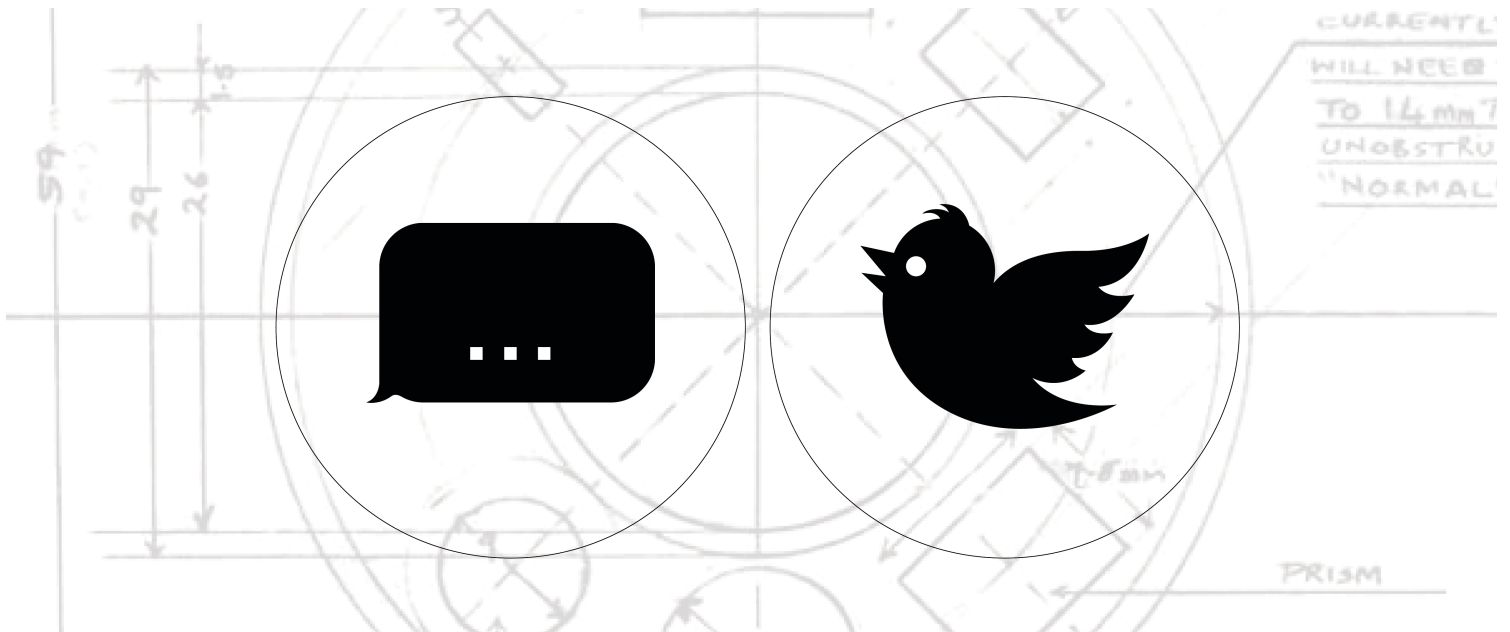# Customers and Consumers as a source of Innovation

Vegard Tveito

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Faculty of Social Science, University of Oslo

Customers and Consumers as a source of Innovation

How can a large service company gather and utilize feedback from customers and consumers as a source of innovation?

Abstract

This thesis studies how a large telecommunication company can gather and utilize feedback from customers and consumers for the purpose of facilitating innovation. The thesis distinguishes between viewing the customer as innovative, and using customers, or customer feedback, as a *source* of innovation. It is found that customers can be a source of incremental innovation, and that feedback from customers can inform decisions in service innovation. Further, the thesis explores new ways of gathering customer and consumer feedback. It is found that systems for gathering feedback from customers can be useful in an innovation process, but that the system in place has to capture the most relevant information possible for innovation. In exploring the potential of social media consumer feedback, limited potential for innovation is found, contrary to current literature. Finally, it is argued that in order to operationalize this kind of feedback properly, a company has to have a well-functioning system and culture in place for the facilitation of this information.

Preface

This is an exciting time. Though I am sure many have felt this way in their time, there is no way of looking at the last couple of thousand years and not notice that there has been a definite upswing in societal, informational, innovational and technical progress. And beyond agriculture, civilization and industrialization, we now have globalization. We have the intense development of the computer, consumer electronics, and the Internet. These inventions are defining for our time, and they are just beginning to get their groove on. It is an exciting time, and I am very thankful to be alive to see it.

With part of this time I have chosen to study Technology, Innovation and Knowledge at the TIK Centre at the University of Oslo, and to conclude it I have written this master thesis. This has provided me with the opportunity to study the effects globalization, consumer electronics and the Internet has on society. I want to thank the TIK Centre for two great years; the combination of field of study as well as exceedingly interesting and smart people makes this a great place to write a master thesis.

For this thesis I have relied heavily on the help of others. I want to thank my MacBook Pro, my dropbox folder, Google Scholar and EndNote for their invaluable help in completing this thesis. I could not have done it without you. Further, in the human realm, I want to thank my mother, father and brother for being there for me this last year, and in my life in general. I want to thank my friends in Brotopia, for distracting me when I needed it the most. I want to thank Jonas Archer, who has offered me valuable feedback on every single paper I have written at TIK. I also want to thank all the people whom I have shared the 5th floor study room with; you all are fantabulous beings. And of course, to my supervisor Jarle Hildrum. From my first meeting I felt very confident in my choice of supervisor, and our discussions have always been candid and fruitful. His knowledge of the field of study, the case at hand, as well as what makes a good thesis has been of substantial value, especially in these last few months.

Vegard Tveito / May 2015

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1. Introduction

This thesis explores how a large service company can gather and utilize feedback from customers and consumers as a source of innovation. It is a case study of the largest service company in Norway – the telecommunication company Telenor. The thesis contributes to the literature on using customers in service innovation, and it also explores new ways to gather feedback from customers and consumers, and outlines obstacles to utilizing this feedback in innovation.

The service industry is growing. In fact, in recent years the service industry has contributed close to three quarters of the European Union's total gross value, and it is now the largest contributor to growth in industry overall (Eurostat, 2011, 36). This growth has not gone unnoticed, and has spurred an interest in understanding more thoroughly how innovation occurs in the service industry (Miles, 2005). Research has shown that innovation in the service industry is often incremental in nature, reliant on information technology and dependent on the inclusion of customers in the innovation process (Hipp & Grupp, 2005; Miles, 2005). Because of the interactive nature of services, companies are argued to have to continuously adapt their services to the changing needs of the customer (Alam & Perry, 2002; Miles, 2005).

This link between customers and innovation is not new. Research from Hippel (1986) and others has shown that highly involved users, so-called "lead users", often develop or modify a product or service to better suit their needs. Users have been found to modify and develop products within diverse fields such as medical equipment, sports gear, video games and computer software (Franke & Hippel, 2003; Franke & Shah, 2003; Lettl, Herstatt, & Gemuenden, 2006; Prügl & Schreier, 2006). There has, however, been less focus in this literature on using customers, and information from customers, as a source of innovation in the service industry. Studies performed, such as Hipp and Grupp (2005), Alam and Perry (2002), Matthing, Sandén, and Edvardsson (2004) and Magnusson, Matthing, and Kristensson (2003) all call for further exploration of how customers and customer information can be utilized in service innovation. This thesis makes contributions to this literature.

The research question of the thesis is: *How can a large service company gather and utilize feedback from customers and consumers as a source of innovation?*

From this question, there are three main areas of focus; to what degree customers can contribute to innovation, in what way should a company gather this information, and how should this information be utilized and operationalized. To explore this more thoroughly, and to structure the thesis, three sub-questions are formulated based on these three main areas of focus.

The first sub-question is: *To what degree and how can customers contribute to innovation in large service companies?*
In a large telecommunication company where the customer is not really involved as an innovator, and perhaps does not have the competence to develop innovations themselves, the question becomes how and to what degree to involve and use customers as part of the innovation process. This sub-question contributes to the existing literature on customers as a source of service innovation.

The second sub-question is: *How can Telenor gather text message customer feedback and social media consumer feedback as sources of innovation? What is the potential here?*
The interactive nature of the modern customer is such that many companies can now easily obtain more of the customers' opinions, and use them to improve services. At Telenor this is done through massive text message based feedback systems. How this is done, as well as the advantages and limitation of this kind of data for innovation is explored through text mining the actual customer feedback of Telenor's customers.

Further, the growth of social media has exploded in recent years, and has created a growing interest for companies to understand consumer persuasions. Social media has proven to be an effective indicator on real-world performances, and has for example fairly accurately predicted stock market movements, as well as box-office revenue for Hollywood blockbusters (Asur & Huberman, 2010; Bollen, Mao, & Zeng, 2011). It is argued that new ways to monitor these channels are necessary for companies to stay relevant in the marketplace, and for a company's innovation process (Ang, 2011; Greenberg, 2010; Piller, Vossen, & Ihl, 2012; Woodcock, Green, & Starkey, 2011). The

advantages and limitations of social media are explored through data from Twitter on the company Telenor.

The third sub-question is: *What obstructs and facilitates the efficient utilization of customer feedback for innovation purposes inside Telenor?*
Even if customer and consumer feedback is gathered efficiently and can contribute to innovation, research shows that this is not sufficient unless this knowledge is properly utilized within the company (Cohen & Levinthal, 1990; Schaarschmidt & Kilian, 2014; Zahra & George, 2002). Therefore the thesis explores the processes for facilitating customer feedback at Telenor, and particularly what the obstructions are to utilizing this for innovation purposes.

1.1 Structure of this thesis

The thesis is structured after the three sub-questions of the main research question. First, the literature chapter outlines innovation and service innovation, and explores different views on using customers in the innovation process. Further, the potential for collecting and analyzing customer and consumer feedback for innovation purposes are explored, as well as the organizational prerequisites for a company to utilize this information.

Then the choices made to create this thesis are presented and discussed in the methodological chapter. Both qualitative and quantitative data is utilized to answer the research question. The qualitative data stems from interviews conducted with employees at Telenor, and the quantitative data comes from actual text message customer feedback to Telenor and consumer social media feedback on the subject of Telenor from Twitter.

Next, the main findings of the case study are presented and analyzed in the empirical and analytical chapter. This chapter is also structured based on the three sub-questions of the research question. Here, each section first outlines the findings from the empirical material, before analyzing and discussing this in light of the relevant literature. At the end of each of these sections a table is presented with the main findings, and its contributions to the literature. Finally, conclusive remarks are offered.

2. Literature

This chapter will outline relevant literature, which will be revisited in the empirical and analytical chapter. To contextualize this thesis the overarching concept of innovation is introduced before focusing on service innovation, as the company of the case study is a service company. To thoroughly be able to answer the research question, three sub-questions were introduced; these also structure the rest of the literature chapter.

The first of these sections explores to what degree and how customers can contribute to innovation, and presents three positions on this topic. The second section explores how and why a company should gather customer and consumer feedback. Here, with the assumption that the customer can function as an important source of innovation, it outlines new opportunities for companies to learn from customers' through improvements in IT, the introduction of social media and the area of text mining. The third section outlines what can obstruct and facilitate the usage of external information for the purposes of innovation within a company. The concept of absorptive capacity is outlined, which explicitly states that beyond acquiring external information, a company must have routines in place to actually utilize this data.

2.1 Innovation

Innovation is considered by many to be a driving force in long-wave technical, economic and social change. It is often the continuation or combination of something that already exists, such as a process, product, or technology (Fagerberg, 2013, 7). A widely used definition of the term is presented in the OECD (Organization for Economic Co-operation and Development) guidelines for collecting and using data on innovation activities, often referred to as the Oslo Manual. It states:

> *"An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations." (OECD, 2005, 46)*

This definition underlines two important factors about innovation; it is the implementation of something, and it is new in some way. Fagerberg (2013) argues – in an important distinction - that while an invention is the first occurrence of a new idea, innovation is the first attempt to actually implement the idea. And though innovation is now a part of the public debate and understood as a major contributor to change and growth, it was not always so. The field of innovation studies has grown radically since its beginnings around the 1950s, and has especially grown in recent years (Fagerberg, Fosaas, & Sapprasert, 2012). Beyond its growth, the field has always been multidisciplinary, and over time different aspects of innovation have become more prominent in the literature. The basis of innovation theory, however, stems from economist and political scientist Joseph Schumpeter.

2.1.1 Joseph Schumpeter and Innovation

Joseph Schumpeter saw innovation as a major driving force for economic and societal growth. He argued that beyond the allocation and distribution of resources, growth came from combining existing resources into new combinations – which was his definition of innovation (Fagerberg, Mowery, & Nelson, 2006, 6; Schumpeter, 2013). Though he first wrote mostly on the role of individual entrepreneurs as a disruptive force to the current way of operating (labeled "Schumpeter Mark I"), he later focused more on the importance of innovation in large companies (labeled "Schumpeter Mark II"). Here he contends that the R&D laboratory for technological innovation in companies is integral to its success over time (Fagerberg, Mowery, & Nelson, 2006, 6; Malerba & Orsenigo, 1995, 47-49).

Schumpeter categorized innovations as new products, new methods of production, new sources of supply, the exploitation of new markets, and new ways to organize business. These categorizations are still applicable to the field of innovation, and it is clear that Schumpeter's influence is very strong on the Oslo manual's definition of innovation. Beyond these categorizations there are degrees of newness, or radicalness, in innovations as well. Where radical innovations can create new markets, cannibalize current products and change the knowledge base of a company, incremental innovations are improvements, or upgrades to existing products or processes. Often,

creating something radically new requires significantly more resources and development, while incremental innovation is rapid and often built on existing solutions (Green, Gavin, & Aiman-Smith, 1995, 204, 205; Hurmelinna-Laukkanen, Sainio, & Jauhiainen, 2008, 279).

The field of innovation theory has developed alongside society and the economy as a whole, and as the service industry has grown particularly rapidly, so has the interest in how innovation occurs in services.

2.2 Service Innovation

It is known that innovation can be instrumental in economic and technological growth, and that Schumpeter's demarcations are still valid and used today. And as the service industry has grown enormously during the last decades, more research has started to focus on how innovation actually occurs in services, and to what degree innovation in services differs from that of manufacturing.

> *"Services are partaking of, and helping to forge, the new industrial revolution." (Miles 1993, 669)*

Even though the service industry has received a lot of attention in the management literature, it has been less focused on in the innovation literature (Tether & Tajar, 2008, 722). But as the service industry has grown, so has the interest in understanding how innovation occurs in it (Miles, 2005).

Barras (1986) was the first to discuss the concept of Innovation in Services, and Miles (1993) introduced the concept of Service Innovation. Both authors argued that the coming information technology would radically change the field of services, and innovation. In fact, Miles went as far as to say that services are helping to forge the new industrial revolution (Barras, 1986, 172; Miles, 1993, 669). Service innovation is, however, a multifaceted field, as services span from low-tech services like hairdressing, to legal and management consultants, all the way to high tech telecommunication services, as is examined in this thesis.

Barras (1986) argued that there was a need to develop a theory of innovation in services that differed from that of manufacturing. This was largely due to the fact that the IT revolution was integral to the development of the service industry, and the process here was argued to differ from innovation in manufacturing. Several others have argued that innovation in services is unique, as well as tried to develop theories and frameworks specific for the service industry (Gadrey, Gallouj, & Weinstein, 1995; Gallouj & Savona, 2009; Hipp & Grupp, 2005; Sundbo, 1997). However, there are also those who argue that the two are really not that different, and that both manufacturing and services can either be studied using the Schumpeterian umbrella categories, or by developing frameworks that apply to both sectors (Castellacci, 2008; Drejer, 2004, 560; Sirilli & Evangelista, 1998). Regardless of how services fit into existing innovation literature, it is still clear that there are certain aspects that are particularly prevalent in service innovation.

First, as noted above, service innovation is often particularly technological in nature. Especially IT has been noted as crucial to service development, and service companies invest more heavily in IT than manufacturing companies do. This can manifest itself in many ways, but for larger service companies, the investments in systems for handling, archiving and analyzing data is prevalent - and often requires significant innovative efforts from the company (Miles, 2005, 439).

Second, services are noted to more often be intangible than products (Hipp & Grupp, 2005, 520). If a customer is using a cloud service, there is no real way for the customer to touch or actually see the service itself – this is hosted by servers far away. And because of this intangible and often perishable nature of services, innovation often becomes easily copied. It can for example be difficult to patent the deliver mechanisms of a service, as they might differ slightly each time, for each use, and thus be difficult to standardize. In order to stay relevant in such an environment, where innovations are rapidly implemented and copied, it is argued that the innovation process has to be constant for a company to stay viable in the long run (Hipp & Grupp, 2005, 520, 521; Sundbo, 1997, 435).

Third, the nature of innovation in services is often incremental. Djellal and Gallouj (2001) find that the process of innovation in services is often incremental, and links this to the rapid and continuous nature of innovation in services. Oke (2007) also finds that service companies focus more on incremental service and product innovations, than radical ones, and Hipp and Grupp (2005) find that incremental innovations overall are far more dominant in the service industry than in manufacturing.

They further argue that classifying what is incremental innovation and what is defined as for example organizational learning can be difficult using classical measurement methods. Since the innovation activity in services is often continuous, several incremental changes might not be in and of themselves considered innovations, but when taken together they amount to significant innovation (Sundbo, 1997; Tether & Tajar, 2008, 723).

From this literature it seems clear that innovation in the service industry has to be continuous, and is often incremental in nature.

Because services are often interactive in nature, it also means that the innovation frequently occurs in the juncture between the service provider and the customer. According to Alam and Perry (2002), services are dependent on the inclusion of the customer in their innovation process because of the continuous changing needs of the customer (Alam & Perry, 2002, 515, 516; Miles, 2005, 437, 438). They find, in a study of 12 financial firms, that including the customer is integral to the innovation process, and that customers are particularly involved in the idea generation of new services, the design and testing of them as well as the pilot run of the new service.

This continuous evolution and customization of services makes it natural for there to be a constant development between a service and its customer. Because the concept of the customer as a source of innovation is integral to the thesis, this will be elaborated on in the following section.

2.3 Customers as a source of Innovation

This section will explore customers as a source of innovation. It should be noted first that though the terms customer, consumer and user often overlap, there are differences between these.[1] In this thesis the term *user* will be used when referring to user innovation literature and the term *consumer* will be used when it is necessary to differentiate from customers of a specific company. When these overlap, the term customer will be used for simplicity.

To explore to what degree and how customers can contribute to innovation, three positions are reviewed in this section. The first position argues that customers are innovative in and of themselves, the second argues that customers can conceivably be detrimental to innovation, and the third argues that the answer lies somewhere in between. For each of these a position is outlined that is used when discussing the empirical material later in this thesis.

2.3.1 Customers are Innovative

It has been argued that as users of a product or service have the advantage of interacting with it directly and continuously, they themselves are often innovators.

> *"Users that innovate can develop exactly what they want, rather than relying on manufacturers to act as their (often very imperfect) agents."*
> *(Hippel, 2005b, 64)*

Users as innovators are not a new topic, and there is empirical evidence dating back to Adam Smith on how the users of a product or service can function as innovators. Smith noted that much of the machinery used in early manufacturing was improved directly by those who used these machines every day, who naturally found ways of improving these (Bogers, Afuah, & Bastian, 2010; Smith & Nicholson, 1887).

