



**Aalto-yliopisto**  
Sähkötekniikan  
korkeakoulu

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## **Monetising mobile customer's perceived value**

Diplomityö, joka on jätetty opinnäytteenä tarkastettavaksi  
diplomi-insinöörin tutkintoa varten.

Espoossa 16.5.2018

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**Työn nimi** Asiakkaan kokeman arvon rahastaminen.

---

**Koulutusohjelma** Maisteri

---

**Pää-/sivuaine** Tietoliikennetekniikka

**Koodi** ETA3003

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**Työn valvoja** Heikki Hämmäinen

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**Työn ohjaaja(t)** Tiina Höckert, Kalevi Kilkki

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**Päivämäärä** 16.5.2018

**Sivumäärä** 47

**Kieli** Englanti

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### Tiivistelmä

Tässä diplomityössä tutkitaan, kuinka teleoperaattori voi rahastaa käyttäjän kokemaa arvoa. Tavoitteena on löytää uusia liiketoimintamalleja, jotka kasvattaisivat keskimääräistä käyttäjän tuottamaa tuottoa. Toisena tavoitteena on tunnistaa liittymäliiketoiminnan komponentteja, jotka vaikuttavat kuluttajan maksuhalukkuuteen. Tutkittavat aiheet rajataan käyttäjäkyselyllä, ja valittujen aiheiden mahdollisuuksia syvennetään asiantuntija-haastatteluilla. Tulokset osoittavat, että asiakkaan kokema arvo on erittäin monisyinen konstruktio. Asiakkaan kokeman arvon ymmärtäminen on ensisijaisen tärkeää, kun yritys suunnittelee uutta liiketoimintaa. Arvoon vaikuttavat muun muassa asiakkaan kokema turvallisuus, luotettavuus sekä nopeus.

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**Avainsanat** mobile operator, mobile plan business, b2c, customer perceived value, customer expected value, mobile operator business, willingness to pay, monetization

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<b>Title of thesis</b> Monetising mobile customer's perceived value.		
<b>Degree programme</b> Master's Degree		
<b>Major/minor</b> Telecommunication technology		<b>Code</b> ETA3003
<b>Thesis supervisor</b> Heikki Hämmäinen		
<b>Thesis advisor(s)</b> Tiina Höckert, Kalevi Kilkki		
<b>Date</b> 16.5.2018	<b>Number of pages</b> 47	<b>Language</b> English

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### **Abstract**

This thesis studies how an operator can monetise the customer perceived value. The main goal is to find new business opportunities, which potentially increase the average revenue per unit. The second goal is to identify components in the mobile operator's products and services that affect the customer's willingness to pay and the customer expected value. Outcomes are verified by a quantitative customer survey and deepened by qualitative interviews with experts and professionals. The results indicate that customer perceived value is a complex concept but very important when developing businesses. Key factors in customer perceived value in the mobile plan industry at the moment are price, performance, reliability and safety. The findings of this research are directions for future research and managerial implications.

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**Keywords** mobile operator, mobile plan business, b2c, customer perceived value, customer expected value, mobile operator business, willingness to pay, monetization

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## Preface

*This Master's thesis was conducted during the years 2017 and 2018 in Aalto University School of Electrical Engineering at the Department of Communication Ecosystems. I greatly thank the company Elisa for providing great resources and a positive working environment for this research. Also, I want to address my gratitude towards all the people and co-workers who supported me. Special thanks for my instructors Tiina Höckert and Kalevi Kilkki for guiding me through the project. Finally, I want to thank my family and my friends for supporting and encouraging me in the process and accomplishment.*

Espoo 16.5.2018

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## Abbreviations

4K = Display resolution in the order of 4,000 pixels

8K = Display resolution in the order of 8,000 pixels

GB = Giga Byte

HD = High Definition

IP = Internet Protocol

LTE-A = Long-Term Evolution Advanced

Mbit/s = Megabits per second

SD = Standard Definition

SIM = Subscriber Identity Module

VPN = Virtual Private Network



# 1 Introduction

## 1.1 Motivation

We are witnessing a rapidly changing business in the mobile consumer market in Finland. Change driven by more demanding customers and new technological solutions encourage mobile operators to improve their competitive advantage. Dynamic behaviours in smartphone users make consumer research crucial for the mobile operators in the continuously developing market. Comprehending the factors, which make the consumers discontented and what affects their perceptions of the brand is crucial in order to minimize churn and maintain healthy customer relationships.

In the Finnish mobile consumer market the key aspects in customer monetizing are new customer acquisition, upgrading existing customer relationships and controlling the level of churn. These actions are consequences from the success of branding, marketing and sales, customer experience, customer perceived value and customer lifecycle. The concept of perceived value was developed to define a new business-related issue in the 1990s. Afterwards it has gained a great deal of research interest, and even The Marketing Science Institute listed the concept in its research priority list in 1997. Now it has developed into one of the most popular constructs amongst business management and business academicians, even though the consensus of the precise definition remains unclear. (Sánchez-Fernández, et al., 2007)

Customer expected value is one of the concepts to assess and estimate the customer perceived value. Investing in research, which aims to find where the value for customers resides has become strategic and crucial for companies in the fierce market. Higher degree of customer satisfaction generates customer loyalty, positive word-of-mouth and hence gives competitive advantage for the company. As customers are individuals with varying needs, preferences and personal values, the research becomes easily complex. Companies study their customers' expected and perceived value in order to improve the business. Understanding the customer's subjective feelings, thoughts and values is also the theme in this research.

Different reasons for this research are the tightening competition between operators and the general change in the paradigm shift from the product-centered design into the user-centered design. As one of the companies in the industry addresses consumers' necessities better, the whole industry has to improve and invest. As a framework of processes, user-centered development of new products and services aims to maximise the value for customer, whereas previously the competitive advantage has been attained through, for example, increasing the performance of resources. Another reason is the growing data consumption, as consumers deploy more novel data dependent telecommunication services and applications.

At the moment, productization of mobile plans is mostly based on the mobile data downlink speed. However, new culture of utilising mobile devices as part of communication, entertainment and source of information introduces new potentially important features other than downlink speed. Lack of understanding customer perceived value in the mobile data market complicates the operators in maximising their value of the consumers. Currently three major operators (Elisa, DNA and Telia) own almost the whole market seg-

ment in the mobile consumer business. As data usage is growing and nearly half of Finnish mobile plans have unlimited data, it is viable for the companies find new prospective techniques to monetise customer perceived value. (Viestintävirasto, 2016)

Customer expected and perceived value have been studied a lot and various theories suggest ways of defining and measuring them. Numerous studies are, however, old and might not apply any longer. Due to the swiftly altering trends in mobile data market, the consumer expected and perceived value should be examined from distinct perspectives such as quality of media and security. By understanding the customer, operators have more tools to provide products and services, which match the demand and so be able to increase the revenue per user and value for the customer.

## **1.2 Research problem**

There are basically two ways to increase the revenue: Grow the customer base or grow the average revenue per user. Finnish mobile operators encounter challenges in growing their revenue, because the data plans have long been unlimited and the market is owned by three major operators. Increasing customer base is easier in practise, because lowering prices will attract more customers. However, it would lead to only a temporary competitive advantage, because the competitors would have to follow up with similar offerings in the price. In the long run, the customer segments would be renewed, and the result in competition would be the more or less the same, except that the all operators involved would make less money.

The hypothesis here is that by understanding customers demand and by providing suitable products and services, it would be possible for the operator to grow the average revenue per user. The purpose of this research is to understand what are the current demands and expected values of mobile consumer customers in Finland and how the mobile operator can correspond to them in order to increase the revenue. Specifically, the following research questions are examined:

- What is the perceived value for the mobile customer?
- What are the customer expected values in case of subscription plan?
- What kind of business cases can be made based on the customer expected value?

## **1.3 Research scope, approach and method**

This research consists of three research phases: Literature review, case selection (customer survey) and case analysis (expert interviews). Each of these phases has a different research scope, approach and method. Research is made and the results are presented from the operator's point of view. Hence the de facto price cartel formed by three major operators in Finland is accepted and seen as positive issue, even though from the customer's or the society's point of view it might not be.

As represented in the Figure 1, the scope of this thesis starts with a wider perspective and narrows down towards concrete business cases.

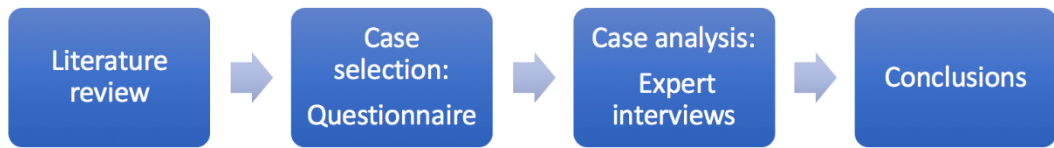


Figure 1. Overview of the thesis structure.

Starting from the literature review, the research scope is the current knowledge and literature of topics related to customer perceived value and customer expected value as well as mobile operator business in Finland. Objective is to gather information and aggregate a general overview of the theories and facts. Investigating earlier research and white papers in addition to various reports, the literature review gives this research fundamentals for the empirical parts.

Defining the final research scope is conducted by using a customer survey, which narrows down the most important business areas to be examined with interviews. In practice, the selection is executed as a questionnaire in web for Elisa's consumer customers. In the survey, the operator's current customers are asked which kind of services they would value. The format of the questions will follow the conventions in the literature review and formulated so that their content is based on the current trends and knowledge of the mobile consumer business. The scope for the quantitative survey is pre-determined according the available customer contacts in Finland. Age or gender are not part of criteria, although the sample group is formed of those customers, who use internet and are willing to answer the survey. Focus group covers the current customer base uniformly in Finland. Technological changes and new regulations, for example cutting roaming fees, are not included in the research. The time scale of the research is year 2017. As for the survey questions, the dedicated business development working group in Elisa pre-selects 10 distinct alternatives of operator's prospective business areas, which are in line with the company's strategy and the insights found from earlier research. Areas include current mobile service offerings and new potential offerings.

With these assumptions, the results in the survey will derive from the customers themselves and without any greater prejudice. It is important to acknowledge that customers do not know the same information as the professionals in the company. For example, the customers can be unaware of various pricing mechanisms. Although, consumers are aware of the use experience, mental image of the product or service and various use contexts that they relate to. Mental image affects the willingness to pay, and using the products and services generates experiences, which the customers reflect on their own background, past experiences, future expectations and surrounding information such as economical context and societal context. This makes customers and consumers a complex group to understand. Information from them can likely rely on multiple factors including emotions, background, context of answering and socioeconomic status.

The final phase in this research is the interview. After finding the most valued business areas from the survey, the scope of the research is narrowed down to the top three cases, which are reviewed by interviewing professionals inside the company Elisa. Potential of the business cases are examined as well as opportunities they provide and challenges they cause. The interviews are conducted inside the company in order to accurately take into

account the products, services and capabilities of the company. Interviews are semi-structured as one-on-one sessions, which allows the interviewees to bring in new ideas. Key points are aggregated and presented in the conclusions.

