamper the process and output of new service (and product) development, the purpose of this
research has been to contribute to an increased knowledge of customer involvement in new service (and product) development. In this section I will return to the underlying questions that have guided the research and draw the main conclusions of my research.

**Underlying logic of NSD and customer involvement**

The theoretical foundation that the concept of customer involvement rests on is rather loose. The majority of the available research does not attempt to define and conceptualize customer involvement based on grand theories, instead important arguments are supported by recent empirical studies or anecdotal research.

Still, four professors provide the concept of customer involvement with a solid theoretical foundation: Eric von Hippel, Gerald Zaltman, Blake Ives and Margrethe H. Olson. Von Hippel’s and Zaltman’s theoretical frameworks do not focus explicitly on the concept of customer involvement, but rather aim to explain and support the need for and development of new sophisticated customer research techniques in order to 1) develop or utilize deep customer knowledge in terms of how customers make their decisions and solve their problems, and 2) support the development of new customer offerings that will increase the likelihood of success once they reach the market.

To summarize the findings, von Hippel (1986, 1994) argues based on previous research into problem solving, that user insights into new product (process and service) needs and potential solutions are constrained by their own real-world experience and that needs-related information is frequently sticky, which means that the acquiring and transferring of needs-related information can only be done at high costs.

Zaltman (2003) argues that in terms of buying, 95 percent of our decision making takes place in the subconscious mind based on images and metaphors rather than words. He argues that there is a great mismatch between the way consumers experience and think about their world and the methods marketers use to collect this information. Zaltman (2003) therefore calls for creative questioning that probes the unconscious values underlying consumers’ reactions to products and marketing campaigns. Drawing on recent multidisciplinary research, Zaltman emphasizes the importance of memory, metaphors, and storytelling in customers' decision making and the ways marketers might use these findings. He outlines
efficient methods for developing a set of shared values in a target market by creatively interviewing a small sample of customers.

Ives and Olson (1984) maintain that user involvement to improve chances of new product or service success can be traced to research in organization behavior. Building on participative decision-making and planned organizational change, the authors argue that user participation can be used as a means for inducing attitude changes that are expected to facilitate new product or service success. In addition, it is argued that user participation will provide a more complete list of user requirements, provide expertise about the organization, avoid development of unacceptable or unimportant attributes, and improve user acceptance of the new product or service.

The stated arguments help to explain why customer involvement improves and facilitates innovation activities. They also provide arguments that support the focus on sophisticated customer research techniques. The research presented here does not help to substantiate the concept of customer involvement by means of grand theories. Instead we contribute to the research field as we develop and analyze a customer involvement model. The construct is based on a cultural perspective as well as a behavioral perspective (Homburg and Pflesser, 2000) that build on the findings of Kohli and Jaworski (1990) that there are organizational norms and values encouraging companies to pursue activities related to the generation of, dissemination of, and responsiveness to market intelligence.

Our suggested conceptual model, presented in Appended Paper V, contains three constructs: inhibiting factors, supporting factors, and customer involvement. The inhibiting and supporting factors consist of cultural norms and values that the organization may have when involving customers in the development process. These may make an organization predisposed to actively involving customers in the development process. The customer involvement construct represents the percentage of projects where the customers participate in different phases of the development process relative to the total number of projects.

In conclusion, I argue, based on the review of available research into customer involvement in innovation, that customer involvement is still first and foremost an empirical phenomenon. A few steps have been made to develop customer involvement as a theoretical concept, but additional research is needed for its definition and distinction.
Customer involvement definitions and perceptions of practitioners

The research questions of what is customer involvement and how is customer involvement defined in literature and perceived among practitioners, are in part discussed in Appended papers III and IV; however, a more comprehensive discussion is found at the end of chapter 2, in sections 2.3 to 2.6. Based on this discussion and experiences from empirical research, it can be concluded that customer involvement is a fuzzy and tricky concept. There are essentially four important reasons for this conclusion.

First, customer involvement is often given a broad definition of customer market research among practitioners. Early in my research I found that on a direct question that asked if respondents involved current or potential customers in their development work, they said yes. This might be the result of what is perceived as socially desirable, i.e., to be market oriented, or what is perceived as truly market oriented. When asked how they involved their customers, the answers varied greatly ranging from the internal staff functioning as users and giving input to the development process, to traditional market research, and to extensive collaboration with customer during parts or the entire development project.

Learning from this experience, techniques can be categorized in terms of to what extent customers are participating and contributing in the process. In the simplest way, a distinction can be made between techniques that exclude the customer and techniques that include the customer. Following this line of reasoning, all techniques that collect primary data from customers, such as surveys, focus groups, and interviews could be characterized as supporting customer involvement techniques. This is a reasonable conclusion. But what then would be the meaning of the concept customer involvement if it was just a synonym of customer research. My interpretation of customer involvement was much narrower than some of the practitioners’ interpretation.

The purpose of customer involvement is important to me. It is based on the argument that it is the objective of the task that will determine the outcome of the task. In other words, if you use customer involvement as a means to strengthen customer relationships that is (hopefully) the result you will see. In my opinion, what distinguishes the various customer involvement approaches and supporting techniques from general customer research is its’ potential to uncover sticky information with an emphasis on latent needs. In the subsection ‘Supporting techniques’ in 4.4 Operational Decisions, a distinction is made between reactive and proactive techniques. Techniques that focus on expressed needs are
described as reactive techniques, while techniques that aimed to uncover expressed and latent needs are described as proactive. Following this line of reasoning that the main purpose of customer involvement is to uncover latent needs, would mean that all proactive customer research techniques support customer involvement.

Adding complexity to the subject is the fact that there are proactive techniques that do not entail an active customer at all, e.g., observational techniques. From this perspective a distinction can be made between direct customer involvement and indirect customer involvement; indirect customer involvement means that customers are not involved in the process to, e.g., interpret observational data, and direct customer involvement means that the customer actively helps in e.g., the interpretation. Appended Paper II reports on an observational study conducted at SAS. In this study customers were not invited to interpret the collected video material. Should this study, where customers only appear on film, be characterized as a customer involvement study? In this situation, I would say that customer involvement is not an appropriate concept. In conclusion I found that this type of discussion is absent from previous research, which helps to create confusion in terms of the concept customer involvement.

The third problem is that numerous concepts are used to identify the customers' role in value creation and development processes. In general, explicit definitions of these concepts are not given, which makes it difficult to distinguish among them. This causes confusion in terms of the customer involvement concept.

Finally, 'customer involvement' is used in other research fields where it is given a different meaning. Within the research field of information systems development, the concept of 'user involvement' has been used since the late 1960s to refer to “participation in the systems development process by potential users or their representatives and is measured as a set of behaviors or activities that such individuals perform” (Barki and Hartwick, 1989, p. 53). The notion is also widely used and accepted in consumer behavior research. Within this research field 'consumer involvement' is defined as “consumers’ perceptions of importance or personal relevance for an object, event, or activity” (Peter and Olson, 1996, p.101) and is a motivational state that energizes and directs consumers’ cognitive processes and behaviors as they make decisions. The fact that the concept of customer involvement can have different meanings adds confusion.
In Appended Paper III, we first offered a definition of customer involvement. The definition has later been slightly modified in Appended Paper IV and recently in section 2.6 Defining Customer Involvement. The definition of customer involvement presented in section 2.6 reads, those processes, deeds, and interactions where a development team collaborates with current (or potential) customers at the program, project, and/or stage level of the development process, to uncover sticky information such as latent needs, develop customer knowledge, and develop new solutions accordingly.

