Customer involvement in new service development: How does customer involvement enhance new service success?

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Resume

This master thesis investigates how customer involvement enhances new service development and investigates what role the service characteristics play for this development. An exploratory and quantitative empirical research was conducted among small and medium sized firms in selected business categories.

Before the empirical work could be conducted a thorough literature study on innovation research, service research and customer involvement was completed. Literature from new product development was also included.

The literature study showed that services have been treated as something different from tangible products, but no distinction between services with different service characteristics have been done. All services have been treated alike, despite having very different service characteristics. Customer involvement in the development process is also described. Some authors argue for the use of lead users, whereas others for lay users. The literature shows no link between service characteristics and customer involvement. The type of success a customer contributes to is also not described.

Specific firms in service categories were selected to contrast firms offering services were the characteristics of these services were assumed to be different. This strategic selection of participants was done to investigate the effects of the different variables, such as intangibility, inseparability etc.

The results of this research reveal that different service characteristics contribute different to the innovation process and to the form of innovation. Perishability and heterogeneity significantly promotes customer involvement in the development process. Inseparability and perishability is found to be the two characteristics contributing the most to customer involvement in development of service innovations, whereas inseparability and information intensity contributes to the development of process innovations. The results also reveal how the different users contribute to innovation success. Service innovations contribute most to increasing customer value, whereas process innovations increase process quality the most. Lay users contribute mainly to increased customer value and market performance, whereas lead user also contributes to process quality.

This master thesis concludes that the findings in this research support the view on treating services after their service characteristics and not as a whole.

Preface

This master thesis was written as a part of the master education in Information and Communication Technology at Agder University Collage. The work began in January 2005 and lasted until the 13 of June 2005.

I chose to write this master thesis in English for two reasons. The main reason was to develop my own English skills. The second reason for choosing English is to be able to contribute to the research area this paper is situated under. If I had chosen to write in Norwegian the number of people being able to read this master thesis would be significantly lower.

I would like to thank all the people who have contributed to this research. First I'd like to than Per Egil Pedersen who has acted as my supervisor, for valuable guidance and consulting. I would also like to thank the three people who took their time to let me interview them; Camilla Tepfers, Bård Reian and Leif Arne Dalane. Last but not least, I'd like to thank all the firms that participated in the survey and made this research possible.

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Andreas Luteberget

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1. Introduction

Norway, like the most other western countries, has shifted from being a pre-industrial nation to a post-industrial nation, and our economy relies heavily on services. The service sector in western European countries constitutes between 60 and 70 percent of the GNP (Econ, 2003).

This share is reported to have increased over the last years and is still increasing. Figure 1 shows the development from pre-industrial, via industrial, to post-industrial nation for the US. Figure 1 indicates that the service sector has grown significantly over the last
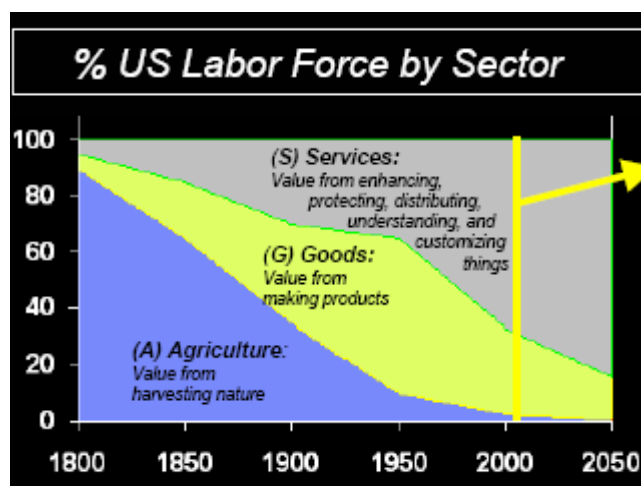
Figure 1 - Agriculture, goods and services - US labor force

100 years. Retail and Wholesale employs almost as many employees as the goods (manufacturing), sector does (figure 2).

Figure 2 - Overview of jobs and GDP in the US 2002

The service sector is a collective term that incorporates businesses that offer a huge specter of different services with very different characteristics. Still the collective term is used and many generalized assumptions prevail. Some of them are that the service sector is low productive, work intensive, not very information intensive and low on innovations. The innovation examination from Step (2001)

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shows that commercial services is the business area with the second highest innovation share, whereas commodity trade and communications are the two businesses with the second lowest innovation share (Pedersen, 2005). This tells us that the innovation challenges are very different from business area to business area within the service sector.

Research on service innovation comes from both the service research and the innovation research. Terms like service marketing, service design and service operation management comes from the service research. The innovation research has been more occupied with economic models and growth on a regional level. Along with innovation, the innovation literature also treats inventions.

The vast majority of literature available on innovation studies focuses on innovations within the manufacturing sector (Drejer, 2004). This is a reflection of the fact that the innovation research has it roots from the time when the economy was driven by the manufacturing sector and not the service sector. Despite the service sector having outdistanced the manufacturing sector, the innovation research is still dominated by researches in manufacturing. The researches on service development have also been derived from the manufacturing sector and authors of service researches are as a result of this, very much occupied with explaining the differences between the service sector and the manufacturing sector. This has led to the development of several service characteristics that authors argue separate services from manufactured goods. These characteristics also separate how innovation is conducted in the two sectors.

Services has distinctive characteristics that separate them from manufactured goods, but to say that all these characteristics apply to all services is one of the many generalized assumptions that prevail. According to Zeithaml et al (1985), services are intangible, inseparable, heterogeneous and perishable. These four characteristics along with information intensity (Miles, 2004) characterize services. Services are less tangible than manufacturing products and therefore harder to grasp, the production and consumption of a service happens simultaneously – services are inseparable. Because services are produced by customers and the service-offerer working together, services are not delivered the same way every time. They are heterogeneous. Many services perish as they are consumed (e.g. listening to the radio), so they are perishable by nature. The service sector is the most concentrated, knowledge intensive and IT-interactive

sector in today's modern industrial economy (Miles, 2004). Services are very often delivered electronically and are information intensive.

Another trend that was developed in the manufacturing goods sector was the involvement of customers in the development process. Most of this literature is found in the service research.

Today customers are frequently involved in both service innovations and product innovations, but authors have different views on how this involvement should be conducted. Some argue that lead users, so called expert users (Gruner and Homburg, 2000), are the ones to use, whereas others whishes to incorporate lay users (Lüthje, 2004). Some authors even question the users ability to innovate, and advises against using customers in the development process (Christensen and Bower, 1996).

1.1. The problem definition

This master thesis is part of a research project which main purpose is to obtain business relevant knowledge about service innovations. This is a comprehensive work that implies many different research areas.

This master thesis has researched the literature on innovation, services and customer involvement and conducted an empirical research, in order to explain how customer involvement promotes innovation success, and increase the knowledge of which factors that facilitate and restrain this involvement.

In order to manage this task there were several subproblems that needed to be addressed. The first subproblem that had to be dealt with was to conduct a thorough literature study in order to understand where the research area stands today. In order to conduct such a literature study the relevant literature had to be found and read. The library and its online databases for articles were used along with material from the research project, which this master thesis is a part of.

With basis in the literature study a research model and hypothesis were developed before an empirically study could be conducted. The model builds on the theory in the literature study, but tries to organize customer involvement based on the service characteristics of services and how they affect the innovation process and the form of innovation with respect to innovation success.

Next the questionnaire was developed and a population selected, and the survey distributed to the selected population. In order to build the survey good

measures of the variables in the model was needed, and since the model was built using available literature, several of the measures will be adapted from already conducted research. The survey was e-mailed to a selected population and the data stored in a database. The population was selected randomly from specific business areas selected for their presumed service characteristics.

Finally the report was written and the analyzed data discussed and conclusions drawn.

1.2. The delimitations

As mentioned the literature available for service innovations comes from several research areas. Innovation research has had a focus on economic models and growth on a regional level, whereas the service research has been occupied with how innovations are conducted and organized within firms and corporations.

This master thesis wants to have its focus on innovations in services and not services in innovation. Knowledge Intensive Business Services (KIBS) and Knowledge Intensive Service Activities (KISA) are research areas that have developed into a separate research area with its point of origin in the innovation research. Since these areas don't focus on innovations in services this master thesis will delimit itself not to describe this literature. It will however include business areas from KIBS/ KISA (consulting firms).

Innovations and inventions are closely linked, but there are some differences. Inventions come before innovations in time. The first somewhat practical idea of a human carrying helicopter was first conceived by Leonardo da Vinci in the 15th century, but it was not until after the invention of the powered airplane in the 20th century that actual models were produced. Leonardo da Vinci invented the helicopter, but at the time it could not be built. This example reveals the difference in nature between the invention and the innovation. When Leonardo da Vinci drew the helicopter, he invented it, but several other inventions had to be done before the innovation was realized in the 20th century. Inventions are creative ideas that not necessarily can be conducted, whereas innovations often build upon inventions and are the realization and commercialization of them.

This research will delimit itself to treating innovations according to the view described above. Inventions that cannot be commercialized will not be treated.

1.3.   Importance of the study

The goal of this research is to gain an overview of the research area and to increase my knowledge of innovation, services and customer involvement, and especially my knowledge about service characteristics and their importance for innovation success. I also want to further explore how customers contribute to innovation success, and how different types of customers contribute to the success.

Through increasing my knowledge on the area I wish to expand the already conducted research and provide empirical research in an area not covered earlier. I hope this research will shed new light on the area and further expand our common knowledge on service innovations.

Since innovation is what renews the service sector and ensures continued growth, and this sector employs more people than any other, our economy relies heavily on its success. Knowledge about innovations, services and how customers can contribute becomes the key to stay competitive and ensure economic growth.

Research on service innovations is therefore important to ensure that our knowledge increases and contributes to economic growth. The results of this master thesis will therefore contribute to developing the sector our economy relies the most on. It will also contribute to the research project which it is a part of. Its results will also be able to help managers organize their innovative work and gain the best results according to their service and the type of customer they involve.

1.4.   The report

Chapter two of this report gives an overview of the innovation, service and customer involvement research and the research model is presented along with the hypothesis. Chapter three explains the research methods used and how the survey was made, before the results from the survey are presented in chapter four. Chapter five discusses the results, and finally in chapter six the conclusion and implications are presented.

2. Theory

This chapter presents the results from the literature study conducted. The chapter is arranged after the research areas, but starts with a short general description. In the end the research model and the hypothesis are presented.

2.1. General

The research on service innovation consists of at least two areas. The concept of service innovation consists of *services* and *innovations*, and has its point of origin from the innovation research and the service research. Since this study also examines the role of customer involvement, a third area will be discussed, namely customer involvement. This will be treated as a separate area, even though most of the literature is found within the service research. This is done so as to clearly distinguish between the three core areas of this research.

2.2. Innovation research

This area covers both innovation in services and services in innovation. The later has been studied more than the first, because of a desire to examine services that are presumed to be innovative and knowledge intensive, and play an important role in innovation-systems (see Kuuisto and Meyer, 2003). One presumed that consultants, consulting engineers, analysts, auditors, lawyers etc. played an important role in technology driven innovation because they where experts in this field. This research has become its own area and is now referred to as Knowledge Intensive Business Services (KIBS) and Knowledge Intensive Service Activities (KISA). This type of innovation research lies outside the area of interest for this research.

Later literature has directed its focus against innovations in services. In his article Miles (2004) points out that the service sectors have grown significantly thought the industrial world since the 1950s, and contributed for more than half the value added in European Union countries as early as the 1970s. The service sector has also grown in its diversity and distinctiveness, and a huge range of different activities fall under the category "services". It ranges from personal services like hairdressing to finance, insurance and real estate services, and from small-scale businesses to large corporations (Miles, 2004). Some sectors are

dominated by basic technologies, like hairdressing, whereas others use advanced information technology. Despite the huge diversity in services a set of common characteristics separates services from manufacturing. Miles (2004) highlights characteristics like intangibility, interactive and information intensive as these characteristics.

Many of the services produced are intangible and can not be stored for later use, transported or exported as a contrast to manufacturing products. Services often demand a high degree of interaction with the customer. Production and consumption of the service happen at the same time in close contact with the customer. Again this is not so usual for manufacturing products. Several services are information intensive and require communicative and transactional operations, like telemarketing, are many services that are delivered electronically, like TV programs and computer software.

What is innovation?

It is important to distinguish between invention and innovation (Fagerberg, 2004). Invention refers to the first occurrence of an idea for a product or process, while innovation is the attempt to carry this idea out into practice. Sometimes inventions and innovations are closely liked and very difficult to separate. Other times a huge time lag occurs between the two. This lag often occurs because the invention alone is not enough, and another invention or innovation has to take place before the first idea can be commercialized. Inventions and innovations are also continuous processes and improvements are made continuously as time passes. This research is occupied with innovations and inventions will not be treated further in this paper.

Innovations can be categorized in many different ways. Schumpeter classifies innovations according to five different types; new products, new methods of production, new sources of supply, the exploitation of new markets and new ways to organize business (Fagerberg, 2004). Historically the focus from an economic point of view has been on the two first types of innovations. New products have been developed to stay competitive, and new methods of production have reduced costs. Later literature also emphasizes the organizational innovations and explains many successes with new ways of organizing the business. When looking at services three types of innovation stand out. "New

services" is the first and the easiest to understand. The two next are technological innovations and organizational innovations. This corresponds to the suggestion made by Edquist et al (2001) dividing the process innovations into "technological process innovations" and "organizational process innovations".

Another way to classify innovations is by how radical they are. Some innovations are very radical and totally change the service, product of way of producing the service or product, whereas others only marginally change.

Another question is how the context, under which the innovation is introduced, plays an important role. When an innovation is made and then introduced into another context, are both of these cases innovations? The first is clearly an innovation but the other one could be called an imitation. Since Schumpeter categorizes new markets as one of the innovation types, introducing the same innovation into a new market is an innovation. This innovation could be argued to be of the incremental even though the first one was of the radical kind, because this time a transformation from one market to another is the only innovation.

How to innovate

Despite the categories of innovation and the clear distinction between invention and innovations, it is not easy to explain how innovations occur. The prevailing attitude towards innovations has been that they only occur, like random phenomena, but this has changed. The early work of Schumpeter, called "Schumpeter Mark I", argued that innovations happen as a struggle between individual entrepreneurs and social inertia (Fagerberg, 2004). He later revised this work, "Schumpeter Mark II", as it became clear that innovations also include teamwork. Networks have grown and their ability to share knowledge and give researchers the ability to build upon each other's work, have made them successful. This applies to innovation as well. Since many inventions need other inventions and innovations before they can be commercialized, a network of innovators is useful. The incremental nature of all discoveries also promotes the use of networks. By having access to a broad variety of experience, cooperators and activities, a firm may broaden its resources and knowledge, which again could lead to more opportunities for innovation (Powell and Grodal, 2004). The dependencies and commitment in the relationship in a network are important.

Higher dependencies and commitment lead to higher exchange of knowledge and better opportunities for innovation.

Networks also differ in duration and stability. Some networks are meant to solve a specific task, whereas others are long-term relationships that mutually share knowledge over a long period of time. The structure of the networks also varies greatly, and spans from very hierarchical networks to a more flat structure that rely strongly on self-organizing features.

Even though networks are considered to promote innovation, there are traps to fall into. One of them is "path dependency" introduced by Arthur (1994). Path dependency means that the network locks you in to one path because of the close cooperation. Your partners or cooperators may want you to continue in a certain part, despite the fact that new opportunities have arisen and should be explored.

Openness is perhaps the most essential factor for innovation. This has to do with the fundamental characteristics of an innovation. Every innovation combines ideas, capabilities, skills, resources, etc in a new way (Fagerberg, 2004). A result of this is the greater the variety of skills, resources, and so on, the better are the chances of innovating. This could explain why densely populated areas have developed more innovation throughout history. If this parallel is drawn in today's society, one might say that large firms should be more successful innovators than small firms. Andersen and Lundvall's (1988) work argues the opposite. In their work they show that small countries have been very successful in innovating, and explain this with the tight connections and family-like ties between firms in small countries. One of the difficulties with cooperating in networks is to get all parts to commit to the network. In small countries where the relations are close, mutual commitment is easier to achieve.