## **1.4 Structure of thesis**

Chapter 2 includes an exploration of the available related literature. The key purpose of the chapter is to provide a broad understanding from several viewpoints of consumer perceived value and how it can be measured. Perceived value derives from the relation and interaction between the customer and the product or service. Concept has been studied using various approaches, which are represented in this chapter. However, not many recent mobile communication related topics are to be found around the concept of customer perceived value, especially in the context of unlimited data. Hence the literature references cover older and more recent researches and more general studies of the customer perceived value. In case of mobile operator business, which is in ongoing change, some more recent topics are examined. As this research concentrates on the current situation in Finland, the literature references are focused in the Finnish mobile operator business. Connecting the dots between the science of perceived value and operator business is one of the goals in this chapter.

Chapter 3 covers the literature review on mobile data business in Finland. Based on the current market information and literature, the aim of the chapter is to enlighten the dominant competitive situation and the trends, which are affecting the industry. Understanding the dominant trends and areas of growth is essential in order to have a solid general view upon the market.

Chapter 4 covers the quantitative customer survey. The survey itself is about product and service valuation, aiming to show which business areas should be considered to be developed further. Customers choose features of the subscription plan, which they value the most. This chapter focuses on the results of the survey and introduces each of the business area options, which are included in the survey. By surveying the customers, the options are narrowed down to three most interesting business areas, which are examined more deeply in chapter 5.

Chapter 5 covers the qualitative interviews with experts and professionals from inside the mobile operator company Elisa. Topics of the interviews are chosen based on the customer survey. The chapter focuses on opening and summarising the insights attained from the interviews. Interviewees are asked certain question pattern, but also open question and open discussion is recorded. Specialising in diverse sectors in the mobile operator business, the interviewees shed light on the most interesting business cases found from the customer survey.

Chapter 6 covers discussion about the testing the potential of suggested business cases. Chapter 7 covers the results, assessment of results and suggestions for exploitation of the results.

## **2 Literature review: Customer expected and perceived value**

Literature reviews are divided into two sections, chapter 2 and 3. In the first section the concepts of customer perceived value and customer expected value are examined. The second section covers the current situation of mobile data business in Finland.

### ***2.1 Customer perceived value***

It is important to maximize the company's customer loyalty in order to achieve revenue. Customer loyalty is, however, a subordinate goal, which is affected by customer value. High value is one motivation and cause for customer patronage. It means that the loyalty is a consequence, and value is the fundamental basis, also called the superordinate goal. Goal and action identity theories support the causation theorem that superordinate goals have an impact on subordinate goals. One key aspect of customer value is the perceived value. Higher and better perceived value increases customer value, which then positively influence the customer loyalty. (Sirdeshmukh, et al., 2002)

In order to deeply comprehend the concept of perceived value, we need to examine the theories behind it. It is vital for any company's management and the people making decisions to have an equal understanding of the terminology and context. The term itself has been used for a long time in various theories and contexts, which makes this study very complex if no particular approach is selected. Perceived value however has many interpretations and sometimes their distinctions are not unambiguous. In the next chapter I will look in and compare the various concepts of value, which came across in the literature.

### ***2.2 Defining the concept***

When researching the customer perceived value, researchers have not only categorized the definitions themselves but their research approaches differ as well. At the moment, there are two major research streams: Uni-dimensional approach and multi-dimensional approach. In practice, the nature of perceived value is complex and multi-dimensional. It means that the distinguishable phenomenon is subjective, includes many simultaneous attributes and changes over time, place and the subjects being observed. However, simpler versions of the concepts have been presented so that the measurements and research can be conducted effectively. Both of them have their parts in presenting various simplified (uni-dimensional) and complex (multi-dimensional) constructs of the concept. (Sánchez-Fernández, et al., 2007)

Of the simplified and complex constructs the definitions of customer perceived value are commonly divided in three categories, which have their distinct qualities but also some overlapping. The first category is so called value components model. The second category is the benefits versus costs model, which is also known as a utilitarian model. The third category is the means-end model. After examining the literature, I hope to have a justifiable pick or selection for the qualitative research. Next, I will go through the basics of customer perceived value following the three different models. Even though some of the referenced papers are relatively old, their theories about perceived value are still valid.

More recent aspects for this research will come as the testing is conducted and the results analysed.

### 2.3 *Uni-dimensional or multi-dimensional concept?*

As several theories have been introduced over time, they also have been divided in two research streams: Uni-dimensional and multi-dimensional approaches. Uni-dimensional approaches represent the earlier phases of the research of perceived value. Being simplified, these approaches possess a utilitarian perspective, in which the consumer's economic and cognitive thinking is used to determine the suitable benefits and costs. Uni-dimensional studies are more straightforward to conduct which is why there exists more literature on them than multi-dimensional studies. However, uni-dimensional approaches do not reflect the complexity of consumer perceived value in detail. Deficiencies are, for example, lacking the abstract and intangible factors such as emotions. (Sánchez-Fernández, et al., 2007)

Holbrook (1986) found already in the 80s that shopping from the consumer point of view is more than mere merits of the bought products or services. He suggests that the consumption experience includes also various emotional characteristics and by understanding them and also the subjective intangible and hedonic benefits it is possible to understand brand choices, product usage and other type of consumer behaviour.

### 2.4 *Value components model*

Value components model is a typical framework for assessing the product features in the process of developing new products and services. Based on an early research on quality, (Kano, et al., 1984) illustrated the level of customer satisfaction depending on three distinct product of service attributes. These value components are dissatisfiers, satisfiers and delighters. Attributes describes the desirability and necessity, which the consumers feel before, during and after the interaction between them and the product or service.

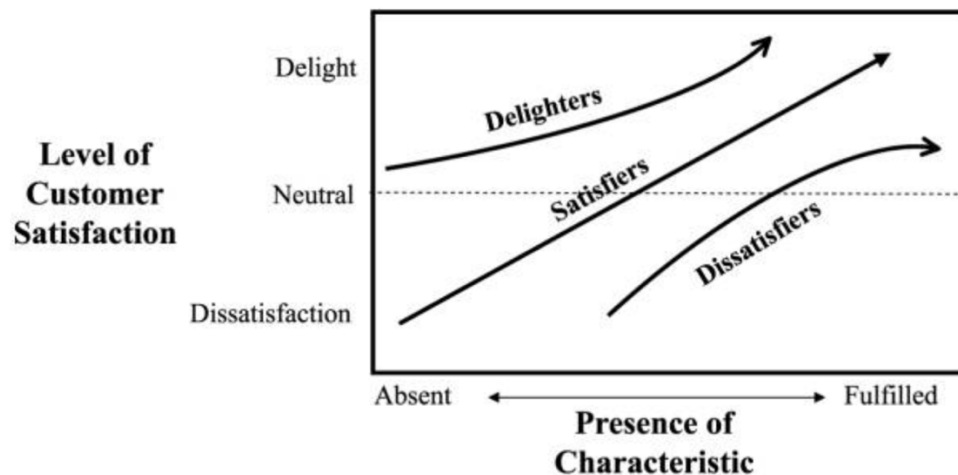


Figure 2. Kano's value component model illustration. (Joiner, 1994)

Dissatisfiers are all the attributes and characteristics of the product or service, which the consumer must have or must get from the product or service. In other words, they are implicitly expected to exist, and when they do, the customer feels neutral. As presented

in Figure 2, dissatisfiers component start from customer dissatisfaction and a neutral presence. It means that even if the feature was presented but not well enough, it will result in dissatisfaction and the customer feels defected. Generally, it implies that the feature is being marketed and the customer thinks it is available but cannot use it. (Kano, et al., 1984)

For example, in the mobile plan the customers expect to be able to call to another person. Satisfiers are described to be the expected and explicitly requested attributes and characteristics of the product or service. These attributes and characteristics greatly affect the customer perceived value. In practice, the satisfiers usually relate to various performance characteristics of the consumable. The more satisfying components the product or service has, the more positively it is valued by the consumer. On the contrary, consumers get dissatisfied if these characteristics are being offered but are insufficiently fulfilled. Accomplishing these characteristics is also seen as the minimum requirement in order to keep up the business.

For example, in the mobile plan the data download link is said to be 100 Mbps but in reality, the actualized speed would be 10 Mbps. The customer expects his/her needs to be fulfilled as promised, but disappoints because the deliverable promises are not fulfilled, and so the customer's experience does not come up to expectations. Moreover, if the actualized download speed is over 100 mbps and the customer noticed it, according to the theory it would result in positive customer experience and so also the customer would perceive positive value. However, depending on the use case, the real required speed might not have to exceed the promised value, if only the quality of service or application being used meets the customer's expectations.

The third value components are the delights of the consumable. In practice, delights are the extra features and characteristic, which are not expected and not explicitly required by the consumers. Having delights as part of the consumable, they can positively affect the perceived value, but when they are absent, it makes no significant impact on the experience. For example, in mobile data plans having extra features such as a third-party music service included will have a positive impact on the perceived value, but not negative if the feature was missing. (Kano, et al., 1984)

According to Nurmela (2012), clarity and flawlessness of the billing are dissatisfiers. Billing is generally well managed in Finland and therefore the customers trust in it and take it as granted, and only become suspicious and worried if aberrations start to occur. Similarly, the technical performance and functionality of the connection in every situation are dissatisfiers by nature. If a phone call cuts out, it directly generates a bad user experience and becomes a dissatisfying feature.

Another similar theory was presented by (Kaufman, 1998), who suggested that the consumer would have separate needs, which the product of service has to fulfil. These needs might be part of the performance, outlook, customer service or any other related attribute of the thing being consumed. Main elements used in the value studies includes esteem value, exchange value and utility value. Esteem value describes what the customer wants or desires to own, as owning something for the sake of merely being in the control of the ownership. Exchange value describes the worthiness from the customer point of view, like why the product interests and how and in what context the customer would use it. Utility value on the other hand describes the very measurable qualities such as performance. It is also the major influencer in the purchase decision-making process.

## **2.5 Utilitarian and hedonic models**

Utilitarian model is about the consumer's capability of completing tasks and the perceived success of the undertakings. The model includes dimensions of consumer perceived value linked to the necessities of living. Utilitarian value is traditionally defined as the value, which the customer receives from a task-related and rational consumption behaviour (Babin, et al., 1994). Commonly this theory has encouraged companies in thinking that the utilitarian value would be in key position in market decisions and customer preferences (Chiu, et al., 2005). The theory stems from the idea that consumers are analytical and judicious beings who understand how to maximize their utility and advantage. At the same time, when customers think for their own best, they are also restrained by various factors, for example, limited money or time (Sweeney, et al., 1996). In literature and also in practice the conceptualization of customer perceived value has been described as the cognitive trade-off between benefits and sacrifices. This trade-off approach is uni-dimensional as it does not cover, for example, consumer's emotions. Being straightforward trade-off relation between two factors such as quality and price, the utilitarian models are easier to measure than multi-dimensional models but does not satisfy the comprehensive customer perceived value.

As a result of consumption, the customers also receive hedonic value in addition to utilitarian value. Where utilitarian value is more functional and instrumental, hedonic value can be described to reflect emotions and experiences. In case of a mobile operator, the products and services produce both hedonic and utilitarian values. It is, however, much more difficult to assess the hedonic value. For example, (Lee & Overby, 2004) determined the two parts of customer satisfaction and perceived value as follows: Utilitarian value can be measured by price savings, time savings or product range. Hedonic value on the other hand can be measured by assessing the level of entertainment and feeling of interaction.

