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LAPPEENRANTA UNIVERSITY OF TECHNOLOGY

School of Business and Management

Industrial Engineering and Management

MASTER'S THESIS

Creating and measuring customer value in digital businesses

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1.8.2016

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ABSTRACT

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Subject: Creating and measuring customer value in digital businesses

Year: 2016

Place: Lahti

Master's Thesis. Lappeenranta University of Technology, Industrial Engineering and Management.

110 pages, 12 figures, and 3 appendixes

Supervisors: Professor Hannu Rantanen, Senior Researcher Juhani Ukko

Keywords: customer value, value creation, performance measurement, performance management, digital business

Most economic transactions nowadays are due to the effective exchange of information in which digital resources play a huge role. New actors are coming into existence all the time, so organizations are facing difficulties in keeping their current customers and attracting new customer segments and markets. Companies are trying to find the key to their success and creating superior customer value seems to be one solution. Digital technologies can be used to deliver value to customers in ways that extend customers' normal conscious experiences in the context of time and space. By creating customer value, companies can gain the increased loyalty of existing customers and better ways to serve new customers effectively. Based on these assumptions, the objective of this study was to design a framework to enable organizations to create customer value in digital business.

The research was carried out as a literature review and an empirical study, which consisted of a web-based survey and semi-structured interviews. The data from the empirical study was analyzed as mixed research with qualitative and quantitative methods. These methods were used since the object of the study was to gain deeper understanding about an existing phenomena. Therefore, the study used statistical procedures and value creation is described as a phenomenon. The framework was designed first based on the literature and updated based on the findings from the empirical study.

As a result, relationship, understanding the customer, focusing on the core product or service, the product or service quality, incremental innovations, service range, corporate identity, and networks were chosen as the top elements of customer value creation. Measures for these elements were identified. With the measures, companies can manage the elements in value creation when dealing with present and future customers and also manage the operations of the company. In conclusion, creating customer value requires understanding the customer and a lot of information sharing, which can be eased by digital resources. Understanding the customer helps to produce products and services that fulfill customers' needs and desires. This could result in increased sales and make it easier to establish efficient processes.

TIIVISTELMÄ

Tekijä: Hanna Maria Puolakoski

Työn nimi: Asiakasarvon luominen ja mittaaminen digitaalisessa liiketoiminnassa

Vuosi: 2016

Paikka: Lahti

Diplomityö. Lappeenrannan teknillinen yliopisto, tuotantotalous.

110 sivua, 12 kuvaa ja 3 liitettä

Tarkastajat: professori Hannu Rantanen, erikoistutkija Juhani Ukko

Hakusanat: asiakasarvo, arvon luonti, suorituskyvyn mittaaminen, suorituskyvyn johtaminen, digitaalinen liiketoiminta

Keywords: customer value, value creation, performance measurement, performance management, digital business

Useimmat liiketapahtumat tänä päivänä koskevat tehokasta tiedonsiirtoa, joissa digitaalisilla resursseilla on valtava merkitys. Uusia toimijoita syntyy koko ajan, joten organisaatioilla on vaikeuksia sekä pitää nykyisiä asiakkaitaan että houkutella uusia asiakassegmenttejä ja –markkinoita. Yritykset etsivät ratkaisua menetykseensä ja ensiluokkaisen asiakasarvon luonti vaikuttaa olevan yksi keino. Digitaalisia teknologioita voidaan hyödyntää asiakasarvon luonnissa, jolloin asiakkaan tietoinen kokemus ajasta ja paikasta laajenee. Luomalla asiakasarvoa, yritykset voivat kasvattaa nykyisten asiakkaidensa uskollisuutta ja löytää parempia tapoja palvella uusia asiakkaita tehokkaasti. Näiden oletamuksien johdosta työn tavoitteena oli suunnitella viitekehys, jonka avulla organisaatiot voivat luoda asiakasarvoa digitaalisessa liiketoiminnassa.

Tutkimus toteutettiin kirjallisuuskatsauksena ja empiirisenä tutkimuksena, joka koostui web-pohjaisesta kyselystä ja teemahaastattelusta. Empiirinen data analysoitiin laadullisten ja määrällisten menetelmien yhdistelmänä. Nämä menetelmät sopivat tutkimuksen tavoitteeseen laajentaa käsitystä olemassa olevasta ilmiöstä. Siten tutkimuksessa käytettiin joitain tilastollisia menetelmiä ja arvonluonti kuvailtiin ilmiönä. Viitekehys luotiin kirjallisuuden pohjalta, ja sitä päivitettiin empiirisen tutkimuksen havaintojen pohjalta.