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[1] A *user* is usually defined by interacting with a product or service, a *customer* is usually defined with purchasing a specific product or service from a particular company, while a *consumer* is usually defined as a general purchaser of products or services.

The breakthrough in user innovation literature, however, came with the work by Eric Von Hippel (1976, 1986, 1988, 2005a). In his book *Democratizing Innovation,* Hippel argues that users of products and services are taking a larger part in innovation than previously (Hippel, 2005a). He argues that those in constant contact with a product or service have a unique knowledge on how to create or refine it. Therefore Hippel argues that it can be highly inefficient for a company to concentrate the innovation-support in an organization to a few individuals, instead of learning from the users themselves (Hippel, 2005b, 70, 76). Especially in markets where the user heterogeneity is high, it has been argued that users will be more satisfied if they have a say in the customization of their own product, as they best know their own needs (Franke & Hippel, 2003).

Several studies indicate that users can be important to innovation. Hippel finds in a sample study that the innovations that were most useful to users were more often invented, prototyped and tested by users - rather than manufacturers (Bogers et al., 2010; Hippel, 1976). Often, these users are parts of a special interest community, and/or are considered advanced or "lead" users who are facing specific needs not addressed by the market yet. Franke and Shah (2003) find in a study of sports-related products that many in these communities prototype their own products, and openly share them with others in the community. Here users innovate to have the best experience with the product they are using, and will therefore directly benefit from the improvements (Franke & Shah, 2003; Hippel, 2005b)

Jeppesen and Molin (2003) find that beyond improving the customer satisfaction, commercial companies can both motivate and capture the innovations produced by their customers, or even by consumers (Jeppesen & Molin, 2003). Since customers are not bound by the current market position, or existing dogma in a given industry, their ideas might be more radical as perceived user value would be their only real criteria (Bogers et al., 2010, 16, 17).

Where Baldwin and Hippel (2010) in the user innovation literature argues for a paradigm shift from producer innovation to user innovation, Prahalad and Ramaswamy (2004) argue that there is a shift in value creation from a product and company centric view, to a focus on personalized customer experiences. They argue that the increasingly

empowered and active customer of today wants to interact with companies and "co-create" value. Traditionally companies have viewed the market, customers and consumers as only creating value in terms of extracting knowledge, or in the exchange of products or services - this is argued to be unsustainable. Prahalad and Ramaswamy (2004) exemplify with online auctions such as eBay where customers are in constant dialogue about the value of a product, and decide on an individual level what a reasonable price is. More recently, services like Uber and AirBnB are examples of the new "sharing economy", which focuses on facilitating the co-creation between customer and customer through a website or smartphone application (Zervas, Proserpio, & Byers, 2014).

In this kind of a globalized world, where more and more companies provide fairly similar services, it becomes harder to stand out. It is argued that the "antidote" to this current predicament is to "*seek to co-create value with customers through an obsessive focus on personalized interactions between the customer and the company*" (Prahalad & Ramaswamy, 2004, 6, 7). A complete joint experience between customer and company is presented as the future in this literature. It is also noted that this kind of customer and company co-creation is necessary in service innovation (Prahalad & Ramaswamy, 2004, 150, 151; Vargo, Maglio, & Akaka, 2008). Here the customer would be the quintessential part of innovation in a company.

This position argues that customers are in and of themselves innovative, and are instrumental to both incremental and radical innovation for a company. As customers continuously interact directly with the product or service, they are argued to be in a unique position to innovate. This will be discussed in relation to the empirical material of this thesis.

2.3.2 Customers are detrimental to Innovation

It has been argued that customers are not a source of innovation, but rather a hindrance to it. As customers cannot necessarily see where a market or a technology is going, are they perhaps unfit as innovators?

> *"If I had asked people what they wanted, they would have said faster horses."*
> *- Henry Ford[2]*

This position argues that if a company is too focused on fulfilling and responding to customers' immediate needs, they will avoid investing in what will become the disruptive and radical innovations driving the field forward. By rejecting ideas that do not immediately satisfy their customers, some argue that these companies will fail over time as they cannot foresee or adapt to where the market is going (Bennett & Cooper, 1981; Christensen, 2013). Steve Jobs argued that Apple could not have designed their innovative and groundbreaking products using focus groups, or customer knowledge, because "*a lot of times, people don't know what they want until you show it to them*" (Sager, 1998).

This goes against the current trend in new service development literature, where being "customer oriented", which is defined as a putting the customer first, is regarded as integral (Alam & Perry, 2002; Deshpandé, Farley, & Webster, 1993). However, Hillebrand, Kemp, and Nijssen (2011) argues that companies that are too focused on being customer oriented can create an environment where there is no room for more radical innovations:

> *"Strong customer orientation will breed inertia [...] As a result, innovations –*
> *especially competence-destroying ones – may lack initial legitimacy because*
> *they use up resources otherwise allocated to the current customers' cause"*
> *(Hillebrand et al., 2011, 70)*

In this sense, customers can be a distraction, drain resources on piecemeal solutions, and ultimately hinder companies focusing on the overall changes necessary to innovate.

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[2] This quote is very commonly attributed to Henry Ford (by Steve Jobs and in general as an argument against customers being innovative), but there are no real substantiated sources for it. For more on the origins of the quote see:
https://hbr.org/2011/08/henry-ford-never-said-the-fast/

Beyond arguments that customers are not a great source for innovation, there are also some arguments more specifically towards the strands of innovation literature that focuses on user innovation. Bogers et al. (2010) argue that this field lacks a broader theoretical perspective and clear definitions, which makes results difficult to compare with other research. Further, that though user innovation literature argues that users are particularly good at finding new, radical innovations, this research does not place their findings within the definitions of other studies on the subject of radical and incremental innovation. It is therefore not clear in a broader perspective to what degree users actually are adept at creating radical innovations (Bogers et al., 2010, 14, 15).

This position argues that involving customers in the innovation process can in fact be a hindrance to innovation, and that if a company is too focused on responding to customers' immediate needs, they will not invest in more disruptive innovations that will eventually drive the market forward. This will be discussed in relation to the empirical material of this thesis.

2.3.3 Customers are a valuable source of Innovation

Perhaps the answer to whether customers are instrumental or detrimental to innovation lies somewhere in between. Many authors argue that particularly in services there is a need for customer information, as the nature of services is interactive (Hillebrand et al., 2011; Hipp & Grupp, 2005; Matthing et al., 2004). These authors, however, do not necessarily focus on the customer as an innovator, but rather that the customer can be an input, or indeed a source, of innovation. They find that using information and feedback from customers in the service innovation process is necessary:

> *"… The inseparable nature of customers as both producer and consumer and the tendency of service development to fall back on informal and ad hoc efforts make it natural and vital to include the customer in the innovation process." (Matthing et al., 2004, 492)*

As services are usually highly customizable, technology intensive, and in markets with swift changes and developments, it means that for a company to stay viable in the

service industry it has to be adaptable to the customers, as well as to the market at hand. To anticipate and understand changing customer needs, as well as shifts in the consumer market, traditional market research has been argued to be insufficient to keep up (Matthing et al., 2004, 480). It has therefore been argued that in order to thrive in service innovation, a company has to ascertain customer information in order to make informed decisions in their innovation process (Bettencourt, Brown, & Sirianni, 2013; Matthing et al., 2004; Schaarschmidt & Kilian, 2014). This means more than simply analyzing customer feedback for marketing reasons, but to make customer feedback a part of an innovation process to improve existing and new services.

Alam and Perry (2002), find when identifying key stages of the development of new services, that customers contributed to all stages of development. They find that customers are most integral in the stages of idea generation, service design and the pilot run (Alam & Perry, 2002, 524). Here, even though the customers might not create innovations themselves, they are used in the process of innovation, both to find out where to innovate, as well as during the development of new services. Sundbo (1997, 437) states that innovation in services can come from standardization of customer specific problem solving, and that these small changes can be developed into real innovations, based on the degree of standardization as well as the technology involved.

In a study of medium and large-sized service companies Sundbo finds that customers were used as a source of innovation, "*but to a lesser degree than one would expect*" (Sundbo, 1997, 446). Though customers often provided the inspiration to a new idea, they were usually not systematically involved in the process until the testing process began. Leonard and Rayport (1997) argues that through gathering data and observing customers, companies can identify needs that the customer might not be able to articulate, but that can provide valuable information to spur innovation.

It is also argued, that companies should utilize customer knowledge mostly for incremental service innovation. Hillebrand et al. (2011, 78) find that having too strong a focus on customer orientation will actually discourage companies to develop radically innovative services, as customers have homogeneous knowledge and are less likely to

come up with completely new solutions or services. However, this kind of knowledge *will* foster incremental innovation, and the authors argue that it might:

> *"...help to fine-tune services to the demands of the current market, help to serve current customers better and thus ensure sales. As both radical and incremental new services are needed for a firm to perform well in the long term, we suggest that firms need a mix of a focus on current customers as well as on future ones." (Hillebrand et al., 2011, 79)*

A particular study of interest for this thesis is Magnusson et al. (2003) "*Managing user involvement in service innovation experiments with innovating end users*", which explores the involvement of users in service innovation in a telecommunication company. In their research they find that users often have ideas that are more original and hold higher perceived user value than those of professional developers in the company. Though the user ideas were considered harder to actually implement, the authors argue that user involvement is positive for an organization and can in fact produce creative innovative solutions, as long as these are properly managed.

The study finds that the users involved came up with 234 novel ideas for a specific mobile SMS-service (Magnusson et al., 2003, 122). The company of the study could further utilize these novel ideas, as well as have a better understanding of how the service was perceived by the users. The authors' note that in technology based services it is often meaningless to just ask what a customer would want, as they do not know. Rather, it is argued that involving users, and user information, to explore opportunities can create valuable outcomes *if* there is a prototype or an existing service on which to improve upon (Magnusson et al., 2003).

Hipp and Grupp (2005, 520, 521), Alam and Perry (2002, 518) and Matthing et al. (2004, 494) all state that there needs to be more research on the customers role in service innovation. Magnusson et al. (2003, 121) argue in their study that "*user involvement for service innovation is still in a seminal state, and further research is needed*". Additionally, they argue that there is a need to explore various ways of including users in service innovation, beyond the focus of their study. This thesis aims at contributing to this literature by outlining the role of customer and consumer information as a source of innovation in a large telecommunication service company.

Further, even though these studies are focused on using information from customers to innovate, there is as of now no distinction here between users as innovators, and utilizing the customer or customer feedback in the innovation process. These two are not the same; a customer innovating through the use or modification of a product or service is not the same as using information from customers for the company's innovation process. This thesis contributes to this literature by specifically distinguishing between whether the company at hand views the customer as innovative in and of themselves, or if the company uses the customers as a *source* of innovation.

This position argues that companies should attempt to gather and utilize knowledge from their customers, as a source of information for innovation, as well as a direct influence to incremental innovations in services. This is the position will be discussed in relation to the empirical material of this thesis.

In order to use the customer as a source of innovation, as this thesis will focus on, there are several ways in which to ascertain this kind of customer and consumer information for innovation. The next section therefore focuses on the advancements in these fields in recent years.

2.4 Customer and Consumer feedback

It has been argued that customers and consumers can be an important source of innovation. But how can a company best gather this kind of information for innovation purposes? In recent years a renewed interest in the customer relationship, data and text mining as well as the dawning of social media platforms has led to new possibilities within this field, which will be explored here, and in the empirical and analytical chapter of the thesis.

2.4.1 Customer Relationship Management

Customer Relationship Management (CRM) is named as an attempt at re-establishing the relationship between company and its customers, creating a personalized process despite the company being large in size and having many customers (Chen & Popovich, 2003; Greenberg, 2001). CRM is a system (or a set processes and technologies), taking advantage of new technological solutions, that make companies able to collect, analyze and interpret customer knowledge, and in turn have a much more customized relationship with each customer (Greenberg, 2001). This has been known to lead to much higher customer satisfaction and more loyal customers – as well as attract new customers (Chen & Popovich, 2003; Reinartz, Krafft, & Hoyer, 2004).

Actually, CRM is not new, but because of opportunities in information technology and computer software, it has been rejuvenated in recent years. It is argued that "*the stickiness of the customer cannot be met by transactional data*" (Greenberg, 2010, 413), meaning that the classic customer company interaction is no longer sufficient. In order to truly learn and operationalize insight from customers Greenberg (2010) argues for five main components: Customer Data, Sentiment Analysis, Social Media Monitoring, Profiles and Customer Experience Maps. Peppard (2000) further argues that the information gained in these new CRM procedures is critical to service innovation – as well as utilizing the customer in the development process in a company.

All of this is to say that ascertaining customer feedback is now necessary in order for a company to stay relevant to their customers. Particularly data mining has been interesting in recent years, as new software developments enable companies to extract hidden information from large quantities of data, which enables them to make proactive and knowledge based decisions that stems directly from those in closest contact with their products – the customers (Rygielski, Wang, & Yen, 2002). One area particularly relevant to this thesis is using unstructured text as a source of information in companies.

Traditional customer feedback has usually come from structured numerical or textual data such as surveys or questionnaires. These present customers with predefined questions and categorizations, and cannot really capture information that goes beyond

these very set parameters. Unstructured text, however, means that the customer alone, without any restrictions, decides the content of the feedback. Performing text mining analysis on this kind of feedback can therefore provide both sentiments on existing capabilities as well as suggestions and categories previously unbeknownst to the company. This has made text mining attractive to companies who want to learn from customer or consumer feedback, and in the CRM literature (Dörre, Gerstl, & Seiffert, 1999; Gamon, Aue, Corston-Oliver, & Ringger, 2005; Yong Ahn, Ki Kim, & Soo Han, 2003).

There is, however, a gap in the literature as to how this kind of textual feedback can be utilized in service innovation. By extrapolating customer and consumer feedback as a whole, it seems likely that a company can utilize this information as a source of innovation in services in order to benefit those who actually interact with their services.

Ang (2011) also argues for monitoring and analyzing data to learn, but argues that as social media has become commonplace, companies have to combine this customer feedback with consumer feedback from social media as well in order to stay relevant in an changing environment (Ang, 2011; Greenberg, 2010).

2.4.2 New Sources of Consumer Feedback

The developments in IT, the dawning of social media, and the fact that consumers have come online provide new opportunities for companies to gather and utilize data.

Beyond the fact that consumers have come online, they are now sharing, interacting and forming sentiment online with others at an increasing pace (Greenberg, 2010; Hippel, 2005b, 72; Kaplan & Haenlein, 2010). Where the Internet originally was a passive medium for consuming information, there is now continuous creation of content by consumers online. This is referred to as WEB 2.0 (DiNucci, 1999; O'Reilly, 2005).

> *"WEB 1.0 was commerce. WEB 2.0 is people."* (Singel, 2005)

Any site where consumers can interact and create content fits under the WEB 2.0 umbrella; wiki's, blogs, video sharing sites and the now growing phenomenon of social media networks. According to Kaplan and Haenlein (2010, 61), social media is defined as Internet applications based in WEB 2.0, which allow the creation and exchange of various forms of media content that are publicly available and created by end-users.

According to Eurostat (2014), 46% of the population in the EU participated in social networks in 2014, either by creating user profiles, posting messages or other contributions. Social media has in fact become the most popular thing to do online, even beating out pornography – no small feat (Qualman, 2012; Tancer, 2007). This provides new opportunities for companies to monitor the consumer market. Some argue that there will be a substantial shift in the way companies gather and use information from, as well as interact with, their customers and the consumer market due to the influx of social media (Kaplan & Haenlein, 2010).

Monitoring through Social Media

Qualman (2012) functions as an example of the position that believes social media is not just a continuation, but also a change from previous ways of gathering information from customers and consumers. His book "*How social media transforms the way we live and do business*" opens by stating:

> *"From Main Street to Wall Street and from school rooms to board rooms, there is a revolution happening. It is being driven by a fundamental shift in how we communicate and is enabled by the unprecedented rise of what is commonly called "social media"" (Qualman, 2012, 1)*

He further argues that monitoring social media should be an "*integral part of a company's overall strategy*", and that any company that wants to be part of this modern world has to understand this "*revolution*" (Qualman, 2012, 1).

Much of the management literature arguing for Social Customer Relationship Management (SCRM) has this same kind of bombastic language of the opportunities for companies in social media. Greenberg (2010, 417) argues that the possibilities for garnering the knowledge consumers have on products and services has been "*magnified*

exponentially due to the willingness of the customer to converse openly in the cybersphere". Many therefore argue that for a company to stay relevant in a post-social media world it is necessary to monitor consumer feedback from these kinds of platforms (Ang, 2011; Greenberg, 2010; He, Zha, & Li, 2013; Malthouse, Haenlein, Skiera, Wege, & Zhang, 2013; Trainor, Andzulis, Rapp, & Agnihotri, 2014).

This is also argued to be integral to innovation. Woodcock et al. (2011, 63) argue that SCRM can "*deliver insight that will help drive real customer centric innovation*". And Piller et al. (2012) argue that including social media in the innovation process can enhance the efficiency of the co-creation for a company.

This literature indicates that a company should monitor social media in order to truly learn from customers and consumers, and that this should be part of the innovation process. There is, however, a lack of research on the value of the actual information from these processes, and to what degree these are integral for service innovation. This will be discussed in relation to the empirical material of this thesis.

Further, as this literature chapter has discussed to what extent customers and consumers can be a source of innovation, and how to gather this kind of feedback, it seems natural to look at how it is best to operationalize this kind of information.

2.5 Absorptive Capacity

Customers and consumers can be used as a source of innovation, and there are new and interesting possibilities in how to gather this kind of feedback. But for any company, to gather feedback will not be sufficient unless this information is actually utilized within the company. This section therefore outlines the concept of absorptive capacity.

Absorptive Capacity is defined as a company's ability to recognize new knowledge, assimilate it and apply it to commercial ends (Cohen & Levinthal, 1990). Cohen and Levinthal (1990), in their seminal article "*Absorptive capacity: a new perspective on learning and innovation*", argue that to exploit external knowledge is a critical

component of a company's innovative capabilities (Cohen & Levinthal, 1990, 128). Further, that the ability to do so will be highly related to the previous knowledge in a given field, in order to expand on it, and apply it to commercial ends. If the knowledge the company seeks is related to their ongoing activities, this will become a part of the company quickly. However, if it is not, the company must invest or dedicate more specific efforts to absorb this new kind of knowledge.

It is also argued that the knowledge has to be transferred efficiently within a company's sub-units in order to be operationalized. This means that to absorb knowledge is not sufficient unless there is strong structure for communication between the different sub-units, otherwise this knowledge is not utilized properly (Cohen & Levinthal, 1990, 131, 132).

Zahra and George (2002) reconceptualizes the definition of absorptive capacity as "*a set of organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability*" (Zahra & George, 2002, 186). Within this definition the authors differentiate between potential and realized absorptive capacity.

Potential capacity is the ability to acquire and assimilate external knowledge, and *realized capacity* is the ability to transform and exploit the knowledge that has been absorbed. Any company, it is argued, is dependent on both. A company cannot exploit knowledge without first having acquired it, and in the same vain, if a company has acquired knowledge, but does not incorporate it into the company's operations, it will it will not improve the company's performance (Zahra & George, 2002, 191). In part this argument is reminiscent of Cohen and Levinthal (1990) in that here too it would be essential to have cross-functional communication in order to actually utilize and implement the knowledge absorbed.