In the literature review I found that the utilitarian model is often one part of some more extensive model. For example, consumption-value theory by (Sheth, et al., 1991) appends the theory with social, emotional, epistemic and conditional value. Here the utilitarian value describes how the product or service is able to satisfy the functional needs. Social value points out the customer's own social image and how it is affected by the consumption. Emotional value is the mere effectual feelings, whether it is happiness, safety, fear or anger. Less mentioned epistemic value is the consumer's intellectual curiosity and volition to encounter new experiences. Lastly mentioned conditional value can be depicted by the fact that part of the market decisions and unforeseen in the circumstances of the consumer.

## **2.6 Means-end model**

Means-ends models revolve around the various hypotheses that the consumer actions are goal oriented and that the purpose of acquiring, consuming or using a product or service is to maximise positive end results and minimize negative. In this approach 'means' describe the ways and methods of the consumption. In practise, they can be different products or services or parts of them, which the consumer acquires and consumes. By choosing a particular product or service, the consumer attempts to accomplish his favourable goals during the consumption on some time after it. Ends describe the objectives and target of the actions. They can be personal values, concrete goals to reach or a desired



feeling. There exist various means-ends models, which are related but emphasize different aspects of the phenomena. (Huber, et al., 2001)

Means-ends modelling is the dominant view in consumer behaviour research, in which the perceived value is studied from the perspective of customer's values, vision, mission and cognitive imaging of the customer's needs and aspirations. Means-ends modelling can be uni-dimensional or multi-dimensional. In the uni-dimensional approach the perceived value is measured by, for example, quality-price relationship or value-behaviour relationship. Multi-dimensional approach includes a wider perspective to the subject and includes, for example, customer value hierarchy and utilitarian and hedonic value. (Salem & Azaddin, 2004)

According to Sánchez-Fernández, et al., (2007), the means-ends theory explains why customers appreciate different attributes in the product or service. Various means-ends theories clearly manage to demonstrate the reasoning behind the product or service acquisition, even though the theories have lacks in explaining the sacrifices, which the consumer had to bare when searching, acquiring or using the product or service. Means-ends theories look at the concept of perceived value as a process, which includes the reasons behind the actions and the consequences they result. Both positive and possible negative consequences are taken in account, but the comparison of the trade-offs between customers benefits and sacrifices is not so well covered.

Early theory of the means-ends is called Zeithaml's approach. In this approach, the customer's values are associated with their actions. Customer's perceptions are subjective and not the same as perceived value, but according to this approach they are drivers in the decision-making process. Consumer's perceptions have also been divided into three categories: *linkages among product attributes, the perceived consequences of consumption and the personal values of consumers* (Gutman, 1982). Linkages among attributes indicate to the consistency of the product or service. Connected features and solid usability help creating the coherent user experience, which improves the perceived value. At the same time consumer's needs lead to the actions so that the consequences of the consumption would fill those needs. Perceived consequences affect the decision-making process, even though the real consequences of consumption might differ from the perceived ones. Personal values affect the feelings towards consumption as customer reflects the product's or service's brand, consumption and intended consumption to those values. Customer can think, for example, how ecological will the consumption be, or what is the balance between taking risks and being safe.

In the essence of the means-ends theory is that the consumers know what they want, they are goal directed and the product or service is the solution for their needs or problems, or at least part of them. Zeithaml (1988) introduced four characterizations for value: The first is the product's or service's relatively low price, which means that the focus is in the sacrifices. The second is if the customer's desires in the product's or service's features are realized, which indicates the benefits. The third is the quality of the consumption, in which a sacrifice component is compared to a benefit component. The fourth is the value as what the customer gets in exchange of giving, which is the sum of all possible sacrifice and benefit components. Zeithaml also construes the perceived value as a hierarchical concept. Hierarchy appears as when one examines the causal connection of different components of the value. According to the author perceived price and perceived sacrifice would be lower level abstractions and so parts of the higher-level abstraction. It means that the price and sacrifice affect the perceived value, not vice versa. Zeithaml finally

described how the end consumers are in the core of the perceived value, as it is up to them how the objective attributes of the product or service are perceived, and in what context. Consequently, perceived value would change depending on the situational context and be affected from the consumer's frame of reference.

Woodruff (1997) introduced a model in which the perceived value derives from three different concepts: learned perceptions, preferences, and evaluations. Learned perceptions are customer's past experiences of similar products or services. They can be memories, learned information from others or from the marketing messages of the product or service. Preferences derive from the needs, which are related to the technical needs, social needs and monetary needs. Woodruff also designed a theoretical hierarchy model in order to describe the relationship between subject's attributes, performance and consequences. As seen in Figure 3, moving up in the model describes the customer's thoughts being focused on attributes, performance and features and their bundles. Customers tend to prefer some options over other, depending on their goals and needs. Perceived value is formed by the feelings of accomplishment and reaching the goals and purposes. Moving down the model the customers focus on the consequences, which implies that the personal goals are not prioritized when measuring the perceived value. In the bottom, the more concrete attributes and features of the product or service determine the level of the perceived value.

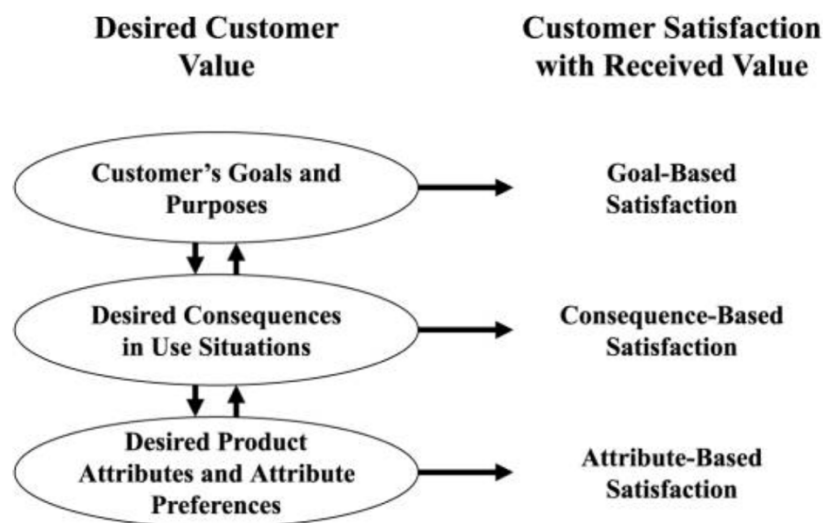


Figure 3. Customer value hierarchy model. (Woodruff, 1997)

Lanning (1998) contributed into the discussion by stating that the customer's gained experience is the core of the value proposition. He crystallized the complex concept into one question: "What would the customer perceive as the value of the end-result consequence of this event, compared to alternatives, if they could experience it?" Lanning highlights that the perceived value cannot strictly be measured by what the customer is keen to paying of the product, but that the value would be more abstract feeling of the prestige of the experience. According to his theory, the value, which really matters is what the customer experiences, not what the product or service is or appears to be. Therefore, in order to find the perceived value, it is necessary to understand the resulting experience of the consumption.

## **2.7 Perceived value or personal values**

Perceived value and personal values are both subjective concepts, but they are not to be assumed as equivalent. Perceived value is the result of the user's assessment. On the other hand, personal values indicate to the person's own principles, norms of life and other ideologies, which affect his motives and actions. (Holbrook, 1999)

While the concept of value encases user's interaction with the product or service, the concept of values implies the user's feelings, assumptions and beliefs. Hereby the values are behind the actions; being the criteria when evaluating different desires and making the preference judgement (Payne & Holt, 2001). In this study, we focus on the value, specifically the mobile consumer's perceived value. It is the relation between the benefits and sacrifices that the customer perceives when he is using mobile services.

Value has been also equated with the concepts of utility and desirability. Utility is very demonstrative here because it means the ability of a product or service to satisfy the consumer's needs and how it relates to demand. Hence the theory of utility supports the value construct (Tellis & Gaeth, 1990). Products and services with higher utility can be sold with higher price, which is the disutility from the customer point of view.

Even if in economics the concept of utility has been used in the definitions of customer perceived value, they should not be mixed. As the utility refers to the price paid, it is very rational assessment and easier to measure. Value is more complex and in addition to the price it includes also the time and effort, which the consumer has to invest. (Monroe, 1990)

## **2.8 Value versus quality**

Customer perceived value and customer perceived quality are also close and partly overlapping concepts. Both concepts, quality and value associate evaluative reasoning, which is subjective, personal and context-dependent (Bolton & Drew, 1991);(Day & Crask, 2000). Still, most authors in the literature review seem to agree that these constructs have differences and are distinct. For example, Bolton & Drew state that there ought to be differences in customer's assessments between the service value and quality due to variations in monetary costs, nonmonetary costs, customer tastes and customer characteristics. Parasuraman, et al., (1988) states that the service quality relates closely to the performance of the product or service. Having a reference point or expectation of the performance, consumer will put the perceived performance into perspective and so form the vision of the quality. This point of view is indeed distinct from perceiving value, or in some cases part of it. Similar findings have been proposed by Kuo, et al., (2009). According to Kuo's research the service quality effects positively on perceived value and customer satisfaction. Results from his research show that when a telecom company provides good service quality, perceived value and customer satisfaction can be increased.

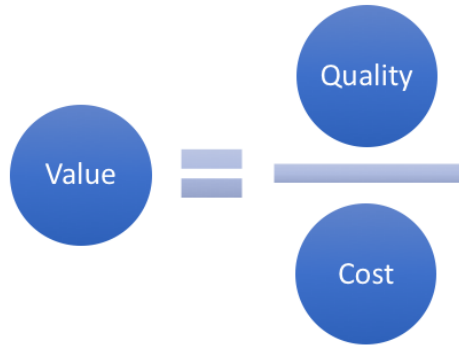


Figure 4. Relationship between quality and cost.

According to Spiteri, et al. (2004), product quality has a greater impact on customer's perceived value than service value has. However, in case of mobile operator's products and services the differences between tangible product and intangible services are not so distinct. In the literature, I found discussion whether the quality is an antecedent for value or sub-component of it, or whether it is more critical than value. Generally, the perceived value is described to be a broader term than quality, consisting the same variables as quality but also includes components, which are not part of perceived quality. In this case we can regard perceived value more important than quality as it is also what the consumer foremost recognizes (Huang & Tai, 2003).

As shown in the Figure 4, the relationship between value for customer, quality of the product and the cost of the product can be generally formulated so that the value is proportional to the quality over cost. This means that as the cost decreases, the value increases. However, the relationship does not include any detailed information about the product or service. Therefore, it is necessary to consider also other variables, which affect the expected value and perceived value.

Research from Kuo, et al. (2009) showed that in order to improve the perceived value, telecom companies could further develop and improve the quality of their value-added services. Especially, customer service and system reliability stood out in Kuo's research as key factors in the service quality experience. Author suggested that these areas could well be improved through education training and technical support. Finally, Kuo concluded that in the case of wireless networks, it is to be ensured that the quality meets the specifications promised to the customer.

In case of Elisa, the value-added services play a significant role in customer perceived value, as Elisa provides various complementary services. Every extra service on top of the subscription plan is related to the same service provider, so if one the services is really difficult to use or yields in bad customer experience, it might affect to the attractiveness to the other services or willingness to pay for them.