Pavitt (2004) has suggested a framework that covers the innovation process within a firm. He states that *"Innovation processes involve the exploration and exploitation of opportunities for new or improved products, processes or services, based either on an advance in technical practice ("know-how"), or change in market demand, or a combination of the two."* (Pavitt, 2004, p.88). He also stresses that innovation deals with uncertainty, which can be overcome with either trial and error or increased understanding (knowledge) of a subject. Pavitt (2004) organizes the innovation process in three, partly overlapping, processes; the production of scientific and technological knowledge, the transformation of

knowledge into working artifacts and responding to and influencing market demand. The production of scientific and technological knowledge happen through the firms' own R&D unit, through outsourcing of specific activities and in cooperation with universities and other research sections. Firms spend more money on R&D than earlier and use outsourcing to stay competitive without having to maintain a certain type of knowledge. This way the firm can concentrate fully on achieving its goals. To transform knowledge into working artifacts, managers need to be aware of technology trajectories and scientific theories, relevant government funded R&D programs, systems integration and techniques and approaches to reduce uncertainty. The matching of artifacts with market demand is the major responsibility for managers who build on their accumulated knowledge of product, service and market. Allocating resources to explore opportunities is essential for success.

Organizing for innovation is not an easy task, but the literature points out freedom as an important factor. Groups of people must be given sufficient freedom to experiment with new solutions (Van de Ven, 1999), and interact with one another inside a firm or network, the best suitable way for exchanging knowledge.

The term organizational innovation has been interpreted and treated differently in today's literature. According to Lam (2004) the literature can be classified into three different streams, each with a different focus. Organizational design theories focus on the organization as the unit for analysis, and look at the link between structural forms and the ability of an organization to innovate. Another stream is the theories of organizational cognition and learning, which focus on how organizations develop new ideas for problem-solving. The third steam deals with organizational change and adaptation.

Innovation systems

The literature on innovation systems views the bigger picture. Van de ven at al (1999) uses the term "social system for innovation development" to describe the collective achievement in society to expedite innovation. Innovation systems are usually referred to on a national or regional level and incorporate several networks to a bigger system.

These systems often have more structure than networks and will also often endure longer than networks. They take on the role of long-term adjustment and facilitate certain patterns of interaction within a region or country. Innovation systems can also be subject to the same problems as networks experience. Path dependency and lock-in can occur for innovation systems and then for whole regions or countries. Another danger is that one component of the systems lags behind, and stales the development of the entire systems. For example will the lack of proper infrastructure, finance, etc, be an obstacle for innovation elsewhere in the system (Fagerberg, 2004).

Service vs. manufacturing

The characteristics of services that make them different from manufacturing products have resulted in distinctive patterns of innovation. For example have services often been customized to fit each and every customer, whereas the manufacturing product sector has moved towards standardization. Historically this has resulted in small-scale provision of services. Today some areas of the service sector have adopted the standardization of their services and become more industrialized, like Levitt (1972) argued in his article. For example McDonalds, that delivers a very standardized service, and has been criticized for generating low-quality, low-skilled jobs (Miles, 2004). Since Levitt (1972) argued for more standardization of services several manufacturing product firms have moved in the opposite direction, and offer more customized and flexible products. The service and the product sector have moved closer and the differences are no longer that clear.

Another pattern of innovation is modularization. The product sector has been more modularized in its approach to manufacturing, and this has led to several organizational innovations to produce the product faster, better and with higher quality. The service sector has historically viewed its services more as on step, but this is also changing. Modularization in the service sector is more common and has led to new ways of bundling services (Miles, 2004).

The third pattern of innovation is the use of information technology (IT). IT has made it possible to automate many processes in service firms through the use of document processing, email, enterprise resource planning software, etc (Miles,

2004). The use of IT also promotes customization through the use of standard modules combined in different ways in accordance with customer needs.

The service sector has invested more in IT than the manufacturing sector has, but not all investments have been conducted wisely. One might say that IT has become the revolution in the service sector much the same way as energy technologies (e.g. steam engine or electric power) were to the product sector (Miles, 2004). IT enables the service sector to change information processing activities in all types of service firms, and has been used for different purposes. According to Christensen, Methlie and Grønland (1999) and their EEC-model, IT was first used for efficiency by automating activities to reduce costs, then for effectiveness by achieving the goal of the business more effective and later for competitiveness. This is very similar to Barras (1990) and his reversed product cycle. He argues that IT investments follow three phases; improved efficiency, improved quality and new services. IT was introduced to improve existing processes and later became the basis for service innovation, revising the "product cycle" introduced by Abernathy and Utterbach (1978).

Drejer (2004) writes in her article that *"... service specific studies tend to stress the peculiarities of services to much, thus neglecting the generality of their findings, e.g. in terms of codification of knowledge for innovation" (*Drejer, 2004, p.551). She argues that service and manufacturing activities become more intertwined, which leads to the need for a common framework for studying the two, rather than focusing on the differences. There is an ongoing debate whether service and manufacturing innovations can be analyzed using the same tools. Coombs and Miller (2000) distinguish between three different approaches. An assimilation approach that treats services similar to manufacturing, a demarcation approach, which argues that the two are distinctively different and a demarcation approach which argues that service innovations bring forward the neglected sides of manufacturing innovations.

The debate whether the manufacturing and the service sectors innovation should be analyzed with the same framework or not, is not over, but it is clear that the literature now has started to se similarities between the two rather than focusing only on the differences.

2.3. Service research

Service research comes mainly from the service marketing research and service operations research. Both areas have been occupied with service innovation, but under the concept of New Service Development (NSD), a parallel to New Product Development (NPD).

One could argue that services have been offered just as long as products, but when it comes to businesses the product industry emerged before the service industry. This becomes very clear when examining the literature available for NPD versus the literature available for NSD. A search using ISI gives a result of 1,097 articles for NPD, from 1951 up till today, whereas NSD gives a result of 31 articles, the oldest dating back to 1984.

New Product Development

New product development is a much older research area than NSD. "*The emergence of a formalized new product development function can be attributed to the needs of companies in the capitalist system to maintain a competitive advantage in the market in which they operate…*" (Goulding, 1983, p.3).

In Goulding's (1983) literature review on new product development it is argued that NPD is essentially a means to improve the corporate viability and ultimately national prosperity. In order to manage this, a corporation needs to develop through revitalization or diversification. The first deals with product modifications or reformulations, range extensions as size and flavors, new pricing, new packaging, in short a new image. Diversification deals with new product development, new markets and acquisitions.

Sampson (1970) described a successful new product as satisfying new needs, wants or desires, possessing outstanding performance in such need satisfactions, compared to any other product and benefiting from an imaginative combination of product and communications. Some products may very well fall out of this classification, for example minor changes to an existing product. If one classifies new products as evolutionary and revolutionary, all new products are incorporated. Here evolutionary products refer to small changes and variations to existing products, whereas revolutionary products refer to totally new products and major technological breakthroughs.

Alongside different ways to classify new products the literature offers different drivers of new product development. New products and new markets have already been mentioned, but also organizational changes and the use of customers are presented in the literature.

The process of developing new products is also described and involves stages like: idea generation, concept testing, product testing, financial evaluation, test marketing and launch (Goulding, 1983).

New Service Development

In the service research three terms are widely used and explored; New Service Development, service design and service operation management. The service design research is particularly occupied with the customers' interface and not so much with the process. Since process and customer interface is so closely linked in services, this distinction becomes less than in product design. Service operation management area has in the later years been mostly occupied with management and organization. In the following the term New Service Development (NSD) will be used.

NSD has its origin from NPD, and focuses on the development and marketing of services as different from tangible products. The literature focuses on several service characteristics that make services different from tangible products. Johne and Storey (1998) argue that intangibility, heterogeneity and simultaneity, are characteristics that make services different from tangible products, whereas Miles (2004) emphasizes intangibility, interactivity and information intensity, as the important service characteristics. In their book Fitzsimmons and Fitzsimmons (2004) mention customer participation, simultaneity, perishability, intangibility and heterogeneity as the most important service characteristics, and Wikipedia (2005) characterizes services by intangibility, perishability, lack of transport, lack of homogeneity, labor intensity, demand fluctuation and buyer involvement. The most cited categorizing of service characteristics is that of Zeithaml, Parasuraman and Berry (1985). They emphasize intangibility, heterogeneity, perishability and inseparability as the most important characteristics of a service, but lack information intensity. Since most of the efficiency improvement is linked to information technology in the service

sector, Zeithaml, Parasuraman and Berry's (1985) categorization will be expanded to include information intensity in this research.

Intangibility is the most widely cited difference between tangible products or goods and services (Lovelock and Gummesson, 2004), and described as the source from which all other differences emerge (Bateson, 1979). Bateson (1979) also distinguishes between physical intangibility, the fact that something cannot be touched and mental intangibility, that something cannot be grasped or understood. These two aspects differentiate services from tangible products because a buyer cannot hold or touch a service upon buying it. Services are also harder to understand because there is no tangible evidence to relate the service to.

Heterogeneity makes a service different from each time it is produced, a different quality, because humans are involved in the delivery process. This is especially the case in labor intensive services. The service delivery process is an interaction between the supplier and the customer and they both contribute to making the service heterogenic. The service may not be rendered the same way from the supplier's side each time, and the interaction with the customer may also affect the outcome. Rathmell (1974) points out that performance varies less in machine intensive services than in human intensive ones.

Perishability is one of the characteristics that according to Bateson (1979) are derived from intangibility. Perishability means that the service does not last, and as a result of this it cannot be stored. Fitzsimmons and Fitzsimmons (2004) stress the time aspect related to perishability. When the full capacity of a service is unused this opportunity for business is lost. Also when the demand exceeds the capacity opportunities are lost.

Inseparability or simultaneity in services refers to the fact that production and consumption of a service happen simultaneously. This characteristic promotes the customer role in the production and terms as co-production, customer-to-employee and customer-to-customer interaction becomes important. Co-production introduces productivity benefits but also raises managerial challenges for the service providers as the customers become partial employees. Fitzsimmons and Fitzsimmons (2004) also point out that quality control becomes more difficult since the customer takes part in the production process.

The four characteristics mentioned above come from Zeithaml, Parasuraman and Berry (1985) and their work. To take into consideration the digital world we

now live in, information intensity becomes an important fifth characteristic. Miles (2004) points out that many services are highly information intensive and some service products are delivered electronically. He argues that the service sector is the most concentrated, knowledge intensive and IT-interactive sector in today's modern industrial economy, and that services are subject to IT-based innovations.

Today most of the literature available on services and service characteristics emphasizes the difference between service products and tangible products, but there are some exceptions. Lovelock and Gummesson (2004) express an extreme view, and believe that service marketing need to review its paradigm on service characteristics. They present a new paradigm where ownership is the essential factor. Instead of differentiating between services on one side and goods or tangible products on the other, they propose to look at the transfer of ownership. Some goods and services transfer the ownership permanently, whereas others only give temporarily access to a good or service. This paper will not continue this discussion, but their article (Lovelock and Gummesson, 2004) raises several important views on service characteristics that favor a more common approach to NSD and NPD.

Lovelock and Gummesson (2004) point to economists as the point of origin for the service characteristics and state: *"...we have found no evidence that the IHIP* (intangibility, heterogeneity, inseparability and perishability (ed. comment)) *characteristics have been validated by research as being either generalizable to more than limited service situations or having collective relevance for understanding how companies design and implement their marketing strategies or how customers make choices." (*Lovelock and Gummesson, 2004, p.24).

Intangibility is viewed as a limited concept that most authors seem to associate with pre-purchase activities by customers with no prior experience with the service, especially with respect to customers trying to evaluate the quality of a service prior to delivery. Lovelock and Gummesson (2004) argue that this is also the case for several tangible products, and that many services offer tangible evidence of the service they provide. Hotels for example present a room to stay in and based on how this room looks like, customers evaluate the service they are about to receive. To classify services as intangible and goods as tangible will therefore only apply in some cases and not to all.

Also heterogeneity is said to apply to all labor intensive services, but still no such claim is made for machine-intensive service operations. Since many of the services offered in the past now have been automated the machine-intensive service operations grow in numbers, and the heterogeneity aspect of services decreases.

Perishability makes services impossible to store, but managing the production, capacity and demand is not an easy task with tangible products either. Both in service and goods production capacity is perishable; an unused chance is gone forever. The cost of warehouses and keeping huge amount of stock, plus the fast development rate of several products have made the product sector more like the service sector when it comes to producing. Goods are often not produced until the order has been placed.

Lovelock and Gummesson (2004) accept inseparability or simultaneously as a distinctive characteristic of services, but conclude that there are too many separable services to generalize this characteristic to all services. The transport of goods, packages and letters for example is a separable service. The customer of a messenger service uses this service especially because he does not want to deliver the package or letter himself.

In their article Lovelock and Gummesson (2004) show that the characteristics of services not necessarily make them different form all tangible products and that not all of the characteristics apply to all types of services.

New Service Development aims at producing new services. New is a widely used word and a definition of this is needed. Different authors define "new service" or type of innovation different, but they all agree that the term is a multidimensional term, and that changes or innovations only to the service itself are a too limited view. In their literature review de Jong and Vermeulen (2003) stress that innovation can be related to changes in four dimensions; in the service concept, the client interface, the delivery system and technological options. Johne and Storey (1998) argue that "new service" or business development can be achieved through market development, process development or offer development. Offer development consists of service development and service augmentation development.

Market Development ─┐
Process Development ──→ Business Development
Product Development ─┐
Offer Development ─┘
Product Augmentation Development ─┘
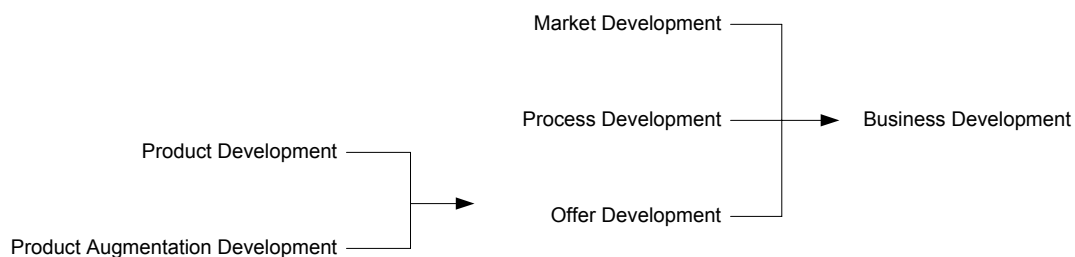
Figure 3 - Johne and Storey (1998), New Services

Service development consists of four developments efforts; service improvements, new service lines, service line extensions and services new to the world. Service augmentation development has to do with repositioning, and how core service features are promoted and made available to the customers.

Menor et al (2002) argue that despite the many attempts to define "new services", none of them are precise enough, and they see it as an important research opportunity to developing more precise classifications of what constitutes a new service.

Another dimension that needs to be taken into consideration when discussing innovation types is an innovativeness dimension. Innovations may be more or less radical. Garcia and Calantone (2002) provide an empirically tested basis for this dimension.

The literature on NSD tries to explain the process of innovation as well as defining the different types of innovations. Many firms' attitude towards innovation is that it is an ad hoc process rather than a formalized process, but this is changing. Johne and Storey (1998) refer to Booz et al (1982) and present the innovation process of tangible products as seven stages; new product strategy, idea generation, screening and evaluation, business analysis, development, testing and commercialization. They argue that several of these stages from NPD have been little used in NSD, and are surprised by the little effort to develop a specific model for service development processes. Gruner and Homburg (2000) develop a six-stage model for the service development process. Their model include idea generation, product concept development, project definition, engineering, prototype testing and market launch.

Also Alam (2002) presents a model, but he distinguishes between ten different development stages; strategic planning, idea generation, idea screening, business analysis, formation of cross-functional team, service design and

process/system design, personal training, service testing and pilot run, test marketing and commercialization.

The stages presented by both Alam (2002) and Gruner and Homburg (2000) can be divided into three categories. The first one being the planning stage or initiation stages as Kelly and Storey (2000) present. The second stage is the development stage and the final one, the launch stage.

Some of the literature on NSD tries to explain what leads to successful new service development. Edgett (1994) examines development activities in British banks by conducting a telephone initiation contact followed up by an e-mail survey. He then contrasts successful NSD projects versus unsuccessful NSD projects, and concludes that there are some factors that separate the two cases. Successful NSD projects score higher on organization, resource allocation, formalization, preliminary assessment and testing, market research and market potential, market synergy and launch effectiveness.

Another article occupied with NSD success is de Brentani (1995). Her results show five new service scenarios, from which three are successful; customized expert service, planed pioneering venture and improved service experience. The two failure scenarios are described as peripheral, low market share, service and poorly planned industrialized clone.

Despite the two efforts mentioned above, Menor et al (2002) feel that service performance is an important area to further explore. They suggest that performance measures can be divided into two main directions; focus on process (process innovations) or focus on outcome (service innovations). New service development outcomes are further divided into financial, competitiveness and quality measures, whereas new service development process performance is divided into criterion cost, effectiveness and speed.