Lopputuloksena, asiakassuhde, asiakasymmärrys, ydintuotteeseen- tai palveluun keskittyminen, lopputuotteen tai -palvelun laatu, lisäinnovaatiot, palveluvalikoima, yrityskuva ja verkostot valittiin tärkeimmiksi elementeiksi asiakasarvon luonnissa. Mittarit näille elementeille määriteltiin. Mittaamalla yritykset voivat huolehtia asiakasarvon elementeistä nykyisten ja tulevien asiakkaiden kanssa sekä hallita yrityksen toimintoja. Johtopäätöksenä, asiakasarvon luonti vaatii asiakasymmärrystä ja paljon tiedonjakoa, mitä voidaan helpottaa digitaalisten resurssien avulla. Asiakasymmärrys helpottaa sellaisten lopputuotteiden ja –palveluiden tuottamista, jotka täyttävät asiakkaiden tarpeet ja halut. Tämän avulla yrityksen myynti voi nousta ja tehokkaiden prosessien vakiinnuttaminen helpottua.

ACKNOWLEDGEMENTS

I want to express my gratitude to all the people who helped and participated in the thesis process and were a part of my master studies. Thank you for helping me to make this possible. Accomplishing this thesis and my master studies could not have been possible without the participation and assistance of so many people. There is not enough space to mention everyone by name. Still, your contributions are appreciated and gratefully acknowledged.

Thank you to my supervisors Hannu and Jussi for their guidance and comments, and for giving me this opportunity to work with such an interesting topic. Many thanks to all the company representatives that gave their valuable views and comments. You made this thesis possible.

Greatest thanks to my family, friends, and others who, in one way or another, shared their support during my studies and thesis writing. In addition, thank you for making sure that I had good times while studying and writing. I would like to express special appreciation to my parents, especially to my mom, for keeping up with my plans that kept changing all the time; she always showed support and believed in me. Many thanks also to Guus, for listening and encouraging me, and giving me inspiration during the thesis writing.

While writing these final words, one of my academic targets will be achieved. Still, the journey of my life has just begun. I feel lucky and blessed that I have been able to fulfill my desire to learn and improve, but most of all, I feel happy.

01.08.2016

Hanna Puolakoski

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1 INTRODUCTION

The importance of creating customer value has increased continuously in recent years due to the fierce competition that keeps increasing all the time. Competition in digital business seems to be even more difficult than in other industries since the capital required to start a company that operates in the digital environment is less than what is needed for traditional industries. In addition, digitalism is a trend nowadays, so everyone wants to be a part of it. Digital businesses are not bound to their countries of origin, so companies can easily operate in many countries around the world. Due to that, competitors are increasing and competition is getting tougher.

Since the competition is getting harder all the time and new actors are coming into existence, organizations are facing difficulties in keeping their current customers and attracting new customer segments and markets. Hence, companies are trying to gain superior competitive advantage by providing customer value. Nowadays, there is a belief that high levels of customer value and satisfaction are related to sales, brand and company loyalty, and market share and profitability. Increased customer value can, for instance, enhance the possibility of adding price premiums and increasing repurchase intentions. (Woodruff et al. 1993, pp. 33)

It has already been proven that customer value can increase a provider's profits, since the value delivered increases the customer's intention to buy again, as McDougall and Levesque (2000, pp. 395) stated. Customers that are more loyal to the provider will buy more often and in bigger volumes and they can even have an effect on other customers' purchasing behavior by recommending the provider to them. This has been the situation in all industries in recent years and digital business is not an exception.

Since creating customer value can increase a provider's profits by customers buying more frequently or in bigger volumes, or customers recommending the provider to their partners, creating customer value will influence other elements of performance. In the balanced scorecard, created by Kaplan and Norton (1992, pp. 72), performance is composed of four perspectives: financial, customer, internal business, and knowledge and innovation. For example, closer customer rela-

tionships due to creating customer value effectively could result in accomplishing more innovations and new ways of doing business since customers share their opinions and ideas. In addition, increased sales volumes will obviously result in positive financial performance.

Digitalism is blurring company boundaries, so organizations are working more closely with their customers and their partners, as Morabito (2014, pp. 133) has pointed out. He stated that a close relationship can only be maintained when both of the parties are expecting to gain some value out of it. This is one reason why customer value creation is becoming more and more important for organizations to survive in digital business.

This study will provide guidance for companies operating in digital business to create customer value as well as to measure the company's ability to create it. The purpose of the study is to define what customer value is and how it can be created, measured, and managed. In this study, customer value is the value the company provides to its customers, not the value customers provide to the company. The background for the research, the research problem, the research questions, the objectives, and the limitations as well as the methodology and structure of the study will be explained in more detail later in this chapter.