I found this definition useful mainly for two reasons. First, it emphasizes activities and behavior. Customer involvement aims to facilitate the process of market sensing (Day 1994b, 2002), which is the generation and dissemination of market intelligence and the organization wide responsiveness to it (Kohli and Jaworski, 1990). Second, it emphasizes the expected output of customer involvement, i.e., the uncovering of e.g., latent needs, the development of general and/or specific customer knowledge, and the development of new customer solutions.

All in all, there are numerous arguments to support the belief that customer involvement is a fuzzy and tricky concept. This understanding has evolved during the course of this research. In the beginning of the research process, the customer involvement concept was chosen based on its appearance in previous research. In retrospect, perhaps there are other concepts that we could have adopted, e.g., customer knowledge development or user innovation. However, I am not sure that these concepts are less fuzzy or tricky.

**Customer involvement practice in Swedish organizations**

Most of the research on customer involvement is based on case studies or conducted in a single industry setting. Our knowledge about to what extent customer involvement is practiced, which types of customers that are involved, how they are involved, and perceived benefits and problems etc. is limited. Consequently, one of the research questions that have guided the research is how customers generally are involved in NSD practice. In Appended Paper IV we provided a baseline analysis of the role organizations assign to the customer in the new product and service development process.

Overall we find that (marketing and R&D) managers often see the benefits of customer involvement and express a positive attitude towards customer
involvement. They state to be willing to open up the organization and invite customers as partners in the development process. However, in terms of actual behavior, there are few that actually involve their customers in innovation activities.

Previous research suggests that the decision about how much to involve customers is often based on practical and resource-base criteria, rather than in conjunction with the potential benefits customer involvement can offer (Alam, 2002). Respondents in the CISO study report that the primary problems of customer involvement are the increased workload and the perception of customer involvement as being difficult and complicated.

From previous research, it is also known that customer involvement is not always preferable approach. Market factors and project factors such as degree of innovativeness and project uncertainty will determine the appropriateness of customer involvement. In addition, organizational and cultural factors will play a decisive role since collaborative innovation with customers, often requires a significant organizational transformation (Sawhney et al., 2005). These factors help to explain the relative limited practice of customer involvement in innovation.

**Tools and techniques**

In my research I have taken a particular interest in the means, i.e., tools and techniques, by which customer information is obtained and knowledge developed. I have had the opportunity to focus on three tools/techniques in particular: service guarantees, observation through the use of video cameras, and a field experiment that aimed to trigger new service ideas from customer and professional service developers and compare their efforts. We also investigated the general use of internally collected information, surveys, focus groups, observations, and the lead user method. Major conclusions from the research are presented next.

In Appended Paper I we analyzed how a service guarantee may support service development. We found that the guarantee can support NSD through its influence in three service processes:

- The service process. Before the failure, the guarantee sets service level standards providing customers with a measure for when service failure has occurred. To clarify customer expectations, to identify the roles of both customer and producer, and to give customers a
guarantee that resources will be available are examples of service development.

- The recovery process. When a failure is identified, it assures customers of economic reimbursement and the company's responsibility for failures. The guarantee influences customers to contact the company, which is the first step in the recovery process.
- The development process. Short-term solutions should not be the end of service recovery. The guarantee puts a price on not improving the service, provides customer input for improvement, and stresses the importance of allowing customer opinions to influence improvements.

The literature on service guarantees states that service improvements will occur, since the guarantee makes service failures too costly for the company. However, we found that the mere presence of a guarantee does not secure service improvements. A possible interpretation is that service guarantees advocates focus too much on the initial parts of the service; they underestimate the need for formal processes and a process owner for the service improvements to occur after the guarantee has been invoked. The findings from the TWBSS companies could be interpreted as overconfidence in the ability of the guarantee, and that the presence of a guarantee and a recovery program in itself will trigger service development. Moreover, since service development occurred in only nine situations, one conclusion could be that for services of high quality which seldom fail, the guarantee must be very expensive for an invocation to put pressure on the company to improve its service.

In conclusion, one key factor in involving customers in service development is that efforts are best focused on the improvements of things gone wrong (Gustafsson and Johnson, 2003). In the guarantee reports, customers complained about the areas where they considered the quality of the service to be too low. The customers would then identify which parts of the service process were most important for service development strategies. In fact, in the case company the customers often imply the improvements that were later made. One conclusion could be that if the primary aim of the guarantee is to improve the service offer, the specific guarantee limits the information obtained from customers since the company limits the areas that customers may complain about. Instead, it may be wise to offer an unconditional, total customer satisfaction service guarantee.

Appended Paper II highlighted the use of video-based observation of customer behavior by SAS with the help of Doublin Group. One of the
primary outcomes of this study was a deeper understanding of passengers’ expressed and latent needs and concerns throughout the service process, which lead to a re-design of existing services and to the development and implementation of new and innovative services. For SAS, that previously had focused mainly on company regulations, perhaps most important of all was to develop a new service innovation approach that clearly focused on the customers’ perception of the service process. Overall, SAS identified 40 problems that customers encountered which justified drastic service innovation. The company also acquired unique information leading to some 50 minor improvements.

From the analysis, we identified a number of benefits from observational research using video cameras. First, as video recording had not been used previously new aspects were included for the first time. In addition, the use of video recording allowed the study of customer behavior at an extraordinary level of detail, over and over again, without the risk of losing important information along the way. Further, the video database in itself constitutes a source of ideas for new and improved products and services. Finally, the ethnographic approach allows the ideas to be protected from competitors because the problems that can be solved by deep customer (and staff) insights go beyond being point solutions, and provide new services that cut across multiple parts of the entire service offering.

We also concluded that the SAS study, on the basis of previous research, had some shortcomings. First, although SAS personnel were involved throughout the research phase, both in performing field research and in performing the analysis, most of the analysis was done by Doublein Group. We argue that the analysis is the most crucial part of the process if one wants to develop customer knowledge. Therefore it is unfortunate to “outsource” this task. Also, in relation to this, we question the role of the multi-team appointed by SAS. The team consisted of representatives from top management, SAS product development organization, frontline and corporate participants from technical services, marketing, flight and ground personnel, external design and advertising resources, and external marketing resources with social science and anthropological skills. From our perspective, this team should have been given the task to analyze the material in conjunction with Doublein Group. In this way SAS could have developed its own skills and abilities to analyze this type of data and ended up with an even greater knowledge about the customers. From our perspective, SAS missed out on an opportunity to really learn from their customers and to make it an embodied, i.e., tacit and non-scientific, knowledge within the firm.
Furthermore, we question the role, or lack of role, given to the customers. The customers were neither included in the multi-team, nor in the analysis and interpretation phase. By providing a behavioral record, it is possible to verify each customer account and facilitate the strategic sampling of different behavioral patterns. Finally, an additional limitation of the SAS-study is its focus on key activities in the travel process rather than the whole process and context. Embracing the entire customer experience, it becomes apparent that the journey cuts across multiple services offered by many different companies, as well as across the different functional units within a single company. These service fragments all add up to the customer perceived experience. From SAS’ perspective, there is a risk that customers associate any single problem along the way with the major service provider, whether fairly or unfairly.

In Appended Paper III we discuss a field experiment that was conducted in Sweden with end-user mobile phone services. The design departed from the nature of services that precepts value-in-use by borrowing from relevant techniques within product innovation that support learning in customer co-creation. The experiment revealed that the customers’ service ideas are found to be more innovative, in terms of originality and user value, than those of professional service developers. A number of important conclusions were made from the study.