Since NSD has its origin in NPD, several similarities are visible. Goulding's (1983) review shows that the need for formalized NPD is deemed necessary to secure the future for any product producing company. He concludes that no generalized approach to NPD can be made, due to the unique needs of every company, but still discusses the development process and critical success factors. Terms like organizational structure, product characteristics, development process – divided into idea generation, concept testing, product testing, financial evaluation, test marketing and launch, and the role of creativity are discussed.

Several of these terms reemerge in NSD, as in Johne and Storey's (1998) literature review on NSD. Again terms like process development, market development and offer development (product development) are used, and several of the stages in the development process are recognized from Goulding (1983). The main difference is that Johne and Storey (1998) stress the fact that several service characteristics, such as intangibility, heterogeneity and simultaneity, make NSD different from NPD. The service marketing research has gone from new product development to new service development, but the focus has been on emphasizing how services differ from products, and how the service innovation processes and service innovation success differ as a result of this (Menor, Tatikonda and Sampson, 2002). The research also shows that early NSD was guided more by coincidence than formal processes, but this is changing and more formal processes, like the ones in NPD, are being developed.

2.4. Customer Involvement research

Since the service sector has outgrown the industrial sector in several western European countries, some argue that service innovation is the key to our economics, and that the most important factor in service innovation is the customer. On the basis of this one might say that the customers hold the key to the future.

According to Dosi et al (1994) this means that the competitive advantage in the long run will rest upon socio-economic arrangements that favor experimentation, innovation and learning. These arrangements are promoted by an active participation of a huge spectrum of users, which represent all segments of society. As a basis of this understanding, according to Bar and Riis (2000), are three core concepts. The first is the tight relationship between communications networks and innovation, the second is the importance of user-producer relationships and the third is the danger of path dependence and lock-in.

The significance of Dosi et al (1994) and Bar and Riis (2000) for the service sector, is that its future depends upon innovation and rethinking. In order to cope with the constant demand for change one must be aware of the tight relationship between communications network and innovation, and the usefulness of a tight relationship to its customers and end users.

Growth depends on, according to Bar and Riis (2000), the ability to produce ideas and not only goods, and even more important are "meta-ideas". "Meta-ideas" are ideas about how to support production and transmission of other ideas. It is through information and learning that economic growth may occur, and information must therefore be shared through the use of a communications network. Such a network will enable learning and the creation of new ideas, and the use of customers. If one also manages to include the customers in this network the knowledge platform will expand significantly, and the production of ideas may blossom.

Older ways of thinking do not support the use of customers or end users to promote innovation. Three important aspects of the user –producer relationship, with respect to the innovation process, are pointed out by Bar and Riis (2000). The first is the existence of feedback loops between the user and producer. Secondly they stress the importance of learning from internal sources (e.g. learning by R&D, failing, testing and using), as well as external (e.g. learning from suppliers, customers, infrastructure and literature). Thirdly and finally, they argue that the innovation and diffusion process are simultaneously determined.

The literature on user involvement to promote innovation is growing all the time, but it is far from being exhaustive. Most of the studies conducted have been made by the production innovation research (NPD) and not by the service innovation research (NSD). This is not so surprising since the NPD literature is more developed than the NSD literature. But since these two areas have been developed in parallel, much of the NPD literature applies to the NSD area and vice versa.

Gruner and Homburg (2000) try to explain the impact customer interaction has on the success of new product development, Lüthje (2004) views the role consumers play in the development of new products and explains their different contributions with the difference in characteristics and ability of each and every consumer. Kaulio (1998), on the other hand, describes different techniques that are used when involving customers in the development process.

Based on the relation marketing, new product success and lead user analysis literature, Gruner and Homburg (2000), try to explain how users contribute in different stages of the product development process, and how the different user characteristics apply. They conduct an empirical study and conclude that customer

involvement in the early and late stages of the development process gives a higher success rate. Involvement in the mid stages does not, however, seem to increase the success rate. The user characteristics also had an impact on the success rate. Gruner and Homburg (2000) argue that lead users, financially attractive customers, i.e. the customers that stand to contribute from the cooperation, contribute to increased product success. Also customers with close relationships contribute positively, but technologically interesting customers do not seem to increase success.

Like Gruner and Homburg (2000) also Lüthje (2004) views how different user characteristics apply, and whether these characteristics can be used to differentiate between innovative and non-innovative users. He also raises the question whether or not the customer can innovate.

Through an empirical study of consumers in the outdoor industry, an overwhelming will to innovate is revealed. 9% of the participants in the study had gone as far as developing of prototypes of new and improved products. An even higher number had made sketches and many more had ideas for new products of improvements to already existing products. On the basis of this study it is safe to conclude that users can innovate, and many of them do so. In his work Lüthje (2004) also differentiates between user characteristics and their ability to innovate. In contrast to Gruner and Homburg (2000), experience with the product and the advantages achieved through innovation is used to separate innovative from non innovative customers.

Both Gruner and Homburg (2000) and Lüthje (2004) have conducted empirical studies where they have examined customers' ability to innovate and the effect customer involvement has on product success. In his article Kaulio (1998) presents a framework and an overview of methods for involving customers in the development process. Customer involvement is described as a component in Total Quality Management and seven different methods for customer involvement are presented; *QFD, User-oriented product development, Concept testing, Beta testing, Consumer idealized design, Lead user method and Participatory ergonomics*. The different methods are compared and presented amongst two dimensions; type of customer involvement and the stage they contribute to in the innovation process. This gives us a framework for selecting the most appropriate

method based on the type of involvement and where in the development process one wishes to incorporate customers.

Both Alam (2002) and Magnusson et al (2003) have written contributions to the research on customer involvement in services. The basis for both their researches comes from the production sector, but they view the service sector and conduct their empirical studies there. In his article, Alam (2002) highlights the process of involving customers in service development in the B2B industry, while Magnusson et al (2003) try to map the advantages of customer involvement in the telecom-sector. He also investigates whether the user's contribution can be increased by teaching the customer about the underlying technology.

Alam (2002) views user involvement in service innovation and divides his work into four research areas; objective/ purpose of involvement, stages of involvement, intensity of involvement and mode of involvement. His results show that there is only one purpose of involving customers in service development, namely to develop a successful new service, but several means in which to achieve the desired purpose. Alam (2002) has grouped his research into six categories; superior and differentiated service, reduced cycle time, user education, rapid diffusion, improved public relations and long-term relationships. Most of the participants in the research mentioned multiple objectives for involvement of customers. Customers are involved in all of Alam's 10 stages, but three of these stages, idea generation, service/ process system design and testing/ pilot run, seemed more important than the others. Alam (2002) divides the intensity of the user involvement into four levels. First there is passive acquisition of input, where the users take the initiative to provide the input. Second the information and feedback on specific issues where the developers may approach major service users to obtain information on specific issues at various stages of the development process. At the third level is the extensive consultation with users. At this level the service producers take the initiative and invite users to share their knowledge and come with their inputs. The fourth and final level is the representation level. Here users are invited to join the development team and the intensity and the involvement is high. The mode of involvement in Alam's (2002) research is divided into; face-to-face interviews, user visits and meetings, brainstorming, users' observation and feedback, phone, faxes and e-mails and focus group discussions.

Magnusson et al (2003) take a different approach when researching the importance of customer involvement. In his research the customers are given different access to information about the technology over which the service is provided. He puts together three groups, one with experts, one with customers given access to information on the technology, and one user group without access to this information. The research reveals that the experts and customers with information on the technology come up with the most feasible ideas, whereas the users without information create the most original and value-adding ideas.

Some of the literature available is skeptical to the use of customers in the development and creation of new services and products. Christensen and Bower (1996) are skeptical after having viewed the hard disk market. They point out that several major participants have lost their leading market position as a direct consequence of their customers. The customers in these cases "lock" the producing firms into developing and researching only the products they want. This causes the producing firms to miss out on new production possibilities that lie beside the current products in production. Viewing this in light of Bar and Riis (2000) it is very clear that the hard disk company in Christensen and Bower (1996) has been the subject of path dependence and lock-in, and as a consequence of this, Christensen and Bower (1996) argues against to close ties to ones customers. They feel this might restrain the development and the possibility of exploring new technological opportunities.

Bennet and Cooper (1981) are also skeptical to customer involvement. They believe the customers lack the premises to think radically new, because the customers always will choose the familiar and known. This Bennet and Cooper (1981) argue, will lead to a stop in the development of new products. They also argue that the customers do not possess the ability to express their needs because the customers do not know the technical possibilities. This belief is very different from Magnusson et al (2003) and their results. The argue the exact opposite, that the more technical knowledge one possesses, the more limitations one sees and less original ideas are being developed. As a third argument against customer involvement Bennet and Cooper (1981) argue that the customers' needs may change by the time it takes to develop a new product. This argument will always apply whether one develops a service or a product and whether the developers are experts or customers. The only way to reduce this risk is to work closely with the

customers so that one always knows the needs they possess, and so that adjustments can be made.

Also Leonard and Rayport (1997) express a concern for the customers' technical knowledge and their ability to innovate as a result of this. Again this is a strong contrast to Magnusson et al (2003) and their research.

Also the distinctive characteristics of services have been used as an argument pro and con customer involvement. Zeithmal et al (1985) argues that intangibility makes it difficult to communicate the service and its content. This prohibits customer involvement in the development of new services. Other authors (de Jong and Vermeulen, 2003) have argued that service innovations does not require much R&D nor huge investments in fixed assets to support service innovations do to the intangible nature of services. This reduces the risk of involving customers in the development process.

The inseparability characteristic of services makes the customer part of the production process (Zeithmal et al, 1985) and it is therefore safe to assume that this characteristic promotes the involvement of the customer in the development process. Self service technologies or co-production is changing the way customers interact with firms to create service outcomes (Meuter et al, 2000). Services that are considered very inseparable should therefore also promote co-production since the customer and service provider must be present at the same time.

Very few articles try to shed light on the customers' perspective on involvement. In his article Brockhoff (2003) tries to do this. Instead of explaining the challenges the customers meet when involved in the development process, he tries to research their agenda and motives for involvement. Several problem areas (i.e. ownership to the new product or service) are pointed out by Brockhoff (2003) when it comes to customer involvement. He divides the involvement into the spontaneous involvement, where the customer on his own decides to contribute, and the requested involvement, where the producer invites the customer to contribute. The involvement is further defined by how deep the involvement is, and what costs it raises for the producer. The stronger influence the producer wishes to have, the higher the costs will be. The spontaneous involvement for example, does not cost the producers anything, but gives the producer little control.

The literature on customer involvement from the product and service area has several similarities. The users' ability to innovate is often discussed, and arguments for both views are easy to find. The fact that empirical research, Lüthje (2004) and Magnusson et al (2003), has revealed innovations made by customers and taken this as proof of customers' ability to innovate. How and when customer innovate, are questions that only partially have been explored. Magnusson et al (2003) argues that the most original and value-adding ideas come from customers with little technical knowledge, whereas Bar and Riis (2000) point out that lead users can develop products and services that the common man can not. They argue that lead users have the ability to understand needs before the common man gets them, and develop services and products that are ahead of its time. Also Kaulio (1998) promotes the use of lead users. They are leading in today's technology and can foresee trends in the future. Despite the many arguments for lead users Bar and Riis (2000) also see the danger. Lead user may very well develop services and products that are too sophisticated for the common man. A producer should incorporate a wide network of users so that all aspects are covered. Otherwise one might end up with products and services wanted only by a small fraction of the public.

The customers' agenda for participating in service or product development processes has been discussed, and two major views are covered. The first view, shared by Brockhoff (2003), argues that the customers are motivated by a reward. If one takes away the reward, customers would not bother to innovate. The reward may be economical, but the reward of better products or services is also motivating. The second view argues that the customers' are driven by an inner motivation, and that the struggle and problem solving itself is reward enough. Lüthje (2004) shares this view, and believes people's wish to develop oneself, is the driving force. If one considers Maslow's hierarchy of needs, people's willingness to innovate may be explained by the need to self actualization.

The literature covered in this research views the qualifications and assumptions about customers' ability to innovate. It also tries to tie these qualifications to customer characteristics to be able to conclude what type of customers that is best suited for innovation. Some of the literature also distinguishes between services and products based on service characteristics. As discussed earlier in the report, this is not valid for all types of services and

products. It therefore seems more natural to separate different ways of innovation and customer involvement based on the difference in characteristics rather than to separate between products and services. In their article Vermeulen and Wietze van der Aa (2003) address the question of how different service characteristics have consequences for the organizing of service innovations. This is a view that needs further research.

2.5. Model

Most of the literature available today separates between service and product innovation. This separation can be explained as a result of researches being too focused on how services differ from products rather than researching services as a separate branch. The fact that NSD is derived from NPD also contributes to focusing on the differences. In their article Vermeulen and Wietze van der Aa (2003) argue that different service characteristics have different impact on the organizing of the innovation process. With basis in this article this research whishes to expand this argument to apply to both the innovation process and the form of innovation. Instead of treating all services alike, the characteristics of the service will affect how innovation is conducted, and which again determines how successful the innovation becomes. The research model (figure 4) is adapted from Pedersen (2005)[1].

Service characteristics

Intangibility
Heterogeneity
Inseparability
Perishability
Information intensity

Innovation process

Involvement
- Stages of involvement
- Intensity of involvement

Customer characteristics

Service performance

Process quality
Customer value
Market performance
Profitability performance

Form of innovation

Innovativeness

Innovation type
- service innovations
- process innovations

Figure 4 - Research model

The research model presented above have been revised based on the results from the empirical research, but the main contribution to the model is adapted from Pedersen (2005)[1]

The model consists of four objects; service characteristics, innovation process, form of innovation and service performance. Service characteristics consist of four variables. The four first are adapted from Zeithaml, Parasuraman and Berry (1985), and information intensity is added to support Miles' (2004) view of the service sector as being highly information intensive.

The second object, innovation process, consists of involvement and customer characteristics. Both Gruner and Homburg (2000) and Alam (2002) have frameworks for their research that incorporate stages of involvement and intensity of involvement. These variables will determine where in the innovation process the customers are involved and how intense the involvement is, and have been incorporated into this research.

Since the literature has very different views on what type of customers that are best suited for involvement, a variable measuring customer characteristics is added. Gruner and Homburg's (2000) conceptual framework validates this variable.

The form of innovation, the third object of the model, contains the variable's innovativeness and innovation type. The innovation type is further divided into service innovations and process innovations.

The forth object, service performance, contains four variables; process quality, customer value, market performance and profitability performance. They are all used to measure how well a new service performs, or the success of a new service.

The model in figure 4 shows how the service characteristics are assumed to influence the innovation process and the form of innovation. These two objects are assumed to affect the service performance, whereas the service characteristics are presumed to have a moderating effect the relations between innovation process – service performance and form of innovation – service performance.

2.6. Hypotheses

In this chapter the hypotheses are organized after the model presented above. First hypotheses concerning service characteristics and their effects on the

innovation process, and the type of innovation are presented. Then the innovation process and its effect on innovation success, before the form of innovation and its effect on innovation success are presented. At the end the hypothesis concerning the moderating effects service characteristics have on innovation success, are presented.

The hypotheses in this chapter are constructed with bases in the general theory described above. They are not integrated in the theory section because both the theory and the empirical results have been used to reconstruct the research model, which the hypotheses were built from. As a result of this relatively short arguments for the hypotheses are presented before each hypothesis, which could have been formulated as research questions do to their explorative nature. The directions of the hypotheses are therefore formulated one way, but could often have the opposite direction.

2.6.1. Service characteristics and their effect on the innovation process and type of innovation

Whether or not intangibility is an obstacle for customer involvement in new service development is an open question. Some authors have argued pro (de Jong and Vermeulen, 2003) and others con (Zeithaml et al, 1985). This research has chosen to state the hypothesis pro, that intangibility has a positive effect on customer involvement.

H1: Intangibility promotes customer involvement in new service development.

Since the inseparability characteristic of a service makes the customer part of the production process the research concludes that this characteristic will promote customer involvement in the development process, and the involvement through co-production.

H2: Inseparability promotes customer involvement in new service development.

H3: Inseparability promotes customer involvement through co-production.

As pointed out in chapter two, NSD have developed as a parallel to NPD, but stressed the differences between services and tangible products. As a result of

this, all services have been treated the same, despite having different service characteristics. This research wants to explore what impact the different service characteristics have on the innovation process and the form of innovation. Two assumptions have been formulated too explore this. They are called assumptions because no previous literature that argues pro or con this view has been found. Vermeulen and van der Aa (2003) touch the subject but does not present any empirical study.