In a particularly relevant study for this thesis, Schaarschmidt and Kilian (2014) research impediments to customer integration in the innovation process in the telecommunication industry. They find that the company examined had acquired much external knowledge from their customers, but did not have a process in place to

implement this knowledge, thereby lacking in *realized capacity*. A few specific impediments are noted. One is the newness of the integration of customer orientation, where the company's innovation culture and attitudes towards external customer knowledge is not as readily accepted as market knowledge. Another reason is the "not-invented-here syndrome", where external knowledge is ignored simply due to the fact that it originated outside the company.

Further, the study finds that the company was much more open to integrating customer knowledge if the customers were paid for their efforts. They conclude that the attitude toward external knowledge within the company therefore definitely has a pecuniary dimension (Schaarschmidt & Kilian, 2014, 355-386). The concept of absorptive capacity and this particular study is relevant to the utilization of customer feedback in the case at hand, and will be revisited in light of the empirical evidence from this case study.

2.6 Summary

This chapter outlined the concept of innovation, and some specific aspects in relation to service innovation. Next, different views on the customer in the innovation process were presented, and no unitary view was found. This thesis will examine the difference between viewing the customer as innovative, and using the customer as a source of innovation – a distinction not made explicit by existing literature. Further, it will contribute to the literature on how to utilize customers in service innovation.

New opportunities have presented themselves in this field as more customer and consumer feedback is available, and new tools exist to gather and monitor this information. It is argued that customer information and social media monitoring should be included in the innovation process in order to stay relevant in a changing world. There is, however, a lack of research on how systems for gathering customer and consumer information work, and what value this information has for service innovation, something that this thesis will explore in the empirical and analytical chapter.

Lastly, after outlining how customer and consumer data can be gathered, the question becomes how this should be utilized. Literature on absorptive capacity underlines that companies are dependent on strong communication between units and departments to actually implement acquisitioned knowledge. A study of the telecommunication industry argues that impediments to this implementation can be related to the newness of the process, a required shift in corporate culture as well as whether or not the customer integration has a pecuniary aspect to it. This will also be revisited in the empirical and analytical chapter.

This thesis will explore these areas of interest, intersecting in a case study of Telenor Norway, using both qualitative and quantitative data to explore the research question. In the following methodological chapter, the choices involved in creating this thesis will be argued for as well as how the data for it was obtained and analyzed.

3. Methodology

To study how gathering and utilizing feedback from customers and consumers can be a source of innovation in large service companies, I have chosen to approach this with a case study of the Norwegian business unit of a multinational telecom operator, Telenor. The company has in recent years begun to collect large amounts textual customer feedback data, as well using customer and consumer information more actively in the innovation process. I want to find out how this has developed at Telenor, how customer feedback is used now, and also to survey the potential of the data they already have. This is why I have chosen to both interview people integral to customer and consumer feedback at Telenor Norway (in different departments), as well as doing my own analysis of textual customer feedback and social media consumer feedback. By using both qualitative and quantitative data I hope to be able to more thoroughly answer the research question of this thesis.

In this methodology chapter I will outline the reasoning for performing a case study, why I performed qualitative interviews, as well as the practical decisions involved in conducting these interviews. Further, I will present the textual data utilized for the quantitative section of this thesis, both the customer feedback data from Telenor, as well as the consumer tweets about Telenor from Twitter. I also review the validity and reliability of the thesis, and finally outline some ethical concerns.

3.1 Case Study

Robert K. Yin (2014) argues for a twofold definition of a case study, which underlines the scope of a case study as well as the features of it. A case study tries to "*investigate a contemporary phenomenon (the "case") in depth and within its real-world context…*" – this is the scope. And for the features, Yin argues that case studies are applicable to technically distinctive situations where there are many variables, which makes it reliant on multiple sources of evidence (Yin, 2014, 16-17).

Yin further argues that what kind of method to use is defined by what kind of research question is posed (Yin, 2014, 9). If the research question is a "how" question, it is likely more exploratory in nature, rather than purely prevalence based. And if what is being studied is a contemporary event, where the relevant behavior of participants cannot be manipulated or controlled, all signs point towards the fact that a case study is most applicable (Yin, 2014, 10-12). This is highly relevant, as I want to explore how Telenor are utilizing customer data, not just historically, but also contemporarily. Therefore, a case study seems to be the most applicable method for this master thesis.

When electing to do a case study, it would have been interesting to compare the capabilities of a few selected service companies, and how they utilize customer feedback. I have, however, chosen to concentrate on a single case study. Yin (2014, 51) states that there can be several reasons for electing to perform a single case study over a multiple-case, and one of these is the *revelatory* case. A revelatory case is where the researcher has the opportunity to explore a phenomenon that was previously inaccessible to social scientists (Yin, 2014, 52). This is applicable to this case as Telenor is on the forefront in the Norwegian telecommunication industry of using customer feedback in the innovation process.

Further, there is a unique access to data provided by the company. I have through Telenor gained access to a large dataset of actual customer feedback. There is, as far as I have found through my research on the topic, no one who has examined the actual customer feedback data and its potential for service innovation in the service industry as a whole. This provides an interesting opportunity to explore something novel.

To improve a case study, Yin also argues that one should have several kinds of sources for evidence. And though case studies are often presumed to use mostly qualitative sources and methods, Baxter (2010, 82) argues that this is a misconception. Many case studies are qualitative in nature, some are purely quantitative, but a lot is actually a mixture between the two. Baxter argues that case study research can therefor often exist in the intersection between the quantitative and the qualitative, to better understand the case at hand.

Figure 1: Intersecting domains of inquiry, adapted from Baxter (2010).

This thesis integrates both qualitative and quantitative data to answer the research question. Beyond what informants interviewed at Telenor can say about how customer feedback is used, the actual feedback will be analyzed and its advantages and limitations for innovation purposes will be discussed.

3.2 Qualitative approach

For the qualitative part of this thesis I aim to explore how Telenor Norway has previously collected feedback from customers for innovation purposes, what they are doing now, and what the obstacles are for utilizing this information. In order to do so I have chosen to conduct interviews with relevant employees at Telenor Norway.

Though I could have created a survey or tried to obtain other documentation on what Telenor has done in this area, I chose interviews because they are particularly adept at unraveling experiences and opinions. Interviews with relevant employees can provide information that could not be obtained by pure observation, as I would not be as well informed of this phenomenon as I can from interviews (Dunn, 2010, 100-103). Particularly for finding obstacles for how customer feedback is facilitated for innovation within the company, interviews seem more applicable than any other method. I have further chosen to conduct semi-structured interviews with interview guides.[3]

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[3] For more on the interview guides used for this thesis see Appendix 1.

"The interview should be structured and directed, but neither inflexible nor passive" (Schoenberger, 1991, 187)

Semi-structured interviews have a structure (as the name indicates), but they are not completely bound by it. This gives the interviewer the possibility to delve somewhat of the structured path, and still be able to find the way back to it. Dunn (2010) argues that interview guides are useful to "*jog your memory and to ensure that all issues are covered as appropriately as possible*" (Dunn, 2010, 105).

Though it is argued that an interview schedule with a rigid structure is better for comparing answers from interviewees, I have still elected to create a new or modified interview guide for most interviews. This is because I want to learn about different aspects of the research question from different employees in Telenor. Further I wanted the flexibility offered by semi-structured interviews, where I could dive into what I found particularly relevant with each interview (Dunn, 2010, 104).

Any interview situation is intimate, and is continually being shaped by both the interviewer and the interviewee. As a researcher, my biases, values and personal background are intrinsically bound with me wherever I go. So I have to be aware that the information I gather will in some way be affected by the fact that I am conducting an interview with someone. It was therefore important to make practical arrangements that ensured that the data I am left with is as useful and correct as possible.

3.2.1 Practical decisions

All the interviews conducted have been with employees at Telenor Norway. All of the interviewees work with utilizing customer and consumer feedback in the company, but in different ways and different departments such as marketing, research, and strategy. Several work specifically with how to use this information to make changes in the company as a whole, and others work with how customers are used in the innovation process at Telenor. On the next page is an overview of the interviews conducted at Telenor.

Interview	Position	Date	Length
Interview 1	Project Director - Customer Centric Program, Telenor ASA	10.10.2014	70 min
Interview 2	NPS Manager, Telenor Mobile	10.11.2014	45 min
Interview 3	Customer Experience Director, Telenor Norway	09.02.2015	50 min
Interview 4	Senior Research Scientist, Telenor Research	12.02.2015	55 min
Interview 5	Business Developer, Telenor Norway	26.02.2015	40 min
Interview 6	Senior Service Designer, Telenor Norway	26.02.2015	45 min

Table 1: List of interviews performed for the qualitative data collection.

All interviews were recorded using a smartphone, and were transcribed verbatim shortly after the interview took place (most of them on the same day so as to remember as much as possible from the actual interaction that cannot be captured by a microphone). Some of the employees were referred to me through my supervisor (who has intimate knowledge of the company), and some I found by asking the interviewees if they knew of other employees in the company that would be relevant for my thesis.

3.3 Quantitative approach

In addition to the interviews I have performed content analysis using textual data from customers and consumer feedback concerning Telenor Norway. From the literature it seems likely that these kinds of sources can contribute information to incremental innovation in a continuous service innovation process.

I have chosen to analyze two different sources of textual data: text messages from customers of Telenor Norway, and Norwegian tweets about Telenor. The idea behind using these sources is that one represents the customers of Telenor (the text messages) and one represents the consumer market sentiments (the tweets). Both will be analyzed using text mining software, outlined below.

3.3.1 Text Mining

> *"Text Mining is the discovery by computer of new, previously unknown information, by automatically extracting information from different written resources." (Gupta & Lehal, 2009)*

The quantitative data in this thesis is unstructured text from customers and consumers, which is becoming more and more common for companies to gather and analyze. Text mining has proven interesting to analyze as it differs from general data mining. General data mining means working with structured data from databases, while text mining works with completely unstructured or semi-structured data (Gupta & Lehal, 2009; Krippendorff, 2012). This provides richer information, more context and new avenues of analysis.

Further, the amount of data that is available is vast. Over 80% of all information stored is said to be textual in nature (Gupta & Lehal, 2009). It is only recently that systems have been in place to collect huge amounts of feedback in text format, and simultaneously that customers and consumer have unique opportunities to express their opinions in free form, without predefined categories. This is why analyzing textual data seemed the most applicable approach for this thesis. Of course, in order to analyze this kind of textual data there is a need for computer software that can make sense of large quantities of text.

Provalis Research Suite

For the quantitative part of this thesis I will utilize computer software from the Provalis Research Suite, particularly QDA Miner and Wordstat to perform statistical analysis and pattern recognitions on large quantities of text (Provalis Research, 2014). Provalis Research produces a computer program suite for both qualitative and quantitative research and analysis, with a strong focus on text analysis. The programs are well equipped for powerful text mining analysis, and Provalis Wordstat program is repeatedly referred to in Krippendorff's authoritative book on content analysis (Krippendorff, 2012).

Since the program has a wide range of applications, it has already been used in academic research as well as media analysis and market research.[4] In fact, Provalis Research software has previously been used by Anderson, Jolly, and Fairhurst (2007) in a Customer Relationship Management study, and by Mostafa (2013) who conducted a sentiment analysis of Twitter posts about large companies. This makes the tool highly relevant to my thesis. Next, I will outline the textual feedback data from customers at Telenor.

3.3.2 Textual Feedback from Customers

The customer text message feedback analyzed in this thesis comes from the Net Promoter Score (NPS) system implemented at Telenor.

The NPS system works like this: When a customer hangs up the phone after talking to a customer service agent at Telenor Norway, they almost immediately receive a text message from Telenor. The message first asks them to answer how likely they are to recommend Telenor to a friend or colleague with a number between 0 (not at all likely) or 10 (extremely likely) based on their last interaction with Telenor. If the customer answers with a number, he or she receives another text message. In this message it asks what is the *main reason* for this score. Here, the customer can write a short (or long) text with his or her main reason for either recommending or not recommending Telenor based on this last interaction.

For my master thesis I have received a selection of these NPS text messages written to Telenor Norway. There are approximately 50 000 text messages analyzed in this thesis, which contain metrics such as the text itself, times stamp, location, NPS score and more. The focus of this thesis will be on patterns that can be found in this textual feedback and not the individual's opinion (though this can be used to highlight or exemplify a larger pattern). How this data is gathered, and what its advantages and limitation are for using this more actively in the innovation process at the company will be discussed in the empirical and analytical chapter.

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[4] For a list of studies using Provalis Research software visit: http://provalisresearch.com/solutions/case-studies/

Of course, this dataset is not a perfect reflection of customer opinion of Telenor. Customers have to have interacted with customer service to receive the initial message, and their motivations for answering can vary greatly.[5] Despite these limitations, the data can likely say something about perceptions of Telenor, their customer service and their products and services. As there are thousands of customer feedback texts coming into Telenor every week, this is still a fairly representable selection of Telenor's customers opinions. Beyond this customer feedback, this thesis also aims to say something about consumer persuasions. Therefore I will next outline the textual feedback from the consumer platform Twitter.

3.3.3 Textual Feedback from Consumers

For this thesis I have chosen to use data from the microblogging site Twitter to represent consumer sentiment. Particular attention is paid to how this data was collected as this was developed specifically for this thesis, and this methodology should be transparent.

The social media platform Twitter is currently the most popular micro-blogging site in the world. On Twitter, users have 140 characters to express themselves to their 'followers' and the rest of the world. There are as of now, over 284 million active users each month, and over 500 million tweets are sent each day (Twitter Inc. 2014). Tweets are by default public; they are seen by users followers and can found by anyone searching for a term that a user has written about. It is also possible to 'retweet' what other users have written, namely sharing a users tweet on your own twitter-feed.

Twitter is known to be heavily populated by consumer opinions, and has been used to perform analysis of both customer and consumer sentiments in several studies (Chamlertwat, Bhattarakosol, Rungkasiri, & Haruechaiyasak, 2012; He et al., 2013; Mostafa, 2013; Pak & Paroubek, 2010). Part of the reason for this is that Twitter, as opposed to other social media platforms, has given access to some of their Application

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[5] It could be argued that this data can either be skewed towards the negative or the positive. If a customer has an unresolved issue, it might motivate the customer to write a very negative message despite having a pleasant interaction with customer service or a positive impression of the company as a whole. Similarly, the data could be skewed towards the positive if a customer has not had a problem solved, but because of a pleasant interaction with a customer service agent believes it will be resolved, the customer might answer positively regardless of the actual outcome of the situation.

Programming Interface (API) to developers. This makes the data more accessible than other social networks such as facebook, instagram and snapchat, which are also all in large part picture and video based. By signing up as a third party developer anyone can therefore access a selection of contemporary tweets, within the confines of what Twitter has found appropriate (Twitter Inc., 2014). This has made Twitter a particularly interesting avenue of research for academia, and is much of the reason why this platform has been used to find consumer data for this thesis. [6]

In order to archive results from Twitter, I first had to obtain a developer license to gain access to the Twitter API. Within this API I created a search string containing the key phrase "Telenor". Further, as my focus is on Telenor Norway, I limited the search to Norwegian tweets by setting the language to "NO" (the ISO 639-1 code for Norwegian). This query in the API creates a stream of tweets that is automatically updated every hour. However, this data is still in a data interchange format. Twitter uses an open standard called JSON, which is a format that uses human readable text to send data objects (JSON.org, 2014). Even though JSON is one of the more readable formats in data language processing, it cannot be placed directly into the text analysis software at hand. Therefore I have utilized a script that formats JSON into a standard spreadsheet format (xls/cvs).[7] This gives me the textual information of the tweet as well as other metadata in a format that is easy to import into the analytical software.

The collection of tweets began on 25/11/14, and ended on 27/03/15. This gathered all tweets in Norwegian that mentioned the word "Telenor" in this time period. After removing irrelevant tweets[8], the remaining dataset analyzed contains 5440 tweets on the subject of Telenor.

There are of course many ways to retrieve, store and analyze textual data from a platform such as Twitter. The method used here is particularly optimized to create compatible data with the Provalis Research Suite, so that the tweets will not only be

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[6] Academic research on the platform has already been used to find that it could fairly accurately predict the stock market (Bollen et al., 2011), and function as a real-time detection of earthquakes (Sakaki, Okazaki, & Matsuo, 2010).

[7] For more on the scrip used visit: https://tags.hawksey.info/ - note that I have also modified this script to perform a Norwegian language search.

[8] Tweets from Telenor's own accounts (@telenor_service etc.) were deleted from the dataset, as this thesis is focused on the consumer's sentiment, and not the company's. Also, tweets that were automatically generated by Twitterbots or other spamming accounts were also removed, as they cannot be said to contain consumer feedback and therefore irrelevant in this context.

retrieved and stored, but can be analyzed by the same software application as used on the NPS customer feedback data.

These two sources of textual data (NPS and Tweets) are in a sense complementary. Both are textual feedback on a company, they are usually fairly short, colloquial and often contain a positive or negative sentiment. As data they provide much more detailed and vivid information than common surveys, as textual free form data can be on anything, from customer service, the company as a whole, or it services.

However, unstructured text is also difficult to handle. One central aspect is the messiness and ambiguity of written colloquial text. It can often be riddled with spelling errors, jargon and slang, or even meant ironically – which can be difficult to pick up on. This can also make it difficult to find all cases on the same topic, if they are written completely differently. However, a lot of this is less problematic than previously due to advancements in text mining software, which can now easily make dictionaries and word-categorizations that include common misspellings or slang. So despite the complexities of textual data, it can still be considered a rich source of information. After discussing textual data as a source I will next discuss the validity and reliability of this thesis.

3.4 Validity and reliability

Throughout this methodological chapter I have discussed why I have chosen the methods at hand, as well as how data was gathered in order to ensure validity and reliability. I will now outline the validity and reliability of these methods shortly.

Validity of a study refers to what degree the study corresponds with the real world, namely whether the findings are a reflection of what they attempt to unveil (Krippendorff, 2012, 313). Beyond this, validity also speaks to the researches ability to reflect and criticize their methodological and analytical choices. This is not to completely eradicate personal biases and errors, but rather to be open about the fact that choices made affect the results of the study (S. Kvale, 1995). For this thesis I have

therefor discussed the validity of the sources of data, namely the interviews, text messages and tweets, and have been open about the advantages as well as issues with these kinds of data. I have also during the process of writing the thesis kept a research diary to reflect, as well as just to note, my own choices during the process of writing this thesis. For a condensed version of this document, see Appendix 2.

Reliability refers to the ability of ensuring that others can reconstruct the methods and analysis used in this thesis. In order to achieve this there has to be transparency in how the data is collected, as well as what tools are used for the analysis of the data (Yin, 2014, 45-50). For the qualitative section of the thesis this included outlining who was interviewed, as well as the practical decisions in regards to the interviews. For the quantitative section of the thesis this included outlining what kind of data was used, how it was obtained and what kind of software was used for the analysis of it. Particular attention was given to explain how data from Twitter was gathered and archived, as this method was developed especially for this thesis.

3.5 Ethical concerns

Lastly I will outline ethical concerns related to the interviews, the data from Telenor, as well as the data from Twitter.