## 2.9 Customer expected value

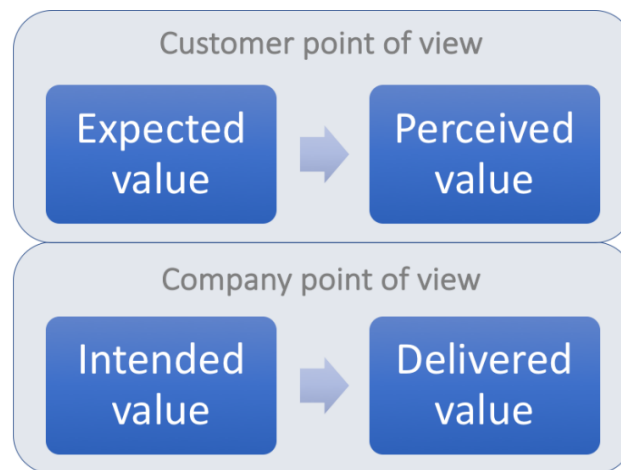


Figure 5. Relationship between the types of values.

As seen in the Figure 5, the various types of value are bridged to each other and form an interdependent causal connection. However, there are gaps in between the types of values. These gaps depend on the company's strategy and performance.

The gap between expected value and perceived value may influence on customer's willingness to pay and the overall customer experience. The bigger the gap, the more poorly the service provider is executing its strategy. Various gaps that have an impact on the company delivered value and customer perceived value are, for example, information gap, design gap, compromise gap and employee or customer participation implementation gaps. (Anitsal & Flint, 2006)

Information gap implicates that the service provider has insufficient information about the customers, and so the services and products are not designed to cater the demand. This effect exists more or less in every relationship between customer and service provider, because of the humane and ambiguous context. By studying the customers, the service provider is able to minimise this information gap. Design gap implicates that there are technical restraints or deficiencies inside the service provider, for example, lack of resources in the research and design or in the development. Due to these weaknesses, the service provider is not able to produce the desired products or services. Compromise gap relates to a situation where the customer has no possibility to get the desired product or service, but instead he is obliged to make a compromise between the existing alternatives. Employee participation implementation gap implicates that the employees inside the company has not been able to participate enough in the development. It leads to a mismatch between the company's intended value and delivered value. Customer participation implementation gap implicates that the customers' needs are not taken into account when developing the products and services. This leads to a mismatch between the expected value and perceived value. (Anitsal & Flint, 2006)

### 3 Literature review: Mobile data business in Finland

The second part of the literature review will look into the current situation of mobile data business in Finland. This chapter includes aspects from the mobile operator's point of view and also aspects of the customer relationship.

#### 3.1 Unlimited data thrives the market

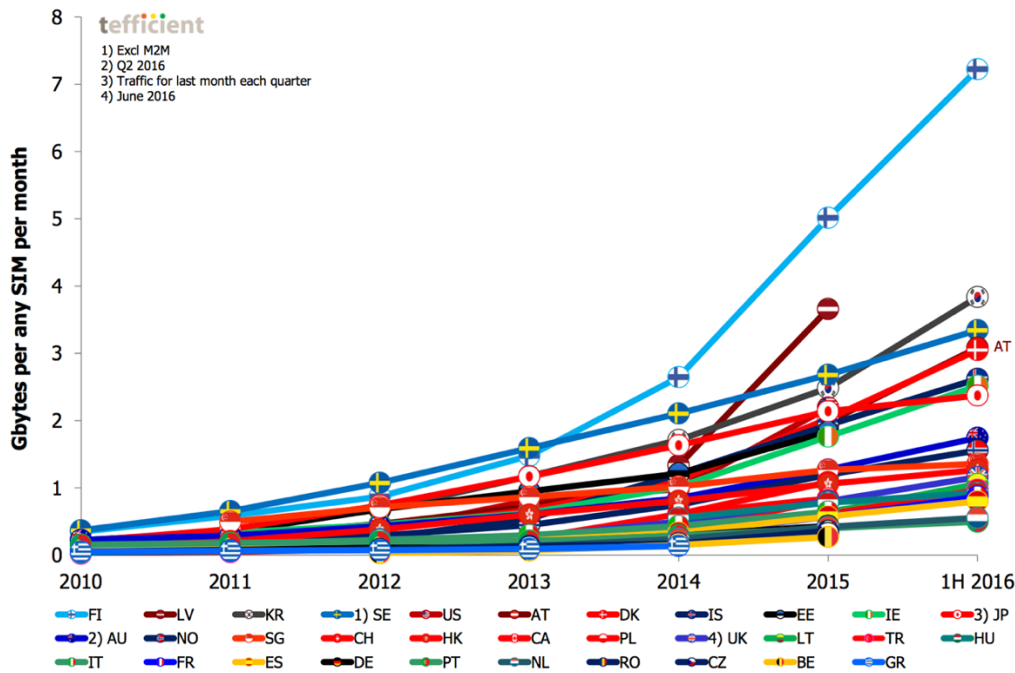


Figure 6. Development of mobile data usage per SIM per country. (Tefficient, 2016)

According to the report by Tefficient, 2016, Finland leads the mobile data usage per SIM with 7,2 gigabytes. As shown in the mobile data usage graph, the differences between countries are clear. However, there are very interesting countries in the top 10 list such as South Korea and Latvia. Major reason for the increasing in growth is the supply of unlimited data plans, which enables the customers to use their mobile data limitlessly (Tefficient, 2016). In practice, most of the unlimited data plans are limited: Subscription plans are marketed as unlimited, for example, by speed, but in reality, they have usage caps. Examples found from WhistleOut.com show that unlimited plans have descriptions such as: “Users of more than 12GB per month may notice reduced speeds” and “Max data speeds of 3Mbps / Video Streaming at 1.5Mbps / Users of more than 22GB+ in month may notice reduced speeds” (WhistleOut, 2017).

As seen in Figure 6, the data volumes have grown most in the countries, in which they were already at a high level. For example, Finnish customers use approximately 13 times more data per month compared to customers in Netherlands. At the same time one gigabyte in Netherlands is roughly 14 times more expensive in comparison to Finland. According to the report there is a clear connection between unlimited data subscription plans and high mobile data usage. (Tefficient, 2016)

According to Analysys Mason (2013) mobile plans can be divided into three subcategories based on the data limitation qualities. Truly unlimited data plans include at least one mobile broadband with an unlimited data consumption at the maximum speed, which is available and up to the agreed theoretical speed, which the subscription is paid for. Most of the Finnish mobile subscription plans are truly unlimited. However, truly unlimited plans can lead to a situation where some users use a massive amount of data and the operator does not have sufficient tools to control the usage. Also, if network is congested, users may notice reduced speeds. The second category are the capped or throttled unlimited plans, which include some level of limitations. For example, a specific data volume usage limit at the maximum available speed counts in to this category. Usually the connection works even though the usage cap is reached, but a restricted speed. Usage caps and speed limitations are tools to control the total traffic, but at the same time the consumers might not have equally positive user experience compared to the truly unlimited plans. However, according to the report by Analysys Mason the usage cap or deceleration of data rate would be beneficial for both the end user and the operator. The third category includes the plans, which openly advertise the data allowance. (Mason, 2013)

### **3.2 Competition in Finland**

In Finland, the 1800 and 2600 megahertz frequency rights were sold in 2009, and 800 megahertz in 2013, aiming to cover almost the whole population in the 4G network by the year 2017. As there are no minimum requirements for the 4G connection speed in Finland, the differences in speeds vary depending on the geographical area, the number of users and various obstacles in the terrain. All three major operators have LTE-A technology already in use, which allows 300 Mbit/s maximum speed in data transfer. (Väänänen, 2015)

Being also the only country with more than 1,7 mobile plan subscriptions per capita, almost half of all SIMs in Finland have unlimited data plans. Two main features of the subscription plans in which the operators compete at the moment are the downlink speed and range. In case of Elisa, also additional services are offered. Mobile data monetisation is practically based on the throughput tiers, not data volume. Range is more a marketing tool for the operator, as it varies throughout the country and the quality of service is effectively regional, not homogeneous everywhere. Only the prepaid mobile plans are priced according to the amount of usage. (Viestintävirasto, 2016)

There are, however, features, which could be used in the value proposal and pricing such as uplink speed and media quality. The challenge is that the competition in Finland gives very little space for improvising with the products and services, and the three major operators offer almost similar products for consumer customers.

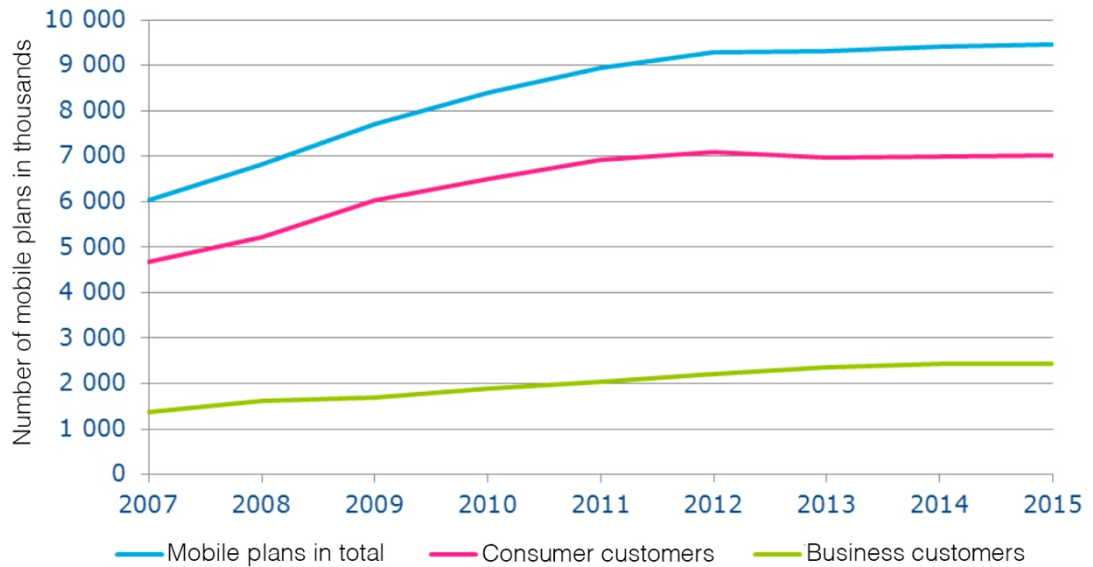


Figure 7. Number of mobile plans in Finland.  
(Viestintävirasto, 2016)

The user group of mobile Internet is steadily increasing and the proportional utilisation degree between different locations is slowly shifting towards mobile contexts. According to a report by the Finnish Communications Regulatory Authority, at the end of year 2015 there were 9,46 million mobile plans. As seen in Figure 7, household customers accounted for 74% and corporate customers 26% of all plans. Out of all plans, approximately 2,1 million were solely for data transfer. Even though the mobile internet makes it possible to access the internet regardless of time and place, the most common place to use it is at home, with approximately 88% of the users. Nevertheless, almost as many users used mobile internet while traveling (83%). 61% of the users used it at work and 59% at summerhouse. Proportionally the fastest expanding user group are the overseas users, who are surfing with mobile internet abroad. With regard to age groups, it can be stated that the use of mobile internet has decreased in all places with age. In the case of the population groups, the corresponding development went down with the decrease of the population density, except for home use, which was more common in rural areas than in other groups of people. (Viestintävirasto, 2016)