Results displayed that unique ideas were developed at unexpected times. The participants were often triggered by a sudden experience, and then understood how they could use their toolkits to solve a problem or utilize a possibility. The idea that emerged would have been difficult to imagine in an interview. This indicates that customers under certain circumstances, can access latent needs. Through the use of customer involvement activities and processes there is a chance to guide users toward innovative thinking. The data showed that the professional service developers normally do not have access to customers’ environments and latent needs. Their ideas simply do not match the customers in quality, because they do not match the customers’ needs to the same extent.

The results of the study were discussed during a few informal meetings with the engineers from the R&D department. These meetings revealed some interesting experiences. At first, the engineers were opposed to ideas that had received high innovative scores. After a brief discussion about what they at first perceived as outlandish ideas the discussion triggered an increased understanding of what actually caused the idea, i.e., the customer need. A mediocre idea could, by the help of need-related information in service descriptions and interviews, capture information about the interaction with the technology and a person’s environment that
was interesting. If there was a sound reason behind the customer’s idea, it could be potentially developed into a new service. Hence, the engineers reached a deeper customer understanding and shared customer interpretation, and then could use their knowledge of expertise to leverage the idea into a service that encompassed a latent need (Lynn et al., 1997; Sinkula, 1994). The engineers were surprised, but they also became seriously engaged. In summary, the only limit for using the customer’s creative imagination is the imagination of the professional service developers. The customer involvement had facilitated generative learning (Senge, 1990). For this to happen, continuous customer input is required which goes beyond traditional questions and answers.

Based on findings from the CuDIT study, we can conclude that careful planning and implementation is not enough. The CuDIT study provided Telia with over four hundred new service ideas. At the time, however, due to the current structures, processes, and culture of the organization, the utilization, evaluation, and development of the customer’s ideas were limited. We can therefore conclude that organizational changes must accompany the adoption of collaborative innovation with customers. This is found to be consistent with previous research (see Olson and Bakke, 2001; Sawhney et al., 2005).

In summary, the field experiment helped increase our understanding of the learning process and how knowledge is created from and with potential customers, and then transferred within the organization for NSD. The role of the customer in service innovation should be “contributing knowledge, skills and experiences, his or her willingness to share frustrations, requirements, problems and expectations, and his or her readiness to experiment and learn” (Prahalad and Ramaswamy, 2000, p. 80).

In terms of the more general use of market research techniques, the CISO study revealed that companies rely heavily on internally collected information, such as information from sales personnel or customer complaints. The second most used technique is observations. In our empirical investigation we did not define observation so we can assume that the respondents’ answers cover everything from informal observations conducted by, e.g., sales personnel and management, to formal ethnographical studies using video cameras to document data which is interpreted by behaviorists. As ethnographical studies are expensive, we can also assume that a large proportion of these observations were of an informal character. The lead user method was found to be the third most commonly used technique. We know from previous interviews with Swedish managers, however, that the lead-user method is not well-known so we defined it as “working with leading customers”, which is a much
more general definition than the one provided by von Hippel (1986). Surveys and interviews were stated as the least common techniques.

This can be interpreted as a support to the previous statement, that many of the conventional market research techniques often fail to deliver the level of detail that is needed to be able to respond to the current and future needs of customers and develop new products and services (Leonard-Barton, 1995; Lilien et al., 2002; Slater and Narver, 1998; von Hippel et al., 1999; Zaltman, 2003) however, more specific research is needed to validate or cancel the proclamation.

Overall, there are numerous tools and techniques that support customer involvement and can be adopted to improve NPD. This is not the case in NSD and more research is needed to develop and test new techniques for organizations in need of service adapted techniques. This research has highlighted a few means by which customer information and knowledge can be obtained and developed in such a setting.

The research presented here indicates that the techniques are only as good as the people that plan and implement it. The SAS case study provides one good example. Additional benefits such as increased customer knowledge could have been developed if SAS had not outsourced the data analysis and interpretation. The objectives of the task and the engagement, competences, and skills of the people in charge will affect the outcome. It is therefore important to carefully set the objectives and appoint people with the right skills to manage customer involvement projects.

**The empirical relationship between customer involvement and results**

During the course of the research, we found that there were few studies that focused on the benefits of involving customers in the development process. One of the primary goals of this research, therefore, has been to improve our understanding of how the customer adds value to the development process. As such we formulated the following research question: what is the empirical relationship between customer involvement and performance?

This relationship was measured in two ways. First, subjective measures were used to investigate if companies with a higher degree of customer involvement received a payoff by means of market share, financial performance, customer satisfaction, customer complaints, or customer loyalty. Appended Paper IV reports that all companies perceived major
improvements during the last three years. This holds for all companies without considering their degree of customer involvement. A comparison of companies with a high degree of customer involvement and a low degree of customer involvement showed that companies that collaborate heavily with their customers perceived much larger improvements in results.

In addition, objectives measures of companies’ true profit margins (from 2000-2003) were obtained from a financial database. These measures were used in Appended Paper V to investigate if companies with a higher degree of customer involvement received a payoff in terms of actual profit margin. The paired, industry-matched, baseline analysis revealed that on average, the profit margins for the sample of firms decreased from about 6 percent in 2000, to 3 percent in 2003. But the difference between companies with a high and low degree of customer involvement increased over the four years. Furthermore, the statistical estimation of our conceptual model revealed that the degree of customer involvement had a positive impact on a firm’s actual profit margin.

On an overall level, our research indicates that companies utilizing a higher degree of customer involvement in their development process can expect larger improvement in e.g., improved customer satisfaction, customer loyalty, and profit margin. In other words, collaborative innovation with customers pays off. This is an important finding as expected payoff is a prerequisite for engaging in a customer involvement project, as it is demanding in terms of time and resources.

Results in different phases of the development process and differences between service firms and manufacturing firms

Gruner and Homburg (2000) state that the stage-specific aspects of customer involvement have been neglected in most empirical studies. We reached the same conclusion and as such we stated the following research question: What impact does customer involvement have on results in different phases of the development process?

In Appended paper V, we linked customer involvement in different phases of product and service development directly to companies’ profit margins and compare the differences between manufacturing firms and service firms. The results revealed that the customer’s role in the development process differs for each firm. We found a positive relationship between all phases of the development process and profit margin. This finding
indicates that it is profitable to involve customers throughout the entire development process.

As stated previously, previous research on the effects of customer involvement in different phases of the innovation process draws a complex picture and our research adds to the complexity. While we found that customer involvement in all phases contributes to profitability, previous research establishes a more dichotomous approach stating that customers should not be involved in certain phases. As such additional research is needed to investigate the relationship between customer involvement in different phases and performance.

An additional research question was formulized based on two observations:

- that in the recent goods vs. service debate it is argued that many of the IHIP characteristics may not be particularly discriminating between goods and services and that goods and services are becoming more and more similar in nature, and
- that research designed to directly compare market orientation within manufacturing and service firms is scarce (Kirca et al., 2005)

The research question deals with if there are differences between service firms and manufacturing firms in terms of new product and service development and customer involvement? In the CISO study we found that the benefit of customer involvement varies according to the phase of the development process. For development in manufacturing firms, the reward from customer involvement is highest in the early phases of the development process. This indicates that companies should rely more on their own skills during the technical development of the product rather than on the technical solutions from customers (Gruner and Homburg, 2000). For development in service firms, the reward from customer involvement is highest in the later phases of the development process. Perhaps customers have difficulty providing valuable feedback to developers before the service has reached a certain degree of concreteness. A conclusion can be made that there are many similarities in the way manufacturing firms and service firms involve their customers, however, the effects are different.
5.3 Research Contributions

The research presented in this thesis makes important contributions by adding new knowledge to the existing knowledge base on customer involvement in new service (and product) development. In this section, emphasis is placed on the contributions made in each of the appended papers, in the introducing framework, and the overall research.