H4: The different service characteristics have different effect on customer involvement in the different stages.

H5: The different service characteristics have different effect innovativeness.

H6: The different service characteristics have different effect on customer involvement in the different type of innovations.

Very heterogeneous services are not delivered the same way every time they are produced. Standardization as a type of service relies upon exactly the same way of delivering a service. Therefore heterogeneity should make standardization difficult.

H7: A very heterogeneous service makes standardization as type of innovation difficult.

In order to distribute services over networks they must have a high degree of information intensity and customer involvement is positive (Alam, 2002), hence information intensive services should promote customer involvement in technology innovations.

H8: Information intensity promotes customer involvement in technology innovations.

2.6.2. The innovations process and its effect on innovation success

Alam (2002) points out that customer involvement in all stages increases the innovation success, but most in the idea generation phase, service/ process system design phase and the testing and pilot run phase. Others argue (Kelley and Storey,

2000) that the customer contribution comes mainly from the initiation stages of the development process.

H9: Customer involvement in all stages of the innovation process will increase innovation success.

According to Alam (2002) the intensity of the involvement can vary from passive acquisition of input to extensive consultation with the customer. A high intensity in the involvement is more expensive then a low one, but gives the producers more control with the involvement and the value of the information they receive (Brockhoff, 2003). Based on these authors' arguments a higher intensity in the involvement should increase the success of the outcome.

H10: High intensity of the involvement increases the innovation success.

Gruner and Homburg (2000) have argued that lead users increases the success rate of innovations, and theoretically support hypothesis H11.

H11: The involvement of Lead users increases innovation success.

2.6.3. Type of innovation and its effect on innovation success

According to Johne and Storey (1998), new services can be divided in three, market development, process development and offer development. Offer development could also be called service development. Based on this and Menor et al (2002) and their view on performance the following two hypothesis are proposed.

H12: Service innovations increase the customer value.

H13: Process innovations increase process quality.

2.6.4. Moderating effects of service characteristics on innovation success

The research model was developed with the assumption that the service characteristics moderated the innovation success and the following hypotheses were proposed.

H14: The service characteristics will moderate the positive effect on customer value from involvement in the service development phase.

H15: The service characteristics will moderate the positive effect on customer value from involvement in the service commercialization phase.

H16: The service characteristics will moderate the positive effect the use of lead users have on innovation success.

H17: Service characteristics will moderate the positive effect customer involvement in service innovations, have on innovation success.

H18: Service characteristics will moderate the positive effect customer involvement in process innovations, have on innovation success.

Hypothesis	Variable	Direction	Variable
H1	Intangibility	→+	Customer involvement
H2	Inseparability	→+	Customer involvement in new service development
H3	Inseparability	→+	Customer involvement through co-production
H4	Service characteristics	→?	Customer involvement in different stages
H5	Service characteristics	→?	Innovativeness
H6	Service characteristics	→?	Customer involvement in different types of innovations
H7	Heterogeneity	→-	Standardization as innovation type
H8	Information intensity	→+	Customer involvement in technology innovations
H9	Customer involvement in all stages	→+	Innovation success
H10	High intensity	→+	Innovation success
H11	Involvement of lead users	→+	Innovation success
H12	Service innovations	→+	Customer value
H13	Process innovations	→+	Process quality
H14	Service characteristics	Moderate	Customer value from involvement in service development phase
H15	Service characteristics	Moderate	Customer value from involvement in service commercialization phase
H16	Service characteristics	Moderate	Effect on innovation success from lead users on innovation success
H17	Service characteristics	Moderate	Effect on innovation success from involvement in service innovations
H18	Service characteristics	Moderate	Effect on innovation success from involvement in process innovations

Table 1 - Hypotheses summarized

3. Method

In this chapter the research method used are presented. The first subchapter presents the research design, secondly the procedure is presented, thirdly the subject and forth and lastly the measures are presented.

3.1. Research design

Research can be divided according to the purpose (exploratory, descriptive and explanatory) of the research. An exploratory research design tries to precisely define the research question and form hypothesis. Descriptive research design goes a bit further and tries to describe different characteristics of a phenomenon. The explanatory research design can be used when the research field has matured. This design tries to explain course of events and relate how things happened.

Research can also be divided into qualitative and quantitative design. The qualitative research turns over a new leaf, and the researcher meets the situations as if they were new. The researcher tries to gain an overview of the phenomena in question. The quantitative research on the other hand, builds on previous research and the researcher's own experience on the matter at hand. The theory is organized and formulated into testable hypotheses.

The purpose of this research is to try and bring the research of customer involvement in service innovation in a more descriptive direction. The literature today consists mainly of exploratory research in the new service development field, while the new product development area has research of the descriptive kind. The research of this report will build upon previous research, formulate hypotheses and test their validity.

To test the hypotheses a quantitative design was selected. This design can be described as a strategic design where different business categories are contrasted to explore the influence of different service characteristics. This is achieved by contrasting different types of businesses, who are presumed to have different and opposite service characteristics.

One might conduct a broad randomized survey where the all service businesses are used as a population or, select a group of businesses to contrast against another. Since this research whishes to study the effect service characteristics have on customer involvement in developing new services, the

most suitable design is found to be the narrow one. By choosing a randomized population the danger is that not all of the characteristics are well presented among the businesses selected. The narrow design allows us to select businesses where the expected contrast in service characteristics is high. This design is also more inexpensive because a smaller population can be chosen.

We expect to se the effect of different variables (e.g. intangibility, heterogeneity etc.) by contrasting businesses that are presumed to have different service characteristics. The survey will also chart how the participating firms perceive the services they offer, to verify the selection of different business categories to contrast.

Characteristic	Businesses categories contrasted		
	Low	High	
Intangibility	Overnight service offered by hotels	Experience service offered by amusement parks and museums	Low
Inseparability	Transport of goods, packages and letters	Transport of people (buss, train,..)	
Heterogeneity	Web shops and Travel agencies on the web	Stores (physical) and Travel agencies in stores	High
Perishability	Studio- and music production service	Local radio stations	
Information intensive			

Table 2 - Businesses selected to contrast service characteristics

Table 2 present an overview of the different service characteristics and the business categories selected to contrast the characteristics. The table also presents how the research presumes the different business categories to perform.

Intangibility and its effect were contrasted looking at the tourist business. Hotels, amusement parks and museums are businesses within the tourist business, but they are very different when it comes to the tangibility of their services. The overnight service offered by hotels, are more tangible than the experience service offered by amusement parks and museums.

To contrast heterogeneity web shops was contrasted against stores (physical), where the buyer wants much information about the product he is about to buy. When a web shop is used the heterogeneity is low. The same information is available to all buyers, whereas in a store it depends on the sales personnel. If the sales personnel know the product well the information is good and vice versa.

To investigate the influence of inseparability, two types of transport businesses were selected. Personnel transport services and transport of goods, packages and letters. When it comes to personnel transport it is very hard to separate the customer form the service. If you want to take the bus from one place to another, you have to be apart of the service production. But if you like to send a letter to a friend, you do not have to tag along with the postman executing the service for you. Two services both involving transport are very different when it comes to inseparability.

Perishability was contrasted by selecting local radio stations and studios for music production. Both deliver the service of entertaining people when listened to, but have a huge difference in characteristics when it comes to perishability. Shows on the radio disappear as they are consumed, but music stored on a medium can easily be replayed.

To contrast the impact of information intensity the already established groups will be used. The firms used for measuring inseparability and intangibility have a low level of information intensity when it comes to the services they offer. This is not the fact when it comes to the businesses used to contrast heterogeneity and perishability. They all offer information intensive services.

3.2. Procedure

The research presented in this report is built on three semi-structured interviews and a strategic survey. These interviews were conducted to investigate whether or not firms have a conscious relationship to innovation work, or it they treat is as something random. The three firms selected for interviews were Maritime Communications Partner, Sørlandets Teknologisenter and DnBNOR Innovation.

The first interview was with Bård Reian, senior engineer at Maritime Communications Partner AS (MCP). The interview tried to bring an overview of how MCP conducts its innovative work and to what extent the customer is involved in this process. The characteristics of the service offered by MCP were also investigated in respect to how they influence the customer involvement. The innovation process itself was discussed along with the environment in which MCP is competing.

MCP is a relative small business that has taken some precaution to ensure that their innovative work is not treated as something random. They have for instance developed a web-crawler that search through the Internet for pre-defined terms that are of interest to MCP.

In the second interview, Leif Arne Dalane at Sørlandets Teknologisenter (STS) was the person interviewed. STS is a firm that brings investors and people with business ideas together. In this aspect STS can be viewed as a small innovation system, where the customers are closely linked and active in the process of developing new services. As in the first interview the main focus was on how customer involvement is handled and how the innovation process is conducted.

The third interview was conducted at a later stage in the research than the two previous ones. Camilla Tepfers, Head of DnBNOR Innovation, and well known for her work with innovation and customer involvement in this area, was interviewed. Her knowledge on innovation and customer involvement is a huge contrast to MCP, and their treatment of innovation.

The three interviews demonstrated that large corporations DnBNOR have a very different approach to innovative work than small businesses. Since this research mainly would direct its survey against small and medium sized businesses, it had to assume a low consciousness towards innovative work in the participating firms. The questions in the survey were therefore kept as simple as possible, and terms like service innovation were replaced with new service development, to keep the questionnaire easy to understand.

A web-based survey was selected prior to a survey sent by mail to reduce cost and save time. A server located at Høgskolen i Agder was selected to host the survey and it was coded using ASP. With bases in information on the Internet, e-mail addresses were found and firms selected for the survey (se next subchapter). An e-mail was sent to invite the firms to participate in the survey. The e-mail was used to set the context of the survey and to explain what service the participator should concentrate on when answering the questions. The e-mail contained a link, linking the participators to the survey and storing information about which business category they belong to. A reward of a travel worth 5000 NOK was offered to the ones who completed the entire survey.

The survey consists of a total of seven pages where four contain questions. The first page is a general page explaining the purpose of the survey. This page refers to the e-mail with respect to the service the participator is to consider. Page number two is the first of four pages containing questions. On page six the participators have to leave their contact information if they wish to win the reward. Page seven simply ends the survey and thanks the participators for their time and effort.

The first page of questions is aimed at measuring the characteristics of service offered by the firm participating in the survey. This is done to verify that the perceived characteristics of the business selected is correct and to exclude the ones who differ from the majority. This page measures how the participator rates intangibility, heterogeneity, inseparability, and perishability and information intensity.

The next two and a half pages are used to measure customer involvement, the innovation process and the form of the innovation. The innovation process can be conducted in many different ways with respect to customer involvement. To better understand how customers are involved the intensity of the involvement and the stages of the involvement are explored. Customer characteristics are also measured to investigate whether some customers are better suited for innovation than others. The form of the innovation is also interesting. Some innovations may change the service itself, whereas others will change the process of producing the service offered. A change in the service may come as an addition to the offered service or as a radical change of the entire service concept. Change in process can happen to the interface or delivery channel, the process may change towards more co-production or as organizational changes.

On the last half of the page the success of the innovation is measured, to verify that customer involvement serves a purpose.

3.3. Subjects

When selecting business areas where firms with opposite service characteristics could be located, the author and the supervisor worked as a team. The actual work of picking the firms with updated contact information was conducted by the author.

The population in this research was selected mainly using gulesider.no, and searching for firms within the selected businesses. Then each firm with a link to a webpage was examined. If the webpage contained contact information in the form of an e-mail address, the firm was selected for the research. When 100 firms in one business area were gathered no others were added.

The overnight service was covered searching for hotels in gulesider.no. To cover the experience service business three search words were used. The first one was amusement parks, the second water worlds and the third museums. The largest amusement park was not listed at gulesider.no, and their webpage was found using google.no.

To locate local radio stations the webpage radio.no was used. This page contains a listing over all local radio stations in Norway and their respective web pages. Also here the webpage was examined for contact information before selecting the radio station. To cover the studio- and music production service gulesider.no was used along with startsiden.no - both contain an overview of studios and their web pages - were in turn visited and examined for contact information.

For both transport of personnel and goods, packages and letters gulesider.no and startsiden.no where used and contact information gained form the firms' web pages.

To select web shops and stores, handlegaten.no and butikksiden.no were used. Handlegaten.no contains information on physical stores in all of Norway and stores selling data, communications and photo equipment were selected and their web pages visited. Butikksiden.no contains the same amount of information as handlegaten.no, but lists only web shops. Here data and photo equipment was selected, and their web pages visited.

The last two business areas, travel agencies with online booking systems and not, were selected form gulesider.no. Also here their web pages were visited and examined for contact information.

All firms selected were reminded and urged to participate in the survey after one week. This reminder was also sent by e-mail.

The survey was distributed to a total of 825 firms and 787 of the e-mails reached the firms' email server, the remaining 38 emails were returned, having not been delivered to the recipient. 256 firms showed an interest in the survey,

whereas 109 participated. This gives a response rate of 13.9% and 32.5% showed an interest. Of the 256 firms that showed and interest in the survey 42.6% completed the entire questionnaire. An overview of business categories and number of firms are given in table 3.

Business category	No. of firms selected	No. of firms reached by e-mail	No. of firms showed interest	No. of firms participating
Experience service	100	95	47	21
Overnight service	100	97	26	8
Local radio stations	87	82	27	6
Studio- and music - production service	100	93	36	17
Transport of goods, packages, letters	101	98	32	15
Transport of people	101	99	35	20
Web shops	37	35	9	2
Stores (physical)	50	44	16	10
Travel agencies in stores	25	24	4	1
Travel agencies on the Internet	25	25	4	1
Consultancy service	50	48	13	5
Call center	49	47	7	3
Sum	*825*	*787*	*256*	*109*

Table 3 - Frequency table for survey distribution and participation

The response rates in each of the business categories range from 4.0 – 21.0%, with the experience services ranging highest and the travel agencies lowest, both real stores and on the Internet. Response rates from sectors that are chosen to contrast the service characteristics of intangibility, inseparability and perishability are high. Business categories that cover heterogeneity have a lower response rate, but here six different areas were selected, so the total number of participants is good.

3.4. Measures

This chapter presents the measures used in the survey (se appendix **Feil! Fant ikke referansekilden.**), and is content are organized according to the model presented in chapter 2.5. This means that the service characteristics measures are

presented first, then the measures for the innovation process and the form of the innovation, and lastly the service performance measures.

The measures of the survey were mainly constructed from previous work of other researchers. Some measures, e.g. information intensity, were poorly covered by previous research and had to be constructed from theory and by adapting one component. The work with constructing the questionnaire and conducting the survey was conducted as teamwork between the supervisor and the author. The results from this research will also be used in the project this master thesis is a part of. In order to conduct a so thorough work as possible, and ensure that the items used in the survey were good, teamwork was used. In this teamwork the supervisor and approved the work done by the author.

The first object in the model contains the service characteristics. Lievens and Moenaert (2000) have built items for measuring intangibility, inseparability, heterogeneity and perishability. They use four items for measuring intangibility, and three of these items were used, and item number three was left out. The same goes for inseparability and heterogeneity where Lievens and Moneaert (2000) use four items, and this research has adopted three of them. For inseparability item number four is dropped, and for heterogeneity item number two is left out. For perishability all three items were adopted.

Information intensity is a well established term in the IS word, and yet, as far as this research is aware of, no measurement has been developed and no empirical studies have been conducted. The term information intensity was first discussed by Porter and Millar (1985), and related to Porter's general idea of competitive advantage in firm inputs, processes and outputs. Firms with information intensity in their value chain or products were believed to gain a competitive advantage. Glazer (1991) also suggested that information intensity of firms should be measured with respect to the value of information to both operations and products. He constructed a scale for information intensity from products with no information component in the product or operation, via products where information is critical to marketing and customization, and products where information is a part of the product bundle offered secondary to the product, to products where the information component is the core of the product or product bundle (Glazer, 1991, pp. 5-6).

It is very surprising that no measure has been constructed or no empirical work done with respect to Porter and Millar (1985) and Glazer (1991). Other researchers have also experienced these difficulties. Hu and Quan (2005) state that: *"the operationalization of the moderators* [product and value chain information intensity] *is intuitive…"* (p.51). this type of constructs is a serious limitation of this literature.