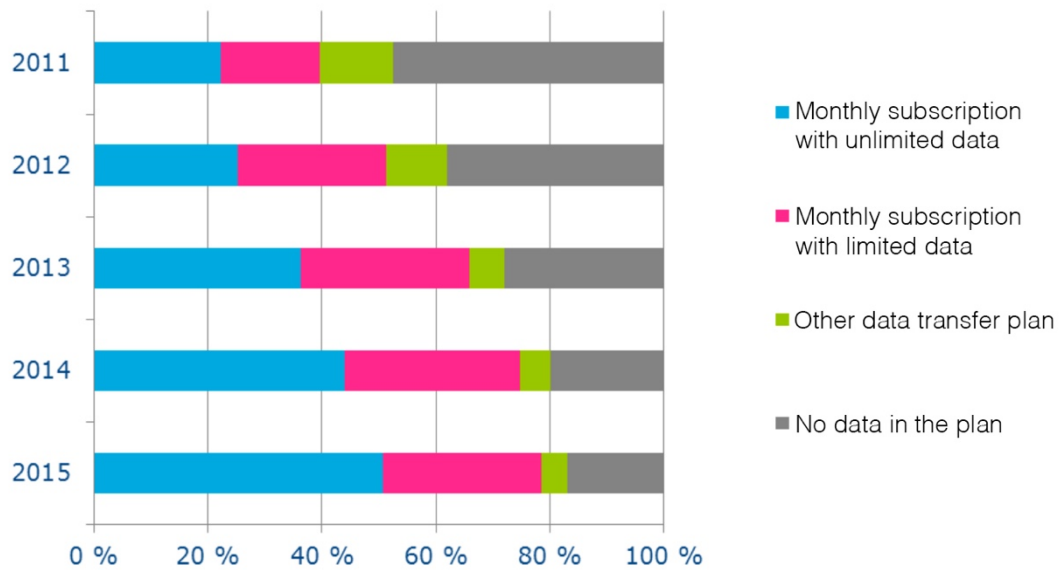


Figure 8. Percentage of the plans by their data transfer type.  
(Viestintävirasto, 2016)

As seen in Figure 8, the proportional amount of subscription plans with unlimited data is increasing steadily, and at the same time the number of plans without data connection is decreasing the fastest. The trend seemingly continues as the devices, services and applications rely on data. Thus, it is not necessary for operators to focus on anything other than a data connection plan.

Mobile phones are used for various services and activities in Finland. According to the report by the Finnish Communications Regulatory Authority, the usage of all mobile phone services, which the report includes increased in between 2015 and 2016. The most used mobile services in Finland include SMS (91%), searching information and news (71%) and emailing (66%). SMS is the only service in the report that does not require mobile data. On the other hand, the use of mobile data dependent services has increased faster than the year before. Navigation services was listed the first time in the report, but it shows a great proportion. Instant messaging (58%), watching short videos (56%) and spending time on social media (54%) covered more than half of the Finnish mobile users. These kinds of services require a lot of data, especially concerning the consumption of audiovisual media. However, watching traditional movies and television shows or playing games was not so popular. (Viestintävirasto, 2016)

Typical customer relationship in the mobile plan subscription business lasts for several years in Finland. According to a report by (Nurmela, 2012), almost half of the consumers have been customers for their current mobile operator for at least five years. At the same time, over one quarter of the customer relationships have lasted between two and five years. Phenomenon can be explained by, for example, good customer loyalty.

One of the reasons to get a mobile plan with an unlimited data is the freedom of mobility, meaning that the user has the confidence to use data whenever and wherever, if only there exists a sufficient service. According to a survey made by the Finnish Communications Regulatory Authority, three quarters of the respondents found the mobility to be one of the key aspects in mobile data plan acquisition. The same report also presented that the consumers have diverse needs for the downlink speed, meaning that the customers are somewhat conscious about their need for the speed. At the same time, the operators are

offering a subscription supply with varying speeds, which makes the mobile plan acquisition easier for the customer. Also, the general market demand of single plans is steadily expanding, even though most of the customers stay with only one subscription. According to the report, an increasing quantity of consumers express, that they would not get off without a mobile internet, which indicates that the truly unlimited data subscription is more and more mandatory. (Viestintävirasto, 2016)

The loyalty of the customers, long customer relationships and a product supply, which meets the demand keeps the whole business effectively stable and competition relatively equal. However, as new steps forward are being taken in the network technology by operators, new data-based services are being developed and devices themselves advance, for example, in having bigger screens, also new trends and demands will most likely emerge.

Out of the various aspects of customer satisfaction (Nurmela, 2012) brings up a few issues, in which the Finnish mobile operators are good and bad. According to the report the main strengths are smoothness of the subscription delivery as agreed in the subscription and the expert level customer service in the purchase context. On the other hand, customer service in problem situations and customer service response times were seen as weaknesses (Nurmela, 2012). Smoothness of delivery means that the customer gets what the customer wants, without an excessive effort or bureaucracy.

Subscription plans can be bought for the internet and also from the shops. Pricings of the products and services are clear and there are no hidden fees, and the bills correspond to what the customer expects to have bought. Expert level customer service results from the training programs of the operator, and that the operators have their dedicated shops in which only trained personnel are working. It is nevertheless interesting, that the customer service in a problem situation is seen as a weakness. It could, however, stem from the customer's own perception of the quality of the issue. For example, if the problem has already occurred, it is the customer service personnel's fault by default, even if the customer service could fix the issue. It well might be important for the customer to be one who is right, even though that is not always the case in reality. Same feeling and experience could be valid also for seeing the customer service response times as weakness. The response times are surely just as small as they can be, from the operator's point of view, but the customer does not know about all the other simultaneous contacts towards the customer service.

One of the key challenges for operators is the customers who change their service provider. The effect is also called churn, which is defined as the percentage of subscribers moving from a specific service provider to another in a comparable period of time. According to (Nurmela, 2012) the top reasons for churn in Finland are as follows: The top reason to change operator is that other operator offers sufficiently same service with a cheaper price level. The second biggest reason is that the competing operator has other better benefits. Less affective reasons are, for example, billing errors and repeating connection errors.

Depending on the level of understanding of mobile plan's technical features such as downlink speed, uplink speed and data volume variables gigabyte and megabyte, the customer tries to think and decide which kind of plan fulfils his requirements and expectations. On the other hand, However, each consumer's requirements and expectations are subjective and alter from each other, and some consumer might not even know his exact

requirements. Therefore, it is challenging to offer a product, which would suit for all. Generally, operators offer various versions of the product: Slower and faster. User's perceived value of the plan builds up as the expectations of the plan are realised or failed. Whether the experience of the product and service come up to expectations depends on various variables: The delivered subscription plan, device being used, use contexts and the user's expectations.

## 4 Customer survey

The research context employed here is Elisa's current mobile consumer customers in Finland. Connecting the studies of perceived value and current mobile operator business in Finnish customers is the core of this research. How does the mobile consumer customers perceive value in their subscription plans? What would the customers value more or less?

In practice, the research was conducted in two phases. Phase one was a web survey for Elisa's consumer customers. Question pattern consists of various features and services, which are already in the market or could be productised in the subscription plan. The objective is to cover the current customers unbiasedly throughout the country. For example, age or sexuality are not prioritized. Current technological changes and new market regulations are not included in the alternatives in order to make the survey easier to approach for the participants. For example, 5G is not be asked as it has not been commercialised yet. The second phase was interviewing the professionals inside Elisa with topics based on the customer survey results.

### 4.1 Quantitative research

Quantitative data assists in focusing on the most important topics. In order to get data, a web survey is sent to the target audience. Survey consists of the following question and options:

Would you value the following features in your mobile subscription plan?

1. Video I watch is sharp and good quality.
2. Video I shoot uploads to internet fast.
3. In a congested network, I will get the promised speed.
4. I can use multiple SIM-cards with the same number.
5. I can update the plan with an app, even temporarily.
6. I can control my child's mobile phone usage with an app (i.e. playing, watching videos).
7. Plan would include an Elisa Turvapaketti antivirus service.
8. Plan would include 5 GB space in Elisa Pilvilinna cloud storage.
9. Plan would include personal assistance in using services and products.
10. Plan would cost the same in all EU countries, but outside Finland the usage would be limited to basic use (i.e. WhatsApp, email).

Different areas were selected in a work group based on the current interests, capabilities and knowledge of the company. Questions and their backgrounds can be further explained as follows:

Option 1 'Video I watch is sharp and good quality' deals with the perceived quality of video. At the moment video is the most rapidly growing media in the network. Users and producers shifting to higher resolutions accelerate this development. This leads to economic challenges, as the customers pay the same amount of money for the mobile plan but effectively use more data than ever before. Work group wanted to know how many of the users actually stress the importance of sharp and good quality video. By asking the customers simply if he appreciates the high video quality, the result will indicate whether it is worthwhile to further investigate various methods to monetise the perceived value stemming from the video quality.

Option 2 ‘Video I shoot uploads to internet fast’ deals with the performance of the uplink. The option originates from the fact that more and more videos are being uploaded to the internet and sent to other users via, for example, WhatsApp or Snapchat. For operators this is a challenge, as increasing the data traffic without increasing revenue per user at the same time leads to an economic pressure. Hence the importance of the upload speed is asked.

Option 3 ‘In a congested network, I will get the promised speed’ refers to prioritising users. Question is important because in the Finnish mobile plan market there has been no differences in the prices in terms of prioritisation. Prioritising a particular user, the operator promises that in a network congestion this user will be addressed before those who have not paid for the prioritising. Prioritising might not be fair, but it is one way to ensure the quality of service for those customers, who are willing to pay more.

Option 4 ‘I can use multiple SIM-cards with the same number’ deals with the multi-SIM service, in which many SIM cards are registered to the same number. This can be profitable service and a way to stand out from the market, as already in 2015 there were more than 9,4 million mobile subscriptions plans (Viestintävirasto, 2016). Growing amount of subscriptions might affect to the willingness of paying for more SIM cards, and the work group decided to find out if this should be further examined.

Option 5 ‘I can update the plan with an app, even temporarily’ refers to the consumer’s control of the subscription. Being able to update or downgrade the service plan is one of many various ways to control the subscription. Controlling, for example, the downlink speed, the customer is able to try a faster internet connection and in case it is pleasing, stick with it. Updating via a downloadable application can be easier compared to going to a shop or order a new plan. This could be potential way to upgrade the customerships and increase average revenue per user.

Option 6 ‘I can control my child’s mobile phone usage with an app’ also deals with the consumer’s own control over the subscription plans. However, in this case the control is targeted towards another person’s mobile plan, for example as in question, customer’s child. As smartphone usage becomes more and more common amongst young children, their guardians might want to be able to govern it. This question is intended to show whether there is any such demand.

Option 7 ‘Plan would include an Elisa Turvapaketti antivirus service’ is an option about a value adding service, Elisa’s antivirus. Question is chosen in order to determine customer’s volition of having an antivirus software included in the mobile plan subscription. Bundling services is a one of the current topics, and as the importance of security services is increasing, it can be a potential way to increase the perceived value of the plan.

Option 8 ‘Plan would include 5 GB space in Elisa Pilvilinna cloud storage’ refers to an additional service also. Elisa Pilvilinna is a way to keep files stored in a cloud storage. As the service is already offered, the work group decided to acquire statistics whether it would be a valuable feature aside the mobile plan as a bundled value adding service.