1.1 Background

Value is a highly subjective concept, so it is difficult to have a common understanding of how to define it. Since the definition of the concept is hard, it makes it even harder to measure and manage it. Still, all the activities of an organization should be measured. This results in a difficult situation where organizations need to measure something that they are not certain what it is. To make it even harder, the traditional measures are not suitable for the intangible methods of delivering value to customers. Since the measures are not suitable, it is difficult to continuously improve activities related to customer value delivery. (Byus and Lomerson 2004, pp. 464)

Even though the concept of value is blurry and the ways to measure it are not clear, organizations are seeing that understanding, creating, and delivering customer value is vital for surviving in today's business environment. This is because the ability to create customer value is seen as a competitive advantage and doing it well could result in increased profits. Woodruff et al. (1993, pp. 33) discussed how value creation ability is related to an organization's sales, brand and company loyalty, and market share and profitability.

Creating customer value requires comprehensive information about the customer and only a comprehensive understanding of the customer and his or her requirements can result in customer value (Woodruff et al. 1993, pp. 33). Therefore, creating customer value cannot be viewed as something that is self-evident and it needs a lot of time and effort. In this new digital era, a lot of information is available, so sorting out the useful information from the right sources is becoming more and more important. In terms of customer value, this means that companies need to choose the right customers and right measures to evaluate their customer value creation abilities.

According to Brynjolfsson and Kahin (2000, pp. 13-14), digital resources can be used to change the ways of doing business. Providing and delivering products or services to customers are turning digital, end products and services are digital or electronic, and the ways that market offerings are produced, developed, and designed have changed. These three dimensions of digitalism are enabling firms to provide value in new ways and that is why a need for research about customer value related to digital business is required. As Rust and Espinoza (2006, pp. 1073) discovered, companies can gain more information and knowledge about their customers with the help of digital resources, which then helps them to create products and services that customers want and need. This capability to fit the customers' needs and requirements better will increase customer value.

Due to the new business environment and the misunderstanding of customer value, organizations lack the skills to measure and manage customer value creation. Lappeenranta University of Technology is creating a platform for simulator-driven processes, which fulfills the characteristics of digital business. One of the objectives of the platform is to create new ways to increase customer value and therefore the platform needs clarification of how to develop a product that creates as much customer value as possible. In recent years, quite a lot of theoretical research has been carried

out about customer value and how to create it. Connecting theory with practice is still absent, which leads to the fact that customer value remains abstract. Due to all of these assumptions, there is a need to combine the theory and practice of customer value creation in this study. In addition, earlier studies have focused more on traditional industries; hence, this study will focus on the unique characteristics of digital business.

1.2 The purpose of the study and the research questions

Organizations understand that they need to focus on understanding, creating, and delivering customer value, but the methods for doing it are missing. The whole concept of customer value creation is a bit unclear for most companies. This missing understanding about customer value creation has created a need for a study that defines the concept of customer value creation related to digital business and provides guidelines for how to create customer value. In addition, the link between understanding and practice has not been covered in previous research, so this study includes the empirical evidence to identify how customer value creation is done and examines what modifications should be done to existing practices.

Digital business is emerging and companies operating in it are facing fierce competition all the time. The companies are trying to find the key to their success. This study was carried out to provide tools and instructions to help organizations in their missions. In this study, all aspects of customer value were considered in relation to digital business. Therefore the research problem of the study is: *How is customer value created, measured, and managed in digital businesses?*

The objective of the study was to design a framework for organizations to create customer value in their digital business. The draft for the framework was designed based on a literature review of the topic. The goal of the framework was to identify the Key Performance Indicators (KPI) in creating customer value. After having found the key elements, the objective was to develop measures for evaluating organizations' abilities to create customer value. With these measures, organizations can manage their value creation operations. The draft of the framework was updated

based on the findings from the empirical study to fit the characteristics of digital business better. The empirical study included a survey as well as interviews.

The designed framework should enable organizations to create customer value better and more effectively. The framework was not designed to evaluate different organizations and organize them based on the scores; rather, it will help organizations to fit the needs of their customers better. To resolve the research problem and meet the objectives of the study, two research questions were investigated and answered.

1. What is customer value and from which elements is customer value formed in digital businesses?

The objective of the first research question is to clarify:

- what is customer value;
- from which elements is customer value formed; and
- which actors affect customer value and what are their roles.

As the focus of this study is on digital business, all the questions are answered in terms of digital business.

2. How can customer value creation be measured and managed?

The objective of the second research question requires finding out:

- the most critical elements of creating customer value;
- suitable measures for the most critical elements;
- the source of information for the measures and ways to gather it;
- the requirements for customer value creation; and
- the benefits gained through the successful creation of customer value.