According to the Norwegian National Research Ethics Committees, maintaining the integrity of those interviewed is essential both before and after an interview (De Nasjonale Forskningsetiske Komiteene, 2010). To ensure this I have sent the latest research proposal to each interviewee, made sure they were comfortable with being recorded, and made sure that they were comfortable with not being anonymous. After the interviews I have sent relevant quotations of the thesis to those it concerns, so they can correct any mistakes. This was to ensure the reliability of the thesis.

This thesis also utilizes NPS data I have received from Telenor Norway. To have access to these sets of text messages I have signed a Non-disclosure agreement with Telenor. Since the datasets contains personal information, customer ID, location, time and date,

this is clearly sensitive information. This thesis intention is not to analyze personal data, so I have therefore deleted both customer ID and the customer's name from the datasets used in the analysis. The project has also been reviewed by the Norwegian Social Science Data Services (Norsk Samfunnsvitenskapelig Datatjeneste, 2015).

It should also be noted that this thesis is written in part with an ongoing project at Telenor on text mining. And though I have participated in meetings on this project at Telenor, the thesis has always had its own research question, agenda and outcome. At no point has there been any pressure from Telenor when it comes to direction of research, or to not be critical of the company's capabilities.

The thesis also uses publically available data from Twitter. There is, however, a debate as to what degree these statements are actually intended as public, and the ethicality of using them in a different context. Even though most tweets are public, the user might not be comfortable being part of a public discourse, or even an academic analysis. There are according to articles on the Norwegian National Research Ethics Committees' websites no clear guidelines on how Twitter data should be handled in academia as of yet (De Nasjonale Forskningsetiske Komiteene, 2014; Jakobsen, 2013).

Mostly, this thesis performs textual analysis of aggregated patterns in the data, where individual users are not identifiable. However, to exemplify what lies behind this data, one or two representative tweets are often presented. As it is not my goal to violate anyone's sense of privacy, I have contacted all users of example tweets in this thesis and received their permission to use the tweet. This approach might not be possible for a more extensive work of research utilizing data from Twitter, but for the limited selection used here, it seemed most appropriate. To what degree online publically available statements are really public statements is a debate that will probably develop, as these sources of information are more often utilized in journalism and academic work.

The next chapter outlines the empirical findings that stem directly from the methodological choices presented in this chapter. These will be analyzed and discussed in relation to the literature outlined in the previous chapter.

4. Empirical and Analytical chapter

This chapter will present the main empirical findings, and analyze as well as discuss these. The chapter will first introduce the case and put it in context with service innovation. Next, the chapter consists of three major sections, which are rooted in the sub-questions of the research question. At the end of each of these three sections there will be a summarizing table of the main findings, and implications for the literature. The research question to which these sub-questions adhere is: *How can a large service company gather and utilize feedback from customers and consumers as a source of innovation?*

The interviews conducted will be referred to in general in this chapter, unless specific quotations are used. The interviews, text messages and tweets utilized were all originally in Norwegian, but the material presented in this chapter has been translated into English so as to be in line with the rest of the thesis.

4.1 Case

This section will outline the case at hand, present a brief history of customer feedback at Telenor, and put this in context with the literature on service innovation.

Telenor is a Norwegian telecommunications service company, originally established in 1855 as "Telegrafverket" and operated by the national government. Today, Telenor is a private business, but the Norwegian Government is still the major stakeholder with around 53.97% of the shares of the company. Telenor Group has over the years grown to be one of the largest mobile telecommunications companies in the world, and have branches in Scandinavia, Eastern Europe and Asia. Though there will be a few examples from different branches of Telenor Group in this thesis, the focus will be on Telenor Norway, and Norwegian customers (Telenor Group, 2013a, 2013b).

Telenor Norway is the country's leading telecommunications operator and has over 3.2 million mobile telecommunications subscribers (Telenor Group, 2013a, 9, 130). The company has been collecting customer and consumer information for years, but have more recently implemented specific systems in order to better monitor customer feedback and to improve customer care, products and services. These are outlined in their annual report from 2013, where the company for the first time describes itself as a "customer-centric" company. The report states that:

> *"…customer feedback is at the centre of the company's decision-making. Leadership philosophy and company culture are key elements for transforming a business into a true service provider and customer-centric company. Simplicity, hassle-free and easy- to-use offers, as well as innovation are paramount to meet customers' needs in an ever-changing digital world."*
> *(Telenor Group, 2013a, 5)*

This is a fairly new focus for the company, as annual reports from recent years do not contain similar passages on using customer feedback, or on customer centricity (Telenor Group, 2010, 2011, 2012). Next, a short history of what changed at Telenor and how it more thoroughly integrated the customer in the innovation process is presented.

4.1.1 History of Customer Feedback at Telenor

A service company the size of Telenor has naturally had ways of gathering and using customer feedback for decades. Historically the company has performed surveys and polls both on customers and consumers. These kinds of surveys have scores that are then analyzed by relevant employees at. It was noted in several interviews that this kind of feedback was a part of the innovation process at the company, but that there was no unitary system for gathering and utilizing this information, and there were severe limitations in the kind of data gathered and the weight it was given internally in the company.

It was noted that even though people in the company used to say that "the customer is important" - this was merely a lip service, and was not actually reflected in the company's organization or strategy at the time. The customer was not considered a

major source of innovation in the development of new or existing services, or in the decision-making process.

However, in recent years Telenor has changed the way it gathers, analyzes and implements customer feedback. This began with insights from mapping individual customers' experiences with Telenor Norway.

Mapping Customer Experiences

In the late 2000s, early 2010s a small group in Telenor began working on mapping customers' experiences when purchasing services from Telenor. By conducting interviews with individual customers they found clear inconsistencies between the services offered by the company, and what the customer actually experienced. Because of the size of Telenor Norway, and its different departments and areas of responsibility, many processes were overlapping, inconsistent and outdated. Particularly, these were processes that were completely logical from an internal perspective in the company, but which customers found mind-bogglingly illogical.

One of the interviews provided an example of this centered on one of the company's mobile subscription services. After signing up for this service, the customer was supposed to receive a new phone, a welcome letter and a SIM card. But because it was cheaper, the welcome letter was sent from Sweden, while the phone and SIM card were sent from Sandefjord in Norway. This made sense economically and internally, but what ended up happening was that the customer would receive the phone and the SIM card days before the welcome letter. The welcome letter contained all the vital information for the customer, such as the PIN code to the SIM card. By interviewing these customers, the group found that many customers were thoroughly confused, and many even gave up and simply cancelled the whole service.

Another example of the issues experienced by customers was with the mobile broadband service Telenor Norway provides. The company had developed a process that each customer was supposed to go through, from initial contact with Telenor all the way to having the service up and running. But when interviewing customers over time, the group actually found that *not one single customer* had the experience that the

company believed the customer was going to have. The service was highly regarded internally in the company, and had even won several tests in magazines - yet the actual customers who wanted the service were continuously experiencing problems. As the group was making these discoveries they became convinced that by viewing their services and processes from the perspective of the customer, rather than the company, they could in fact be making far more intuitive and innovative services than they were. One interviewee stated that:

> *"A lot of what goes on is completely horrible! Because things are not designed around the customer, they're designed around our organization, our systems or in complete isolation." (Trønnes, 2014)*

There was at the time no unitary system in place for systematically including the customers' feedback in the innovation process, or in the development of services. But as the strategic leadership was presented with the results of mapping actual customer experiences, it became clear that the company had issues with their services that could be solved by integrating customers more thoroughly in the innovation process.

Customer Orientation of the Company

Based on the knowledge gleaned through these customer experience mappings, the strategic leadership decided to create a new program in the company devoted to making the company customer centric. This was in 2010 -2011. Several interviewees have pointed out that this coalesced with a customer orientation tend at the time in the service industry, and in telecommunication. One interviewee stated that:

> *"In telecommunications there is a competitive landscape that requires that we change proactively. It has been years since international actors like Apple and Google came along, which are very good at customer orientation… We have more to do, but that is part of being innovative – to change."* *(Langrød, 2015)*

Being customer oriented suddenly became a priority for the company. This is described as a major turning point where the group that was working with the customer feedback now had backing from top management, as well as increased resources, and a number of employees dedicated to understanding the customer perspective of Telenor's services. Though this was in keeping with an overall trend at the time, it was a very

radical change in direction for Telenor. One interviewee argued that the strategic leadership was not customer centric by heart, and thus did not know what it would take to become customer centric. He stated that if they had known what starting this transition would entail, then *they probably would not have started it at all!*” (Trønnes, 2014). This was told tongue in cheek by the interviewee, but it is still reflective of other interviews on the matter.

As part of this change, the company also created an entirely new innovation process, in which the role of customer feedback was greatly extended. One of the main priorities here was to create an all-encompassing way to learn and innovate from customers based on their feedback. Telenor decided to implement the Net Promoter Score (NPS) system from Bain & Company, a large international consultant agency.

The system now implemented has two main functions. One is the NPS feedback, which has been outlined in the methodological chapter. This provides a single metric score and unstructured textual feedback to Telenor, and is implemented company-wide. This created a unitary way for the company to gather customer feedback. The other function, also part of the NPS system, is an internal system meant to utilize and facilitate the feedback from customers to create organizational, service and delivery process innovations.

The strategic leadership at Telenor had realized that the company had issues with its services that could be improved upon by including more of the customers' perspective in the company's innovation process, and these systems were an answer to these issues. The systems have led to customers directly influencing the company's services, as well as influenced some larger organizational changes. Examples of this, as well as the advantages and limitations to both these systems will be discussed in in their respective sections.

4.1.2 This case in a Service Innovation context

In the literature chapter there were some distinctive features for service innovation presented. These will be revisited to contextualize the case study with the literature, as well as a debate about the nature of innovation in the case study at hand.

Telenor is a company highly dependent on developments in IT, and the basis for their customer feedback system relies heavily on computer software, IT-stacks and telecom services. Further the entire system could not have been functional if not for the prevalence of text messaging due to technological enhancements in the previous decades. The noted importance of IT in services is seen here, as argued by Barras (1986). Miles (2005) argues that this is often introduced in the context of improving customer service quality, which is how the system in place at Telenor is most often operationalized.

Hipp and Grupp (2005) argued that the innovation process in services has to be constant, which is reflected in the interviews where it is noted that changes occur so rapidly in telecommunication services that a continuous innovation process is necessary.

It is argued that since the innovation process in services is rapid and continuous, much of the innovation can be very incremental in nature (Djellal & Gallouj, 2001; Hipp & Grupp, 2005; Oke, 2007). This resonates with the interviews at Telenor where it is noted that customer feedback is often utilized change existing or new services, and some label this "Incremental innovation" or "everyday innovations", while others label it "changes" or "improvements" (Allermand, 2015; K. Kvale, 2015; Langrød, 2015). This line, between changes, improvements and innovation can be difficult to draw in services, and in this case study as well.

To exemplify this difficulty, two incremental innovations from customer feedback will be presented and discussed. The first is the development of a stronger SIM card for Telenor's mobile broadband services. The company received numerous complaints that this SIM card was fragile, and created a new card. The second example is from the

company's cloud service, 'Min Sky'. In a direct response to negative customer feedback, the company upgraded the storage capacity of this service.

In the first section of the literature chapter it is noted that an innovation is "*the implementation of a new or significantly improved product (good or service)*" (Co-operation & Development, 2005, 46). Do these examples qualify as *significantly improving* the services provided from Telenor?

It could be argued that creating a more robust SIM card only marginally improved the service Telenor provided in mobile broadband, as most SIM cards likely did not break previously. Or that updating the cloud storage is only a modest modification to an existing service. However, it could also be argued that a SIM card is integral to a mobile broadband service, and therefore when improving this, the service itself is significantly improved. Similarly it could be argued that storage capacity and security are perhaps the two most important features of a cloud service, and that improving one of these would constitute a significant improvement to the service as a whole. The Oslo manual used for the definition of innovation in this thesis notes particularly on service innovation that:

> "*Innovation activity in services also tends to be a continuous process, consisting of a series of incremental changes in products and processes. This may occasionally complicate the identification of innovations in services in terms of single events, i.e. as the implementation of a significant change in products, processes or other methods.*"
> *(Co-operation & Development, 2005, 38)*

Authors like Sundbo (1997) and Tether and Tajar (2008) also argue that what are innovations in services can be difficult to classify, as several small changes can constitute innovations. From information gathered for this thesis, most changes and improvements noted can fit under the umbrella of service innovation, and are therefore noted as such.

Next, the thesis will outline and discuss how and to what degree customers contribute to innovation at Telenor Norway.

4.2 Telenor and Customers

This section will attempt to answer the first sub-question presented earlier in the thesis: *To what degree and how can customers contribute to innovation in large service companies?*

This section will first outline what is gathered from the interviews on how customers contribute to innovation at the company, and give specific examples of incremental and organizational innovations based on customer feedback. Then the positions outlined in the literature on customers and innovation will be revisited and discussed.

4.2.1 Customers contributions to innovation at Telenor

From the interviews conducted at Telenor Norway, customers seem to contribute to innovation in two main ways. The first is through using either single responses or aggregated patterns from NPS customer feedback as a source of information to make incremental service or organizational innovations. The second is the inclusion of the customer, and customer/consumer data, in the service design process at Telenor.

Innovation from Customer Feedback

Through the NPS system, customer feedback contributes to the innovation process at Telenor. Here, the focus will not be on the system in place, or the facilitation of the feedback, but on what kind of innovations have come from using customer feedback.

The most obvious use of the NPS data is in the interaction between the customer and customer service at Telenor. As each customer service agent sees the direct unfiltered textual feedback from the customer he or she interacted with, changes are made in response to this. In this sense each customer is a part of shaping the customer service experience at Telenor Norway. There are seminars and training session each week for employees based on different kinds of feedback, and over time these very incremental changes leads to a large overall shift in the customer-company interaction, and can be considered incremental innovations. Often this pertains to the individual customer service agent's knowledge of specific services or their attitude, where small changes can

be seen over time to increase customer satisfaction considerably. The interviews note that these small changes within customer service over the last few years have led to truly substantial changes in how the company interacts with its customers.

Beyond the individual feedback, managers at Telenor also use aggregated patterns of NPS data to contribute to incremental innovations in new and existing services, as well as spur to organizational innovations.

This often stems from a clear correlation between the NPS score from customers, and certain issues that are often mentioned in the feedback. There is for example a very clear relationship between how satisfied customers are, and the waiting time at customer service. Using this data the company could see that if a customer had to wait longer than "x" number of minutes, the customer would be accordingly less willing to recommend the company to others. This was then used to find solutions to decrease the waiting time of all customers to less than the "breaking point" of where the score would decrease.

There are also more specific examples of how customer feedback is used. One example centers on the mobile broadband service Telenor offers. Many customers complained that the delivery process was difficult, the router was problematic, and that the SIM-card often broke. From this, the company made large changes to the delivery process of the service (new instructions, a new online layout and a new shipping process), created a more robust SIM-card, as well as replaced the previous router with a newer model. This improved the service drastically, and combined with some specific training at customer service made the complaints about the service drop significantly. The customer feedback was the source of these incremental innovations to the service.

Another problem directly addressed through customer feedback, was customers who had used more mobile data than was available on their subscription plan. These customers often knew that they had used more than their available capacity, but were naturally still dissatisfied when they received a substantially larger bill than normal.

Based on NPS feedback Telenor decided to develop an entirely new service to assist customers in controlling their data usage.[9]

This service sends a proactive text message when the customer is near their data capacity, to warn them. The service can then also stop the phone from using any more data when capacity is reached, something that is particularly useful for families with children. The company made sure that how much data a customer had left was always readily available to the customer (on the web, and in their app), as well to the company. The internal system was further designed so the company would know if a customer would surpass their limits often, and could then suggest other subscription models more suited to the individual customers needs. This new service led to a substantial drop in complaints on the matter, as well as many customers updating their subscription plans. In this case the customer feedback contributed to the creation of an entirely new service, which was better for the customer *and* created revenue for the company.

The interviews also indicate that customer information is used to inform the company where to direct its efforts, and make major decisions, which can in turn lead to organizational innovations.

One example presented in the interviews is how the Danish branch of Telenor restructured itself. The branch realized from analyzing customer feedback, that it had problems that could not be solved with current solutions and the organizational structure in place, and decided to create an entirely new operating model based on the drivers in the customer feedback. In Sweden, customer feedback led to a realization that the product structure was illogical from a customer perspective, and had to be developed from scratch. In both instances customer feedback spurred larger organizational innovations.

From the interviews it is argued that, beyond these examples, customers at Telenor often contribute to the innovations process through their sentiments on the interaction between customer and company, or from feedback on existing services. This can lead to

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[9] For more on the service go to: http://www.telenor.no/privat/mobil/mobiltjenester/datakontroll/

incremental innovation in the delivery process, existing services or can be a reason for the company to develop new services, or organizational innovations. Customer feedback as a whole is argued by several interviews to be the most important source of innovation for Telenor Norway. Next the customers' role in the service design process is outlined. Even though this also uses NPS data, it is a separate department in Telenor that works specifically with the customer experience.

Service Design

Another aspect brought on by the new innovation processes at Telenor Norway around 2010 was an intensified use of customer experience in the service design process. The work in service design at Telenor is much more based on qualitative data from fewer customers, and one interviewee described it as "*picking up what you cannot find through the NPS data*" (Allermand, 2015).

Service design is meant to create innovative services that are extremely customer-friendly, as well as sustainable for the company. This means actively engaging customer and consumer feedback in the process and iterations of services, in order to change and tune these according to customer needs. There is consensus among the interviews that customer feedback is important to make adjustments in both new and existing services.

One example from the interviews centered on Telenor's new service Valyou, which allows the customer to pay with a debit card by using a mobile app.[10] Since this was a described as a radically new service both for Telenor as well as for many of its customers, there were many iterations and changes made to the service based on customer feedback. For example, the debit cards on the mobile app were customized to look more like traditional physical cards, in order for the customer to more easily recognize how to use the service. Telenor also found, by using large sets of consumer data on bank usage, that many call their banks to check their balance daily. Using this information, the app was designed to have the customers balance easily available at all times. One interviewee stated that even though idea for the app was initially developed from a technological perspective, 90% of the service was removed or altered after a thorough customer feedback process. After this, the app became focused on the two

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[10] For more on this service visit: http://valyou.no

features regarded as most important to the customer, namely payments and checking balance.

Though the group employs several different methods for including customers in designing services, most of these are through observing customers. This can be in a test laboratory where customers are guided through new services, or a delivery process where they are observed, or through conversations and interviews with random consumers about what they would want from a service. The argument made is that the customer is often not capable of creating new breakthrough services, but through asking customers and analyzing their answers, one can find the "*unarticulated needs of the customer*" (Allermand, 2015). This is where it is argued that the customer contributes most to innovation in the service design process.

The next sections return to the positions on customers outlined in the literature, and discuss how these fit with the findings of this thesis, as well as implications for the literature.

4.2.2 Are customers Innovative?

This position outlined in the literature chapter argues that customers are in and of themselves innovative, and are instrumental to both incremental and radical innovation for a company. As customers continuously interact directly with a product or service, they are argued to be in a unique position to innovate. Amongst others, relevant literature is Hippel (1976, 1986, 1988, 2005a), Bogers et al. (2010) and Prahalad and Ramaswamy (2004).