Option 9 ‘Plan would include personal assistance in using services and products’ is asking whether the customers value personal assistance. As there are more and more devices and

applications on the market, a personalized or personal technical support may well be valuable. The type of the service is not mentioned, whether it is face to face assistance or a web service.

Option 10 ‘Plan would cost the same in all EU countries, but outside Finland the usage would be limited to basic use’ deals with roaming and how it would be priced. Travelling and mobility is one aspect which should be taken in account when developing new business activities. In December 2016, the representatives of the Member States of EU voted to discontinue all extra roaming charges by June 2017 (Market, 2017). Hereby this question is already partly solved. However, as the Finnish operators have a different pricing strategy for the mobile plans compared to the majority of other operators in EU, there are still limitations in the data roaming for the Finnish customers.

Out of the 10 options, the answerer chooses the options that he would value. Having a large sample group of respondents, the quality of end results gets more valid. In the end, the survey shows the areas, which the customers value the most. In practice, the survey is conducted as web survey, which covers Elisa’s customers around Finland. Conducting the survey as a web survey sent via email excludes all the customers, who are not actively using their email.

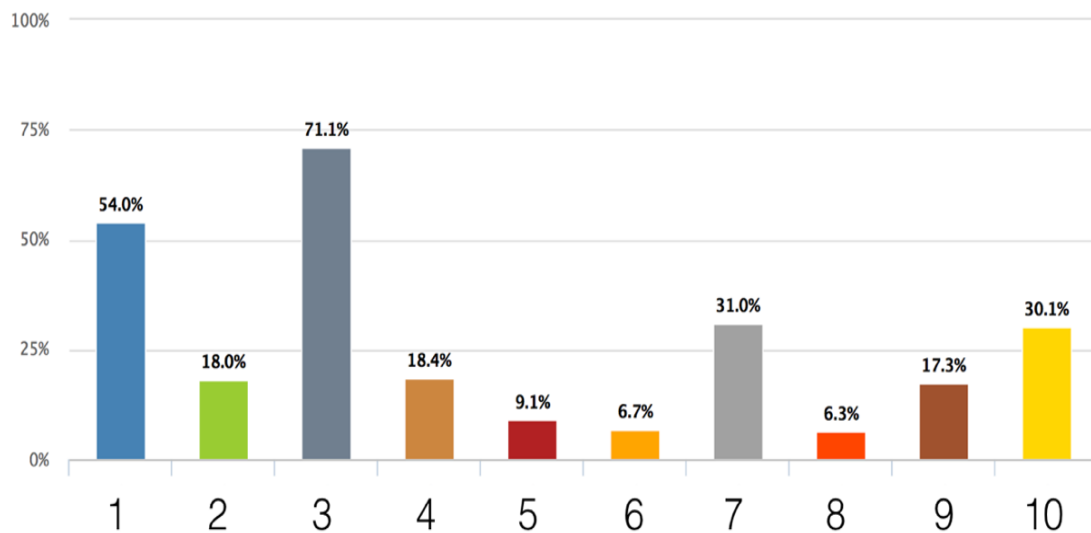


Figure 9. Results from the customer survey. Y-axis represents the percentage of respondents, who claim to value the particular feature.

The survey got 9444 replies in total. All of the options got voted, but there are significant differences between the various options.

As seen in Figure 9, the most voted topic was Option 3: ‘In a congested network I will get the promised speed’ (71,1%). Network degradation is a common challenge and there are various reasons for it. Typically, the end-user experiences network degradation when the network is congested or there is an overload. Other possible situations are, for example, that a bad or rapidly changing weather influences the signal quality or the mobile phone is too far from the base station. Services, which depend on the network performance and require more or less mobile data are also the very basic services, which the consumers use. These services include mobile phone calling, texting, instant messaging, voice over IP, finding information and emailing. Recently also social media and particularly the consumption of audiovisual media has rapidly expanded.

In the survey, the consumers were asked if they perceived value in a guaranteed speed, even in a situation of a congested network. Customers rarely see the actual download or upload speeds, but they perceive the quality of service. Having a good quality of service means that the user experience does not depend on the speed of the connection. If video buffers for too long or there is too much interference in the call, the customer perceives a bad quality of service, and can relate it to the speed. Technical performance is one of the aspects of perceived quality, but in real life the numbers don't matter, the quality of the particular service being used does. Over 70 percent of the respondents thought that the guaranteed speed is most important feature out of options presented. This number is a solid indicator that there is a demand for an ensured use experience. Therefore, the topic was chosen to be investigated more closely.

The second most voted topic was Option 1: 'Video I watch is sharp and good quality' (54%). In an economy of entertainment and social media, consuming audiovisual media has a great part in the mobile usage culture. As already found from the report by Finnish Communications Regulatory Authority, over half of the Finnish mobile users are watching videos from mobile phones. This is nevertheless a complicated feature, because of the variable audiovisual content available. Watching videos from a small screen has somewhat different habit than watching them from a bigger screen. User experience of the sharp and good quality is individual and subjective. For example, one user might regard 720 pixels wide resolution as sharp, as for another it should be 1080 pixels wide. Perception of the good quality also relates to the buffering time and smooth playback. Another distinction is the use context: small screens are used in mobile environments and handheld. Therefore, part of the culture is to consume shorter videos and aside of other services such as social media. Having over half of the respondents prioritising video quality is very interesting and so it was chosen to a deeper examination.

The third most voted topic was Option 7: 'Plan would include an Elisa Turvapaketti antivirus service' (31%). Elisa Turvapaketti service is an antivirus service, which can be bought separately with the mobile plan. Elisa and F-Secure have worked together to develop a service to protect various devices. Turvapaketti automatically protects and secures the most common smartphones, tablets and computers. User can also prevent the display of malicious or otherwise inappropriate content from, for example, child's Android phone. The question, however, asked whether the consumer conceive value in having the antivirus part of the plan. Security is one of the key topics of today's society. As an operator, this appears as the customers' perceived security and safety. Almost the third of the respondents prioritised the security service as the most value-adding feature. This was the third topic, which is chosen further analysis.

The available empirical evidence on the various sources of customer perceived value is useful to define this thesis. The possible amount of distinct value-adding features is out of the scope, and therefore only 10 pre-discussed and relevant topics were selected for the survey. Option 10 had almost as much votes as the third most voted. It addressed a feature that roaming in other EU countries would cost the same. This topic was, however, not regarded to be relevant for the study because new roaming regulations are coming to the market and there are many moving factors. It still indicates that consumers value their freedom to move to other countries without having to change their mobile plans. It is although not clear, whether the consumer actually ever uses these features. Perceived feeling of security does not mean that any security services are being used. Similarly,

having no roaming fees does not mean that the customer would travel abroad. It is primarily the perception of the value being received in relation to the price being paid.



## 5 Qualitative research: Interviews

Based on the finding in the customer survey, three most voted topics were taken into deeper examination. These topics are: Prioritising (Option 3), video quality (Option 1) and security services (Option 7). This part of the research was conducted by interviewing experts and professionals from Elisa. Objective was to gather insights about the potential business developments around these topics and combine them into concrete suggestions. Interviews are semi-structured, which means that the same question pattern is used for all interviewees, but in addition to the pre-selected questions also new ones could be made along the interview and open talk was allowed.

In total, six experts and professionals were interviewed:

- Matias Castrén
- Sami Komulainen
- Ville Rytönen
- Velipekka Romppainen
- Petteri Svensson
- Henri Korpi

Pre-selected questions:

- a) Who are you?
- b) What is your role in Elisa?
- c) In which areas would you develop mobile plan business?
- d) How would you develop the following sectors in from the mobile business point of view?
  - a. Prioritising user or traffic?
  - b. Quality of video?
  - c. Security and antivirus services?
- e) What kind of resources is needed for the development?
- f) What kind of challenges do you recognise from the sectors in question?
- g) How is it possible to respond to these challenges?
- h) How can the potential of new business opportunities be tested?
- i) How can Elisa monetise the customer perceived value?

### 5.1 Areas to develop

From the perspective of the market leader it is crucial to target for building value for customer and maximising it. Because of the unlimited data, willingness to pay for traditional mobile phone calls and text messages is decreasing. Currently data is the key product, even though it may not always be. New applications and use cases for mobile data and new plans are released all the time. For example, cars, home gadgets and various wellness technology applications and devices can utilize mobile data, hence they need an internet access, which is often a mobile data plan. Currently the Finnish mobile operators are competing in a somewhat stable market: The population of Finland does not grow much in numbers and the demographic changes advance slowly. This implies that quantitatively the amount of consumer customers does not increase. (Korpi, 2017)

Narrowing down the scope of this research sets another issue: What kind of difference is there between consumer customer, small business customer and large business customer? And how the differences affect in the strategy and business activities from the operator's

point of view? Generally, the business trade has focused on big customers, which are a decreasing portion of all businesses in Finland. However, the ratio between consumer customers and business customers is developing as the current trend of entrepreneurship encourages people to start small businesses.

Having a product range of only a few choices does not cater for all customers perfectly. Small amount of options mitigate decision making in the buying process, but often the customer need to make compromises. Individual necessities for mobile plans vary depending, for example, on life situation, work, hobbies and habitual residence. Current procedure of pricing the plan according to the speed can be coequal to the person who pays the bills. Some data plan supply is priced based on the used data, but in Finland they are pre-paid plans. Bringing the consumption-based pricing into the unlimited data plans could cause massive expenses for such consumers, who use their mobile plan for example for tethering internet for their laptop. Usually children use more data compared to adults, which can be confrontational to communicate to families, as their children's mobile plans would be more expensive than their guardians'.

In case of mobile data plans without call or text message allowance the current market situation in Finland is unique. Starting from the widgets, which were used as wireless USB modem, data only plans became popular especially in tablets. Today majority of the tablets being sold are with a data plan, which is different compared to many other countries. On the other hand, tablet markets have been decreasing because the smart phones have grown bigger in size and at the same time laptops have gotten smaller. Many consumers are content with only phone and laptop, and the middle model tablet is considered as unnecessary investment. (Castrén, 2017)

Growing use of mobile phones is the key factor in the growing demand for new data network capacity. Mobile also indicates that the users can move freely wherever and whenever, making the network dynamic. According to (Komulainen, 2017), the Vice President of Mobile Network Services and Logistics at Elisa, mobile operator's key mission is to guarantee that downlink and uplink are fully functional. He highlights the motif of generating value from and around the ecosystem. Artificial intelligence and automation are areas, which are constantly being under development in order to improve the network optimisation. Tasks, which used to be accomplished by human can now partly be automated.

Social media is also changing the way consumers use their mobile phones. Uploading media to various channels and streaming live video is growing, and both actions require sufficient data connection, especially uplink. As before the customers use to mainly consume data, the network was built and optimised according to the downlink requirements. During the era of social media also producing content, uploading it and sharing with others generates traffic. One of the key objectives for mobile operator is to find new pricing models, which cater for current consumption culture. (Komulainen, 2017)

How a mobile operator can be distinguished from the competitors? Could uplink and downlink be separated as different features of the service? Which technical parameters can be productized and how? How the consumers perceive value in various data related services? These questions are to be discussed in the following chapter.