The main contribution of Appended Paper I is the investigation of service guarantees from a NSD perspective - something that had not been done before. Furthermore, it focuses on the situation after the guarantee has been invoked, which separates the study from the more common pre-purchase studies of service guarantees. The data were collected from the TWBSS industry which is a professional service industry and a context that has been subjected to little research (Johne and Storey 1998). An additional contribution is our findings that the guarantee can support NSD through its influence in three service processes: the service process, the recovery process and the development process.

The main contribution of Appended Paper II is the report and discussion of observation as a market research technique in general and a supporting customer involvement technique in particular. The paper not only highlights important benefits of the technique, but also draws attention to a number of shortcomings in terms of the way the study was designed and carried out.

The purpose of Appended Paper III was to examine new approaches that facilitate learning from and with the customer in NSD. By fulfilling this purpose, the study makes four significant contributions to the customer involvement research field. First, it offers one way to operationalize and implement market orientation and organizational learning in a technology-intense service innovation context. Second, based on this and conclusions from research on market orientation and organizational learning, a definition of customer involvement in service innovation was proposed. Third, based on previous research on customer involvement, a customer involvement procedure was designed and tested that strived to capture latent customer needs. The approach was based on field experiment, diaries, and interviews. Finally, results supported the belief that customer involvement in service innovation, if properly managed, obtains valuable customer information and has a positive effect on the innovativeness of the created service ideas.

The purpose of Appended Paper IV was to analyze the role Swedish organizations give to the customer in the new product and service
development process. The paper makes two main contributions to existing knowledge on customer involvement. First, it offers a general overview of how and to what extent companies, across a variety of industries, involve customers in their development process. Second, it also concludes that some problems and possibilities with customer involvement pointed out in research are not as severe or important for the general population of companies.

The purpose of Appended Paper V was to develop an increased understanding of how the customer adds value to the development process and how this value differs for manufacturing and service firms. The paper links customer involvement in different phases of product and service development directly to companies’ profit margins. Few studies have focused on whether or not it is beneficial to involve customers in the development process. In contrast to the majority of previous research that focuses on specific industries, this paper covers the effects of customer involvement across many contexts. The investigation also covers both service and manufacturing firms so that we may explore any meaningful differences. Finally, objective measures of profit margins were used rather than self reports which give the results higher credibility.

In the introducing framework of the thesis, additional contributions have been made. First, it provides an extensive review of previous research into customer involvement. Second, the concept of customer involvement is discussed in detail from several aspects and a definition of customer involvement is offered. Third, a overview of how and to what extent companies, across a variety of industries involve customers in the development process was provided. Fourth, market research techniques and tools were critically reviewed from a NSD and customer involvement perspective. And finally, it offers a characterization of the research field - something that has not been done before.

Altogether, the main contributions of this thesis are as follows:

- … a definition of customer involvement in new product and service development.
- … an extensive review of literature on customer involvement in new product and service development.
- … a general overview of how and to what extent companies across a variety of industries involve customers in their development process.
- … a critical review of market research techniques and tools from a NSD and customer involvement perspective.
• ... empirical support that links customer involvement in different phases of new product and service development directly to companies’ profit margins.

Findings from this research contribute to several important and interrelated research fields. Besides the obvious research fields of NSD and NPD, this research also makes contributions to market orientation, organizational learning, and market research and adherent techniques. By now I have contributed to the fulfillment of the overall purpose of the thesis: an increased knowledge of customer involvement in new service (and product) development.

5.4 Managerial Implications

This research has important implications for management. By engaging a limited number of specially selected customers and working closely with them in the innovation process, some of the stated problems of new service (and product) development can be minimized. A customer involvement effort should start with a definition of the project’s prerequisites in terms of, e.g., corporate, marketing and innovation strategies, and cultural and organizational factors such as skills and competences needed and the organization of the project. Innovation should not be left solely to engineers. A customer involvement approach not only integrates market research and R&D but also behavioral science as a customer involvement project should be carried out in a customer context. Different knowledge and skills are needed to identify latent needs and to learn from customer behavior, experiences, and preferences. In truly innovative projects, the R&D function should appoint a multi-team including customers, marketers, engineers, behaviorists etc.

Next, managers should carefully decide what the objectives are and work accordingly. Customer involvement potentially offers a number of important benefits besides a marketing opportunity, e.g., uncovering customer latent and expressed needs, superior and differentiated products and services, generation and test of new ideas, reduced cycle time, and enhanced customer competence (Alam, 2002). To develop the competitiveness, focus should be placed on capturing latent needs. Customer solutions, however, should not be dismissed as too original or unrealistic. Behind the solution, there might be an interesting yet unfulfilled need.
The objectives provide the guidelines in terms of what types of customers to engage, where to involve them, and to what extent customers should be involved. Our research provides support for customer involvement in the entire process. As such, managers are advised to adopt a proactive approach and involve customers early in the innovation process.

To some context, customers are willing to share their knowledge, ideas, and possibly even innovations for free. In other situations, managers should carefully create incentives for customers to participate. Perhaps equally important is the creation of incentives that address team members. Team members that are engaged and believe in the idea, is a prerequisite for success.

The techniques are the means by which customer information and knowledge are created. To achieve the previously stated objectives, the ways of working should be designed to facilitate customer knowledge development (Nambisian, 2002). As sticky information can not be detached from the social context in which they are generated, it is important to design a study that at least in part are conducted with real customers in real situations. The use of a variety of different market research techniques is recommended as these complement each other by means of, e.g., output and where in the development process they are useful. To aid in the selection of appropriate techniques, managers are advised to develop or use one of the existing classification schemes to help characterize and identify appropriate techniques for different purposes and different phases of the development process.

Customer involvement, however, puts demands on organizations. Outsourcing parts of the innovation process to the customer requires a shift in mindset. Customers should be seen and treated as an equal partner by employees - a co-creator who shares the same interest. As such, innovation activities aided by customer involvement are intrinsically linked to organizational development and innovation (Dahlsten, 2004). For organizations that want to increase the impact from customer involvement, suggested focus areas are competence in customer group management (Tomes et al., 1996), relationship capabilities (Athaide and Stump, 1999), collaborative skills (Leonard and Rayport, 1997), and transferring knowledge across borders (Prahalad and Ramaswamy, 2000).

Finally, to develop customer knowledge and the organization’s innovation capabilities it is important to recognize that customers needs and preference formation will evolve over time as they are influenced by the development of new technology, new ideas, products and services. As
such, customer involvement should be seen as a continual approach and be based on interaction and dialogue.

5.5 Questions for Future Research

During the course of research, several questions have emerged as interesting and important for future research. Throughout the introducing framework of the thesis I have pinpointed areas for additional research. In this section these future questions are summarized.