The outcome of the study is therefore a framework, which will enable organizations to create and manage customer value. Performance measures on how well customer value is created and managed are included. Customer value can be seen either from the provider's perspective of how a specific customer provides value to the company, or from the customers perspective of how a

company provides value for the customer. Nowadays customers are paying more attention to their suppliers and the value they are receiving. This is due to the current fashion of reducing the number of suppliers, as Ulaga (2003, pp. 677) has stated, in order to reduce the costs of acquisitions. Therefore customer value creation is not only the focus of supplier firms. In this study, customer value means the value the company provides to the customer. The value is therefore delivered to the customer and the provider needs to create customer value to stand out from its competitors. Customer value creation can be used as a competitive advantage.

This study is part of another Lappeenranta University of Technology project, which deals with creating sustainable product processes through simulation. The object of that project is to create a platform that develops and evaluates community-based real-time simulator-driven processes. The evaluation efforts are focusing on improving the customer value and business potential of each process. The goal is to provide Finnish companies with new ways to gain competitive advantages. As customer value creation can be enhanced by using digital resources, simulation systems are also seen as a source of competitive advantage. In addition, as the simulation system is a digital resource of an organization, this study will provide insights into how customer value can be created and measured in relation to simulation systems.

It is important to note at this stage that the empirical evidence —the participants of the study— cannot be seen as representatives of the population of all digital business companies since the questionnaire was carried out with a specific sample, which consists of 23 companies in Finland, and the deeper interviews were done with five organizations.

1.3 Methodological choices of the research

Research methods can be divided into qualitative and quantitative. Qualitative refers to studying social reality and gaining deeper understanding into how the world functions, as Strauss and Corbin (1998, pp. 4) stated. Quantitative is more common in engineering research and is numerically based, as Thiel (2014, pp. 115) identified. Qualitative studies deal with topics like lived experiences, behaviors, and feelings, as well as organizational functioning and cultural phenomena.

The nature of the research problem determines whether it is more suitable to use qualitative or quantitative research. If one is seeking for the nature of an experience, qualitative research is more suitable as it aims to find out what people are thinking. (Strauss and Corbin 1998, pp. 10-11)

In this study, both qualitative and quantitative research methods were used. Qualitative methods were used to attempt to examine why and how customer value is created. Qualitative research is suitable for this study, where the objective is to gain understanding about existing phenomena. According to Corbin and Strauss (2008, pp. 25), it is typical for a qualitative study to generate hypotheses rather than testing outcomes. Quantitative methods were used to find results, which can be generalized to involve the phenomena.

The research purpose is most often categorized into three types: exploratory, descriptive, and explanatory. Exploratory studies clarify the understanding of a problem. Descriptive research tries to portray a person, event, or situation. Explanatory studies try to explain causal relationships between variables. In this study, the object was to describe the phenomena of customer value and understand its characteristics better. Therefore, this study is descriptive and exploratory. (Saunders et al. 2009, pp. 139-140)

This study used theoretical methods as well as empirical methods. All research needs to be based on previous knowledge, and therefore a review of the literature was needed. In this study, the object was to design a framework for organizations to create customer value, and one way of gaining understanding and knowledge about the topic was through a literature review. The literature review consists of customer value research published in academic journals between 1991 and 2016. These articles range across such disciplines as customer value, value creation and co-creation, performance measurement and management, and electronic markets and the Internet of Things. The literature review was used as the basis for designing the framework and measures.

Besides the literature review, the empirical study consists of a web-based survey and semi-structured interviews with experts. Semi-structured interviews are suitable when the approach is exploratory or attempts to clarify what is happening. With surveys, as much evidence can be gained as could have been gained with interviews, but the number of responses is higher. The empirical

study was first carried out as a questionnaire for 23 companies. Later, semi-structured interviews were done with five experts. The respondents attended the interviews individually. The aim of the empirical study was to find out how value creation worked in the companies, how the designed framework worked, and if the measures were right.

Research methods include all the same phases, which were identified by Totten et al. (1999, pp. 27) as formulating the research questions, selecting the tools to be used, identifying a sample from a population, collecting data, and finally deciding on the method to be used to analyze the data, analyzing it, and making conclusions. In this study, these phases were followed. The process of this study contained seven phases, which are presented in Figure 1.