## 5.2 Prioritising

Prioritising certain customers means that their data traffic is handled even at the cost of the rest of the customers, who are not prioritised. In extremity, if the network is really congested, even the prioritised customers suffer from the loss of service quality. In case of congestion, the level of reduction in technical quality would depend on the number of users, their level of data usage and the subscription plans that are observed. Perceived quality likely follows the level of technical quality, as the customers have a past experience of what they have perceived earlier. If the customer has highly prioritised subscription plan, the reduction in the quality of service might not be recognised, if the data usage is lower than the available shared capacity. For example, quality of service in sending an instant message is not as dependent on the capacity in comparison to streaming video.

Prioritising traffic as a procedure denotes an activity, in which a specific type of traffic is set to be transferred before other, or a situation, in which a specific user is being given a better level of network performance. Prioritising the traffic is accomplished with automation and today the level of prioritisation depends on the mobile subscription plan. In practice, the price of the plan indicates also how much it is prioritised over others: the more the consumer pays, the higher priority he will receive. (Rytkönen, 2017)

Net neutrality is one of the issues operators face when prioritising data traffic. It is a principle, which states that the service provider should treat all data traffic in the same way and equally. This implies that no users or websites or applications should be prioritised over others. However, currently it is possible to market and sell different data plans, which include the variation of prioritisation in themselves as a feature. Software side of the mobile device on the other hand performs just as fast as it can, concept often referred as best effort network. Currently the prioritisation is implemented in the access points and shared according to the mobile plan of each customer. (Svensson, 2017)

In the quantitative research, more than two thirds of the consumers claimed to value a feature, which would ensure their quality of service, even in a congested network. Generally, the regional capacities are built to correspond the average amount of traffic, not according to the peak data traffics. Because the demand of the regional capacity fluctuates depending on the density of the users in the area and their personal usages, it is likely that there are congestions in the network every now and then. Ensuring an agreed amount of capacity to a customer segment, which has paid for it would in the worst case overrun the quality of service of the other customer segment, who are not prioritised. As at the same time the traffic should be handled equally, it is practically impossible to implement such network that works perfectly for all at all times, as the network capacity is limited by its technical properties. Although, as consumers have significantly diverse use cases varying from traditional calls to media and gaming, it is to be considered if the capacity could be shared more effectively and have prioritisation as a feature of a mobile plan. For example, playing a live stream game with a low resolution requires not so much capacity but a low latency, whereas buffering a high-resolution movie requires a great amount of capacity.

Dynamic network changes due to mobile customers and ever-changing usage, which requires operators to develop automatization of optimisation (Komulainen, 2017). Usage data can indicate the geographical pitfalls in the capacity. In case of, for example, big events, the approach should take in account also other ways to adapt the capacity demand, not only setting up new base stations for mobile data. Komulainen points out that before the social media, the customers did not upload so much data to the network. Regarding

the use contexts, the mobile plans could be distinguished for customers: Productising a plan for, for example, heavy uploaders or active live video consumers. However, it would be very demanding from operator point of view to keep up with the changing consumption trends and also difficult from the customer point of view know how the usage and use cases will progress.

The customers, who pay more for their subscription plan, likely have a higher expectation towards the quality of service, than the customers who pay less. If it was possible to buy higher prioritisation even in a congested network, some customers would likely be left without service at all. However, it is not clearly beneficial, as there are much less of highly paying customers than the average paying. Therefore, currently the reduction on the quality of service is equal. Then in the future if network is so fast that the capacity would cater for all use cases without problems, maybe in case of congestion the fastest subscriptions could be held up more. (Korpi, 2017)

### **5.3 Quality of video**

In the context of video, there are two dominant forms to consume the content: on-demand and live. In both of these several factors contribute to the overall quality. Typical video content is watched as on-demand, where the video file is transferred from a server to the receiver as bursts of packets. Services using the on-demand content are designed so that there is a predefined amount of buffer, which is perceived as loading and waiting time in the video player. Transferring the packets is accomplished so that the service used by the end user waits until the next section of the file is ready to be played. While the section is being played, new packets arrive and create a buffer in the player. Buffering enables the player to play the video at a guaranteed Mbps, or resolution as it is demonstrated to the end user. In this case the overall quality can include properties as continuity of the playback, resolution, sound, synchronization of the video and sound and buffering time. As seen in the Figure 10 below, the development of the resolutions is such that the new technologies are significantly bigger in the size compared to the previous. Hence also the data traffic increases similarly, if the transferring technologies remain similar.

In case of live video, the perceived quality properties are likely similar, however, the technology behind the data transfer is different. When consuming live streaming content, the buffering and pre-loading times are usually minimised. This poses some technical compromises to the quality, as it is more important to transfer the packets in chronological order and keep the player running than wait the next section of the video file to be fully transferred. Therefore, in the live video streaming the end user might experience some errors and changes in the quality.

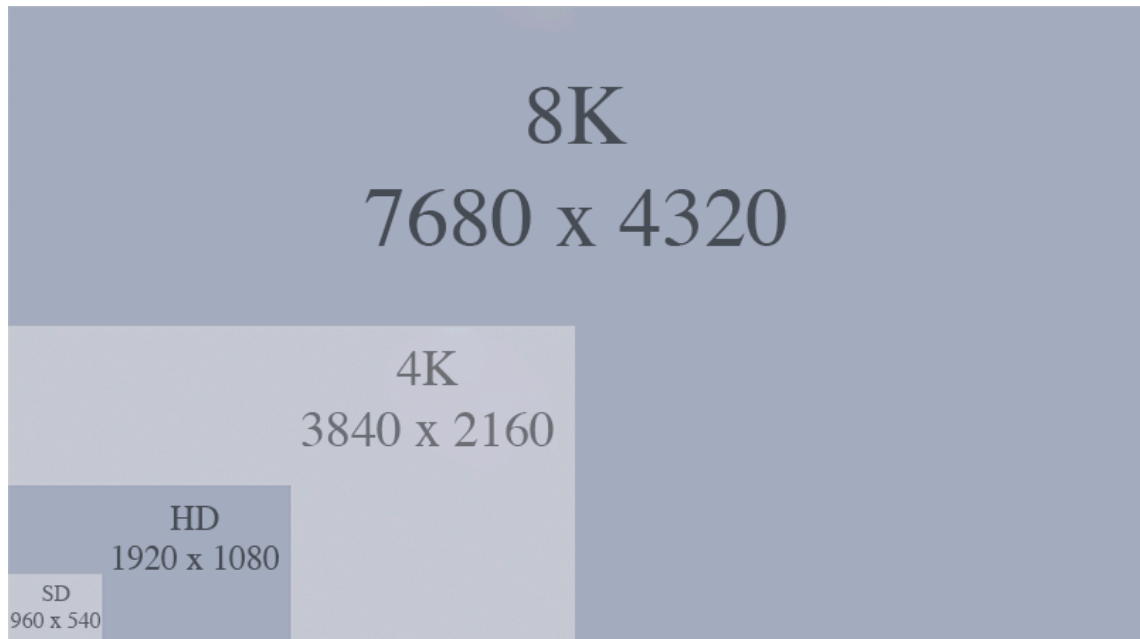


Figure 10. Various resolutions for video content. Naming the resolutions as SD, HD, 4K and 8K are to make it easier to understand, even though there are numerous of resolutions available.

Currently the users of video services can generally change only the resolution, if even that. However, as videos are getting more popular and the new content providers offer the content in more customised formats, such in 360-degree format, there could be more ways to improve the perceived quality and user experience. For example, altering the size of buffer and the quality of sound could also be enabled and so also productised.

In the context of traditional on-demand video, such as YouTube, there is a clear and straight forward pricing logic: Setting the price according to the maximum delivered resolution. The bigger the resolution, the bigger the price tag. However, it would require contracts with the crucial content service providers. This kind of business model could be straight forward with the national actors, but in case of the international ones, for example, Netflix, it could be much more complicated. As for communication, the change could be so that the video quality is taken along in the product brand and marketing. (Korpi, 2017)

Customers understand the differences between video quality better as they have gotten used to the current mainstream service providers. The possibility to choose the resolution is already available, for example, in YouTube and Netflix. In contrast, in television it is not known what resolutions are being watched, if one does not really find out. Buffering is another approach the productisation: It is easy to implement in the traditional video streaming, but it should be minimised in the live video streaming. For example, if the customer does not care about variable technical quality of the resolution but wants to ensure the integrity of the sound, there could be a simple business case. “Let the customers show the future.” (Castrén, 2017)

## 5.4 Antivirus

Trending topics around information security issues has brought more attention for antivirus and security services. As the antivirus softwares has been present for personal computers, the shift towards growing use of mobile devices has not directly attracted companies offering consumers similar products as for personal computers. However, as mobile devices are becoming more like computers containing personal information and content, even work material and applications, it is not surprising to see that third of the respondents in the quantitative research showed to value such antivirus services.

Security services are a sensitive business area, especially in the information technology. At present the filtering is being done, for example, as filtering email spam, but the challenge is that the customers rarely experience it. At the same time one third of the customers would like to have an antivirus in their mobile phone. It is clearly a communication issue between the mobile operator and customers. (Castrén, 2017)

Security services are being sold separately, but when customers value the service enough it could be included in the bill. However, at the moment including it automatically and raising the price, for example, 30% is not an attractive option. Nevertheless, there is an obvious potential. In the end, the success for the large-scale marketing for antivirus would also need the competitors to offer their competing services. (Korpi, 2017)

The generic feeling of security is difficult to assess. Taking care of the general network security is of course a key action, so that basically it is safe to use various services over the particular mobile network. On top of that could be developed the personalised services such as VPN tunnelling or installable software or application. It implies that the service has to be available in the dedicated application store such as App Store. This always reduces the attractiveness, as customers don't want to download, install or register the new services. Also, the need of security services is often concretised in an emergency situation, in which the customers see Elisa as a reliable Finnish operator, but they still would not proactively approach us in order to acquire the security services. (Komulainen, 2017)

Currently operators would likely be ahead of time if they included security services in the subscriptions, because the services are being sold well also separately. By communication and marketing operators might be able to have an impact on this. Puzzling in the security services is that in practically in all error situations the customer calls straight to the mobile operator. For example, if the virus had called independently to some foreign number and the customer realises the issue from the bill, he will call to the mobile operator. According to Finnish law the mobile operator has to compensate the loss, whether it can be proven that the customer did not make the call. This would mean loss for the operator. (Castrén, 2017)

On a network level, it is possible to conduct some level of virus prevention and filtering. Technically it could be provisioned to individual subscriber connection and their network traffic. Generally, it requires an additional software installation, namely the antivirus software. However, in an operator wanted the software pre-installed in the mobile phones, the orders would get much more complicated. Also, Finland is effectively small market, so the orders would also fall behind from the competitors. For example, currently Elisa is receiving the phone orders faster than Vodafone. This means that the software installation

should be done by the end-user. Hence the installation has to be simple enough, for example, receiving a text message link to the correct app in the application store. (Korpi, 2017)

After all, the experience of security is the customer's perceived feeling of it Svensson (2017). Typical customers trust the brand or the service provider, yet know very little about the technical security services or the threats, even if they encounter them. Comparing to personal computers the trend of antivirus services, knowledge and understanding the concept is still lagging in the mobile context (Romppainen, 2017).