At Telenor, customers are argued to be an important part of the innovation process. This is in line with Hippel (2005b) who argues that organizations should learn from those in contact with the products and services, rather than concentrate the innovation effort to a few individuals. Many of the interviews linked customers with innovation, and argued that the customers' perspective on services is unique. This is in line with Franke and Hippel (2003).

However, in spite of Hippel (2005b), customers are not found to be particularly innovative in and of themselves, either through the interviews or the empirical data (analyzed later in the thesis). There is also no real evidence to support the claim that customer ideas are more creative and radical than those inside the company as found by Bogers et al. (2010). This could be in part because according to the knowledge gleaned from this case study, there is no real system in place to utilize customers as the starting point of creating new and radical ideas. Further, the nature of the services the company provides are difficult for users to innovate in themselves, as it requires comprehensive technical understanding of not only the service, but the infrastructure behind it (such as the network for mobile and broadband services). Customer feedback is used, but mostly to provide feedback and suggest changes during the process of developing services. Some of the interviews argue that customers *should* be more utilized for radical service changes through providing information, but that as of now the company is still too focused on technical developments and market movements for this to be feasible.

The shift from being company-centric to customer centric is noted as important and ongoing in the interviews, and can be put in context with the overall shift noted in the literature chapter (Baldwin & Hippel, 2010; Prahalad & Ramaswamy, 2004). Prahalad and Ramaswamy (2004) state that:

> *"… globalization, deregulation, outsourcing, and the convergence of industries and technologies are making it much harder for managers to differentiate their offerings. Products and services are facing commoditization as never before. Companies can certainly not escape being super efficient. However, if consumers do not see any differentiation they will buy smart and cheap." (Prahalad & Ramaswamy, 2004, 7)*

They further argue that the focus must be on co-creating the experience with the customer. At Telenor, one interviewee stated that:

> *"As the technology grows more and more similar, everything is becoming more alike, so where you can differentiate yourself is in quality and in the customer experience – you have to differentiate in how you interact with the customer… In the last two or three years a lot has changed."*
> *(Angeltvedt, 2014)*

This understanding seems prevalent in the interviews, and several note that this is a change that is happening in the Norwegian service industry as a whole. Those working with the NPS system at Telenor have in recent years visited other large service companies in Norway to share experiences, as these companies are all also in the process of becoming customer centric. In the interviews it is argued that Telenor is somewhat ahead of the curve in Norway in becoming customer centric. This might be in part because the telecommunication industry has many of the same offerings, prices and technologies, and in this sense has to differentiate on the experience of the customer (Arbanowski et al., 2004; Kim, Park, & Jeong, 2004). This again means that previous development processes, purely technological and market driven are no longer sufficient for a company such as Telenor Norway to have a competitive edge. Though all note this marked difference in how the customer is viewed within the company, all also note that the company is far from having made this transition into being customer centric.

In similar fashion there are parts of the service design processes at Telenor Norway that are clearly reminiscent of co-creation, but these are not actually creating value in conjunction with the customer. Instead, Telenor are scripting or staging customer events to gain feedback, something noted by Prahalad and Ramaswamy (2004, 10) as being unsatisfactory to most customers today. So, it seems that even though this shift from company-centric to customer centric is evident to those who work with customer and customer feedback every day at Telenor, there are still large structural issues in the company that limits the contributions possible from the company's customers. This will be revisited later in this chapter.

From this case study it does not seem that customers themselves are viewed as innovative, and there is no evidence of customer ideas being more radical than the company's own. This can be related to the fact that the company's processes do not, as of now, treat the customer as innovative, and does not really allow for innovative customization of services from the customers perspective. Even if they did, the nature of telecommunication makes this difficult for users to innovate. Customers are more often used as part of the innovation process, in line with the third position in this literature.

4.2.3 Are customers detrimental to Innovation?

This position outlined in the literature chapter argues that involving customers in the innovation process can in fact be a hindrance to innovation. The main reason is that if a company is too focused on responding to customers' immediate needs, they will not invest in more disruptive innovations that will eventually drive the market forward (Bennett & Cooper, 1981; Christensen, 2013).

A few of the arguments from this literature can be seen from the interviews at Telenor Norway, but no one argued that customers were in any sense detrimental to innovation, and this position can therefore not be said to be applicable to this case study.

It should be noted, however, that many of the interviews were with employees who worked on using customer feedback for innovation, so it is perhaps unlikely that these employees would argue for customers in some way impacting the company's innovation processes negatively. One interviewee did argue that by using the customer feedback to make small changes, the company could lose sight of the bigger picture:

> *"When we have [customer] feedback from NPS, we find a lot on short, simple adjustments that the customer wants. But I want us to also focus on what is even further ahead, more so than before. [...] I think if you are not aware of that, you can easily end up focusing only on the next quarter's results, because that is how we are measured, that is what the owners look at..."*
> *(Langrød, 2015)*

The argument here is that by using too much customer feedback, a company can inadvertently miss where the market is going. According to Hillebrand et al. (2011), too strong focus on customer orientation will lead to inertia, where all focus will be on customers' latent needs. However, it was noted previously that the company is as of now not really customer oriented, and the interviewee quoted above also argued for customers as a valuable input in any kind of innovation at the company, incremental, radical and in decision-making.

During one of the interviews, when discussing whether customers were most instrumental in incremental or more radical innovations, the Henry Ford quote from the literature chapter came up. The interviewee argued that customers were just as much

needed when developing what was a radically new service to the company. The customer was not necessarily the one that came up with the ideas, but the company required a lot of feedback on how to present their customers with something new. She stated:

> *"You can have the world's greatest service, and a great user interface, but people are skeptical. Like the case of the car versus the horse, no one wants to get in the car for the first time. So maybe the first car should look a little like a horse, but with wheels and a motor. It is important to bring some of the old into the new, for people to understand it, and to feel comfortable in a new situation" (Langrød, 2015)*

This example was used in context with the service Valyou, which was a noted by several interviewees to be a radically new service for Telenor, as well as for many of their customers. This can be interpreted in two ways. One is that customers in this sense can be a hindrance to innovation, as the company has to ease and guide the customer instead of creating something completely new, and perhaps more innovative. Customers can in this sense force a company to create more incremental innovations in order not to lose the customer. This is in line with what Bennett and Cooper (1981) and Christensen (2013) argue, namely that when focusing too much on immediate customer satisfaction, a company can lose sight of where the market actually is going. But, the example can also be interpreted as valuable way for the customer to contribute to the innovation process, where the customers' point of departure is taken into consideration when creating a new service. At least to the employees of Telenor Norway, the latter interpretation is prevalent.

From this case study it does appear as though using customer feedback can perhaps keep a company too focused on the short-term gains, instead of making larger and more radical innovations. However, customers are argued to be instrumental to the innovation process at Telenor Norway, and are not perceived as a hindrance or detrimental to innovation by the employees interviewed. This position is therefore not considered applicable to this case.

4.2.4 Are customers a valuable source of Innovation?

This position outlined in the literature chapter argues that companies should attempt to gather and utilize knowledge from their customers, as a source of information for innovation, as well as a direct influence to incremental innovations in services (Hillebrand et al., 2011; Hipp & Grupp, 2005; Matthing et al., 2004).

The empirical material from this case study supports this position. It was argued in the literature chapter that because of the interactive nature of services, there is a particular need for customer information. This is reflected at Telenor Norway, where there is a constant monitoring of customer feedback to make incremental innovations in services, as well as to retain and gain customers. As noted, the continuous and ever-changing nature of services makes it "...*natural and vital to include the customer in the innovation process*" (Matthing et al., 2004, 492)*.* At Telenor Norway, it was stated that "*a part of every step of the innovation process is to going out and testing with customers*" (Langrød, 2015). In this interview, the customer is claimed to be the most important source of information in the development of a service, new or existing.

In the development of services, Alam and Perry (2002) argue for a process which is very customer oriented. Sundbo (1997) found that customers were often a source of new ideas, but were not systematically involved until later in the process. At Telenor most of the customer involvement in developing services comes in the testing process, and one interviewee explicitly stated, "*I wish we would include the customer more in the developmental phase. That they were part of creating services and products*" (Allermand, 2015). Even though some form of customer information or feedback is present at all stages of the innovation process at Telenor Norway, it seems as though the company is still mostly technologically and market driven.

From the empirical material there seems to be a consensus that Telenor could develop even better services if customers were more integrated in the development of services. This is in line with the conclusions of Alam and Perry (2002) and Sundbo (1997).

All interviewees noted that customer feedback has been used for incremental innovation in the company's services. There are several examples of changes in

customer service, the delivery process, existing and new services where the combination of customer feedback has been agglomerated in order to make incremental innovations. Several also noted that by conducting interviews with individual customers who used services, there were overall changes made to the service and or its delivery process. This seems to be similar to Sundbo (1997), which argued that standardizing the solution to customer problems can constitute incremental innovations in services.

There is also evidence that customer feedback is used for organizational innovation in the company, but many note that even though customer feedback is a part of major decisions and how to organize the company, other factors are often more important to the company. This reflect the study by Schaarschmidt and Kilian (2014) which found by looking at the integration of customers in the telecommunication industry that the customer "*remains a supplement to classical R&D activities rather than a means of supplanting them*" (Schaarschmidt & Kilian, 2014, 358). This finding seems applicable to this case.

Overall, customers are viewed as an important source of innovation. A telling example is the development of the service Valyou. Here both aggregated consumer information, as well as more customer feedback was used to change much of the service. Consumer data from banks contributed to one of the main functions of the app, and during the test iteration process it was found that many features were not useful or necessary for the customer. The customers did not necessarily tell the company this, it was simply observed that they neglected to use them. This made the company remove much of the features, and simplify the interface to adapt it to how the service would actually be used.

This is in line with Leonard and Rayport (1997) who argue that observing customers function as an important source for innovative solutions. Many at Telenor argue the same point, and specifically that no matter how well thought out or technically proficient a solution is, the employees of Telenor can never fully understand how a service is actually used unless the customer is included in the process.

This divide, between the customer *being* innovative, and being used as a *source* of innovation is important. The existing literature on using customers in service innovation does not properly differentiate between these two. It is clear from this study that customers are used as a source of incremental service innovation, but this is not the same as where the user personally modifies or develops innovations. As this way of utilizing the customer does not really fit with the user innovation literature, it should be differentiated from it. In this case, several interviewees note that customers are *not* usually capable of finding groundbreaking, radical ideas or innovations, and are not considered to be innovative in and of themselves. This thesis contributes to the literature on customer role in service innovation, as requested by Hipp and Grupp (2005, 520, 521), Alam and Perry (2002, 518) and Matthing et al. (2004, 494), and finds that customers in this case study are not seen as the sinew of innovation, but are considered an important source of it.

There is therefore no evidence to support the conclusions reached by Magnusson et al. (2003), that customers often have ideas that are more original and hold higher perceived user value than those of professional developers in the company. But, many note, as Magnusson et al. (2003) does, that involving customers after there is a prototype or an existing service on which one can improve, is highly valuable to the company.

From this case study this position seems to be most applicable. In a service innovation perspective it seems as though the continuous development of services lends itself to incremental innovation through customer feedback, and as one of many sources for innovation as a whole. Further, many at the company argue that there should be an even stronger integration of the customer in the early phases of new service development.

4.2.5 Summarization of Sub-question 1

Sub-question 1:	
To what degree and how can customers contribute to innovation in large service companies?	
Main findings from case study:	Customers contribute as a direct influence for incremental innovations, informs decisions in the service design process, and is one of several sources for making major decisions that leads to innovations in the company.
Implications for the literature:	This thesis *does not* find that customers are themselves innovative, as suggested by Hippel (2005b), or that customer ideas are more radical than those inside the company as found by Bogers et al. (2010). This could be a reflection the internal systems in place at the company for using customers in innovation.
	This thesis *does* find that customer feedback can be used for incremental innovation in the customer/customer service interaction, delivery process as well as on existing and new services in a large telecommunication service company. There is also evidence that analyzing larger patterns of customer feedback can lead to organizational innovation.
	There is as of now no unitary view on customers and innovation, and this thesis argues that there should be a distinction between customers as innovative in and of themselves, and customers as a source of innovation.

4.3 Gathering Customer and Consumer Feedback for Innovation purposes

This section attempts to answer the second sub-question presented earlier in the thesis: *How can Telenor gather text message customer feedback and social media consumer feedback as sources of innovation? What is the potential here?*

This section will outline how the system in place at Telenor gathers customer feedback, and further explores what the data from customer feedback (text messages) and consumer feedback (Twitter) can tell Telenor about customer persuasions. There will also be a discussion as to the advantages and limitations of gathering and utilizing these kinds of data as part of an innovation process.

4.3.1 How Telenor gathers Customer Feedback

The way Telenor currently gathers most of their customer and consumer feedback is through the NPS system. This system has only been implemented a few years, but is noted as a vast improvement compared to previous systems.

Telenor previously had over ten different ways of monitoring customers, which were from different providers and were not compatible with each other. These measures also only provided a score with a number, so what the reason for this score was became an object for analysis, or as described by one interviewee: "*speculation*" (Rønsen, 2015). Though there have been several critics of the NPS measurement method[11], it provided a concept that was easy to implement throughout the company, and offered one single language for customer feedback. This was important as this system was supposed to be used throughout the company, and has also been implemented in several countries beyond Norway.

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[11] Several studies have been critical of the papers published on NPS where Frederick Reichheld argues that the customers "Likelyhood to recommend" is the single metric score companies need to grow. As the criticism is directed on the misrepresentation of the importance of this criteria, it is not particularly relevant to this thesis. For more, see Grisaffe (2007), Keiningham, Aksoy, Cooil, Andreassen, and Williams (2008); Keiningham, Cooil, Andreassen, and Aksoy (2007).

Through this system, data is gathered in two main ways; from the top down and from the bottom up.

The "top down" measure is an overview of consumer persuasions performed by an external company, where a representative part of the population is asked the NPS question. Here, instead of being asked if they would recommend the company based on their last interaction, they are asked based on their opinion of the company in general – and then the main reason for why, or why not. In the top down measurement there are no free form answers, but consumers can select categories to explain their score. These are named by several interviewees as the 'drivers' in the data, and are monitored for fluctuations. This data is often a part of the picture when making decisions in the company.

The most utilized, and most relevant for this thesis, is the "bottom up" NPS feedback, which is the free form text message feedback from customers outlined in the methodological chapter. The company receives around 13 000 of these messages each week, a selection of which are manually categorized internally in the company.

Several interviews underline the fact that Telenor does not impose its own categorization on the feedback from this system, but rather that the customer provides his or her own main reason for giving a score. The categories in which these are put in are then created purely by the prevalence of data in the text messages.

The interviewees argue that this data is used to continuously adapt or change processes and services in accordance with what customers want, as they monitor this kind of feedback every day. It is also, however, noted that this data has advantages as well as limitations, and some question if this is the best way of gathering customer and consumer sentiments for innovation purposes. To more thoroughly explore this, and the potential for using this kind of data in innovation, this thesis will next examine the actual data from customers of Telenor.

4.3.2 Findings from Customer Feedback

Several interviews at Telenor argue that text mining customer feedback to use in the innovation process should be a part of Telenor's existing capabilities. This section will attempt to find what kind of information is prevalent in this data, and to what degree this is useful for innovation in the company. This will first outline basic findings of what this data represents, before outlining more thoroughly what most of the negative feedback in the data concerns. The reason for the focus on negative feedback is that it was suggested from the interviews that negative feedback indicates problems, and problem solving is often where the innovation comes from in utilizing this kind of data.

The empirical data consists of around 50 000 free form text messages from customers of Telenor Norway to the company. The messages also contain an array of other information, such as time, date, subscription, the NPS score (between 0 – 10) and geographical information. This is analyzed with the text mining software from Provalis Research.

Most common words and phrases in the Customer Feedback

To find what patterns are prevalent in the textual feedback, an overview of what is most common in the customer feedback from Telenor Norway is presented. First the ten most common words in the data and their connection to each other are outlined.[12] The ten most frequent words used are:

WORDS	FREQUENCY	NO. CASES	% CASES
NICE	8030	7970	15,90%
HELP	5111	4960	9,90%
SATISIFED	3117	3044	6,10%
PROBLEM	2134	2056	4,10%
QUICKLY	1996	1958	3,90%
WAIT TIME	1915	1871	3,70%
BAD	1712	1599	3,20%
ERROR	1397	1249	2,50%
CONTACT	1277	1214	2,40%
COVERAGE	1203	1126	2,30%

Table 2: Top ten most prevalent words from customer feedback sorted by frequency.

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[12] In all the data, words that contain no meaning on their own such as 'the', 'on', and 'I' are excluded from text mining searches.

Here, the frequency indicates simply how many times this word occurs in the data. The next column shows the number of cases (text messages) in which the word appears, and the next what percent of all cases in the data contain the word. A word can be mentioned several times within one case, which is why the frequency is usually somewhat higher than the number of cases. This list is a representation of what is most prevalent in the data. The clearly most utilized and occurring word 'nice' is positively loaded. Some words such as 'help' and 'problem' are ambiguous, where cases can contain both positive and negative sentiments. Words like 'bad' and 'error' are negatively loaded. As many of these words co-occur in the same cases, this is analyzed to see which most often occur in the same cases.

GROUP 1	GROUP 2	SIMILARITY
COVERAGE	BAD	0,11
HELP	NICE	0,073
PROBLEM	QUICKLY	0,052

Table 3: Similarities between most common words in customer feedback data based on Jaccard coefficient.[13]

Here, there are two broad categories of words that co-occur, one mostly negative, and one mostly positive. Even though 'problem' can be a negatively loaded word, it seems to co-occur mostly to 'quickly', which often is in the context of solving a problem quickly, a positive statement. The same goes for the word 'help' that more often is in found together with the word 'nice', which indicates a positive statement. However, the clearly strongest relationship within these linkages is the overlap between cases with the words 'coverage' and 'bad' – indicating text messages relating to customers having bad coverage.

Next, using the same data, an analysis is run to find which *phrases* are most common in the feedback, to see if this unearths more of what is prevalent in customer feedback to Telenor. A phrase is defined as between two and five words that occur together consecutively. On the next page is a representative selection of five distinct phrases that often occur in the data.[14]

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[13] The jaccarrd coefficient measures the similarity and overlap between sets of data. This is measured by taking the size of the intersection (such as COVERAGE and BAD) and dividing it by the size of the entire data set (all NPS messages).
[14] Several top phrases were too similar and did not provide a range in the data, so representative ones have been selected.

PHRASES	FREQUENCY	NO. CASES	% CASES
BAD COVERAGE	223	221	0,4%
NICE AND FRIENDLY	197	197	0,4%
PROBLEM SOLVED	189	189	0,4%
FAST AND EFFICENT	90	90	0,2%
WAITING LONG	64	64	0,1%

Table 4: Five common phrases in the customer feedback data sorted by frequency.

When looking for reoccurring phrases there are far fewer similar cases found than when simply looking at most frequent words. However, it is clear that the phrase 'bad coverage' is prevalent here as well – actually most prevalent. The phrase 'problem solved' indicates that many of these cases with the ambiguous word 'problem' are positively loaded. Another common phrase is 'waiting long', a more negatively loaded phrase.

This is meant to provide an overview of what is most prevalent in the feedback to Telenor from their customers. Though much of the feedback is positive, there are indications of problems particularly related to bad coverage and long waiting time for customer service. Information on these issues from customers can likely contribute to the innovation process at the company. Next one of the negatively loaded phrases is examined more thoroughly, to see what can be found by exploring negative customer feedback.