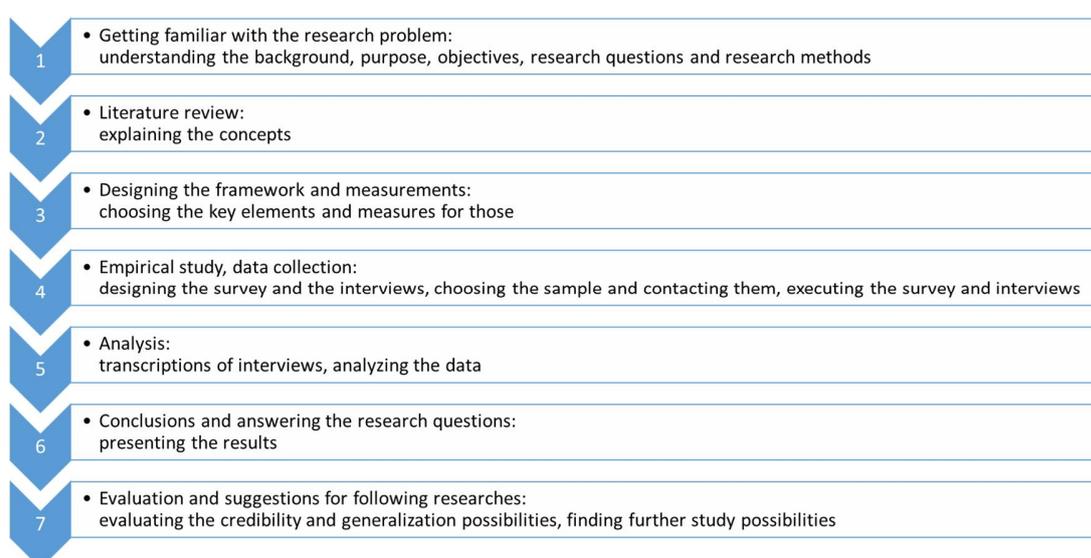


Figure 1. Phases of the study.

1.4 Structure of the research

This thesis contains eight chapters. The first chapter is the introduction, which explains the background for the research and sets the research problem, research questions, and objectives of the study. Limitations and research methods are also introduced in this chapter. The first phase of the research was to do the needed literature review concerning customer value creation. Chapters 2, 3,

and 4 are theoretical chapters that provide information about customer value, performance measurements, and digital business. The whole thesis is based on these theoretical concepts.

The object of the study was to design a value creation framework based on earlier studies, and the framework can be found in Chapter 5. This chapter includes information about measuring the key elements of customer value. Chapter 6 presents the empirical study. The questionnaire and the interviews were designed, executed, and analyzed as described in this chapter. The results were combined with the framework and an updated version of the framework is introduced.

In the seventh chapter, the study is evaluated, and conclusions are presented and explained. In addition, further research suggestions are provided. The final and eighth chapter summarizes the thesis. The structure of this thesis is presented in Figure 2.