Information intensity is not only related to organizational and product information, but to other forms of intensity involving information. From Autio, Sappienza and Almeida (2000) we find knowledge intensity and IT-intensity from Dewan and Min (1997). These two forms of intensity are very different to one another. Knowledge intensity is used when discussing knowledge elements that are difficult or impossible to standardize, whereas IT-intensity is used by firms to standardize and automate processes. With this in mind it is easy to understand that some products or services may be information intensive in ways which are hard to digitalize, and others may be digitalized and transmitted over electronic networks and consumed using information technology platforms. This difference has also been given little attention. An exception is a study by Griffith and Chen (2004).

In order to measure information intensity it was necessary to construct items for this purpose. The items constructed reflect both general information intensity (items adapted and derived form Porter and Millar, 1985, Glazer, 1991, and Autio et al.,2000) and digitalization potential (Griffith and Chen, 2004).

After the questionnaire had been conducted the measures were analyzed for reliability.

Service characteristic	Cronbach's Alpha	Number of Items	Items dropped
Intangibility	0.842	2	1
Inseparability	0.758	3	-
Heterogeneity	0.530	3	-
Perishability	0.564	2	1
Information intensity	0.702	4	1

Table 4 – Variables constructed for service characteristics

As table 4 shows, three of the measures needed to be reduced by one item to increase the Cronbach's alpha. Intangibility had a Cronbach's alpha of 0.374, but

was greatly improved by excluding one item. Inseparability and Heterogeneity could not be improved by dropping an item. The measure for inseparability performs well, whereas heterogeneity has a low score. This also applies to perishability, which was improved from 0.495 to 0.564. The measure for information intensity scores well after having removed one item. This raised the Cronbach's alpha from 0.670 to 0.702. The research chooses to use the measures for heterogeneity and perishability in the further analysis, despite the low scores. This can be done do to the explorative nature of this research.

The second object of the model contains measures of the innovation process. This process is divided into stages of involvement and intensity of involvement, and customer characteristics. The measures for the different stages of involvement are adapted from Gruner and Homburg (2000).

To measure the intensity of the customer involvement and involvement at different stages, measures from Gruner and Homburg (2000) were also adopted. Instead of examining the intensity in every of the six stages with six items like Gruner and Homburg (2000), item one was generalized to include all six stages. After examining the intensity of involvement, stages of involvement were examined. Item one was then used to examine in which of the six stages involvement occurred.

To measure customer characteristics Gruner and Homburg (2000) were used again. They have created items for measuring customer characteristics with respect to their technical attractiveness, financial attractiveness, and closeness of relationship and lead user characteristics.

When analyzing the stages of involvement, two types of data reduction analysis were used. The first is an exploratory analysis where the data drives the result, and secondly a confirmatory analysis where the concept structure from the literature drives. These two analyses showed that stages of involvement and its six items can be reduced into two variables. The four first items constitute the first variable named service-development (servdev) and the two last items constitute the second variable named service-commercialization (servcom).

Innovation process	Cronbach's Alpha	Number of Items	Items dropped
Involvement			
Stages of involvement	0.839	6	-
Service development	*0.837*	*4*	-
Service commercialization	*0.814*	*2*	-
Intensity of involvement	0.868	5	-
Customer characteristics		5	-

Table 5 – Variables of the innovation process

The measure of intensity of involvement was analyzed using a reliability analysis, that confirmed the reliability of this measure, and a new variable containing all the items was constructed. Cronbach's alpha of the reliability test was 0.868 and no items had to be dropped.

This object of the model also contained customer characteristics, but these items all measures different characteristics, so no reduction or reliability analyses were conducted.

The third object of the model, form of innovation contains an innovativeness dimension and innovation types. Carcia and Calantone (2002) provide solid basis for approaching the innovativeness concept, and they suggest a micro versus macro level interpretation of the concept. Because this research's interest is mainly at the network, firm and service level, a micro level interpretation is appropriate.

Measures for innovativeness
Newness to the customer (Garcia and Calantone, 2002, Chandy and Tellis, 2000)
This service innovation is new to the customer.
The service innovation provides substantially higher benefits for the customer.
The technology applied in this service innovation is new to the customer.
Market newness to the firm (Garcia and Calantone, 2002)
The customer approached by this service innovation is new to the firm.
We have little experience in offering services to the customers this service innovation approaches.
Technology newness to the firm (Garcia and Calantone, 2002)
The technology used to provide the service innovation is new to the firm.
The knowledge required to provide this service innovation is new to the firm.

Table 6 - Measures for innovativeness

Carcia and Calantone (2002) also distinguish between newness to the firm and newness to the customer. Newness to the firm is further divided into new technology and new market. Based on this and Chandy and Tellis (2000), who suggest that product innovations have two dimensions; using substantially different technologies and providing substantially higher customer benefits, the following measures are suggested.

The most used classification in studies of different types of innovation is product versus process innovations (Utterbach and Abernathy, 1975). Recent studies (Innobarometer, 2004) add a new dimension; organizational innovations refering to new organizational structures, management principles and control mechanisms, but this form of innovation has long been studied in innovative research (Daft, 1982). De Jong and Vermeulen (2003) have developed other typologies. They refer to several studies and summarize innovation types as: *"innovations in the service concept, the client interface, the delivery system and [in] technological options"* (de Jong and Vermeulen, 2003, p.845). Based on these views and Avlonitis et al. (2001) and Kuuisto (2004), the research has developed measures for service innovations, process innovations and organizational innovations. The service innovation covers innovations in concept, content, to extensions and repositioning. Process innovation includes innovations in interface, co-production, delivery channel, standardization, modularization, digitalization and technology, whereas organizational innovation covers innovations within structure, management and standardization.

When analyzing innovativeness, again two types of data reduction analysis were used, the exploratory and the confirmatory analysis. The exploratory analysis resulted in two new dimensions and suggesting that item number five was dropped, which resulted in two new variables; newness to the customer and market (newcm), and newness to the firm (newf).

Form of innovation	Cronbach's Alpha	Number of Items	Items dropped
Innovativeness	0.809	6	1
Newness to the customer and market	*0.821*	*4*	-
Newness to the firm	*0.733*	*2*	-
Innovation type			
Service innovations	0.819	4	-
Process innovations	0.894	12	-
Distribution innovations	*0.775*	*4*	-
Technology innovations	*0.882*	*2*	-
Organizational innovations	*0.917*	*3*	-
Co-production innovations		*1*	-
Standardization innovations		*1*	-
Modularization innovations		*1*	-

Table 7 - Variables of the form of innovation

The reliability analysis of the service innovation measures confirmed that these items are reliable and a common variable was constructed from the four items. For the process innovations a more thorough analysis had to be done, and the exploratory and confirmatory data reduction analyses were conducted. Results from these analyses divided the 12 items down to six variables; distribution innovations (distinn), technology innovations (tectinn), organizational innovations (orginn), co-production innovations (pinn4), standardization innovations (pinn7) and modularization innovations (pinn8). The three last variables consist only of one item.

The last object of the model contains service performance, and to measure innovation success several authors were used. The four first items are adapted from Gruner and Homburg (2000) and their: *"quality of the new product development process"* (Gruner and Homburg, 2000, p.9). The next two items are adapted from Pedersen et al. (2005), and measure the value of the innovation for the customer. The last three items are adapted from Joshi and Sharma (2004), and measure profits, market share and growth. Several authors such as Im and Workman (2004) have published similar measures.

The nine items of the service performance were analyzed using the data reduction analyses, both exploratory and confirmatory. The exploratory analysis resulted in two dimensions, but the literature and the confirmatory analysis

proposed three dimensions with item number seven as a separate fourth dimension.

Service performance	Cronbach's Alpha	Number of Items	Items dropped
Service performance	0.828	9	-
Process quality	*0.703*	*4*	-
Customer value	*0.647*	*2*	-
Market performance	*0.916*	*2*	-
Profitability performance		*1*	-

Table 8 - Variables of the service performance

The four dimensions resulted in three new variables and item number seven kept as a separate variable for profitability performance. The three other variables are process quality (proq), customer value (custv) and market performance (mper).

4. Results

In this chapter the result from the survey are presented. In the first subchapter descriptive statistics are presented, in the second a manipulative test is performed, and in the last subchapter hypotheses are tested.

4.1. Descriptive statistics

The first set of variables describes the subjects' perception of the characteristics of the service they provide. Descriptive results are shown in table 9. This and the next three tables contain the names of the variables (marked with a v), the total number of responses to this variable, minimum, maximum and mean values for the variable and the standard deviation. The structures of the tables follow the model presented in chapter 2.5.

Service characteristics	N	Min	Max	Mean	Std. Deviation
Intangibility (v)	129	1.00	4.50	2.04	0.96
Inseparability (v)	129	1.00	5.00	3.10	1.17
Heterogeneity (v)	128	1.00	5.00	3.33	0.98
Perishability (v)	129	1.00	5.00	3.44	1.06
Information intensity (v)	129	1.00	5.00	3.11	0.97

Table 9 – Descriptive statistics of the service characteristics variables

The data for the service characteristics vary from minimum (1.00) to maximum (5.00), and for all other than intangibility the mean value lies close to 3.00. 3.00 is an expected value since specific firms have been chosen to contrast each other. Firms with assumed opposite service characteristics have been selected, and it is therefore expected that the values vary a great deal and that the mean value lies around 3.00. Intangibility differs from this pattern. It does not score the highest value and its mean value is 2.04.

The second set of variables describes the subjects' perception of the innovation process in their firm. Descriptive results are shown in table 10.

Innovation process	N	Min	Max	Mean	Std. Deviation
Stages of involvement (v)	120	1.00	5.00	2.83	0.89
Involvement in service development (v)	*120*	*1.00*	*5.00*	*2.69*	*0.93*
Involvement in service commercialization (v)	*120*	*1.00*	*5.00*	*3.09*	*1.19*
Intensity of involvement (v)	120	1.00	5.00	3.00	0.96
Customer characteristics					
Permanent test group (v)	*102*	*1.00*	*5.00*	*2.16*	*1.22*
Lead users (v)	*102*	*1.00*	*5.00*	*2.81*	*1.19*
Lay users (v)	*102*	*1.00*	*5.00*	*2.96*	*1.13*
Financially attractive (v)	*102*	*1.00*	*5.00*	*2.38*	*1.15*
Long term relations (v)	*101*	*1.00*	*5.00*	*3.30*	*1.32*

Table 10 - Descriptive statistics of the innovation process variables

The innovation process and the data gathered on this subject vary from minimum value to maximum value, and the average mean value lays around 3.00 with a standard deviation of approximately 1.00. This suggests that the customer in the selected firms and their involvement ranges from very little to very much, but that most customers only are medially involved. The data also indicate that customers are more involved in the commercialization phase than in the development phase. Intensity of the involvement ranges form minimum to maximum value, but the average is 3.00, a medially intensity in the involvement. All types of customers are involved and the characteristics of the customers involved vary from firm to firm. The most involved customers are customers with long-term relations and the least involved is a standard group of customers, so called beta-testing. The other types: the most innovative, lay users and financially attractive customers all score an average of medial.

This tells us that the firms participating in the survey involve customers with long-term relations mostly in the commercialization stage with a medium intensity of the involvement.

The third set of variables describes the subjects' perception of the form of innovation in their firm. Descriptive results are shown in table 11.

Form of innovation	N	Min	Max	Mean	Std. Deviation
Innovativeness	120	1.00	5.00	2.97	0.80
Newness to customer and market	*120*	*1.00*	*5.00*	*3.18*	*0.92*
Newness to firm	*120*	*1.00*	*5.00*	*2.56*	*0.98*
Service innovations	110	1.00	5.00	3.02	0.83
Process innovations	110	1.00	4.73	2.66	0.82
Distribution innovations	*110*	*1.00*	*4.75*	*2.94*	*0.92*
Technology innovations	*110*	*1.00*	*5.00*	*2.48*	*1.15*
Organizational innovations	*110*	*1.00*	*5.00*	*2.49*	*1.05*
Co-production innovations	*109*	*1.00*	*5.00*	*2.78*	*1.25*
Standardization innovations	*108*	*1.00*	*5.00*	*2.65*	*1.15*
Modularization innovations	*110*	*1.00*	*5.00*	*2.64*	*1.20*

Table 11 – Descriptive statistics of the form of innovation variables

The innovativeness concept of this research has been divided into newness to the customer and market, and newness to the firm. The data from the survey indicate that newness to the market and customer is higher than the middle value, whereas newness to the firm lies below. They score an average of 3.18 and 2.56. This indicates that the innovations are directed towards the customer and the market, and not so much directed towards the firm, and the use of new technology or new knowledge. Both variables range from the minimum to the maximum.

Service innovations score higher (3.02 in average) than process innovations (2.66 in average). This suggests that most of the innovations in the firms are service innovations, or changes to the service. This might be a totally new service, addition to the already existing service, expansion of the market or a repositioning in the market.

The process innovations all score below average and the distribution innovations have a maximum of 4.75 with 5.00 as the highest possible value. Despite this distribution, innovations score highest of the process innovations, whereas technology innovations score the lowest.

The fourth set of variables describes the subjects' perception of the service performance of innovations in their firm. Descriptive results are shown in table 12.

Service performance	N	Min	Max	Mean	Std. Deviation
Process quality	103	1.50	5.00	3.31	0.71
Customer value	103	1.50	5.00	3.74	0.75
Market performance	103	1.00	5.00	3.23	0.92
Profitability performance	102	1.00	5.00	3.13	0.83

Table 12 - Descriptive statistics of the service performance variables

All of the average service performance variables score higher than the middle value of 3.00. All of them have a maximum value of 5.00, but process quality and customer value have their minimum value of 1.50 when 1.00 is the lowest possible value. Customer value scores the highest and is the factor for service success most projects try to achieve.

4.2. Manipulation check

This chapter analyzes whether the data support the assumption, that specific firms (selected for this survey) have different service characteristics, or not. To investigate this, an independent-samples T Test was used, and the investigated service characteristic was used as the test variable and the categories used as grouping variables.

Results from these analyses are shown in table 13 and table 14. Both tables show the business categories, the selected firms, and the service characteristics in question. They also show the result of the manipulative check, where "yes" implies that the mean values are as assumed, and "no" the opposite. It is also stated whether the difference between the two categories are significant or not.

Category	Business category	Measures	Value	Manipulative check
1	Experience service	Intangibility	High	Yes (not significant)
2	Overnight service	Intangibility	Low	
3	Local radio stations	Perishability	High	No (significant)
4	Studio- and music production – service	Perishability	Low	
5	Transport of goods, packages, letters	Inseparability	Low	Yes (not significant)
6	Transport of people	Inseparability	High	
7	Web shops	Heterogeneity	Low	Yes (significant)
8	Stores (physical)	Heterogeneity	High	
10	Travel agencies in stores	Heterogeneity	High	No (not significant)
11	Travel agencies on the Internet	Heterogeneity	Low	
15	Consultancy service	Heterogeneity	High	No (not significant)
16	Call center	Heterogeneity	Low	

Table 13 - Manipulative check of intangibility, perishability, heterogeneity and inseparability

From table 13 and table 14 we see that the firms selected for heterogeneity perceive themselves as the research assumed. Our assumption on information intensity is also verified. All the other assumptions are not supported by the results. In some assumptions the tendency is in the right direction, but the result is not significant.

Category	Business category	Measures	Value	Manipulative check
1	Experience service	Information intensity	Low	
2	Overnight service	Information intensity	Low	
5	Transport of goods, packages, letters	Information intensity	Low	
6	Transport of people	Information intensity	Low	
3	Local radio stations	Information intensity	High	
4	Studio- and music production –service	Information intensity	High	Yes (significant)
7	Web shops	Information intensity	High	
8	Stores (physical)	Information intensity	High	
10	Travel agencies in stores	Information intensity	High	
11	Travel agencies on the Internet	Information intensity	High	
15	Consultancy service	Information intensity	High	
16	Call center	Information intensity	High	

Table 14 - Manipulative check of information intensity

A surprising result is that the studio and music production service firms perceive themselves as more perishable then the local radio stations do (shown in table 13). Since a radio show is broadcasted to listeners and then vanishes, one might think that this service should be perceived as more perishable then listening to a CD produced in a studio. The CD could be listened to over and over again, whereas the radio show rarely is broadcasted more than once. Local radio stations' mean value for perishability is 2.57 (se table 15) with 3.00 as the middle value of the questionnaire. The studio- and music-production firms score an average of 3.62 which is above the middle value of 3.00.

Service characteristic	Business category	N	Mean	Std. Deviation
Perishability	3	7	2.57	0.87
	4	17	3.62	1.21

Table 15 - Statistics for perishability

The transport sector, both transport of people and transport of goods, packages and letters, perceive themselves as equally separable. The research study assumed the transport of goods, packages and letters to be more separable than the transport of people, but the data show that the mean value for the two are 3.62 (inseparability) and 3.47 (inseparability). Our assumption has the right direction, but the result is not significant. It is also noteworthy to se that the goods transport sector perceives itself as being more inseparable than separable.