On the phrase 'Bad Coverage'

From the most frequent words and phrases in the data, 'bad coverage' is a reoccurring negatively loaded phrase. This is interesting, and can inform Telenor that customers in large number are dissatisfied with their coverage. From interviews it is argued that aggregated customer feedback can inform the company where to direct their innovative efforts. Beyond that, the sophistication of the software which controls the company's network is such that it can be feed intelligence as to not only where, but at what times at day coverage should be prioritized in different areas. Coverage is a complex issue, and often the perceived coverage from a customer's point of view is not the same as the actual coverage. This also has to be taken into account in the software in order to provide the best coverage possible for customers.

Here it seems that having a continuous analysis of where customers perceive that they are lacking coverage could be used as a source of information for innovation purposes in the company's mobile and broadband networks.

From the initial searches there were 221 text messages where 'bad coverage' was specifically mentioned. To find more relevant cases, a thesaurus was created for text messages containing negative phrases about coverage (weak coverage, loss of connection and so forth). There were 393 cases concerning 'bad coverage'. To exemplify what kind of feedback these text messages often contain there is a table of random sample cases containing the phrase 'bad coverage' below. These have been found through a keyword-in-context search that presents the text before and after the phrase, so as to see it in its natural context.

CASE	Keyword	- In -	Context
#28024	The reason is that there is very	Bad coverage	In my neighborhood on the mobile net. I have called several times and have been given different reasons as to why.
#28219	I have a business subscription, so I had to transfer to Telenor.	Bad coverage	, bad app for the absent-assistant. I have not liked Telenor for years, but the service today was great! Unsure if I would recommend you. Depends on the solution to my problem.
#35464	We have been without a landline and Internet in 2 weeks. And very	Bad coverage	On mobile. Customer service cannot help. It's unbelievable that there are no emergency solutions. I have a home office and web-applications that I am depended on. Will look for other alternatives after this incident.
#36826	You have some things you are good at, but there is	Bad coverage	For telephones and broadband.
#37360		Bad coverage	
#37366		Bad coverage	
#37384		Bad coverage	. I have to step outside and walk from the house. I am therefore dependent on my landline phone.
#43580	I was not called back after she said I should turn the phone off to see if the coverage improved.	Bad coverage	Since this summer's thunderstorm.
#45073	Some	Bad coverage	In the area of Jevnaker and Jevnakers vestås.
#47119	I switched from Tele2 to Telenor because of	Bad coverage	, Telenor says they have no problems with it, but when I switched I have even worse coverage.
#47668	Telenor has	Bad coverage	Where I live.

Table 5: Random cases of customer feedback with the phrase 'bad coverage' put in context.

As can be seen in the table on the previous page, there is usually more information contained in these messages beyond the fact that Telenor in some way has bad coverage. Some of these cases are general complaints, where bad coverage is one of several problems. Most, however, are specifically concerned about the coverage where they live. This is could be used as a source of innovation by providing detailed information about customers perceived trouble with their coverage, and can inform the company where the intelligence of their network needs to be developed. Of the 393 cases concerning 'bad coverage' 291 of them have recorded county information. By looking at the messages about bad coverage with county information, a few counties stand out as overrepresented.
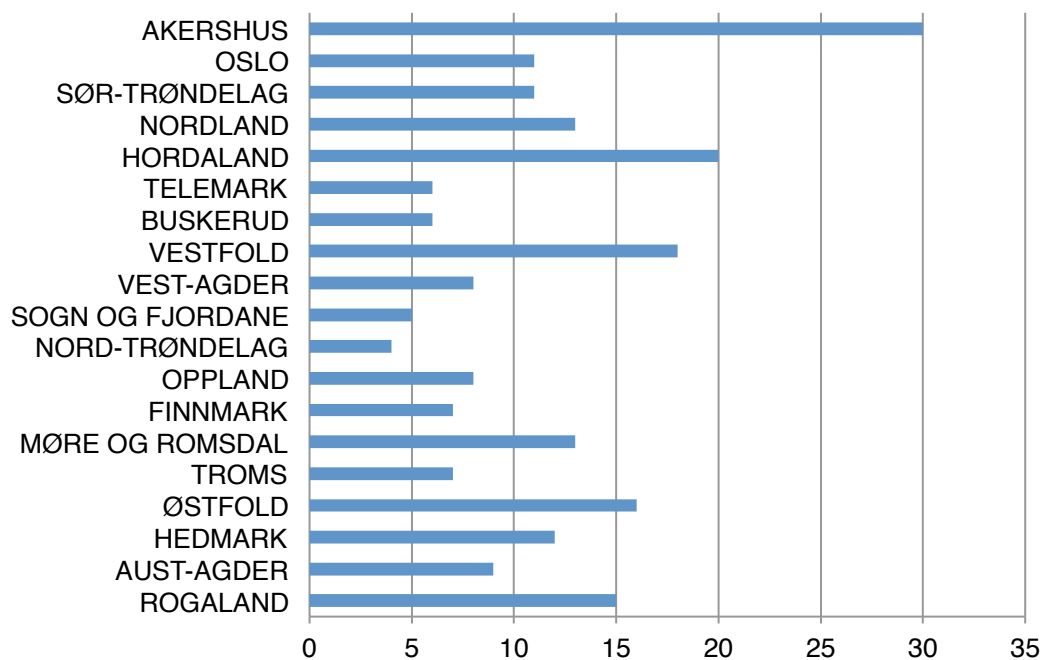
Figure 2: Number of cases with county information containing the phrase 'bad coverage' sorted by county.

Here, the county AKERSHUS is overrepresented in cases concerning bad coverage, containing 13,7% of all messages about 'bad coverage' found. When running a lexical analysis of these cases (the 13,7% of cases concerning 'bad coverage' in AKERSHUS) the two most prevalent phrases were 'bad coverage' and 'bad coverage where I live'. To exemplify let us look at one single text message from a customer that is fairly representative for these cases:

> *[Case #10949] NPS Score: 4*
> *"... Sometimes it takes more than 10 minutes to send an SMS; and other times I have to search outside for coverage in order to make a call. If I do not, I experience dropped calls because of the coverage. I have not had this bad coverage since I was a customer of yours many years ago. This is like being back in the stone age."*

In the interviews it was stated that certain areas of AKERSHUS have had trouble with their coverage, a problem Telenor is already aware of. This means that what this analysis has unearthed is in line with knowledge Telenor already has, though this provides more specific information from customers. Second most prevalent in this chart is HORDALAND with around 9% of the cases on 'bad coverage'. Here there are several highly vocal messages on the coverage in the area, some of which contain mostly swear words. To exemplify (with a somewhat more sober case):

> *[Case #4973] NPS Score: 0*
> *"Because of bad coverage where I live, in Traneveien. I am very often cut off, and have to call people back often two times per call.... I am frustrated..."*

This message not only provides location information, and writes about bad coverage, but even specifically names the street in which there is not coverage. By making this kind of textual analysis a part of the innovation processes at Telenor Norway, it would be possible to monitor where most customers were dissatisfied with their coverage in order to direct efforts here. It can be particularly useful to find detailed and direct information from the customer on the perceived coverage in an area, and what specifically the problem is. As network development is becoming much more sophisticated, so should the methods applied to finding room for improvements.

From the customer data it is clear, however, that most of the feedback is not related to products or services, but feedback on pleasant conversations with customer service, which might not be integral to innovation work in the company. Next, the advantages and limitations of this kind of feedback will be explored, and put in context with the literature chapter.

4.3.3 Advantages and limitation with Customer Feedback

It is noted in the literature chapter that companies have to implement new solutions to gather customer information, and that this can be critical to innovate in services (Greenberg, 2010; Peppard, 2000). Text mining has been noted as attractive to companies who want to learn from customer or consumer feedback (Dörre et al., 1999; Gamon et al., 2005; Yong Ahn et al., 2003). There is, however, little research on the value of information, as well as how this kind of textual feedback can be utilized in service innovation.

The tools implemented at Telenor Norway to gather customer feedback has been noted as integral to incremental innovations in the customer service process and in the company's services. The empirical material from the interviews indicate that there is a much larger awareness of what the customers' needs are, and that the results from these tools are used in the innovation process implemented at Telenor Norway.

Greenberg (2010) argues for five main components of integrating customer information: Customer Data, Sentiment Analysis, Social Media Monitoring, Profiles and Customer Experience Maps. At Telenor Customer experience maps were the beginning of their transition to a more customer oriented company, and the company actively uses customer and consumer data. The NPS system functions as a sentiment analysis of scores of satisfaction from their customers. From the material gathered for this thesis there are no indications that the companies "profiles" their customers, namely finds their likes and dislikes and so forth. And the company does not as of yet have social media monitoring; this is, however, explored in the empirical part of this thesis and will be revisited later. Findings in this thesis also reflects Rygielski et al. (2002), in that Telenor makes decisions in part based on knowledge directly from customer feedback.

An advantage with the data noted by many in the interviews is the unstructured textual nature of the feedback. As seen from the examples in the text message feedback in this thesis as well, it provides much more detailed information and unfiltered sentiments than standardized surveys and statistics.

However, as of now this data still has limited value as a source of innovation. Most of the data is specific feedback on the customer agent the customer has interacted with. As outlined previously, this could over time lead to incremental innovation in the organization as well as in the interaction between customer and company. But as a way of aggregating the customers' opinions to innovate in services, there is definitely potential here, but it is not being gathered effectively. The reason is likely that the NPS question asked focuses on the customer's *last interaction* with Telenor. Here, the subset of customers who provide sentiment that is relevant to innovation, are actually *not answering the question properly.* This is likely not the best way to gather customer feedback as a source of service innovation.

This is in line with what other researchers at Telenor have found, namely that those that provide a high NPS score (8, 9, and 10) are the ones that really answer this question (Følstad). These customers often write messages such as:

> *[Case #3421] NPS Score: 10*
> *"Nice and pleasant service. Quickly answered my question."*

This has limited value to the innovation process at Telenor. But customers who give a score between 0 and 4 frequently write what their problem is, and this can often be completely unrelated to the customer interaction they just had. These customers write messages such as this one:

> *[Case #98] NPS Score: 0*
> *[The reason] is that you do not have an offering that the customers seek. The paradox is that Telenor Norway has the same price for calling in all Nordic countries, but not for data. In Sweden it's the other way around, free (included) data in the Nordic countries, but not free calls. Imagine how many customers you would have if you combined these products. Telenor would have super coverage in all of the Nordic countries for both calls and data. Today Tele2 offers the same prices in Norway/Sweden. I might have to switch back to their subscription to cover my needs.*

In these more negative text messages with a low NPS score, is where the most interesting information is found that can be used for innovation in Telenor. In the message above there are actual suggestions for how Telenor could improve their services. This is in line with the literature that argues that there is much interesting

information to be found in unstructured textual information (Gamon et al., 2005; Gupta & Lehal, 2009; Mostafa, 2013). This kind of feedback is also in part what Telenor uses to make incremental innovation in services, or on solving larger structural problems. But these are a subset of the data of customers who are not actually answering the question put forth by the NPS system. This is a major limitation of the data for use in the innovation process.

There are a few ways to improve this system. One way is to ask the more general question, as in the "top down" measurement, and let the customer elaborate on the main reason for recommending or not recommending the company as a whole. This would likely provide more data for improving services and making decisions based on customer feedback. Another way to improve the system for gathering data is to have the NPS question used on specific services, instead of just after contact with customer service. The quantitative data suggests that there are many with opinions on Telenor's capabilities, but that the way of gathering data is not optimal. This could be a possible solution.

If the company for example sent out a text message, email, or web survey to people using their cloud storage service, 'Min Sky', and asked specifically how to improve the service, analyzing these results could create a top ten list of what features to implement for increased customer satisfaction with the service. Implementation of this way of gathering customer feedback seems to have a much higher potential for using customer feedback as a source of service innovation than current capabilities.

From this case study it seems gathering customer feedback is a useful source of innovation for Telenor Norway, and there are advantages from using unstructured text as a way of doing this (Dörre et al., 1999; He et al., 2013; Mostafa, 2013). This thesis contributes to literature on customers in service innovation and suggests that there is likely a much larger potential for utilizing textual data as a source of continuous service innovation, but that the system in place has to gather the most relevant data for innovation possible.

Next, as several interviews at Telenor and literature suggests that monitoring social media could be a source of innovation, the thesis will explore what can be found by performing textual analysis on tweets on the subject of Telenor.

4.3.4 Findings from Consumer Feedback

This section will present an overview of what is most prevalent in the social media data gathered for this thesis, and outline a few specific cases and events to explore the consumer feedback's potential for innovation.

This will be done using empirical data from Twitter, with the analysis of 5440 free from tweets from consumers writing about Telenor. This is every tweet that was written about Telenor in Norwegian from late November 2014 through March 2015.[15] It should be noted, however, that this is limited information taking into account that this is the largest service company in the country.

Most common words from Twitter on Telenor

To explore the potential of monitoring social media platforms this section will first outline the most common words found from the Twitter data, how they fluctuate over time and why this is. Below are the ten most common words when irrelevant words have been removed. This is presented to give an overview of the perception and events surrounding Telenor from the consumer perspective in this period.

WORDS	FREQUENCY	NO. CASES	% CASES
VIMPELCOM	248	243	4,6%
AMUNDSEN	207	203	3,8%
MARIALUDVIGSEN	188	188	3,5%
COVERAGE	185	182	3,4%
NETCOM	168	151	2,8%
BAKSAAS	118	110	2,1%
CORRUPTION	111	110	2,1%
PROBLEMS	93	92	1,7%
HEARING	79	70	1,3%
TELIA	63	61	1,1%

Table 6: The ten most common words from Twitter data sorted by frequency.

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[15] After excluding irrelevant tweets as outlined in the methodological chapter.

Before analyzing this further, a bubble map is created using the 20 most commonly used (relevant) words during this period. This is to see whether there is co-relation between these words, and if there are connections that can say something about what is prevalent in this data. The words are grouped in four colored clusters that co-relate to each other, where the size of the circle indicates the frequency of the word. There are also lines drawn between words that often co-occur to see further connections between the words and clusters.
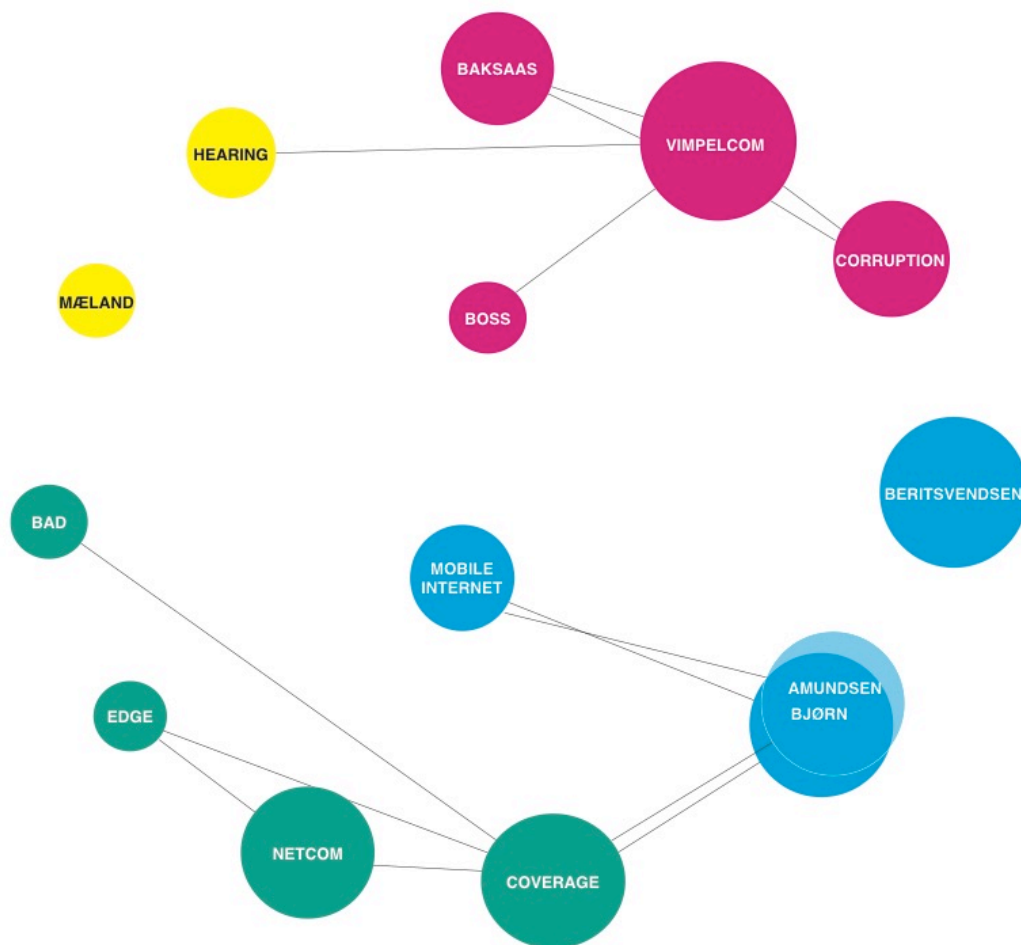
Figure 3:   Bubble map of most common words from Twitter on Telenor based on frequency.[16]

The most prominent word in the data is 'Vimpelcom', and this is related to the words 'Corruption', 'Baksaas' and 'Boss'. This again relates to the cluster of 'Hearing', also containing the word 'Mæland'. A second large cluster consists of 'Amundsen', 'Bjørn', 'Beritsvendsen', as well as 'Mobile Internet'. This is related to a cluster on 'Coverage',

[16] For this figure, single word clusters that do not relate through color or lines with any others are excluded (such as MARIALUDVIGSEN).