• Customer involvement as a theoretical concept.
• What are the similarities and differences between goods and services?
• How does customer involvement influence project uncertainty?
• How does customer involvement influence time-to-market?
• New services and products range from incremental to discontinuous. How does customer involvement vary in these processes?
• Are there other contextual factors that affect customer involvement?
• Are there differences across industries and markets in terms of customer involvement impact?
• How should customer involvement be organized?
• What characterizes a customer involvement project team? How are they appointed and what incentives are they offered?
• What is the variation of customer involvement in different development projects within the same company?
• What types of information (e.g., perceived problems, expressed and latent needs, wishes, developed solutions etc.) do customers provide in a customer involvement project?
• How do customers perceive their role in new product and service development?
• Under what circumstances are customers willing to share their ideas and knowledge for free?
• Can the lead user concept be validated in other empirical contexts e.g., consumer markets and service markets?
• Do companies practice the customer portfolio thought in their innovation processes?
• Can innovating service users be found? What characterizes these?
• Can the results that ordinary users develop more original and valuable ideas than advanced users and professional developers be validated in other contexts and with “real” customers?
• Can the customer types identified from specific research context be found in other settings and can other customer characteristics be identified?
• What is the empirical relationship between customer involvement in different parts of the development process and performance?
• How are customers recruited to development projects?
• How can companies help motivate customers to participate in customer involvement activities and projects?
• What incentives are there for customers to participate in customer involvement projects?
• What should characterize a new and sophisticated Internet-based customer involvement technique?
• To what extent do the objectives and attitudes surrounding a market research technique influence the outcome?
• How are traditional market research techniques perceived among managers?
• Do “new” customer research techniques provide different information than traditional customer research techniques?
• What methods are most efficient in terms of uncovering latent needs?
• Does a service setting impose specific demands on customer research techniques?
• Will customer involvement be intensified over time or if it will be constant?
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164


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APPENDIX A

RESEARCH MATERIAL
APPENDIX A RESEARCH MATERIAL

SGSD:
i The SGSD Interview Guide – Managers
ii The SGSD Interview Guide – Front Line Employees
iii The SGSD Interview Guide – Customers

LR:
iv List of hits on customer involvement in three research databases
v Outline of customer involvement papers and studies from database search
vi Outline of early and additional customer involvement papers and studies

CISO:
vii The CISO Survey
Title and working tasks
Describe the services that are offered to the customers.
Which are the most important quality factors?
Describe the communication with the local offices.

Describe your service guarantees
- Why
- Purpose
- Content
- Development
- Results

Describe the Complaint process/Service Recovery process
- Number of complaints
- Organization
- Routines: Behavior and action towards the customer
- Internal process
- Follow-up
- Analysis of complaints
- Performance: Need for changes in the process?

Describe the Service Development process
- organization
- competence
- process
- techniques
- the role of the customers

In your opinion, can a service guarantee be used to infuse the service development process? In what way?
Appendix ii
The SGSD Interview Guide – Front Line Employees

Background

Title and working tasks
Describe the services that are offered to the customers.
Which are the most important quality factors?

Service recovery

What is your experience of customer complaints?
What do customers complain about?
How do you deal with customer complaints?
Do you have routines to follow in terms of customer complaints and service recovery?
Have there been times when you were not able to solve a customer problem? What happened?
What does the customer expect when filing a complaint?
What do you do to make sure that the problem does not occur again?
Are the complaints documented and reported? How?
Have there been situations in which a customer complaint has led to improvements of the services?

Service Guarantees

Are you familiar with the company’s service guarantees?
In your opinion, what is the purpose of the guarantee?
In your opinion, are the customers aware of the service guarantees?
Do the guarantees influence the recovery process in any way?
What is your experience of the guarantee?
Appendix iii
The SGSD Interview Guide – Customers

Background

Title and working tasks

Relationship with company X

For what purposes have you conducted business with Company X?
What is your general opinion of Company X?
In your selection of a company to work with, what criteria influenced the decision?

Company X and their Service Guarantees

Are you familiar with company X’s service guarantees?
How were you informed?
Was the information sufficient? Are there ways to improve the information?

Have you ever invoked the guarantee? Can you describe that process?
  - Solution to problem
  - Compensation
Were you satisfied with the solution and compensation? If not: What solution and compensation would have you preferred?
How long did it take for company X to address your complaint? Was that acceptable?
Did company X follow up on the complaint?
What is your overall experience about the way you were treated?
How did this event affect your relationship with company X?
Have you conducted additional business with company X after this event?
Are you familiar if the complaints you have filed have led to any changes to the services provided by company X?
What do you think of the way the guarantee is formulated today?
Are there any changes you would like to see to the guarantee?
Has the guarantee influenced your choice of service provider?
Appendix iv
List of hits on customer involvement in three research databases

Emerald


Business Source Elite

• Lilien, Gary L., Pamela D. Morrison, Kathleen Searls, Mary Sonnack, Eric von Hippel (2002), “Performance Assessment of the Lead User Idea-


**Science Direct**


## Appendix v
Outline of customer involvement papers and studies from database search

<table>
<thead>
<tr>
<th>Authors</th>
<th>Primary focus</th>
<th>Type of study</th>
<th>Sample/ Data</th>
<th>Context</th>
<th>Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brockhoff (2003)</td>
<td>Customers’ perspectives of involvement in new product development</td>
<td>Conceptual</td>
<td>N. A.</td>
<td>N. A.</td>
<td>The locus of initiative for product development involvement is of relevance for identifying different types of involvement. Customers’ costs and benefits are identified.</td>
</tr>
<tr>
<td>Callahan and Lasry (2004)</td>
<td>Relationships between product newness, customer input, and customer intensive market research methods</td>
<td>Empirical: survey</td>
<td>n=98, 55 (56%)</td>
<td>B2B, computer telephony integration industry, Canada</td>
<td>The importance of customer input increases with market newness of a product up to a point and then drops off for very new products, whereas customer input increases with technological newness of a product without dropping off. The importance of customer input increases the use of customer intensive market research methods.</td>
</tr>
<tr>
<td>Dahan and Hauser (2002)</td>
<td>Reviews six web-based customer input methods on three dimensions</td>
<td>Conceptual</td>
<td>N. A.</td>
<td>Web-based customer input methods, product context</td>
<td>Web-based methods are cost efficient with low entry barriers and can encourage a greater number of concepts to be explored and tested with customers. Weaknesses are that they rely on virtual prototypes rather than physical prototypes; software is still embryonic; panels are still being developed and experience with the methods is still limited.</td>
</tr>
<tr>
<td>Dahlsten (2004)</td>
<td>Experiences and benefits of customer involvement in the XC90 project at Volvo Cars</td>
<td>Empirical: Case study research</td>
<td>N. A.</td>
<td>B2C, automobile industry, U.S.</td>
<td>Customer involvement is a process where the technology originator and the customer become intimately involved in an integrated or joint development project, where both parties contribute their expertise to the development project. Customer involvement leads to reduced uncertainty, increased customer understanding, and influenced product design.</td>
</tr>
<tr>
<td>Echiverri (2005)</td>
<td>Video-based methodology in a service setting</td>
<td>Empirical: video-based observations and “think aloud method”</td>
<td>33 trips made by individuals with and without functional disorders</td>
<td>B2C, public transportation, Sweden</td>
<td>The development and testing of a video-based methodology provides a tool for getting close to the essence of the service phenomenon.</td>
</tr>
</tbody>
</table>
n=197 (37.8%) | B2C, user communities in sporting equipment | Innovating members do not innovate in isolation. Information, assistance and innovations are freely shared within the communities. Monetary profit is not a key motivator for innovators or assistants, rather having fun and offering assistance as a social norm are strong factors. |
310 (25.4%)  | B2B, Machinery Industry, Germany | Results indicate that customer interaction in certain stages has a positive impact on new product success. Financially attractive customers or lead users also have a significant effect on new product success. |
<table>
<thead>
<tr>
<th>Author(s) (Year)</th>
<th>Title/Research Question</th>
<th>Methodology</th>
<th>Sample Size</th>
<th>Industry/Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeppesen (2005)</td>
<td>Need of consumer support while using user toolkits for innovation</td>
<td>Empirical interviews and data analysis of communication in communities</td>
<td>n=262 78 (29.8%)</td>
<td>B2C, Computer Games</td>
</tr>
<tr>
<td>Joshi and Sharma (2004)</td>
<td>Antecedents and consequences of customer knowledge development</td>
<td>Empirical: survey</td>
<td>n=831 169 (20.3%)</td>
<td>Manufacturing firms, Canada</td>
</tr>
<tr>
<td>Khurana and Rosenthal (1998)</td>
<td>Learning from studying front-end activities</td>
<td>Empirical: Case study research</td>
<td>18 business units from 12 companies</td>
<td>Multiple industries, U.S. and Canada</td>
</tr>
<tr>
<td>Kristensson et al. (2004)</td>
<td>The merit of users' ideas compared to ideas generated by the company itself</td>
<td>Empirical: Field experiments</td>
<td>Advanced users, ordinary users, professional product developers</td>
<td>B2C, mobile communication, Sweden</td>
</tr>
<tr>
<td>Langarik and Hultnik (2005)</td>
<td>Impact of nine NPD acceleration approaches</td>
<td>Interviews and survey</td>
<td>5 academics, 6 NPD managers n=600, 233 (44%)</td>
<td>B2B, manufacturing</td>
</tr>
<tr>
<td>Lilien et al. (2002)</td>
<td>Performance assessment of the lead user method in comparison to traditional methods</td>
<td>Natural experiment</td>
<td>5 LU ideas and 42 ideas from traditional methods</td>
<td>3M, U.S.</td>
</tr>
</tbody>
</table>