The results from the web shops and the (real) stores show that the stores perceive themselves as more heterogeneous than the web shops do. This result is significant and matches the assumption made by the research.

The results from travel agencies, consultancy firms and call centre, are based on a too low number of responses and can not be taken into consideration.

To measure information intensity the already selected business categories were grouped into two groups, one expected to score low on information intensity, and the other expected to score high. The analysis showed that the different business categories perceive themselves as assumed, and the result was significant.

The results show that only two of our assumptions about business categories and their service characteristics prevail with the firms' own perception. This shows that it is hard to perceive services and their characteristics. Different people

may very well perceive the same service having different, even opposite service characteristics.

4.3. Test of hypothesis

This chapter presents the results from the analyses of the data to test the hypotheses presented in chapter 2.6. The data were analyzed using a linear-regression method with, for example, intensity of involvement as the dependant variable and the service characteristic in question as the independent variable.

In this subchapter three levels of significance is introduced. The first level represent results that are significant between 0.1 and 0.05 ($0.1 > p > 0.05$). The second level represent results that are significant between 0.05 and 0.01 ($0.05 > p > 0.01$), and the third level represent results that are significant below 0.01 ($p < 0.01$).

The results of the linear regression analyses with intangibility, inseparability, heterogeneity, perishability, and information intensity as the independent variables are shown in table 16. This table presents analyses where only one independent variable is applied at the time, and the value for "R-square adjusted" is shown in parenthesis behind the variable name. Table 17 presents all variables analyzed at once.

Variable	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.50	0.200		12.540	0.000
Intangibility (R^2 0.05)	0.24	0.088	0.243	2.725	0.007
(Constant)	2.633	0.253		10.400	0.000
Inseparability (R^2 0.01)	0.115	0.075	0.139	1.526	0.130
(Constant)	2.214	0.303		7.300	0.000
Heterogeneity (R^2 0.05)	0.230	0.087	0.239	2.659	0.009
(Constant)	2.244	0.288		7.803	0.000
Perishability (R^2 0.05)	0.217	0.079	0.244	2.734	0.007
(Constant)	3.128	0.297		10.535	0.000
Information intensity (R^2 -0.01)	-0.042	0.091	-0.043	-0.465	0.643

a) Dependent Variable: intensity of involvement

Table 16 - Linear regression analysis of intangibility (Coefficients (a)), on at the time

The hypothesis H1 and H2 (from chapter 2.6) both state that intangibility and inseparability promote customer involvement in new service development.

From the results in table 16 it is clear that H1 is true and with a beta value of 0.243. The result for inseparability is also highly significant ($p < 0.01$). H2 has a beta value of 0.139 and its tendency is in the right direction, but the result is not significant below level one ($p > 0.1$). In addition to testing intangibility and inseparability the other service characteristic variables were tested. The results were that both heterogeneity and perishability promote customer involvement, whereas information intensity does not make any contribution. This is also reflected in the R-square values presented in table 16.

Variable R^2 - 0.112	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.069	0.609		1.755	0.082
Intangibility	0.204	0.090	0.207	2.284	0.024
Inseparability	0.143	0.077	0.174	1.855	0.066
Heterogeneity	0.178	0.092	0.185	1.941	0.055
Perishability	0.126	0.089	0.142	1.414	0.160
Information intensity	0.005	0.100	0.005	0.047	0.963

a) Dependent Variable: intensity of involvement

Table 17 - Linear regression analysis of intangibility (Coefficients (a)), all at once

When all the variables are analyzed together, intangibility is still significant at level two ($p < 0.05$) and promotes customer involvement (table 17). None of the other variables are this significant. Both heterogeneity and inseparability are significant at level one ($p < 0.1$), and can be counted as significant do to the exploratory nature of the research. R^2 shown in table 17 indicates that 11.2% of the variance can be explained with the selected variables.

The results show that H1 and H2 are confirmed, but H1 with a better significance value than H2.

Table 18 displays the result from the analysis of hypothesis H3.

Variable R^2 – 0.004	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.369	0.360		6.579	0.000
Inseparability	0.128	0.106	0.116	1.208	0.230

a) Dependent Variable: co-production

Table 18 - Linear regression analysis of co-production

This analysis does not confirm hypothesis H3, that inseparability promotes co-production. The result is not significant at any level, but the result verifies the

direction. When all the service characteristics are analyzed simultaneously the beta value for inseparability is 0.196, and the result is significant at level two (p<0.1). It shows that inseparability is the service characteristic that contributes the most to co-production. The R-square value when all the service characteristics were analyzed simultaneously is 0.015. This tells us that only 1.5% of the variance is explained by the selected variables. When this is taken into consideration hypothesis H3 is not confirmed by the data.

Hypothesis H4, states that the service characteristics contribute differently to promoting customer involvement in the different stages of involvement. As presented in table 19, perishability and heterogeneity are the two service characteristics that promote customer involvement in the development stage. 11% of the variance can be explained by the selected variables. The commercialization stage is not supported significantly by any of the service characteristics. Here only 0.1% of the variance can be explained with the service characteristic variables.

Variable $R^2 - 0.11$	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.284	0.599		2.146	0.034
Intangibility	0.111	0.088	0.114	1.259	0.211
Inseparability	0.091	0.076	0.113	1.198	0.233
Heterogeneity	0.155	0.090	0.165	1.723	0.088
Perishability	0.182	0.087	0.210	2.085	0.039
Information intensity	-0.081	0.099	-0.084	-0.823	0.412

a) Dependent Variable: involvement in the service development

Table 19 - Regression analysis of service characteristics and involvement stages

Innovativeness has been divided into newness to customer and market, and newness to firm. Hypothesis H5 states that different service characteristics affect innovativeness differently. This is found to be true. None of the service characteristics have any significant effects on newness to customer and market. Information intensity and heterogeneity achieve the highest beta values, 0.176 and 0.154. Newness to the firm, on the other hand, is affected by inseparability. The beta value is 0.262 and significant at level three (p< 0.01). The value for R-squared is 0.07 and tells us that the variables selected explain 7% of the variance. These results confirm hypothesis H5.

Also the different types of service innovations are differently affected by the service characteristics (hypothesis H6). This is verified by the results in table 20 and table 21.

Variable $R^2 - 0.16$	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.216	0.530		2.295	0.024
Intangibility	0.023	0.080	0.027	0.291	0.772
Inseparability	0.168	0.070	0.228	2.396	0.018
Heterogeneity	0.257	0.081	0.307	3.176	0.002
Perishability	0.117	0.078	0.150	1.498	0.137
Information intensity	-0.017	0.087	-0.019	-0.190	0.850

a) Dependent Variable: service innovations

Table 20 - Regression analysis of service characteristics and service innovations

Variable $R^2 - 0.08$	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.692	0.549		1.260	0.211
Intangibility	0.092	0.083	0.108	1.102	0.273
Inseparability	0.149	0.073	0.205	2.052	0.043
Heterogeneity	0.103	0.084	0.124	1.230	0.221
Perishability	0.109	0.081	0.140	1.340	0.183
Information intensity	0.186	0.090	0.219	2.056	0.042

a) Dependent Variable: process innovations

Table 21 - Regression analysis of service characteristics and process innovations

These tables show that inseparability and perishability promote customer involvement in service innovations, whereas inseparability and information intensity promote customer involvement in process innovations. When service innovations and all service characteristics were selected as variables 16% of the variance was explained by these variables. For process innovations and all the service characteristics, 8% was explained by the variables. These data confirm hypothesis H6.

In table 22 the result from the test of hypothesis H7 are presented.

Variable R² – 0.008	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.138	0.391		5.474	0.000
Heterogeneity	0.151	0.112	0.131	1.352	0.179

a) Dependent Variable: standardization

Table 22 - Linear regression analysis of standardization

If hypothesis H7 was correct the value for t should have been -1.96 or lower. The fact that it is positive, and not negative, means that the direction is also wrong. This means that heterogeneous services are perceived to promote standardization innovations, and this is a surprise. Since modularization is considered the opposite of standardization, heterogeneity was analyzed with this as its independent variable. Here the beta value was 0.133 with a significance value of 0.168, almost the same as for standardization. It seems that the firms perceive standardization and modularization innovations the same way. One have to be careful to draw conclusions from this results since the value of R-squared only are 0.008, and these variables explain less than 1% of the variance.

Table 23 presents the results from the analysis of H8.

Variable R² – 0.16	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.991	0.339		2.926	0.004
Information intensity	0.481	0.105	0.405	4.597	0.000

a) Dependent Variable: technology innovations

Table 23 - Linear regression analysis of technology innovations

Hypothesis H8 is confirmed by the analysis of the two factors, and also when all the service characteristics are analyzed simultaneously. Then the beta value falls from 0.405 to 0.373 and is still significant at level three (p<0.01). In both analyses the variables explain a high percentage of the variance, which are other results that confirm the hypothesis H8.

In order to test hypothesis H9, several analyses were conducted. The first analysis investigated whether customer involvement in all phases promotes innovation success. The result here showed a beta = 0.241, and significant at level two. This suggests that customer involvement enhances new innovation success. Secondly a number of analyses investigated what stages that contribute the most,

and to what type of innovation success. The results are shown in table 24, and in this table the values for beta are presented when the service development and service commercialization stage are tested separately. The dependent variables were the different variables for measuring innovation success. An asterisk (*) is placed behind the beta value if the result is significant at level one, two asterisks (**) if the result is significant at level two and three asterisks (***) if the result is significant at level three. This applies to the following tables as well. The R-squared values are also shown in red under the beta value in parentheses.

Variable -	Process quality	Customer value	Market performance	Profitability performance
Involvement in service development	0.53 (-.007)	0.352*** (0.12)	0.172* (0.02)	0.94 (-0.001)
Involvement in service commercialization	0.144 (0.01)	0.298*** (0.08)	0.153 (0.01)	0.92 (-0.001)

Table 24 - Regression test of stages of involvement and its effect on innovation success

Table 24 indicates that both stages of involvement contribute positively to innovation success in some areas, and that customer value is especially enhanced in both stages of involvement. To verify which of the two stages that contributes the most, both were tested simultaneously with customer value as the dependant variable. This analysis showed that the involvement in the service development stage contributes the most with a beta value of 0.273 and being significant at level three. The beta value for the involvement in the service commercialization stage was 0.174 and also significant at level three.

The results indicate that hypothesis H9 is only partially true. Customer involvement in the development and commercialization stage contributes to increased customer value. The results in table 24 also indicate that involvement in the development stage contributes positively to market performance, but the R-squared value for this result is much lover than for customer value. This means that the two variables, *Involvement in service development* and *market performance*, explain very little of the variance.

Hypothesis H9 could be interpreted as partially correct since involvement in both the development and the commercialization stage contribute to increased customer value.

Table 25 presents the results from the analyses of customer involvement and its intensity and the effect this has on innovation success. The table displays the beta value.

Variable	Process quality	Customer value	Market performance	Profitability performance
Intensity of involvement	-0.26	0.279**	0.120	0.075
R^2	(-0.009)	(0.07)	(0.005)	(-0.004)

Table 25 - Regression test of the intensity of the involvement and its effect on innovation success

The result from testing hypothesis H9 showed that the customer involvement only had a significant effect on customer value. This should also be reflected when analyzing whether the intensity of the involvement has a positive effect. This is also the case when reviewing the results in table 25. We know from H9 that customer involvement increases the customer value and this analysis shows that the higher the intensity of the involvement is, the higher the perceived customer value gets. The result is significant at level two, and the variables included in the analysis explain 7% of the variance. So hypothesis H10 is confirmed.

In table 26 the results from the analyses of lead user characteristics and their abilities to promote innovation success (hypothesis H11) are presented.

Variable	Process quality	Customer value	Market performance	Profitability performance
The involvement of lead users	0.265***	0.326***	0.308***	0.144
	(0.06)	(0.10)	(0.09)	(0.011)

Table 26 - Regression test of lead user involvement and its effect on innovation success

For process quality, customer value and market performance the use of lead users promote innovation success. Out of the four values, three values are significant at level three; only for profitability performance is the result not significant at any level.

Variable	Process quality	Customer value	Market performance	Profitability performance
The involvement of lay users	0.114	0.279***	0.240**	0.048
	(0.003)	(0.07)	(0.05)	(-0.008)

Table 27 - Regression test of lay user involvement and its effect on innovation success

To put H11 into perspective the analyses for lay users are shown in table 27. This table indicates that also lay users contribute to customer value and market performance, but not to process quality as lead users do.

When all the different user characteristics were tested simultaneously (table 28) lead users had the highest beta value for process quality. Lay users and a permanent group of test personnel contributed positively, whereas financially attractive customers had a negative effect on the process quality. The customer value was driven by lay users with long-term relations. If customers with long-term relations were excluded both lay and lead users had high beta values (0.197 and significant at level two, and 0.209 and significant at level one). For market performance both lay and lead users had a significant effect.

These analyses support hypothesis H11, but also other users contribute positively. As shown in table 28 the variables *customer value* and the different *user characteristics* explain 19% of the variance. This percentage is lower when process quality and market performance are analyzed.

User character-Istics	Process quality $R^2 - 0.04$ Standardized Coefficients Beta	Sig.	Customer value $R^2 - 0.19$ Standardized Coefficients Beta	Sig.	Market performance $R^2 - 0.09$ Standardized Coefficients Beta	Sig.
(Constant)		0.00		0.00		0.00
Permanent test group	0.059	0.61	0.103	0.33	-0.045	0.69
Lead users	0.220	0.11	0.076	0.54	0.314	0.02
Lay users	0.053	0.63	0.179	0.07	0.215	0.04
Financially attractive	-0.092	0.45	0.049	0.66	-0.050	0.67
Long term relations	0.104	0.40	0.281	0.02	0.004	0.98

Table 28 - Regression analysis of user characteristics vs. service performance

The two following tables (table 29 and table 30), present the results from the hypothesis test of H12; service innovations and its effect on customer value.

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Variable R² – 0.22	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.498	0.242		10.340	0.000
Service innovations	0.412	0.077	0.468	5.329	0.000

a) Dependent Variable: customer value

Table 29 - Regression analysis of service innovations and their effect on customer value

The results in table 29 make it clear that service innovations promote customer value. The beta value is 0.468 and it's significant at level one. The value for R-squared is 0.22 which means that these two variables explain 22% of the variance.

Variable R² – 0.21	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.397	0.272		8.819	0.000
Service innovations	0.307	0.099	0.350	3.086	0.003
Distribution innovations	0.147	0.104	0.181	1.411	0.162
Technology innovations	0.060	0.077	0.094	0.782	0.436
Organizational innovations	0.028	0.091	0.040	0.310	0.757
Co-production innovations	-0.055	0.073	-0.094	-0.753	0.454
Standardization innovations	-0.102	0.084	-0.159	-1.226	0.223
Modularization innovations	0.078	0.083	0.129	0.934	0.353

a) Dependent Variable: customer value

Table 30 - Regression analysis of innovation types and their effect on customer value

Table 30 confirms this result when all types of innovations are analyzed together. Service innovations are still the significant value and the selected variables explain 21% of the variance.

Analyses of whether service innovations affected any of the other performance variables were also conducted. These analyses showed that service innovations (analyzed separately) had a positive and significant impact on market performance, but when analyzed together with all the process innovations only distribution innovations was the significant factor. It had a beta value of 0.334 and

was significant at level two. Only service innovations have a proven positive effect on customer value.

Hypothesis H13, proposes that process innovations promote process quality, and this is confirmed by the data presented in table 31. The beta value is 0.196 and process innovations have a significant effect on process quality.

Variable $R^2 - 0.03$	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.875	0.229		12.573	0.000
Process innovations	0.166	0.083	0.196	2.007	0.047

a) Dependent Variable: process quality

Table 31 - Regression analysis of process innovation and its effect on process quality

To further explore process innovation that contribute the most to promoting process quality, an analysis where all process variables were present simultaneously, was conducted. The data from this analysis is presented in table 32, and it shows that distribution innovations significantly and positively affect process quality.