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which also contains the words 'NetCom', 'EDGE, and 'Bad'. These words are what are most prevalent in the data from Twitter about Telenor. The clusters, and the most used words, are put into context in the table below:

CASE	KEYWORDS	DESCRIPTION
VIMPELCOM CORRUPTION CHARGES	VIMPELCOM, CORRUPTION, BAKSAAS, HEARING, MÆLAND	In the fall of 2014 Vimpelcom, of which Telenor has a large share, was accused of corruption in regards to attaining new licenses in Uzbekistan. This case progressed over Christmas, with more accusations. A hearing was held, the Minister of Trade (Monica Mæland) was pleased with Telenor's answers, but others believe there is more to the case.[17] The case is ongoing, controversial and at times very prevalent in Norwegian media.
BJØRN AMUNDSEN AND COVERAGE	BJØRN, AMUNDSEN, BERITSVENDSEN, MOBILE INTERNET	Bjørn Amundsen is the Director of Coverage in Telenor Norway and Berit Svendsen is the CEO of Telenor Norway, and their names and the word coverage or mobile internet are often mentioned together. Often these are complaints on existing coverage, or 'retweeting' a message from one of them on coverage at a particular location.
COVERAGE	COVERAGE, BAD, NETCOM, EDGE, PROBLEM	This term incorporates tweets about Telenor's coverage in general, some on mobile internet, some on EDGE, 3G, and 4G etc. Several here are vocal on the differences between Netcom [another Norwegian telecom company] and Telenor's mobile coverage, and which is superior. Many of the tweets are also concerning the problems Telenor had with coverage in after a storm in Vestlandet, and other network problems in late December and in January.[18]
INSTALLING INTERENET AT CHILDRENS WARD	MARIALUDVIGSEN	One of the most frequent words in the data is Marialudvigsen. This is related to one single tweet that was particularly popular, and the name in the data is the name of the user. The tweet referred to a post on facebook where someone requested that Telenor should install free Wi-Fi at the children's ward at the hospital Rikshospitalet.[19] The tweet was retweeted more than 200 times, a significant number in this context.
TELIA AND TELENOR MERGER IN DENMARK	TELIA	Another frequent word in the data is Telia. In December of 2014, Telenor and TeliaSonera decided to merge their branches in Denmark, where each company will own 50% of the company. The merger is pending approval from the EU.[20]

[17] http://www.dn.no/nyheter/naringsliv/2015/02/18/2201/Vimpelcom/krever-nye-svar-fra-telenor , http://www.nrk.no/nyheter/1.12155106
[18] http://www.aftenposten.no/nyheter/iriks/Mobilproblemer-for-Telenor-pa-Vestlandet-7838839.html
[19] https://twitter.com/MariaLudvigsen/status/561970223004516352/photo/1
[20] http://www.newsweb.no/newsweb/search.do?messageId=366459

The differences and fluctuations between these cases become apparent when looking at the data over the period of time in which tweets were collected. In the chart below, the x-axis indicates the time, and y-axis indicates the number of tweets containing the particular word.[21]
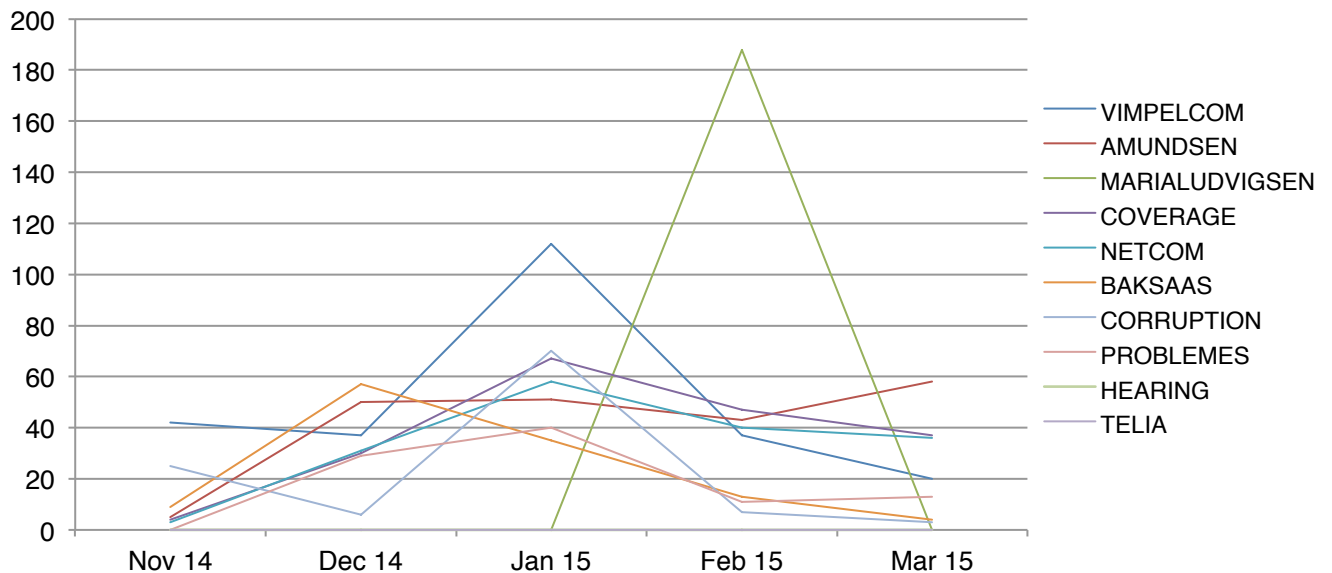

Figure 4:   Line chart chronicling the fluctuation of the most common words from Twitter on Telenor.

From this chart it can be seen that the case of Vimpelcom and corruption charges spike in January of 2015, and the 'Marialudvigsen' tweet clearly spikes in February 2015, when this became part of the conversation about Telenor. The case of Telia is most prominent in December, when the merger happens, and then it completely disappears. The terms 'coverage' and 'problem' are highest in January, and the events related to problems with coverage were most prevalent in the end of December and through January.

These are the main themes found in the data from Twitter on Telenor, and seem reflective of the consumer perception of the company during this time. Next, a few of these are elaborated on, and exemplified, to explore the potential of using social media monitoring in an innovation process.

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[21] Note that collection began in late Novemeber, which is why many words begin with a low count in that month.

Vimpelcom

The most prominent case in the data is centered on the Vimpelcom corruption charges. Some tweets are just reactions to the case. Most tweets, however, contain a link to one of the news items regarding the case, and offer an opinion on the matter. Below is an example:

> *@hallgeirreiten (Hallgeir Reiten) 26.11.2014*
> *"Guys, why would anyone want to be the customer of a #Telenor that contributes to corruption and stifling freedom of speech?*
> *http://www.nrk.no/kultur/telenor-eigd-selskap-blokkerer-putin-kritikere-1.12065001"*

This case has mostly negative tweets connected to it, and judging by the data here, it has negatively impacted the perception of Telenor as a company in the Norwegian consumer's opinion. Many tweets reflect the fact that the CEO of Telenor, Jon Fredrik Baksaas, was said to have a confidentiality agreement as a board member at Vimpelcom, and could therefore not answer questions regarding the controversy. This spurred many negative responses. One example:

> *@Olavkvinge (Olav Kvinge) 09.01.2015*
> *"LACK OF RESPECT for democracy. Telenor-Baksaas refuses to answer the Norwegian Parliament*
> *http://www.vg.no/nyheter/innenriks/telenor/stortinget-frykter-mer-hemmelighold-fra-telenor-baksaas/a/23370927/"*

This, and other tweets like this, could indicate that Telenor have not communicated well enough with the public during this event, and this could have negative consequences for the company's profile. Gathering this kind of feedback is as of now not possible through Telenor's current customer feedback system, where current events are not incorporated, nor asked about. The monitoring of social media would here be a way to better understand the public perception of the company, and could help the company more actively and efficiently understand consumer persuasions. Perhaps having this as part of a continuous process could be relevant for a large company to know public perception and this might be innovative in and of itself, but there is less clear potential for actual innovation based on this information on its own.

Coverage

Another reoccurring theme in this data is coverage. This was also prominent in the customer feedback data from Telenor. In the Twitter data, however, the picture is more nuanced. Some of the most reoccurring words with 'Coverage' are 'NetCom', 'Edge' and 'Bad'.

'**NetCom**' often refers to tweets that argue that one company is better than the other on coverage. Several also note the fact that the telecommunications provider OneCall has recently switched from Telenor's network to NetCom's. One example-tweet to illustrate:

> *@VeronicaPilskog (Veronica Pilskog) 06.01.2015*
> *"One Call will move from Telenor to #NetCom-coverage. This should*
> *give #Telenor a kick in the butt."*

This provides information previously unattainable for the company through NPS customer feedback. The same is found when looking at tweets where the word 'EDGE' is prevalent in tweets containing the word 'Coverage'.

EDGE is the older version of mobile Internet that preceded 3G and 4G. These tweets are usually customers of Telenor who only have EDGE coverage where they believe they should have 3G or 4G coverage. These tweets therefore provide instant feedback on particular areas where the customer believes the coverage is not good enough. Here is one example from the, despite the noted sarcasm, centrally located sculpture park in Oslo:

> *@SaysPhilippe (Philippe Schjelderup) 04.01.2015*
> *"Sitting in the Vigeland Sculpture Park and I only have EDGE from #Telenor.*
> *My wife is sitting next to me and has 4G from #Netcom. But the Vigeland*
> *Sculpture Park is not at all centrally located."*

Here, this data could be used to provide instantaneous feedback on where 3G and 4G coverage is not well implemented, and provide intelligence to the company's network, in the same sense as the customer feedback could be used. The NPS customer feedback, however, has the limitation of customers having to have been in contact with Telenor Norway to answer the question while the data from Twitter is directly from the

customer or consumer to the ether, and can be gathered and utilized directly by the company.

'**Bad'**, as in the customer feedback data, often relates to customers of Telenor vocally expressing their dissatisfaction with the coverage of the company on various locations. But, it is clear here too that Twitter is more often a reaction to current events than anything else. Many of the tweets containing both the words 'bad' and 'coverage' refer to a case where a customer of Telenor has actually reported the company to the police for their lack of coverage in her area:

> *@KMeinseth (Kjartan Meinseth) 06.01.2015*
> *"Marita (51) is tired of bad coverage – reports Telenor to the police - TV2.no*
> *http://www.tv2.no/a/6413904"*

From these words related to coverage on Twitter, there are clear differences from the customer feedback data. It seems there are opportunities for using this data, and incorporating this kind of analysis to the innovation process and network intelligence at Telenor. Particularly as Twitter is an instantaneous medium, the data provided gives specific information on the location as well as the time of lack of coverage, which could perhaps be used as part of a process to improve coverage where customers were dissatisfied with it.

However, to what degree this is necessary in order to stay relevant, and how important this would actually be to innovation, as outlined in the literature chapter, is highly uncertain. The data material is also far smaller than what the NPS data provides. Next, the advantages and limitations of this data will be discussed.

4.3.5 Advantages and limitations with Consumer Feedback

In the literature chapter it is argued that a company should monitor feedback from social media in order to truly learn from customer and consumer platforms (Greenberg, 2010; He et al., 2013; Malthouse et al., 2013; Qualman, 2012; Trainor et al., 2014). It is also argued that information from social media can be vital for innovation (Piller et al., 2012; Woodcock et al., 2011)

From the data gathered for this case study, there seems to be a reflection of consumer persuasions as well as brand perception of Telenor on the social media platform Twitter. The highest-ranking terms from November 2014 to March 2015 tended to correspond with events related to Telenor that occurred in this timeframe. The data also differs significantly from that of the pure customer feedback, and is therefore to some extent in line with the literature that argues that companies can find information here previously unavailable (Greenberg, 2010; Kietzmann, Hermkens, McCarthy, & Silvestre, 2011).

The fact that people who are clearly customers of Telenor uses the platform of Twitter to publically claim where they only have EDGE coverage coincides with wishes inside Telenor (expressed in interviews) to work more locally to learn where to develop Telenor's coverage. Here it could be argued that including this kind analysis in the company would be innovative in and of itself, as a new way to gather customer and consumer information as well as to direct efforts where they are most needed.

However, from this particular case study there does not seem to be ample enough evidence that this kind of monitoring is necessary in order to stay relevant, as argued in the literature (Ang, 2011; Greenberg, 2010; He et al., 2013; Malthouse et al., 2013; Trainor et al., 2014). This is not to say that monitoring the consumer conversation around the company's services and these events could not have been interesting or helpful for the company – but it does not appear to be of a major strategic importance, nor to be integral to innovation argued in literature (Piller et al., 2012; Woodcock et al., 2011).

There could be a few reasons for why the findings from social media of this thesis do not reflect that of the literature on the subject.

First, there might be more limited data on the social media platform Twitter than first assumed. Even though there are around 930 000 Twitter profiles in Norway, and around 500 000 of these use the service either daily or weekly, most people do not write about service companies (Ipsos MMI, 2014; Statistics Norway, 2014). 5440 tweets

over four full months might be an interesting subset of data, but for a company with 3.2 million Norwegian customers, where most of the data is reaction to news articles, does not seem to necessitate monitoring to stay relevant. This could be a limitation of Twitter, which is much less populated than the social media platform facebook. It could also be a limitation of this thesis; either of the methodological approach, or that there is a difference in what companies are actually large enough to warrant monitoring the online conversation. As of now, however, there does not appear to be a distinction of company size in the literature on social media, or any distinction as to when it is deemed "necessary" to monitor it.

Second, it could be that this is reflective of the data present in social media, and that this platform is proving to be more promise and potential, than actual interesting data.

The empirical data from Twitter seems as to be a fairly accurate reflection of the brand image of Telenor, but little else. This might be useful, but does not indicate that monitoring social media should be an "*integral part of a company's overall strategy*" (Qualman, 2012, 1). Nor that it provides an "*opportunity to provide deep customer insight into why the customer does something*" (Greenberg, 2010, 417). As the scope and material of this thesis is very limited, no claims on the vitality of social media monitoring can really be made here. But in light of the literatures bombastic language on the possibilities of social media, this provides highly disappointing results when analyzing social media feedback on the largest service company in Norway.

From this case study social media monitoring does not appear as an integral component for the company to truly learn from customers and consumers, and the results of this thesis do not reflect the reality presented in current literature (Ang, 2011; Greenberg, 2010; Malthouse et al., 2013; Qualman, 2012). This suggests that perhaps social media is exaggerated as a source of innovation (Piller et al., 2012; Woodcock et al., 2011).

4.3.6 Summarization of Sub-question 2

Sub-question 2:	
How can Telenor gather text message customer feedback and social media consumer feedback as sources of innovation? What is the potential here?	
Main findings from this case study:	Telenor does gather text message feedback from customers, and uses this information as a source of innovation. However, there are limitations to how useful this feedback is for innovation purposes, as most of the feedback is directly related to customer services. Telenor does not, as of now, gather social media feedback continuously, but from the empirical material available the potential for service innovation is limited with this source of consumer feedback.
Implications for the literature:	This thesis contributes to literature on new ways of using customers in service innovation, and suggests that there is likely a much larger potential for utilizing textual data as a source of continuous service innovation, especially if solutions are implemented to gather the most relevant data available. It also finds that there is a limited potential in monitoring consumer feedback from social media platforms as a source of innovation. The data does reflect consumer opinions, but it is not in line with the bombastic nature of the literature on the topic of social media, nor does it seem integral for innovation purposes. It is noted that this could be a limitation of the platform studied, or the methodology, but that the results here are still disappointing.

4.4 Utilizing Customer feedback

This section will attempt to answer the third sub-question of the research question presented earlier in the thesis: *What obstructs and facilitates the efficient utilization of customer feedback for innovation purposes inside Telenor?*

This section will outline the internal system used to facilitate customer feedback within Telenor, and will particularly discuss obstructions for the best utilization of this information possible.

4.4.1 Internal system for utilizing Customer Feedback

The internal system in place for the facilitation of customer feedback at Telenor is a part of the NPS system implemented in recent years. This is meant to help the company continuously facilitate information to innovate in customer service, the customer relationship, products, and services as well as suggests organizational changes.

There are two main components of this internal system: the feedback that is directly addressed within customer service, and the feedback that speaks to more deep-seated issues in the company, which requires cross-functional cooperation and facilitation between departments to resolve.

In customer service there are daily, weekly and monthly routines to make changes based on customer feedback. This can be on an individual level, team level, or for the entirety of customer service. The company also has a call center that exclusively deals with trying to retain very dissatisfied customers.

There are also weekly team meetings to discuss customer feedback that indicates more overarching and structural issues, such as technical problems, confusing or non-functioning services and so forth. Here, issues are analyzed, and the teams try to identify initiatives and prioritize based on impact and ease of implementation. From here the issue should be resolved in the department in which the issue lies, and then finally, the customers who reported the issue originally should be notified. At Telenor

this system is called the "Close Feedback Loop" system, and to report back to a customer that the issue is resolved is called "closing the loop".

One example of how the system works presented in the interviews, was the connection between NPS scores and waiting time for customer service. There was found to be a clear co-relation between how long customers had to wait, and what NPS score the customer provided. In order to improve, aggregated NPS data was used to identify larger structural causes for waiting time such as IT systems, downtime, and staffing at certain times of the day. These were then dealt with to decrease waiting time, and in turn increase NPS score. Here, aggregated patterns were analyzed and changes made to reflect the customer feedback involving several departments within the company.

Similarly, the examples of organizational innovation used previously in this chapter, where the Danish branch of the company developed a new operating model, and the Swedish branch developed a new product structure, were also structural changes that came from analyzing and facilitating large amounts of NPS customer feedback. Several interviews also underline the fact that customer feedback is always a part of the picture when making major decisions, and green-lighting major projects at the company. It was noted that:

> *"… In all strategic documents that are delivered to top management there is a box about customer impact, where it has to say something about how many customers are affected by the decision, and how this will likely affect the NPS score, and what part of it, such as customer service, network, price, product etc." (Rønsen, 2015)*

In this sense, and from the interviews, the idea is that the customer feedback should be included and integral to the entire company from the strategic leadership, all the way down to the individual customer service agent. There is, however, disagreement and ambiguities as to how well this system actually works, and how much weight the customer feedback actually carries.

4.4.2 Obstacles utilizing Customer Feedback

All the employees interviewed at Telenor Norway agree that customer feedback is used within the organization, and is a part of the innovation process. However, all also agree that this does not function optimally, and several point out structural issues to using customer feedback efficiently for innovation.

From the interviews conducted there seems to be a consensus that finding and solving a smaller issue within the customer service from the customer feedback system is fairly well established, and has -functioning processes in place within the company. There was, however, some disagreement as to how well this functions for larger structural or organizational innovations.

One interviewee argued that the problem as well as the solution can often be found through customer feedback analysis, but to actually implement this is far more difficult when it includes other departments. Also, to actually "close the loop", namely to understand an issue, solve it, and then contact the customers who initially reported the problem is noted as very difficult, and rarely done as of now. It was argued that there is a need for a substantial shift in the organization to make this process completely functional. Part of the problem is lack of internal communication.

It is noted that for larger issue to be resolved there needs to better communication and understanding between internal departments, which is noted as very difficult in a such a large service company by several of the interviewees. Often departments are not aware of what others in the company are working on, and there can be differences in the culture between these departments as well.

Another problem is that it can at times be difficult to deal with departments or teams within the company who are actually not even interested in operationalizing insights from customer feedback for innovation purposes. One interviewee stated "*it is not always fun to change what the customer says you should change. What is fun is developing what you were already working on and are invested in, not what customers would want you to*" (Trønnes, 2014). This points to a lack of internalizing the idea of the customer as the center of the decision-making, and can be due to an unwillingness to adapt, as well

as problems in communicating this idea. Several note that even though customer orientation is regarded as pervasive through the company, there are huge differences within the different departments in the company. This seems like a major obstacle for the company to overcome.

The Weight of Customer Feedback

Traditionally, Telenor has developed services based on what is possible technically, advisable financially and where the market in general is moving. In their 2013 annual report the company stated "*customer feedback is at the centre of the company's decision-making*" (Telenor Group, 2013a, 5). From the empirical material gathered, this does not seem to be the case as of now.

A few of the interviews argue that the inclusion of customer feedback is truly at the center of decision-making in the company, but add that there is still work to be done in order to have this fully implemented. The majority of interviews, however, argue that the customer is *not* the weighing factor within the company for where to direct efforts, or when developing new services. These argue that the company is still mainly technologically and market driven, and rather that the customer is one of many factors when making decisions.

Some also question to what degree the customer is actually given weight when it is included at the strategic level for larger decisions. Some believe that the NPS customer feedback is still mostly a measurement technique that is part of the process, but that is ultimately ignored in the light of any financial or technical concerns. In this sense the feedback is *not* operationalized properly for larger decisions, as other concerns, priorities and lack of communication function as obstacles for its utilization.