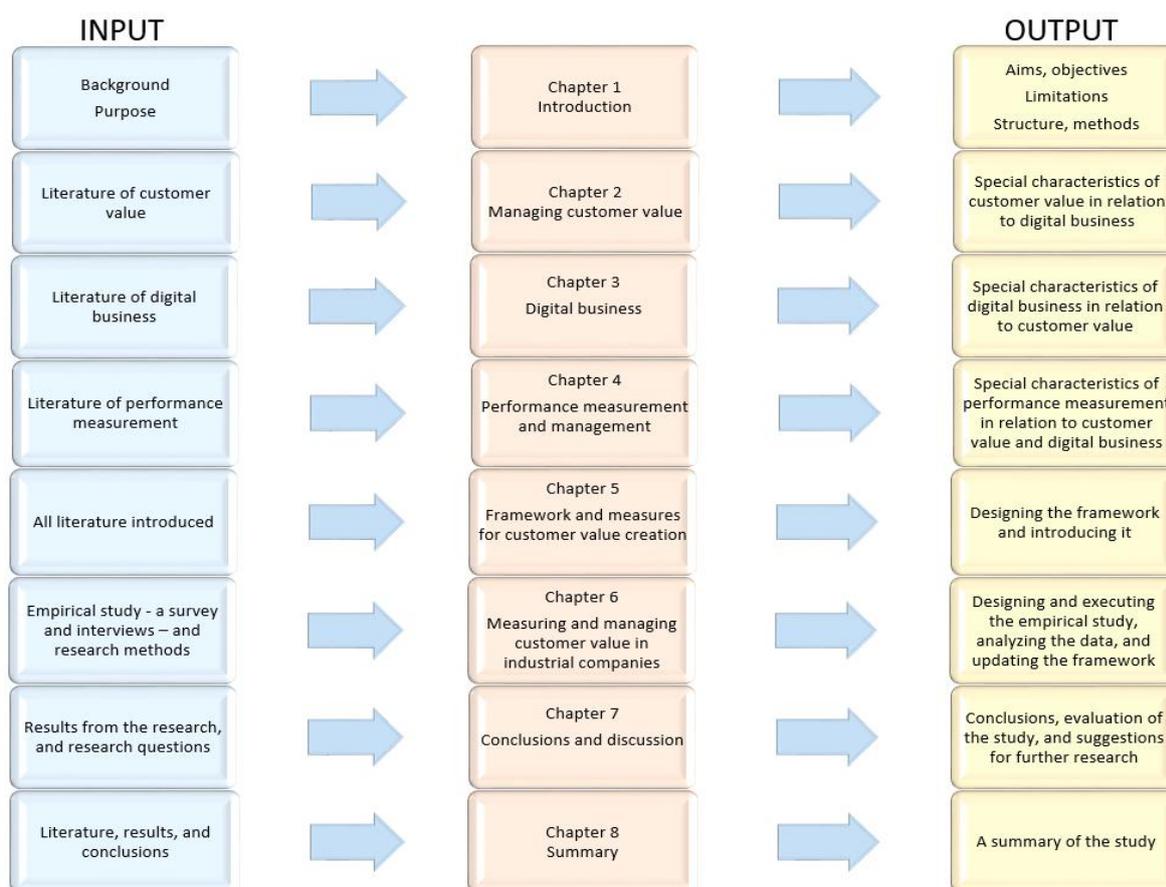


Figure 2. The structure of the research.

2 MANAGING CUSTOMER VALUE

The concept of customer value has been researched a lot in recent years and there have been several definitions and understandings about what it contains. According to Holbrook (2006, pp. 715), the difficulty with customer value is that it is a highly subjective concept so it is hard to have a common understanding about how to define it. Since the definition is already difficult, it makes it even harder to measure it. Still, as Byus and Lomerson (2004, pp. 464) pointed out, all the activities of an organization should be measured equally, including the customer value creation potential. However, like Eggert and Ulaga (2002, pp. 107) mentioned, customer value is not a new concept, there are just many new ways to create it since digital business is evolving and the interaction between the customer and the provider is changing a lot.

Customer value can be seen as the value a specific customer provides to the company or as the value the company provides to the customer. In this study, customer value is the value the company provides to the customer. This chapter develops an understanding of customer value. It covers the definition of customer value and a review of the literature on how customer value can be created, measured, and managed.

2.1 Customer value in digital business

In recent years, a new business logic has been evolving, which begins with focusing on customers instead of the market share as the traditional transactional business models have been doing. According to Byus and Lomerson (2004, pp. 465), this change has forced organizations to design all of their operations to create and maintain satisfied customers. According to Holbrook (1999, pp. 1), value can be seen as the basis for all marketing activity, and as Ulaga (2003, pp. 678) stated, market exchanges occur because all actors involved expect to gain value in the exchange. Therefore, no interaction between different companies occurs without value being created and delivered. Companies are also trying to gain superior competitive advantage by providing customer value, since according to Woodruff et al. (1993, pp. 33), there is a belief that high levels of customer

value and satisfaction are related to sales, brand and company loyalty, market share, and profitability.

To begin with, it is fundamental to understand that value is not the product or service itself, but rather something that customers get out of using it, as Vandermerwe stated (1996, pp. 772). Value is formed from the difference between positive and negative consequences, also known as benefits and sacrifices (Huber et al. 2001, pp. 42-43). Sacrifices are the things that are given up to acquire the market offering and benefits are the positive impacts caused by the acquisition. The positive impacts can be some monetary worth that a product or service provides or some non-monetary benefits, such as competitive gains, competencies, social relationships, and knowledge (Möller and Törrönen 2003, pp. 110). According to Thorpe and Holloway (2008, pp. 30), a customer's source of happiness can be either time, quality, service, or cost. The sacrifices that a customer has to make are related to time, effort, money, and energy.

Customer value is subjective, and therefore it can only be estimated. The value cannot be estimated or evaluated at one point of time only, since the value of the offering changes over its life-time. The value outcomes during a product's or service's lifetime are presented in Figure 3. This change in value over the product's or service's lifetime is because benefits and costs accrue in different amounts and at different times during usage (Anderson et al. 2009, pp. 6-7). A lot of value is especially generated after making the acquisition, but also before, since the product or service has to be produced and sold. After acquisition, different actors can be involved, for example, the customers' customers and other suppliers. Therefore, this part of the value creation mainly occurs inside the customer's firm and between its stakeholders, and the provider has little impact on this phase of value creation. In addition, before the acquisition, many actors can be involved, for example, the provider's partners and other stakeholders. Value creation is therefore done in many phases and in interactions with many actors.