Variable $R^2 - 0.06$	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.752	0.243		11.344	0.000
Distribution innovations	0.235	0.099	0.306	2.384	0.019
Technology innovations	-0.014	0.080	-0.023	-0.173	0.863
Organizational innovations	0.106	0.094	0.159	1.134	0.260
Co-production innovations	0.058	0.075	0.105	0.767	0.445
Standardization innovations	-0.159	0.086	-0.262	-1.847	0.068
Modularization innovations	-0.031	0.084	-0.053	-0.362	0.718

a) Dependent Variable: process quality

Table 32 - Regression analysis of process innovation and its effect on process quality

Also, process innovations were analyzed against other service performance measures than process quality. These analyses showed that process innovations, especially distribution innovations, also contribute to market performance. The

beta value, when analyzed with all other innovation types, was 0.334 and it was significant at level two.

According to the research model the service characteristics should have a moderating effect on the service performance. Hypotheses H14 – H18 were constructed to investigate these effects. The analyses of these hypotheses show none of the service characteristics have a moderating effect.

The next table (table 33) summarizes the hypothesis and whether or not they were confirmed by the data from the analyses.

Hypothesis	Variable	Direction	Variable	Result
H1	Intangibility	→+	Customer involvement	√
H2	Inseparability	→+	Customer involvement in new service development	√
H3	Inseparability	→+	Customer involvement through co-production	÷
H4	Service characteristics	→?	Customer involvement in different stages	√
H5	Service characteristics	→?	Innovativeness	√
H6	Service characteristics	→?	Customer involvement in different types of innovations	√
H7	Heterogeneity	→-	Standardization as innovation type	÷
H8	Information intensity	→+	Customer involvement in technology innovations	√
H9	Customer involvement in all stages	→+	Innovation success	Partially (√/÷)
H10	High intensity	→+	Innovation success	√
H11	Involvement of lead users	→+	Innovation success	√
H12	Service innovations	→+	Customer value	√
H13	Process innovations	→+	Process quality	√
H14	Service characteristics	Moderate	Customer value from involvement in service development phase	÷
H15	Service characteristics	Moderate	Customer value from involvement in service commercialization phase	÷
H16	Service characteristics	Moderate	Effect on innovation success from lead users on innovation success	÷
H17	Service characteristics	Moderate	Effect on innovation success from involvement in service innovations	÷
H18	Service characteristics	Moderate	Effect on innovation success from involvement in process innovations	÷

Table 33 - Hypotheses summarized with result

5. Conclusion, discussion and implications

In this chapter the conclusions is presented, and then the validity of these are discussed, both internal and external. Lastly the implications of the conclusions are presented.

5.1. Conclusion

The goal of this research was to try and bring the exploratory nature of the customer involvement literature in a more descriptive direction. To do this the research build on the previous research conducted and further explored the existing research.

When conduction the research, several firms were selected because of the expected nature of the service they offer, and they were contrasted with firms expected to have the opposite characteristic in their services. The research's expectations and how the firms perceived their own services did not match. This shows that services and their characteristics are not easy to predict, and the firm offering a service may not perceive it as the customer or other would have.

One of the generalized assumptions that prevail in the service research is that all services are treated the same. The focus has been on explaining how services differ from tangible product. The research model incorporates the different service characteristics and the results from this research show that these characteristics play an important role in the development of new services.

Hypotheses H1 to H8 (chapter 2.6) treated the service characteristics and their effect on the innovation process and the type of innovation. The results show that characteristics like perishability and heterogeneity significantly promote customer involvement in the development process, whereas intangibility and inseparability have a positive, but not significant effect. Inseparability and perishability are found to be the two characteristics contributing the most to customer involvement in development of service innovations, whereas inseparability and information intensity contribute to the development of process innovations. Also innovativeness is affected differently by the service characteristics. None of the service characteristics seem to promote newness to the customer and market, whereas inseparability promotes newness to the firm.

The performance measures of services are thoroughly explained in the literature, but it is seldom linked to the innovation process or the form of innovation. This research investigated this link in hypotheses H9 – H13, and revealed what factor of the service performance the different stages of the innovation process and the different types of innovation contributed to.

Hypotheses H9 to H11 dealt with the innovation process and its effect on innovation success. Different types of customer characteristics involved in service development, contribute to different service performance factors. The involvement of lay users promote customer value and market performance, whereas involving lead users promotes process quality in addition to customer value and market performance.

Customer involvement in all development stages did not have a significant effect on all the service performance measures. Both stages of involvement (the development stage and the commercialization stage) had a significant and positive effect on customer value. The development stage also contributed to increasing the market value. The two other service performance measures, process quality and profitability performance, were not affected by involvement in any stage of development.

Hypotheses H12 and H13dealt with type of innovation and its effect on innovation success. The different types of innovation, service innovations and process innovations, contribute to different service performance factors. Service innovations contribute mostly to increasing customer value, whereas process innovations increase process quality the most.

Hypothesis H14 to H18 investigated the moderating effects of service characteristics on innovation success. No such moderating effects were found and a revised research model was constructed to summarize the findings (figure 5).
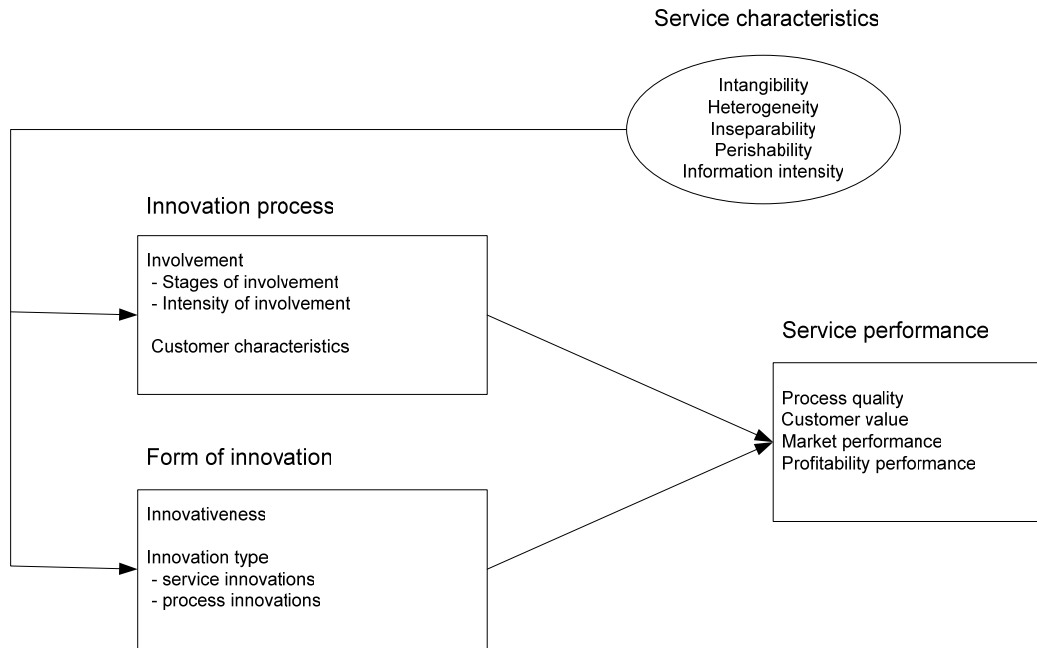
Figure 5 - Revised research model

The findings in this research support the view on treating services after their service characteristics and not as a whole. Services should be classified after their service characteristics because these characteristics have an impact on how customer involvement, service development and service success are implemented and accomplished. This classification is not easy to implement and further research on this area is needed before one could say how this should be conducted.

This research constructed items for information intensity that performed well. No such items used in prior empirical work could be found. These items are therefore a needed contribution to this research area.

5.2. Discussion

The existing literature on innovation research and service research is occupied with the difference between NPD and NSD, and as a result of this the development of new services has been treated alike despite having very different service characteristics. This research sought to investigate how the different service characteristics affected customer involvement in the innovation process and in different types of innovation.

To do this a survey was sent to a pre-selected number of firms, selected because of the assumed nature of the services they provide. The research wanted

to contrast firms with opposite service characteristics, for example low intangibility in the service offered with high intangibility in the service offered. The manipulation check in chapter 4.2 showed that the research's assumptions about the service characteristics of the selected firms did not match how the firms perceived their own services and their characteristics. Only the firms selected to contrast heterogeneity and information intensity were perceived by the firm as expected. Local radio stations, and studio and music production services selected to contrast perishability, perceived themselves different than expected. The research expected that local radio stations and their service of entertaining the people were perceived as being very perishable. A radio broadcast is a perishable service in that the user rarely stores this service, and it perishes as it is heard. It is then surprising that radio stations perceive themselves as being little perishable.

Studio- and music production services are similar to local radio stations in the way that they both produce entertainment. The research assumed studio- and music production services to be less perishable than local radio stations because they always record the outcome. This means that it can be stored and played at a later time. The results show that the studio- and music production services perceive themselves as perishable. There mean value lies above the middle value of the survey.

These findings may be the result of a poorly designed survey. The firms in these business categories where asked to keep their radio-services and studio- and music production services in mind when answering the questions. These are open terms and may be interpreted wrong.

These terms were however chosen for a reason. If specific term for each and every firm were sent out, the results could not have been subject for the desired contrasting. Then each firm had to be treated as a case study. Something this research did not wish to do.

Another explanation is that local radio stations and studio- and music production firms often are managed by a single person or just a few persons and often part-time. The managers may therefore have little or no deliberate thoughts on the characteristics of their service. The measure for perishability also had a low value 0.564, for Cronbach's alpha.

Despite the many factors that may have played a role for the result of how firms perceive themselves, one conclusion can be drawn. To foresee how the

characteristics of a service are perceived is a difficult task, and therefore it is difficult to classify services after their service characteristics.

First the research examined how the different service characteristics affected customer involvement. The results in chapter 4.3 show, as a general rule, that the service characteristics promote customer involvement. All of the five characteristics except information, intensity had this tendency. The results show that services and their nature promote the involvement of customers when developing new services. This result could also be understood as a consequence of managers' awareness of the specific attributes of services. Since the literature is very much occupied with how services differ from tangible products, managers also become aware of the differences and increase their efforts to deal with them. One could argue that the characteristics of services become the drivers of the innovation process. Since all the focus have been on the service characteristics, the development of new services has adapted to this focus and found ways of incorporating these specific characteristics into the innovation process.

This view could also explain why information intensity does not promote customer involvement. Information intensity is not one of the most cited service characteristics, and may not be equally known to managers as the four other characteristics. Information intensity does however promote customer involvement in technology innovations, and since information technology is argued to have become a revolution in the service sector (Miles, 2004), information intensity should be incorporated as one of the service characteristics.

The research assumed that the service characteristics would affect the innovation process and the form of innovation differently, H4, H5 and H6. The results show that these hypotheses were verified by the data gathered in the research. Hypothesis, H4, stated that the different service characteristics will affect the different stages differently. The fact that the different stages are differently affected does not need to depend on the different service characteristics, but that the different service characteristics have a different impact on the same stage, shows that the service in question and its characteristics play an important role. This also applies to hypotheses H5 and H6.

These findings along with Vermeulen and van der Aa (2003), suggest that services should not be viewed as a whole, but that more gradations are needed.

Perhaps services and tangible products with similar characteristics should be treated alike and not differentiated between.

Another interesting result is the fact that standardization is not perceived to be made difficult for heterogeneous services. Since standardization relies upon delivering the service in exactly the same way every time, heterogeneous services should be difficult to standardize.

As the research model implies the innovation process and the form of innovation have a direct impact on the service performance. The innovation process has two factors, involvement and customer characteristics, where involvement has been divided into stages of involvement and the intensity of involvement.

The literature on customer involvement has several characteristics of the involved customer, but lead and lay user are often discussed. Some argue that lead users promote innovation success whereas others rely on lay users. The results from chapter 4.3 show that both users contribute to innovation success, but to different areas of success. The service performance measure is divided into process quality, customer value, market performance and profitability performance. Lead users contribute to process quality, customer value and market performance, while lay users contribute to customer value and market performance. The differences may be explained by their ability to innovate. Lead users are argued to have a high ability to innovate because they are experts and know the technology. The technology (information technology) is argued to have become the revolution in the service sector (Miles, 2004) that changes the way services are produced; it is natural that lead users can innovate in this area. Lead users can also contribute to customer value and market performance like lay user, but perhaps at a different level. Lay users may be concerned with different problems than lead users, and the two user characteristics may very well supplement each other and contribute to higher customer value and market performance.

The involvement in all stages was assumed to increase service performance, but the result gave us a more differentiated view. Customer involvement in all stages contributes to increased innovation success, both in the development stage and the commercialization stage. The type of innovation success was also determined, and both stages contributed significantly to increase the customer

value. The service development stage also contributed to increased market performance. Perishability was the service characteristic that contributed to promote customer involvement in the different stages of involvement, and involvement in these stages increases the customer value. This implies that services with a high degree of perishability will increase their customer value significantly by incorporating customers in the development process. Perishable services may contribute more from customer involvement because they vanish faster and therefore are harder to recreate. When using customers one ensures that their needs and requirements are met and a higher customer value achieved.

The fact that customer involvement in the development stage increases the market performance whereas involvement in the commercialization stage does not, could be explained with the question measuring the market performance. These two questions contain the word development-projects, which can be perceived as the development stage. The commercialization stage contains the marketing strategy and should therefore contribute to the market performance.

High intensity in the involvement is assumed to increase the innovation success. The results revealed that this was true for increased customer value. Since customer value was the only performance measure that customer involvement, regardless of stage, had a very high significance on, it is only logical that this performance measure is the only one that intensity increases. This means that the higher the intensity of the involvement is, the higher the success rate gets.

The form of innovation contains two factors, innovativeness and innovation type. The innovation type is further divided into service innovations and process innovations, and the two are assumed to increase the customer value and the process quality.

Service innovations increase customer value as stated in the results chapter. If analyzed alone, also market performance is significantly and positively affected by customer involvement in developing service innovations. But when analyzed together with all the process innovations its result is not significant. Then distribution innovations as a component of process innovations, is the significant factor.

The process innovations have a significant impact on process quality as assumed. The factor that contributes the most to this significance is the distribution innovations. Process innovations also contribute significantly to

customer value and market performance. Again it is the distribution innovations that are the contributing factor. This implies that most of the firms participating in the survey have rated distribution innovations very highly and compared to the other performance measures, this scores high.

We therefore exclude the distribution innovations for both service innovations and process innovations and run the analysis again. Then co-production and modularization significantly promote process quality, service innovations and modularization promote customer value and none of the other factors promote market performance.

When also analyzing the results without distribution analysis it becomes clear that service innovations contribute the most to customer value, but distribution innovations and modularization innovations also promote this performance measure. Process quality is promoted by distribution-, co-production- and modularization innovations, while market performance is only promoted by distribution innovations.

The research model also implied that the service characteristics had moderating effects on the service performance. Several analyses were run to investigate this presumption, but no moderating effects were found. Based on these findings, or lack of findings, a revised research model presented in figure 5, was constructed. In this model the moderating effects were removed.

Information intensity is an established and must used term in the IS world, but it was a surprise to learn that no items to measure this term had been developed. The items used in this research performed well and are a contribution to this research area.

In this research profitability performance does not seem to contribute to innovation success. Only one item was used to measure profitability performance, and this may be the reason this performance measure does not have a significant impact, and profitability performance may play an important role despite the fact that no findings to support this view, were found.

The internal validity of the results has been discussed above. The main purpose of this research is to investigate the internal validity since specific firms were selected to participate in the survey. Newer the less also the external validity has to be addressed.

The findings from this research should also apply to other firms within the same business areas as the firms selected. When these firms were selected they were selected randomly from within a specific business area, and should therefore be representative of the firms in these business areas. Our selection was done from the Internet, and since only firms with updated contact information were selected one could argue that the entire span of firms is not selected. This is only the case if there is a difference between firms with updated contact information on the Internet and those without.

Another aspect of external validity refers to time. The results from this research have as most research does, time validity. How long these data are valid is very hard to say, but the data are not season data with a very short validity time. As long as the business areas involved in the research do not change much, the data are valid.

Whether or not these data will apply to the same business sectors in other countries is very hard to say, since the authors experience with these business areas in other countries is relatively low. If the results are to be valid outside Norway the selected business areas must be relatively alike. The transport sector in Norway and Japan for example is very different (to the author's knowledge) and the data from this sector may not be transferable to Japan.

5.3. Implications

These results shed light on and describe service performance and the factor contributing to the success more thorough than the existing literature. This will have some implications for the innovation research, the service research and the customer involvement research. It will also have managerial implications for firms and their networks, and policy implications for innovation systems and the public authority.

These findings will affect the innovation research, the service research and the customer research, since it presents results that expand these research areas beyond today's existing literature. The fact that services should be treated after their service characteristics and not as a whole, contributes mainly to the service and innovation research, but will also have implications for how customer involvement is conducted. This research also expands the knowledge on how different customer characteristics contribute to innovation success.