4.4.3 Obstacles in light of the literature

This section will discuss how the empirical material fits with the literature outlined on absorptive capacity in the literature chapter.

It was argued here that a company has to acquire external knowledge, as well as be able to transfer this knowledge efficiently within a company for it to be operationalized (Cohen & Levinthal, 1990). Telenor Norway does absorb and exploit external knowledge from customers, and this could be argued to be an important component of the company's innovative capabilities as noted by Cohen and Levinthal (1990). The company has clearly invested efforts to absorb more knowledge from customers than previously, and it has led to incremental innovation, and been used to make organizational innovations. There are however major obstacles for the proper utilization of this knowledge.

As noted previously in this chapter, there is more potential in how Telenor actually acquisitions feedback from customers – their *potential capacity*. Zahra and George (2002, 189) argue that part of acquisition, as a capability, is the gathering of knowledge that "*is critical to its operations".* The customer feedback Telenor gathers on customer service is critical to customer service, but as outlined previously there are major limitations to the potential the current feedback has for being utilized in innovation.

However, the main problems found in relation to this literature are with the company's *realized capacity*, namely utilizing this information properly. There seem to be major obstacles for transferring this knowledge internally, as well as how much weight the customer carries in different departments and strategic level of the company.

This is in line with Zahra and George (2002) who argue that if a company acquires external knowledge, but does not incorporate it into the company's operations, it will not improve performance. Both Zahra and George (2002) and Cohen and Levinthal (1990) underline the importance of cross-functional communication to utilizing the knowledge which has been absorbed. This is still underdeveloped at Telenor. It should be noted, that many of the interviews argued that using customers more actively for innovation purposes is still a fairly new, and clearly an ongoing process.

A stronger integration of customers is also noted as new in the Schaarschmidt and Kilian (2014) study of impediments to the innovation process in the telecommunication industry. This study finds that the innovation culture and attitudes toward external knowledge are impediments to the inclusion of customers, and that some knowledge is ignored simply because it originated outside the company. This is somewhat in line with the findings from Telenor as well. Several interviews argue that customer knowledge is not as accepted in the company as market developments and technological processes, and that certain departments or individuals are skeptical to customer knowledge and would rather use internal knowledge to develop services. It is also noted that the company is in a transitional period, and still requires a large shift in culture in order to become truly a customer centric company.

However, one of Schaarschmidt and Kilian (2014) most emphasized findings was the fact that the company in their study was much more open to external knowledge that had a pecuniary dimension to it. There is no evidence from this case study that indicates that there is a divide between knowledge generated from processes including customers or consumers who are paid, and those who offer their opinions freely. Inclusion of the customer in the service design process at Telenor will sometimes have a pecuniary dimension to it, but none of the interviews expressed concern or emphasized the effects this has on how the knowledge is perceived within the company.

4.4.4 Summarization of Sub-question 3

Sub-question 3:	
What obstructs and facilitates the efficient utilization of customer feedback for innovation purposes inside Telenor?	
Main findings from case study:	Telenor has an internal system in place for the facilitation and utilization of customer feedback for innovation, which pertains to both customer service and larger structural changes. In customer service this is argued to function well, but there are problems in using this feedback to implement larger changes in the company. The main issues seem to be lack of internal communication as well as ambiguities of the importance of the customer to the company's decision making.
Implications for the literature:	The findings of this thesis are much in line with what Schaarschmidt and Kilian (2014) found in their study of the telecommunication industry - with one major exception. There is no evidence to suggest a divide between pecuniary and non-pecuniary external knowledge within Telenor. As noted by Schaarschmidt and Kilian (2014), these kinds of processes are fairly new, and require further studies.

5. Conclusion

To conclude, the findings of the research question and the three sub-questions posed will be summarized, with a focus on implications for literature.

The research question is: *How can a large service company gather and utilize feedback from customers and consumers as a source of innovation?*

This thesis finds that customer and consumer feedback can be a source for incremental innovation, organizational innovation, and can inform decisions in service innovation. It also finds that to gather this feedback there needs to be a system in place that captures the most relevant feedback for service innovation, as well as a functioning system and culture for facilitating this feedback throughout the company.

The first sub-question deals with how customers can be a source for innovation: *To what degree and how can customers contribute to innovation in large service companies?*

Here it is found that customers contribute to innovation in various ways in the company at hand. It does not find, as noted by much innovation literature on the subject, that customers are innovative in and of themselves (Bogers et al., 2010; Franke & Hippel, 2003; Hippel, 2005b). It does neither find that relying too heavily on customers can be detrimental to the innovation process (Bennett & Cooper, 1981; Christensen, 2013; Hillebrand et al., 2011). Rather, it finds that customers are most useful as a *source* of direct incremental innovations, and as influence on strategic decisions that can lead to organizational innovations. Also, that to integrate and observe customers in close contact with services can be vital to the innovation process when developing new and existing services (Alam & Perry, 2002; Leonard & Rayport, 1997; Matthing et al., 2004; Sundbo, 1997). Findings also indicate that customers should and could be even more integrated and utilized as a source of information in the earlier development phases of service innovation.

The thesis makes a contribution to the literature on the customers' role in service innovation, particularly in addressing the difference between customers as innovative themselves, and using customer feedback as a source of innovation. These are separate views of the customer, and should therefore be treated as such in the literature.

As this thesis argues that customers at Telenor are a source of innovation, the second sub-question deals with how to gather this feedback systematically: *How can Telenor gather text message customer feedback and social media consumer feedback as sources of innovation? What is the potential here?*

Here it is found that the company at hand does gather customer feedback continuously through text message feedback. Further, that this is part of the innovation process at the company, and has led to incremental as well as organization innovation. However, there are major limitations as to how this information is gathered for innovation purposes. Telenor should, according to interviews and suggested by the data, attempt to use their existing capabilities for gathering customer feedback either on finding more overall feedback on the company than currently, or finding feedback on specific services. This could provide ample grounds for service innovation based entirely on customer feedback.

While current literature on customers' role in service innovation mostly focuses on how to integrate individual customers in a service innovation process, the thesis explores using aggregated patterns of text message feedback in an innovation process. This seems to be previously uncharted territory in service innovation literature. The implications for this case study presented above might also have implications for other companies, or literature studying how to use textual feedback from customers as a source of innovation.

Further, by analyzing social media consumer feedback it is found that this data provides different and relevant information for the company at hand. But it cannot be argued, based on the material from this thesis, that including social media monitoring is necessary for the company, nor integral for innovation. This is not in line with the

literature on this subject (Ang, 2011; Greenberg, 2010; He et al., 2013; Malthouse et al., 2013; Piller et al., 2012; Qualman, 2012; Trainor et al., 2014; Woodcock et al., 2011).

This can either indicate that the data for this thesis, or on this particular company, is not sufficient - or that the potential of social media monitoring is overrated. No definitive statements can be made as to the necessity of using social media in innovation as a whole from this material. It is, however, argued that the findings of four months of monitoring Twitter posts on the largest service company in Norway are highly disappointing in light of the literature on the topic.

As the thesis has explored the value of, and system for, gathering customer feedback, the third sub-question deals with how to operationalize this information properly: *What obstructs and facilitates the efficient utilization of customer feedback for innovation purposes inside Telenor?*

Here, there seems to be clear limitations as to how well customer feedback is operationalized within the company. In customer services it seems to be well functioning. Otherwise, the company has problems with realized capacity (Zahra & George, 2002). There are indications that the company lacks the internal communication necessary in order to operationalize information from customer feedback properly. There is also need for a cultural shift in order for the customers' perspective to carry more weight in different departments and at the strategic level of the company. This shift is noted as ongoing, but far from completed.

The points above reflect obstacles to operationalizing customer feedback for innovation, and are in line with much of the findings of the Schaarschmidt and Kilian (2014) study of the telecommunication industry. There is, however, one major exception in that there is no evidence here to suggest a divide between pecuniary and non-pecuniary external knowledge within Telenor. As noted by Schaarschmidt and Kilian (2014), these kinds of processes are fairly new, and require further study.

This thesis has explored the customers' role in service innovation, as previously requested by amongst others Hipp and Grupp (2005), Alam and Perry (2002) and Matthing et al. (2004). From these studies, as well as the interviews conducted, there is a sense that including the customer in the service innovation process will only expand. This is not only out of necessity to retain customers in what is noted as a changing marketplace, but also due to new possibilities through IT technology.

Particularly the gathering and utilization of customer feedback as a part of the service innovation process seems to be an underexplored theme in literature on users, customers and consumers. Perhaps this is because of the incremental nature of these innovations, and the fact that customers are one of several sources of information in this equation. This could make it less obvious where customers fit into the overall picture of service innovation. However, this should not dissuade research in this area, because as using customer feedback becomes more important for service companies, so should the research on the subject.

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Appendix 1: Interviews

List of Interviewees

Name	Position	Date	Length
Tarald Trønnes	Project Director - Customer Centric Program, Telenor ASA	10.10.2014	70 min
Gøril Sørstrøm Angeltvedt	NPS Manager, Telenor Mobile	10.11.2014	45 min
Hilde Rønsen	Customer Experience Director, Telenor Norway	09.02.2015	50 min
Knut Kvale	Senior Research Scientist, Telenor Research	12.02.2015	55 min
Lena Langrød	Business Developer, Telenor Norway	26.02.2015	40 min
Stine Silke Allermand	Senior Service Designer, Telenor Norway	26.02.2015	45 min

Interview guides

There was not one set interview guide for this thesis, as question varied with departments and people. The interviews were also semi-structured so often questions had natural follow-up questions not noted in the interview guide. On the next pages are two examples of interview guides representative for the interviews conducted for this thesis.

Interview guide for learning about customer experience

Introduction

Introducing the thesis, research question as well as the broad strokes of what I will inquire about during the interview.

Questions

1. What is your job title, and can you describe in short what you do at Telenor?

2. How have you worked towards bettering the customer experience at Telenor historically?

3. What are you doing now which differs from what you were doing previously?

4. What part does innovation play in improving the customer experience?

5. How do you think this will evolve?

Interview guide for learning about the innovation process

Introduction

Introducing the thesis, research question as well as the broad strokes of what I will inquire about during the interview.

Questions

1. What is your job title, and can you describe in short what you do at Telenor?

2. Can you explain how you gather and utilize customer/consumer feedback when developing, improving or innovating in services?

3. Has this changed in recent years? What happened?

4. Do you have specific examples of innovation based on customer information or feedback?

5. What kind of innovation do you think customers are the best sources for? Large changes or smaller ones?

Appendix 2: History of Thesis

During the process of writing this thesis I have kept a research diary of the major decisions that were taken, as well as some of my personal impressions of the process to ensure the validity of the project.

The beginning

I began this project all the way back in February of 2014 when I contacted Jarle Hildrum at Telenor with a very vague idea about what I wanted to write about. I was in general interested in writing a thesis about changes that occur due to new opportunities in technology, something which I have always had an interest in. I had a few ideas for possible projects, but at the time I did not really know if any of these seemed like a potential master thesis.

Jarle provided very good advice, and immediately offered a few interesting leads. I asked if he had any ideas for master thesis, and he had several ideas. The one that struck me the most was when he showed me how much customer feedback the company had, and that the research department at Telenor were looking into what you can do with text mining and analysis of this kind of data. We also discussed the potential of analyzing information from social media platforms like Twitter as well. I asked if he believed there was a master thesis in investigating something like that, and Jarle replied that he definitely thought so. We agreed that I would first try to find some way of archiving and analyzing tweets to prove I was capable of writing such a thesis, and that if it became anything, he would be my supervisor.

I quickly got a Twitter Application Programming Interface (API), and began looking for ways to archive what people were saying about Telenor on Twitter. First I tried to find any tweet written about Telenor and the Olympic Winter Games. The reason was that Telenor had an advertisement during the Olympics that caused quite a stir. The commercial was very long and aired almost continuously during what were Norway's first Olympics with real commercial breaks. I was attempting to find out if Telenor could have done something about the outburst sooner if they had monitored Twitter at the

time. Through some crude scripts found online, and the Twitter API, I managed to download, archive and find the appropriate text format for around 50 tweets to analyze. This was not much, but it proved to that I could figure this kind of thing out myself. It also proved (though perhaps not with much validity) that there was a strong negative co-relation between Telenor and the Olympics visible almost immediately after the commercial had begun airing on TV.

March 2014: First Research Question

At first the thesis was mostly about the intersection of innovation and social media, and how companies can use large quantities of data. My first research question (in the middle of March) was: *How can a dual approach in data analysis assist Telenor in service innovation*?

The dual approach referred to the use of data from Twitter, as well as from text message customer feedback. But at the time I was unsure of the practicalities of the project. The problem was actually obtaining an academic license for the analytical software, Provalis Research Suite, which would be necessary. The program would also not run on a Macintosh computer natively, so I had to find a computer with Windows software (a painful process for any Apple enthusiast). I was also worried that just finding the potential in these platforms was not really enough, and my supervisor and I began discussing if the master should be a case study, where I would look at how this data is already incorporated at Telenor and how it could be improved upon.

May 2014: A Source of Innovation

Around May 2014 I had begun reading relevant literature for the thesis. First the focus was on user innovation literature, but this did not really seem to be applicable to the kind of innovation that was possible to have from the data I had. I began to figure out that what I really wanted to know was how the customer or the consumer could function as a *source* of innovation. Not that the customer or consumer had innovative ideas themselves, but if customer information is aggregated, one can figure out something which forces you to innovate. This was also not a distinction made clear in the literature, so I thought this would be interesting to explore.

I also decided I should perform interviews with people who knew about customers and innovation at Telenor. Then I could figure out what Telenor had done with customer feedback previously, and what was really happening now. Because from what I heard, this free form textual feedback *was* already providing them with insight unbeknownst to the company, and was actually forcing them to innovate. And what if you added the consumer market to that as well? It seemed to be an interesting way to go. I rephrased the research question to reflect these new insights. The focus was now on how a company can use their customers and consumers as a source of innovation.

How can a large service company utilize textual feedback from customers and consumers as a source of innovation?

Summer 2014: Preliminary Work

Over the summer I was tasked with writing a preliminary introduction, an abstract, research question as well as table of content. All of these have changed a lot since then, but this was mostly to get started, and begin the process of writing. This worked well, and I felt upbeat about the master.

Next came an unproductive period. I was going to begin writing the whole thesis, but where on earth do you start? This was mostly in late August and September, where I felt I was reading endless amounts of articles and writing notes, but not really getting anywhere.

Fall 2014: Interviews

It helped that in October my supervisor and I scheduled my first interview, which went very well. I learned fairly quickly that Telenor *was* in fact using this kind of textual feedback to make changes in both services and processes. It was also fascinating to me just how little the company (and in fact most companies only years ago) focused on the actual customer experience. I just thought it seemed counter-intuitive – to not use resources to find out everything you can from those who actually interact with your services each and every day. It made me feel like I might be on to something.

This helped spur a productive phase of my thesis. I met my supervisor on October 20th and we decided I would hand in a first draft of a literature chapter already on the 31st of October, and a draft of the methodology chapter by the 15th of November. I also conducted another interview in November. Of course, the thesis has changed since these earlier interviews were conducted, and some of the questions became more relevant than others in the finished product. For example the organizational aspect of what the obstructions are for using customer feedback in the innovation process was originally not part of these interviews, but going back I saw there was actually a lot of material on it there regardless.

During October and November I wrote drafts of the literature and methodological chapter. When I began reading for the methodological chapter, a lot of the literature suggested that one should have a form of diary, or at least major decisions made in the course of a thesis or research project. It occurred to me that I had a lot of notes, takes and drafts of parts of my thesis, but little on my own process of it. I did, however, have it fairly fresh in mind, as well as all my e-mail correspondence with my supervisor. So I began to write this document to outline how I felt, when decisions were made, and how this thesis actually came to be what it is.

During the late fall I spent much time creating a more streamlined and functional way of archiving results from Twitter. This proved to be difficult, especially to find a way to format the results that came into the Twitter API into documents readable to the software at hand (and one that could handle the Norwegian letters æ,ø,å). This was resolved some time before Christmas, and I began seriously collecting Twitter data on November 25th.

Winter 2014/2015

During February I conducted the rest of the interviews, so I would have plenty of time to structure and analyze the data from them. I felt much more comfortable in these interviews, as I now had a much better understanding of what I was studying. I noticed that my interview style became less structured, and I would more often stray from the interview guide than in the first interviews. Often the detours in the interviews which felt more like a conversation is where I found the most interesting information, as the

interviewees seemed more comfortable in being completely forthright about not only the advantages, but also the issues with using the systems in place at Telenor. At least it seemed this way from my perspective during the interviews. After these interviews the research question was also slightly altered. As there was now a focus on both how Telenor collected this information, as well as how it was utilized, this was incorporated into the research question. Also, since I had found that Telenor did not only use *textual* feedback as a source of innovation, but many kinds of feedback, the word textual was removed from the question. The research question was now:

How can a large service company gather and utilize feedback from customers and consumers as a source of innovation?

After these interviews I began writing the empirical chapter, and analyzing the text messages and tweets I had collected. The text mining proved somewhat problematic, again mostly due to practical concerns. I had a set of 100 000 text messages, but the computer I had really could not handle performing proper analysis on so much data. I ended up using a selection of 50 000 messages instead, but still most analysis took a long time to complete, and provided many moments of agony as the computer would, without warning, shut down. After a while I had run most of the analysis I wanted, and combined with the interview information I had a working draft of the empirical chapter, which eventually became the empirical and analytical chapter. In the beginning this was a litany of information strung together, broken up with data from the customer feedback. There was also a discussion chapter that mirrored the structure of the literature chapter (which was also revisited during this period). The empirical chapter was long, unstructured and the discussion lacked any conclusions or implications for the literature. But by the end of February I had a working draft of almost the entire thesis.

Spring 2015

During March I concluded my collection of tweets, ran analysis on these, and wrote the remaining sections of my thesis (as well as a very preliminary conclusion). At the end of March I turned in the first draft of my entire thesis. After a review from my supervisor it was suggested that the research question should have a few sub-question that could

structure the thesis better. This made sense, as the research question actually already had three main areas of focus, which were already guiding the structure of the literature chapter. The main areas were: customers as a source of innovation, how to gather customer feedback, and how to utilize it.

A question was created for each individual question, and these could now structure the introduction, literature and the empirical and analytical chapter. This was particularly useful to structure the empirical information as this had proved to be somewhat problematic. I found that I had so much information I wanted to use and to convey, but had to realize that unless this is logically structured for the reader, it would not be understood or interesting to read.

There was also a stronger focus on the obstacles for the utilization of customer feedback in this next version of the thesis, and the concept of absorptive capacity, which had been part of the initial literature chapter in September of 2014, was now rewritten and incorporated into the thesis. With this structure it was also much easier to summarize the findings for each question.

A new complete draft of the thesis was completed on April 29th.

After this began the work of finalizing the thesis, rewriting, creating lists of figures and so forth. All interviewees were sent any quotations used by them in the thesis, with some context. During this period I also contacted all the users behind tweets I had used as examples in the thesis. All twitter users were happy to let me use their tweets, something I was very pleased with, as I believe the debate on to what degree these are really publically available statements is something which should be dealt with more thoroughly than it is presently.

The thesis was completed on schedule Tuesday may 19th and sent to the presses the next morning. I was happy.

Vegard Tveito / May 2015