Firms nowadays are more willing to externalize their operations, which makes the supply chains more complex, since the number of actors in them is increasing. Due to this, the number of influencers in customer value is increasing. Organizations providing a product or a service for custom-

ers need to also focus on all the actors in the supply chain and their roles in value creation. Vandermerwe (1996, pp. 770) noted that focusing on the customer is not just the task of the organization providing the market offering; it is the task of the company, distribution channel and global industry together.

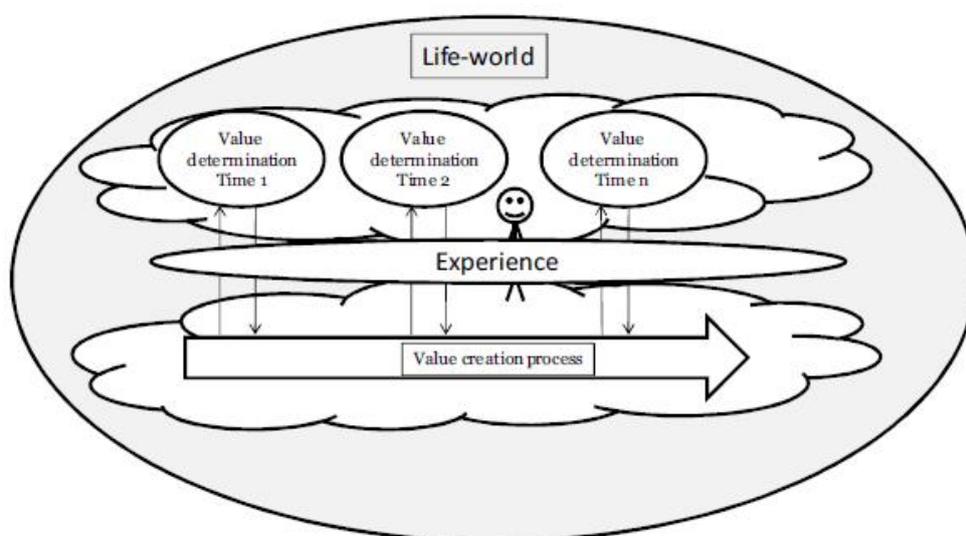


Figure 3. Value creation over time. (Gummerus 2011, pp. 18)

As customer value is subjective and different customers and market segments value different things, it is not easy to know how a specific customer sees the organization and its offerings. Due to this, customer value cannot be easily generalized, which makes it harder for companies to create and manage value creation. Ulaga and Chacour (2001, pp. 529) identified that organizations need to consider different kinds of customers, meaning former, present, and potential customers, in order to cover the variety of different customers. Also the buying situation—straight rebuy, modified rebuy, or a new buy—has an effect on the value creation process and knowing which one of these situations the customer is facing gives the firm a better chance to create and deliver value to the customer, as Anderson et al. (2009, pp. 115-119) stated.

As value is formed by the difference in positive and negative consequences, the benefits have to exceed the price of the product or service for the customer to consider buying it. A customer's incentive to buy is created by the difference between the product's or service's value and its price.

This difference is judged against an alternative option, normally against a market offering from a competitor. In addition, judgement against the customer's own expectations is possible. (Anderson et al. 2009, pp. 6-7)

Value for the customer can be increased either by increasing the benefits or by reducing the sacrifices (Ravald and Grönroos 1996, pp. 25). According to Cram (2006, pp. 48), customers concentrate more on reducing the sacrifices than on increasing the benefits. That leads to the fact that creating value by cost reductions of more effective processes or products is better than gaining more benefits from the same product. Therefore, digital business need to focus on cost reductions.

Customer value is not just the focus of the provider. Customers are paying a lot of attention to their suppliers and the value they are receiving. This is due to the current fashion of reducing the number of suppliers in order to reduce the costs of acquisitions. Ulaga (2003, pp. 677) wrote that customers are using the value creation potential of suppliers as a criteria to decide when to invest more in, maintain, or divest from a relationship. This benchmarking against competitors is sometimes difficult since some information is not available to the customer. Several organizational capabilities are known only by the organization itself and customers might have to guess about the level of these capabilities.

Customer value is an important thing for companies to focus on since without customer value, there can be no shareholder value, and shareholder value is one of the main reasons why companies exist. It is important to remember that customer satisfaction does not automatically mean shareholder value, since providing more value than customers are willing to pay for is not a competitive solution. Satisfied customers are still the source of a company's cash flow, as Anderson et al. (2009, pp. 10-11) stated. Customer value has also been proven to increase the provider's profits since the value increases the customer's intention to buy again. McDougall and Levesque (2000, pp. 392-393) pointed out that customers that are more loyal to the provider buy more often and in bigger volumes and they can have an effect on other customers' purchasing behavior. Therefore, the provider needs to understand the relationship between customer satisfaction and customer loyalty.