The findings will also have some management implications. The fact that service characteristics have an effect on the innovation process and the form of innovation must be taken into consideration when firms organize their innovative work. It becomes increasingly important for firms to understand the characteristics of the service they offer, in order to organize their innovative work in the right way. As discovered in this research, the local radio stations and the studio- and music production firms perceive themselves differently from what the research assumed. If their view on service characteristics is wrong, it becomes very hard to manage their innovative work.

The involvement of customers will also have managerial implications, since different customer characteristics contribute to different factors of service performance. The use of lead users contributes to process quality, customer value and market performance, whereas the involvement of lay users contributes to customer value and market performance. Managers must therefore have a clear view of what they wish to achieve by involving customers. Another factor to take into consideration is what type of innovation one wants, service innovations or process innovations. Service innovations will mainly increase the customer value, while process innovations will increase the process quality. Managers must therefore also know if they whish to improve the service they deliver or how the service is delivered.

This research reveals that managers must be aware of the characteristics of the service they provide because it affects how innovative work best is organized. The findings will not only have implications for each firm, but also for entire networks of firms. Innovative work is often conducted in huge networks were one firm is the customer to another and so on. The same implications that apply to each and every firm will therefore also apply to entire networks. This research calls for a higher understanding of the service characteristics offered, and how others may perceive ones services. In networks it becomes very important that all the participants have a common perception of the service in question, since these characteristics affect the innovative work.

Since service innovations are affected by the service characteristics of the service in question, innovation systems become increasingly important to expand knowledge on these characteristics. The public authority must therefore stimulate to building local and regional innovation systems to promote knowledge on

service characteristics and how they are perceived. This must be done do ensure a continued growth in the service sector and to ensure economic growth in our country.

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Appendix A - Survey

The first page of the survey varies from business category to business category. To the left an example page is displayed. The second paragraph in the survey explains to the participants which service they shall keep in mind when answering the questions. This paragraph is different and adjusted to fit each business category.

SNF

Undersøkelse om tjenesteinnovasjon og kundeinvolvering

Norske og europeiske undersøkelser viser at virksomheter oppgir **kunder** som en av sine viktigste kilder til **innovasjon**. I denne undersøkelsen ønsker vi å finne ut mer om hvordan dette skjer i **tjenestenæringer**.

Vi har valgt ut din virksomhet ut fra de tjenestene dere tilbyr. Den **tjenesten** vi ønsker at du skal konsentrere deg om er omtalt i e-posten som inneholdt linken du brukte for å komme hit. Ha **denne tjenesten** i tankene når du svarer på undersøkelsen.

Undersøkelsen gjennomføres av Samfunns- og næringslivsforskning, NHH og Høgskolen i Agder uavhengig av andre kommersielle interesser, og resultatene brukes kun til forskningsformål. Prosjektet er finansiert av Norges forskningsråd.

Undersøkelsen består av fire sider med spørsmål. Hele undersøkelsen er ikke ment å ta deg mer enn ca. **10 minutter**. Du trenger ikke å bruke lang tid på å tenke deg om ved hvert spørsmål, men prøv å besvare så **mange av spørsmålene som mulig**.

Ved å gjennomføre undersøkelsen deltar du også i **trekningen** av:

- **1 valgfri reise for kr. 5000,- !**

Alle svar er konfidensielle for andre enn de som skal analysere resultatene. Svarene er anonyme og knyttes ikke til noe som kan identifisere den som har avgitt dem.

Andreas Luteberget
Masterstudent (administrativt ansvarlig)

Per E. Pedersen
Professor (faglig ansvarlig)

Start undersøkelsen ved å klikke på den aktuelle linken under:

Start undersøkelsen

Hvis du har problemer med å komme videre fra denne siden, legg merke til følgende:

- Undersøkelsen består av 4 sider med spørsmål. Svar på så mange av spørsmålene som mulig. For å lede deg gjennom undersøkelsen bruker vi "cookies", men disse brukes bare til dette formålet og lagres ikke. Nettleseren din må imidlertid tillate bruk av "cookies".
- Hvis du stadig blir brakt tilbake til denne siden er det sannsynligvis fordi nettleseren din ikke aksepterer "cookies". Endre dine innstillinger i nettleseren og prøv igjen.
- Hvis du tidligere har deltatt i hele eller deler av undersøkelsen blir du automatisk brakt til den siden du eventuelt avsluttet på. Imidlertid kan svarene bare avgis en gang.

Sidene vedlikeholdes av Andreas Luteberget

Side 1 av 4

SNF

Konsentrer deg først om den tjenesten dere tilbyr som er omtalt i e-posten du fikk. Bruk den som utgangspunkt gjennom hele undersøkelsen.

Svar på spørsmålene ut fra dine erfaringer. Hvis du ikke har erfaringer vil vi likevel at du svarer på spørsmålene ut fra det du vet eller tror om tjenesten.

Vennligst ta stilling til følgende utsagn om tjenesten på en skala fra 1 til 5 der 1 er svært uenig og 5 er svært enig:

	Svært uenig 1	2	3	4	Svært enig 5
Tjenesten er vanskelig å forstå for kundene	○	○	○	○	○
Det er vanskelig å illustrere det konkrete innholdet eller hensikten med tjenesten overfor kunden	○	○	○	○	○
Tjenesten består av få håndfaste elementer under levering (fysisk utstyr, synlig personell og lignende)	○	○	○	○	○
Vår produksjon og kundens forbruk av tjenesten foregår samtidig	○	○	○	○	○
Tjenestens produksjonsprosess er synlig for kunden	○	○	○	○	○
Kunden forbruker tjenesten i samme øyeblikk som den produseres	○	○	○	○	○
Tjenesten leveres og produseres spesielt for den enkelte kunde	○	○	○	○	○
Kvaliteten på tjenesten kan variere fra en kunde til en annen	○	○	○	○	○
Denne tjenesten er ikke standardisert	○	○	○	○	○

Vennligst ta stilling til følgende utsagn om tjenesten på en skala fra 1 til 5 der 1 er svært uenig og 5 er svært enig:

	Svært uenig 1	2	3	4	Svært enig 5
Denne tjenesten kan ikke lagres	○	○	○	○	○
Etterspørselen etter tjenesten kan i perioder overstige kapasiteten vår	○	○	○	○	○
Det er vanskelig å planlegge produksjonskapasiteten for tjenesten	○	○	○	○	○
Denne tjenesten består primært av informasjon	○	○	○	○	○
Vår virksomhet karakteriseres av høy informasjonsintensitet	○	○	○	○	○
Viktige deler av tjenesten kan digitaliseres	○	○	○	○	○
Store deler av tjenesten kan formidles over elektroniske nett (Internett, telenett eller lignende)	○	○	○	○	○
Kunden får adgang til store deler av tjenesten gjennom elektroniske medier (PC, mobil, eller lignende)	○	○	○	○	○

Klikk på "Send" når skjemaet er utfylt og du er klar til å gå til side 2

Send   Nullstill

Sidene vedlikeholdes av Andreas Luteberget

Side 2 av 4

SNF

Konsentrer deg nå om hvordan kundene trekkes inn når dere utvikler nye tjenester eller forbedrer tjenesten.

Svar på spørsmålene ut fra dine erfaringer. Hvis du ikke har erfaringer vil vi likevel at du svarer på spørsmålene ut fra det du vet eller tror om tjenesteutviklingsprosessen.

Vennligst ta stilling til følgende utsagn om tjenesteutviklingsprosessen på en skala fra 1 til 5 der 1 er svært uenig og 5 er svært enig:

	Svært uenig 1	2	3	4	Svært enig 5
Vi samarbeider med kunder i alle faser av tjenesteutviklingsprosessen	○	○	○	○	○
Samarbeidet med kunder om tjenesteutvikling har gjerne lang varighet	○	○	○	○	○
Samtaler og samarbeid med kunder under tjenesteutviklingen forekommer hyppig under prosessen	○	○	○	○	○
Et stort antall kunder er gjerne involvert under tjenesteutvikling	○	○	○	○	○
Intensiteten i kundeinvolveringen er ofte svært høy	○	○	○	○	○

Angi på en skala fra 1 til 5 der 1 er svært lite og 5 er svært mye i hvilken grad kundene involveres i følgende faser av innovasjons- eller utviklingsprosessen:

	Svært lite 1	2	3	4	Svært mye 5
Idegenereringsfasen	○	○	○	○	○
Utvikling av tjenestekonsept (utkast til ny tjeneste)	○	○	○	○	○
Etablering og sammensetning av tjenesteutviklingsprosjekt	○	○	○	○	○
Utvikling av selve tjenesten	○	○	○	○	○
Testing av pilot eller prototypetjeneste	○	○	○	○	○
Lansering av ferdig ny tjeneste i markedet	○	○	○	○	○

Vennligst ta stilling til følgende utsagn om ulike typer tjenesteutvikling på en skala fra 1 til 5 der 1 er svært uenig og 5 er svært enig:

Vi involverer i stor grad kunden i utvikling av nye tjenester eller endring i tjenester som:

	Svært uenig 1	2	3	4	Svært enig 5
- gjør at kunden får større nytte eller glede av tjenesten	○	○	○	○	○
- er helt nye for kunden	○	○	○	○	○
- innebærer bruk av teknologi som er ny for kunden	○	○	○	○	○
- gjør at virksomheten må forholde seg til helt nye kunder	○	○	○	○	○
- henvender seg til kunder vi har liten erfaring med	○	○	○	○	○
- gjør at vi må bruke ny teknologi vi har liten erfaring med	○	○	○	○	○
- gjør at vi må bruke kunnskap vi ikke har hatt før	○	○	○	○	○

Klikk på "Send" når skjemaet er utfylt og du er klar til å gå til side 3

Send   Nullstill

Sidene vedlikeholdes av Andreas Luteberget

SNF

Side 3 av 4

Konsentrer deg fortsatt om **hvordan kundene trekkes inn** når dere utvikler nye tjenester eller forbedrer tjenesten.

Svar på spørsmålene ut fra dine **erfaringer**. Hvis du ikke har erfaringer vil vi likevel at du svarer på spørsmålene ut fra det du vet eller tror om tjenesteutviklingen deres.

Venligst ta stilling til følgende utsagn om **ulike typer tjenesteutvikling** på en skala fra 1 til 5 der 1 **er svært uenig og 5 er svært enig:**

	Svært uenig 1	2	3	4	Svært enig 5
Vi involverer i stor grad kunden i utvikling av nye tjenester eller endring i tjenester som:					
- innebærer en endring i tjenestekonseptet vårt	○	○	○	○	○
- innebærer et tillegg til det eksisterende tjenester allerede tilbyr	○	○	○	○	○
- innebærer en utvidelse av det markedet vi betjener	○	○	○	○	○
- ikke innebærer noe vesentlig nytt, men at tjenesten kan relanseres eller reposisjoneres i markedet	○	○	○	○	○

	Svært uenig 1	2	3	4	Svært enig 5
Vi involverer i stor grad kunden i utvikling av nye tjenester eller endring i tjenester som:					
- innebærer at vi blir tilgjengelige i andre distribusjonskanaler	○	○	○	○	○
- innebærer mer samarbeid mellom kundene	○	○	○	○	○
- innebærer mer samarbeid mellom oss og kundene	○	○	○	○	○
- innebærer økt selv-betjening eller at kunden på andre måter selv tar ansvar for større del av tjenesteleveransen	○	○	○	○	○
- innebærer at andre aktører tar ansvar for delleveranser i våre tjenester	○	○	○	○	○

	Svært uenig 1	2	3	4	Svært enig 5
Vi involverer i stor grad kunden i utvikling av nye tjenester eller endring i tjenester som:					
- innebærer at våre leveranser lettere kan deles opp i enkeltleveranser eller enkelttjenester	○	○	○	○	○
- innebærer at hele eller deler av våre tjenester kan leveres elektronisk	○	○	○	○	○
- innebærer bruk av ny teknologi for å produsere tjenesten	○	○	○	○	○
- innebærer en ny måte å organisere oss på	○	○	○	○	○
- innebærer en ny måte å lede tjenestevirksomheten vår på	○	○	○	○	○
- innebærer ny måte å organisere hele eller store deler av næringen på	○	○	○	○	○

Klikk på "Send" når skjemaet er utfylt og du er klar til å gå til side 4   [Send] [Nullstill]

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Side 4 av 4

Konsentrer deg fortsatt om **hvordan kundene trekkes inn** når dere utvikler nye tjenester eller forbedrer tjenesten.

Svar på spørsmålene ut fra dine **erfaringer**. Hvis du ikke har erfaringer vil vi likevel at du svarer på spørsmålene ut fra det du vet eller tror om tjenesteutviklingen deres.

Venligst ta stilling til følgende utsagn om **måten kundene involveres** på en skala fra 1 til 5 der 1 er **svært uenig og 5 er svært enig:**

	Svært uenig 1	2	3	4	Svært enig 5
Vi har en fast gruppe kunder vi bruker til å evaluere endringer i eller nye tjenester før de lanseres (beta-testing)	○	○	○	○	○
Vi involverer primært de mest innovative kundene i utviklingsprosessen	○	○	○	○	○
Vi involverer også helt vanlige kunder i utviklingsprosessen	○	○	○	○	○
Vi involverer primært de finansielt sterke kundene i utviklingsprosessen	○	○	○	○	○
Vi involverer primært de kundene vi har langsiktige relasjoner med i utviklingsprosessen	○	○	○	○	○

Konsentrer deg nå til slutt om **utviklingsprosjektene deres.**

Ta stilling til følgende utsagn om **hvor suksessfulle deres utviklingsprosjekter er** på en skala fra 1 til 5 der 1 er svært uenig og 5 er svært enig:

	Svært uenig 1	2	3	4	Svært enig 5
Sammenlignet med våre konkurrenter tar våre utviklingsprosjekter kortere tid	○	○	○	○	○
Vi gjennomfører utviklingsprosjekter hyppigere enn våre konkurrenter	○	○	○	○	○
Vi er svært tilfreds med kvaliteten på utviklingsprosjektene våre	○	○	○	○	○
Vi gjennomfører våre utviklingsprosjekter med lavere kostnader enn konkurrentene	○	○	○	○	○
Kunden oppfatter verdien av våre utviklingsprosjekter som svært stor	○	○	○	○	○
Våre utviklingsprosjekter øker alltid vår evne til å tilfredsstille kundenes ønsker og behov	○	○	○	○	○
Sammenlignet med våre konkurrenter er våre utviklingsprosjekter mer lønnsomme	○	○	○	○	○
Våre utviklingsprosjekter gjør at vår markedsandel øker mer enn konkurrentenes	○	○	○	○	○
Våre utviklingsprosjekter gjør at vi har større vekst enn våre konkurrenter	○	○	○	○	○

Venligst besvar følgende spørsmål:

Omtrent hvor stor omsetning har virksomheten deres? [_____] Kroner

Omtrent hvor mange ansatte har virksomheten deres? [_____] Personer

Hvilken næring er virksomheten deres i? [_____]

Klikk på "Send" når skjemaet er utfylt   [Send] [Nullstill]

SNF

Kontaktinformasjon og trekning

Hvis du vil være med i trekningen av:

- **1 valgfri reise for kr. 5000,- !**

Må du registrere din kontaktadresse her.

Hvis du ikke ønsker å delta i trekningen kan du avslutte undersøkelsen ved å krysse av for dette under og klikke på "Send" knappen uten å fylle ut kontaktinformasjon.

Tusen takk for at du tok deg tid til å delta i undersøkelsen !

Kontaktform for gevinst:
(husk å fylle ut alternativ
kontaktadresse/telefon under hvis du
ikke vil bli kontaktet pr. e-post)

- ○ E-post
- ○ Pr. telefon
- ○ Pr. vanlig post (postadresse)
- ○ Jeg ønsker ikke å delta i trekningen

Epost adresse:

Evt. telefon: Telefon:

Evt. kontaktadresse pr. post: Navn:
Adresse:
Postnummer:
Poststed:

Kontaktinformasjonen holdes atskilt fra dine svar og brukes bare til å trekke vinnere.

Klikk på "Send" for å registrere kontaktinformasjon og avslutte denne delen av undersøkelsen

Send   Nullstill

Sidene vedlikeholdes av Andreas Luteberget

SNF

Vi har registrert din kontaktinformasjon !

Alle vinnere vil bli kontaktet etter undersøkelsens avslutning på den angitte kontaktadressen.

Igjen, tusen takk for at du deltar i undersøkelsen !

Klikk her for å lukke vinduet

Sidene vedlikeholdes av Andreas Luteberget