User needs emerge and are defined only gradually, and are thus also articulated to and by the users themselves. The case suggests that common approaches such as interviews, marketing research etc. are not sufficiently representative of the real issues at hand.

Using toolkits is often accompanied by an increased need for supporting consumers. The situation will be affected by the establishment of C2C help functions. In a specific case it was found that consumers to a great extent can support each other.

Customer knowledge development is defined as the development of an understanding of customer preferences. Results show that the creation of cross-functional teams and the championing of the organization goal of product leadership foster customer knowledge development.

Customer involvement is defined as the interaction between customers and the design process. Three types of involvement are identified: design for customers, design with customers, and design by customers.

The greatest success comes to firms that take a holistic approach to the front end, their activities links business strategy, products strategy, and product-specific decisions.

In comparison with professional service developers, ordinary users came up with ideas that were more original and offer greater user value, but are less producible.

Describes a need assessment process comprised of 6 steps, identifies 19 problems of industrial need assessment, and develops and describes 10 tools that are appropriate for an industrial context.

The levels of customer involvement vary between the companies but there does not seem to be any relation to the size of the company. The use of formal tools for customer involvement is mainly found in the large companies. The author proposes that the relationship with the customers should be classified and handled in a portfolio approach.

Lead user involvement and training/rewarding of employees increase both development speed and profitability. An emphasis on the customer has a positive impact on new product profitability.

LU ideas offer greater potential than non-LU ideas. LU ideas increase the overall rate at which the organization generates major new product lines. Ideas from both types of methods offered a good fit to existing divisional goals and competencies and involved
<table>
<thead>
<tr>
<th>Reference</th>
<th>Study Title</th>
<th>Research Design</th>
<th>Sample Size</th>
<th>Industry/Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnusson et al. (2003)</td>
<td>User innovation in comparison with professional developer innovation</td>
<td>Empirical: Field experiment</td>
<td>12 professionals, 19 users, 20 consulting users</td>
<td>B2C, mobile communication, Sweden</td>
</tr>
<tr>
<td>Matthing et al. (2004)</td>
<td>Examines new approaches that facilitate learning from and with customer in innovation</td>
<td>Empirical: Field Experiment</td>
<td>12 service developers, 74 customers</td>
<td>B2C, mobile communication, Sweden</td>
</tr>
<tr>
<td>Morrison et al. (2000)</td>
<td>Occurrences of innovation, the characteristics of innovators and innovation-sharing patterns in a local user community</td>
<td>Empirical: survey and 26 follow-up interviews</td>
<td>n=166 librarians, data from 122 (73%),</td>
<td>User Innovation in information system, libraries, Australia</td>
</tr>
<tr>
<td>Morrison et al. (2004)</td>
<td>The nature of the lead user concept and measurement of leading edge status (LES)</td>
<td>Conceptual and empirical survey</td>
<td>N=13 000 n=747, data from 463 (62%)</td>
<td>User Innovation, Libraries, Australia</td>
</tr>
</tbody>
</table>

The greater product complexity, the greater the degree of customer involvement in innovation. Formalization has a positive association, but decentralization has a negative association with customer involvement in innovation.

A conversational approach to customers implies that ideas and knowledge are co-created, as opposed to the information processing view that information is transferred. Moreover, the primary motive as to why customers engaged in customer involvement is their commitment to one another as social members.

Involving users makes the ideas more original, holding a higher perceived user value, but the users’ ideas are less producible on average.

The techniques and ways of working must be prerequisites for customer interaction and be designed to facilitate the systematic learning required to support and strengthen service innovation over time. Customer involvement in service innovation, if properly managed, reveals valuable customer information and has a positive effect on the innovativeness of the created service ideas.

26% reported that they had modified the software. Innovation was found to be concentrated among lead users. Innovations by users are a more efficient use of resources from a system wide perspective if and when innovating users are willing to share information about their innovations with others.

The research validates the lead user construct. The findings suggest expanded use of the lead user construct in both innovation and diffusion related applications in the marketing research field.

Propose a conceptual model of customers’ role in NPD in virtual environment and offer a number of propositions.
<table>
<thead>
<tr>
<th>Authors</th>
<th>Methodology</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neale and Corkindale</td>
<td>Co-development</td>
<td>Co-development is the process where the technology originator and the customer become intimately involved in an integrated or joint development project.</td>
</tr>
<tr>
<td>Olson and Bakke (2001)</td>
<td>Implementation and follow-up on the lead user method</td>
<td>Lead user method resulted in profitable products and services, however, time pressure, personnel turnover, limited pressure to continue due to already excellent performance, and that engineers saw it as not prestigious enough to work with customer, led to implementation failure.</td>
</tr>
<tr>
<td>Pitta et al. (1996)</td>
<td>Boundary spanning teams and consumer contributions</td>
<td>Characterizes boundary spanning teams. Methods for actualizing boundary spanning teams include organizational learning and team learning. Early and ongoing consumer input distinguishes successful from unsuccessful products.</td>
</tr>
<tr>
<td>Prahalad and Ramaswamy (2000)</td>
<td>Co-opting customer competence</td>
<td>Customer competence is a function of the knowledge and skills they possess, their willingness to learn and experiment, and their ability to engage in an active dialogue. Co-opting concerns e.g., engage customers in an active dialogue and manage customer diversity.</td>
</tr>
<tr>
<td>Ritter and Walter (2003)</td>
<td>Factors that foster customer involvement in NPD</td>
<td>Customer involvement in supplier's NPD refers to the extent a customer participates in NPD of a supplier from the idea stage to the prototype testing stage. Five relationship management tasks have a strong impact on customer involvement in NPD: relationship sponsoring, technological consulting, information brokering, representing interests, and coordinating cooperative activities.</td>
</tr>
<tr>
<td>Salomo et al. (2003)</td>
<td>Customer orientation and NPD success</td>
<td>Strong interaction intensity with customers proves to enhance technical performance, specifically when the project is coping with high degrees of innovativeness.</td>
</tr>
<tr>
<td>Sawhney et al. (2005)</td>
<td>Internet as a platform for collaborative innovation</td>
<td>Identifies three themes to support co-development: a) the absorption and integration of complementary forms of knowledge through different techniques, b) organizational transformation is a prerequisite for success, and c) the emergence of mediators who facilitate co-development.</td>
</tr>
<tr>
<td>Tidd and Bodley (2002)</td>
<td>Use and usefulness of formal tools and techniques in NPD</td>
<td>Focus groups, partnering customers and lead users, and prototyping are all considered to be more effective for high novelty projects, and segmentation less useful.</td>
</tr>
<tr>
<td>van Kleef et al. (2005)</td>
<td>Review and categorize 10 customer research methods</td>
<td>The authors develop a classification scheme for consumer research methods. The methods primarily differ in their degree of actionability. The methods are not direct substitutes; their appropriateness depends on the purpose for which they are implemented.</td>
</tr>
<tr>
<td>Veryar (1998a)</td>
<td>Key factors affecting</td>
<td>Little formal customer research during the early stages of the NPD</td>
</tr>
<tr>
<td>reference</td>
<td>study title</td>
<td>research approach</td>
</tr>
<tr>
<td>-----------</td>
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</tr>
<tr>
<td>von Hippel (1998)</td>
<td>Problem solving in mass-customized design</td>
<td>Conceptual, review of literature, and semi-structured interviews</td>
</tr>
<tr>
<td>von Hippel and Katz (2002)</td>
<td>Toolkits for user innovation</td>
<td>Conceptual and anecdotal</td>
</tr>
<tr>
<td>Von Hippel et al. (1999)</td>
<td>The lead user process at 3M</td>
<td>Anecdotal</td>
</tr>
</tbody>
</table>
## Appendix vi
### Early customer involvement papers and some additional papers from snowballing