## **5.5 Challenges and resources**

Customers seem to want the possibility to control and adjust. Situation is effectively intricate: There is no deep understanding whether the customers are really aiming to have as much control over their products or services as they express, or whether they would in practice adjust and exploit all opportunities and features. It can also be just the experience of the theoretical possibility to control and adjust. In practice, even if all modifications were enabled, it is uncertain if they would be used. (Castrén, 2017)

Yearly special offerings are challenging, as there exist always the customer group who tender out all operators every year, in order to get another offering. However, if these offerings are discontinued by only one operator, it would lead in losing the particular customer segment as they would choose the operators, which still have offerings (Rytkönen, 2017). By being able to encourage the whole industry to discontinue these yearly offerings all operators would benefit, but it is not as clear if the consumers would value the transition. Although, consumers perceive the value in price by reflecting to their past experiences and by comparing the prices to current alternatives. As all the information is easily available in the internet, the competition becomes more intense and the consumers are well aware of the alternative options.

Setting an optimal price for the plan is always a challenge, especially when the customers know the products and remember how they have been priced before. Three major operators in Finland have fairly similar products and services, as well as prices. Competition would not significantly change if one of the operators lowered the price, because it forces the two other operators to follow. After all operators have reacted, the competitive situation is alike to the circumstances before lowering prices. Therefore, lowering prices is not a favourable strategy to increase revenue. Instead, the key is to find other solutions, by which the consumer is willing to pay more. Setting an optimal price is the matching point between buyer's willingness to pay and seller's willingness to accept.

If an operator wants to grow, it needs a bigger market share of the customers or bigger revenue per customer. In a fairly stable market, where the number of consumers does not increase, also the demand for services is not increasing rapidly. In a growing market the acquisition of new customers does not lead to such intense price competition. At the moment, the Finnish market is not growing. From the point of market leader operator, it means that the growth is acquired through value production and value obtaining. (Korpi, 2017)

When pricing a product or service, it is necessary to determine how many different characteristics and parameters affect the price. As at the moment the price is mainly set

by the downlink speed, the pricing is an understandable concept and very straightforward: more speed means bigger bill. This helps the consumer in the decision-making process, and the comparison of various mobile plans is simple. By adding new features and parameters that affect the price, the product range and possible price options multiply. Whereas for an experienced consumer a large product supply might be satisfying, too many options might adversely affect the purchase experience of common consumers, who have little or no knowledge about mobile plans. Important here is to offer such product supply to the consumer at the outset that the amount of information can be understood.

## **5.6 Testing the potential**

Whether the innovation was a new way to price mobile data or a new additional service to the mobile plan, its commercial potential should be carefully tested. As operators are offering effectively similar products, something new, which increases the price of the subscription plan or just seems unworthy for the customer may increase the churn. Brand loyalty is one of the key success factors as the operators are developing their supply. Long customer relationships indicate that the operators have been playing safe, and none of them is willing to make radical change in order to stand out.

Testing the potential of new innovations is not straightforward, as a real buying situation cannot be created with imaginary products and services. Hence the test results are misleading, because the customers seem to tell that they want something but act differently while buying. Dilemma of greediness culminates as the customer considers of needing everything and for a minimal price, but in reality, acquires the products and services considering also the current financial situation trying to maximise the benefit from the deal. Investigating the willingness to pay is accomplished by interpreting the test results, which are at the moment based on visual trading, not real purchase events.

Testing mechanisms are, for example, a survey, a monitor group or A/B testing. In A/B testing a product is marketed with two or more versions, which differ by one feature. A/B testing is an effective practice to find features, which change the willingness to pay. In this thesis, a survey was conducted and over nine thousand replies were received. The challenge in a survey is that the respondents are not really in a situation of buying the product, if even thinking about to do so in the near future. Also, the answering context can influence the results. If the respondent was in a hurry, the answers might have not been considered thoroughly. Therefore, it is encouraged to conduct more A/B testing with real products and services, in a real buying context. Suggested case example: When a customer enters to the shop, he or she should be offered a mobile plan, which is not actually for sale for everybody. It could well be a special offer or a fake plan, but the key is to set the context as close to the traditional buying context as possible.



## 6 Conclusions

### 6.1 Results

This thesis focused on the following research questions:

- What is the perceived value for the mobile customer?
- What are the customer expected values in case of subscription plan?
- What kind of business cases can be made based on the customer expected value?

Based on the material, perceived value is a complex and subjective concept, but also measurable to some extent. Outlining, it is the sum of the utilities and benefits, which the consumer gets in relation to the losses he has to make in order to use the product or service. In case of subscription plan, the expected values are, for example, a well performing internet, high quality content and secure communication. At the same time the losses are, for example, having to make a compromise between multiple subscription plans and the amount of money required for the purchase. Designing subscription plans, which meet the expectations includes personalising the products and services and also communicating clearly about the features.

Quantitative and qualitative research in this thesis showed that speed, video and security are the strong trends in the mobile subscription business. From operator's point of view the demand of speed implies that the operator needs to continuously increase and optimise the capacity efficiently and equally. Operator has to operate in such a way that the prioritisation obeys the rules of net neutrality and the capacity should cater for all users coevally. From the consumer point of view the speed means the perceived downlink and uplink speeds. However, the perceived speed depends on the used applications and consumed media, and not on the real accurate speed values. If a service is working, the speed is perceived as good enough. The challenge is that in a congested network the service quality drops, and the consumers perceive the loss as waiting times or loss in the media quality.

As the results showed, the majority of the consumers are willing to pay more if they get the promised speed even in a congested network. Giving the promised performance is technically possible, but it would affect negatively the other part of the consumer group, who still might use mobile data but their demand of speed and willingness to pay are not as high. It is interesting that the top-rated features of the survey are self-centered and egoistic. Prioritising oneself on top of other users and emphasizing the necessity of freedom reminds of something self-serving and egocentric.

Video data traffic for the operator's point of view means a rapidly growing sector and media, which will generate more and more traffic to the network. Increasing capital expenditures decrease the profit, if the operational expenditures cannot be decreased or the average revenue per user increased. In the case of Elisa, the company also provides content services as Elisa Viihde, but it is not the whole source of video traffic. By recognising the current trend, new subscription plan products could be developed. For example, setting the video resolution as one of the pricing factors could ease the ever-growing capacity demand. However, there are legal barriers in exploiting the resolution, and the contracts should be made directly with the video service provider such as YouTube.

Video quality for consumer point of view means that they rarely know the technical information about the quality, only perceive the played content and from the use experience regards if it is valuable for them. Hence the technical parameters could be changed as long as the customer experience is not diluted.

## **6.2 Assessment of results**

As the research from Kuo, et al. (2009) showed, the perceived value could be improved by enhancing customer service and system reliability. Also, the following topics stood out in the interviews: According to Korpi (2017), one interesting to-be-improved instance is the change of the subscription ownership between generations, for example, from father to daughter. Relating to the quality of the customer service, it seems that the procedure is frustrating with all the bureaucracy. Even though, in Elisa for example, it is currently handled also digitally, the customers do not recognise it as an understandable and straight forward procedure. Another similar topic was introduced by Castrén (2017), namely the issue of the invoice. Where some customers prefer to combine more services and subscriptions into one invoice, some prefer receiving separate invoices from distinct services and subscriptions. This complicates bundling the value-adding services.

Consumers often want different things than how they buy and consume. Wanting lower prices and faster connections to the internet are normal, but as the use cases for mobile plans are diversified also new features and services are being demanded. For example, a faster uplink allows a user to share media faster and information security services keep devices safe. However, when the consumer decides to buy a new product or service, it is not straightforward that he or she will buy it from the operator. Every product and service need a so-called 'win feature', which makes it more valuable than the other options. From operator's point of view, by offering additional services alongside the mobile plan is not enough to convince the consumer in buying those additional goods from the operator. The challenge is that there exist many competing versions of the services in the market, and some of them are specialized to fulfil the same specific demand. For example, information security services and antivirus are being offered by many other suppliers, even for free of charge. This allows the consumer demand for the best possible solution. Hence the anti-virus service, which Elisa is offering can appear valuable for consumers and they might even demand it, but in the end the actions can be totally different. A challenge is also to communicate the additional services for the consumers so that if they do acquire a product feature, they would also understand what they own and what the value of the feature is. Even if the feature being introduced was the new downlink speed of the mobile plan, consumers can easily compare various mobile plans in the internet and so the awareness of the current supply in the market is comprehensive. Increasing the quantity of products and services makes the situation challenging for an operator, which aims to increase revenue through new features. The more alternatives one operator offers, the bigger is the comparison effort for the consumer and the effect of multiple price choices with several additional services can easily be overwhelming. To summarize the dilemma, consumers tend to want many things but are willing to pay for one win-feature. Therefore, it is necessary to study how the consumers are buying and consuming, not only ask what they want or demand. Self-centered needs and desires can be overestimated, which leads to a situation where customers think of their importance and needs differently than their consumption habits indicate.

Demand for faster unlimited mobile data will increase for as long as the services being used so require. Customer perceived value, however, does not strictly follow the technical improvements of the products or performance levels. It is very challenging to convince the consumer to buy the more expensive mobile plan, if the current is working 'well enough'. However, when asked, the most valued feature was to ensure the quality of service in a congested network. If this was really so, it would be logical that the customers would change to the better subscription.

The concept of 'well enough' depends on the individual demands and use cases. Most of the time the consumer can only observe if the service is working or not, and experience and perceive the waiting time before response. However, accurate numerical feedback on how various features such as uplink or latency perform is not shown on behalf of the operator. Various applications can indicate the network statistics and run performance tests, but this kind of monitoring is not part of the everyday context of consumption. Hence there are many technical parameters, which still could be productised.

Finally, I conclude the research by stating the key challenge behind the mission 'Monetising customer expected value'. Customers tend to think egoistically: Customers often exaggerate their importance and uniqueness, and describe their desires as demands, not knowing if they would in reality need and use the desired products and services. In technical terms, the customers do not know what level of service they are expecting, but instead they perceive the quality and experience and base their valuation on those. On the other hand, companies tend to have deficiencies in the communication of their products and services, meaning that the marketing messages are made to only sell more, not to build a mutual understanding. Hence the expected and perceived value cannot be designed inside the company, but they have to be studied empirically amongst the various customer segments.

### **6.3 Further research**

Companies knowledge of the customers and their behaviour is mainly historical and out of date, because the research is done with old data it takes time to analyse it. Operators know better what the customers have done in the past, but it is debatable what they are going to do in the future. Coming up to even the current expectations can be challenging. Hence the future research should cover more recent data and agile research methods. Customer expected value and perceived value can be assessed with traditional quantitative and qualitative methods, for example, web surveys and field research. However, newer research methods such qualitative case studies, A/B testing and piloting with potential products and services is encouraged. Adapting up-to-date information and insights about customers and their demand helps companies so that the future supply would come up to the expectations. By improving the current services and products the supply might not meet the customers' real demand.

Future research should be directed towards more testing various concrete features of mobile plans and the services around them. Testing should also include testing the commercial potential, as only a well working feature or additional service is not enough to prove its capabilities in the market. User-centered design methods are encouraged to use even when designing new subscription plans, because the user experience will start from the first impression or piece of information the customer encounters. In addition, every experience and information will be compared to the mental image of the brand itself and the

competitors. Examining also the emotional characteristics of the focus group would expose the reasoning behind the consumers' decision-making process. What the consumers need is easier to find out than why they need or want it. Before commercialising new features, a quick demo with real customers helps in verifying the commercial potential. Including competitors' supply to the comparison assist in positioning the deliverable in the market.

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