<table>
<thead>
<tr>
<th>Authors</th>
<th>Primary focus</th>
<th>Type of study</th>
<th>Sample/Data</th>
<th>Context</th>
<th>Definition of Customer Involvement and Summary of Comments and Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alam (2002)</td>
<td>Objectives, stages, intensity, and modes of user involvement.</td>
<td>Review of literature and Case study research</td>
<td>12 case programs, 48 new service projects and 36 in-depth interviews</td>
<td>B2B, Financial services industry, Australia</td>
<td>User involvement is more intense at initial stages of idea generation and screening and the later stages of test, marketing, and commercialization. Six objectives were reported, including rapid diffusion and decreased time-to-market.</td>
</tr>
<tr>
<td>Anderson and Crocca (1993)</td>
<td>Learning from a joint co-development project.</td>
<td>Anecdotal evidence</td>
<td>N. A.</td>
<td>B2B, Software development U.S.</td>
<td>Co-development is when a company, together with its customer users, evaluates a new technology together with established work practice. Direct collaboration around the use of technology in actual work settings enlarges and enriches the work practice of both parties.</td>
</tr>
<tr>
<td>Ciccantelli and Magidson (1993)</td>
<td>Consumer Idealized Design</td>
<td>Empirical: Case study research</td>
<td>N. A.</td>
<td>B2C, multiple industries, U.S.</td>
<td>Consumer Idealized Design is a supporting method of customer involvement. Customer involvement often has not produced the expected results. Six principles have come out of examination of successful and failed efforts including, e.g., probe for the reasons why consumers want what they want.</td>
</tr>
<tr>
<td>Durgee et al. (1998)</td>
<td>Mini-concepts</td>
<td>Empirical: interviews</td>
<td>30 mothers</td>
<td>B2C, food processing technologies U.S.</td>
<td>A supporting method of customer involvement is Mini-concepts. Given the diversity of the target consumers, it might be better to expose them to a long list of functions than to expose a short list and try to find a function that gets a high rating across most of the sample.</td>
</tr>
<tr>
<td>Ives and Olson (1984)</td>
<td>User involvement in the design of computer-based information systems</td>
<td>Review of literature</td>
<td>N. A.</td>
<td>N. A.</td>
<td>Much of the previous research on user involvement in information systems is poorly grounded in theory and methodologically flawed. Problems with research to date fall into three categories: theory, measurement, and methodology.</td>
</tr>
<tr>
<td>Foxall, Murphy, and Tieney (1985)</td>
<td>User-initiated or customer dominated product innovation</td>
<td>Empirical: Case study research</td>
<td>N. A.</td>
<td>B2B, Aerospace, Great Britain</td>
<td>CAP2 is an extension of the MAP and CAP conceptualization introduced by von Hippel (1978). CAP2 ascribes entrepreneurship to the user and recognizes his role in product innovation.</td>
</tr>
<tr>
<td>Gustafson et al. (1999)</td>
<td>Observation of customers in their real environment</td>
<td>Anecdotal evidence</td>
<td>N. A.</td>
<td>B2C, Airline Industry, Scandinavia</td>
<td>Observation is a supporting technique of customer involvement. This approach helped SAS in developing a series of innovations complementing each other to form a holistic travel experience, based on the individual needs of the customers during the travel process.</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Type of Design</td>
<td>Data Source</td>
<td>Sample Size</td>
<td>Industries</td>
</tr>
<tr>
<td>---------------------</td>
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<td>------------------------</td>
<td>-------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Magnusson</td>
<td>2003</td>
<td>Benefits of customer involvement in service innovation</td>
<td>Empirical: Field experiment</td>
<td>12 professional service developers, 19 ordinary users</td>
<td>B2C, mobile communication, Sweden</td>
</tr>
<tr>
<td>Martin and Home</td>
<td>1995</td>
<td>Examination of most successful versus least successful innovations within the same firm.</td>
<td>Empirical: Interviews, group discussions and survey</td>
<td>80 senior level executives, 25 groups with 378 executives and 470 (88, 18.5%)</td>
<td>B2B and B2C, multiple industries, U.S.</td>
</tr>
<tr>
<td>Muller et al.</td>
<td>1993</td>
<td>Taxonomy of participatory design</td>
<td>Conceptual</td>
<td>N. A.</td>
<td>N. A.</td>
</tr>
<tr>
<td>Thomke</td>
<td>2003</td>
<td>Service experiments conducted live with real customers</td>
<td>Empirical: Case study</td>
<td>N. A.</td>
<td>B2C, Financial services industry, U.S.</td>
</tr>
<tr>
<td>von Hippel</td>
<td>1986</td>
<td>Launch the concept of lead users and a method.</td>
<td>Conceptual and anecdotal</td>
<td>N. A.</td>
<td>B2B and B2C</td>
</tr>
<tr>
<td>von Hippel</td>
<td>2001</td>
<td>Toolkits for user innovation</td>
<td>Conceptual and anecdotal</td>
<td>N. A.</td>
<td>B2B, B2C, multiple industries</td>
</tr>
<tr>
<td>Voss</td>
<td>1985</td>
<td>The role played by users based on their degree of participation in the innovation process</td>
<td>Empirical: interviews and survey</td>
<td>Interviews: 18 innovations, Survey: n=115 46 (40%)</td>
<td>B2B, Application software industry, U.K.</td>
</tr>
<tr>
<td>Wikström</td>
<td>1996</td>
<td>Customer as co-producer</td>
<td>Empirical: Case study research</td>
<td>N. A.</td>
<td>B2C, multiple industries, Sweden</td>
</tr>
</tbody>
</table>
Appendix vii
The CISO Survey

We want to increase our knowledge about how organizations work to create and use knowledge about their customers in service development. Of special interest to us are activities related to customer orientation and customer involvement.

The first part of the survey covers a general section, followed by a section on customer involvement and one on customer orientation. The last part of the survey covers the results achieved within product and service development.

We thank you for the interest and effort that you put into our investigation.

Part 1 Introduction

In the following section you will find questions regarding your organization and the way new products and services are developed.

1.1 What is the size of your company?
   a) Less than 20 employees
   b) 20-50 employees
   c) 50-200 employees
   d) More than 200 employees

1.2 What kind of market does your company serve?
   a) Business-to-business
   b) Business-to-consumer

1.3 What is your organization’s most important source of new service ideas? Choose only one alternative.
   a) End users/Customers
   b) Suppliers/Partners
   c) Competitors
   d) Co-workers
   e) Other markets (such as countries and industries)

1.4 What kind of information is most important to market success of a new service?
   a) External information (such as customer and market)
   b) Internal information (such as technology)

1.5 Which one of the following statements best describes the methods and ways of working you use to develop new products and services?
   a. Methods and ways of working are described in a service development process
   b. There are methods and ways of working but they are not documented.
   c. Methods and ways of working are to a large extent missing.

1.6 What methods do you use to gather information when developing new services? (1=Not at all; 10=In all projects)
a) Customer interviews  
b) Quantitative surveys  
c) Observations  
d) Lead user approach (work close together with advanced customers)

Part 2 Customer Involvement

In the following section you will find questions regarding customer involvement. Please answer the questions as thoroughly as possible.

2.1 What is the dominant perspective on your customers held by members of your organization? Choose only one alternative.

a) The customer is seen as a buyer  
b) The customer is seen as a subject of interest  
c) The customer is seen as an informant  
d) The customer is seen as a co-designer  
e) The customer is seen as a partner

2.2 Judge the level of customer involvement in your organization? Choose only one alternative.

a) No customer involvement, our new services originate from the core competencies of the organization or newly available technology.  
b) Customers are involved through various market research activities such as surveys and interviews.  
c) Customers are involved directly and are used as experts in some phases of the development process.  
d) Customers are represented in the development team and contribute throughout the entire development process.  
e) A large share of our new services is actually developed by customers.

2.3 What type of customers do you involve most in new service development? Choose only one alternative.

a) Normal customers (no special selection)  
b) Financially attractive customers  
c) Experts and leading edge customers  
d) No customers are involved

2.4 To what degree do you involve your customers in the different phases of new product or service development? (1=No involvement; 10=High involvement)

a) Strategy  
b) Idea generation  
c) Concept development  
d) Service design  
e) Service testing

Understanding the customer

2.5 To successfully develop a new product or service, it is important for our organizational unit to... (1=Completely disagree; 10=Completely agree)

a) ... continuously have dialogues with our customers on their real usage of our products or services.  
b) ... continuously try to discover additional needs of our customers of which they are unaware.  
c) ... strive to learn more about customer behavior and the customers’ context.  
d) ... strive to increase our knowledge of customers’ perceived problems.  
e) ... strive to learn more about important product and service attributes.
f) ... try to make sure that new products and services correspond to real customer needs.

Openness of the organization

2.6 To successfully develop a new product or service, it is important for our organizational unit to …
(1=Completely disagree; 10= Completely agree)

a) ... continually exchange information with customers.
b) ... communicate information about customers across all business functions.
c) ... accept that our customers may have innovative ideas.
d) ... encourage mutual learning between us and our customers.
e) ... be open to customer knowledge even if it contradicts general company knowledge.
f) ... allow customer input to have a direct impact on the final product or service concept.

Supporting factors

2.7 What would you say are the reasons to, or supporting factors of, customer involvement?
(1=Completely disagree; 10= Completely agree)

a) Customers are more innovative and create better products and services.
b) Customer involvement saves money.
c) Customer involvement reduces time-to-market.
d) We involve our customers because our competitors are doing it.
e) Customer involvement is a good way to market our company.
f) Products and services based on customer ideas are more user-friendly.

Collaboration

2.8 During the development process, to what extent does your organization do the following…
(1=Not at all; 10=In all projects)

a) We have frequent meetings with our customers.
b) The customer is always represented in the development team.
c) We support customer communities where customers can exchange knowledge and experiences.
d) We systematically involve our customers in the service development process.
e) Customers are involved in different phases of the development process such as idea generation and testing.

Inhibiting factors

2.9 What would you say are the inhibiting factors or the greatest problems with customer involvement?
(1=Completely disagree; 10= Completely agree)

a) Our current organization structure and culture inhibits customer involvement.
b) Customer involvement is too difficult and complicated.
c) Customer involvement is too expensive and time consuming.
d) The lack of suitable methods makes it difficult to involve customers in the development process.
e) We are afraid that our customers will steal our ideas.
f) Customer involvement increases the workload and demands more resources such as time and money.
g) Customer involvement contributes to increased uncertainty.

A19
Part 3 Results

In the following section we ask questions regarding the output of the organization. Please answer to what extent you agree with the following statements regarding the level of the results and innovativeness of the organization.

3.1 What kind of results is your organization perceiving for the moment? (1=Completely disagree; 10=Completely agree)

a) During the past 3 years, our market share has increased.
b) During the past 3 years, customer satisfaction has increased.
c) Over the past 3 years, our financial performance has exceeded our competitors.
d) During the past 3 years, customer complaints have decreased.
e) During the past 3 years, our new products and services have been more user friendly than those of competitors.
f) During the past 3 years, customer loyalty has increased.

3.2 What is the degree of innovativeness of your organization? (1=Completely disagree; 10=Completely agree)

a) Competitors in this market recognize us as innovation leaders.
b) We are recognized for being at the leading edge of technological innovation.
c) We are first to market with new products and services.

3.3 Do you have any experiences of customer involvement that you would like to share with us?

You have now reached the end of the survey. Thank you very much for the time and effort you have spent on the survey. If you have any questions regarding the survey please contact us through e-mail: bodil.sanden@kau.se or lars.nilsson@kau.se.
APPENDIX B
PAPERS
APPENDIX B PAPERS


The Customer's Role in New Service Development

Given today's industry dynamics, new service development is becoming increasingly important to the competitiveness, growth, and survival of organizations. Unfortunately, new service development has proven to be a complex and difficult task. Numerous reasons are stated in the literature such as the difficulty of understanding and anticipating latent customer needs and insufficient market research techniques. By engaging a limited number of specially selected customers and working closely with them during parts or the entire development process, it is suggested that the stated problems can be minimized.

The overall objective of this doctor’s thesis is to contribute to an increased knowledge of customer involvement, i.e., the role of customers as contributors and co-creators in new service development. The thesis draws on theory from market and learning orientation in conjunction with a service-centered model, and provides an extensive review of literature. The dissertation is based on four empirical studies from various service industries e.g., Staffing Services, Airline Services, and Mobile Telecommunication Services.

In this thesis it is argued that customer involvement aims at developing customer knowledge with an emphasis on sticky information such as customer latent needs. It is further argued that sticky information and insights cannot be detached from the social context in which they are generated. Therefore, the transfer of sticky information and knowledge requires deeper interactions and processes of communication. By allowing customers to innovate on their own or by spending time with them and actually taking part in activities with them, deep insights and new ideas have an opportunity to emerge.

A special emphasis is put on supporting techniques as these are the means by which customer information and knowledge are created. In addition, results are provided showing that customer involvement in innovation pays off. Companies that engage in collaborative innovation with customers can expect improved customer satisfaction, customer loyalty, and profit margin.