From the customers' perspective, there are three levels of customer value, which Butz and Goodstein (1996, pp. 67-69) divided into expected value, desired value, and unanticipated value. The first level, expected value, is the level that all offerings should fulfill, and if they do not, those products and services are not purchased by the customer. Desired value provides the customer with something that is not a standard in the industry and is not expected by the customer. These features add value for the customer and can easily become expected values. The third level, unanticipated value, is something that customers are not expecting and that adds value beyond the basic level. Providing this kind of value can turn into a reputation that cannot be easily imitated by competitors and that can be a competitive advantage.

Customer value is important, especially in the commodities market. In the commodities market, there is no difference between the offerings of different companies and barely any difference in price. For example, gasoline providers cannot be distinguished by the product, but they can offer augmented services, which will make it easier for customers to bond with the brand. That is why customer value is really the competitive advantage of the company. (Butz and Goodstein, 1996, pp. 65)

According to Blocker and Flint (2007, pp. 249), companies are facing intense rivalry based on what customers currently value. The knowledge about what customers value presently will not hold in the future, especially in digital business, in which technology is developing fast. To gain and maintain a sustainable advantage, companies need to anticipate what customers will value in the future. Blocker and Flint (2007, pp. 251) divided the causes of change into four categories: customers' customers' desires; customers' competitors' actions; offerings made by customers' suppliers; and the macro-environment, such as technology and regulation. Changes in one or more of these categories will change what customers will value in the future.

2.2 Creating customer value

The benefits from customer value creation for the provider are the returns an organization gets from customers over their lifetimes if the company creates more customer value than competitors

do. Organizations need to identify what customer value creation would take and cost, and also what would be lost if nothing is done. When trying to define the level of customer value creation, an organization needs to decide how much money and time it is willing to invest as well as evaluating how much can be saved if working practices that add no real value are eliminated. (Vandermerwe 1996, pp. 778)

Woodruff et al. (1993, pp. 33) defined creating customer value as requiring comprehensive information and understanding about the customer. Without the knowledge of what the customers need, an organization is not capable of providing value. This means that an organization can create value only when it understands what the customers value and what customers are seeking to gain from the product or service, as Ravald and Grönroos (1996, pp. 22) introduced. Therefore, a provider needs to know about the customers' operations, including their decision-making processes, competitive advantages, success factors and problems, understand the market the customers are operating in and the possible changes they are facing, and know what the product or service is used for and how it is used (Butz and Goodstein 1996, pp. 72). The provider needs to understand the value the company is creating for its customers and when it understands this, it will be able to protect the organization from competitors better. Value creation can then be seen as a competitive advantage.

Customer value creation requires a close relationship between the provider and the customer since a close relationship is the key to understand the customer. The provider needs to focus on maintaining the relationship. The information that is needed to understand the customer is gained through a close relationship, because then customers are willing to share the information (Butz and Goodstein 1996, pp. 72). Signs of a close customer relationship are, for example, being the customer's first choice, a customer asking for help when solving problems, a customer sharing information and feedback without asking, and a customer openly discussing other options and plans with the provider, including revealing confidential information. Believing in the provider's advice and ideas, involving the provider in the customer's decision making process and even allowing the provider to make decisions on the customer's behalf, recommending the provider to other customers, and the customer wanting the provider to succeed are also signs of a good relationship. In a

close relationship, providers know what their share of the customer's business is and additionally, if the share can be increased somehow. (Vandermerwe 1996, pp. 770)

As firms nowadays are focusing on understanding, creating, and delivering value for customers and understanding the customer's business better, a customer value assessment should be done. A customer value assessment quantifies the impact of a company's market offering to customers' costs and returns, as Keränen and Jalkala (2014, pp. 79) identified. Anderson et al. (2009, pp. 12-14) pointed out that a customer value assessment provides an advantage to a firm over its competitors because building customer value models provides strong detailed knowledge of what the customers value now and in the future and a better understanding of how customers view their own requirements.

Like all investments, investing in customers means accepting that a lot of time, energy, and money will be spent and it will take a while for it to be paid back. Still, organizations should try to fulfill customers' unique and changing needs all the time. The difficulty is that customers often lack knowledge of what they want nor can they tell what they need. Everyone is not thinking and feeling the same way at the same time, so organizations need to focus on a few key customers and build strong cooperation with them to grow the understanding. These customers should be influencers and leaders of the market but not the biggest players, since they seem to be resistant to accepting new working methods and ways of doing business. (Vandermerwe 1996, pp. 771-777)

As it has been clearly stated many times, understanding and knowing customers is important, but so is knowing one's own company and its competitors. Knowing one's own company means knowing the capabilities of the company. By knowing its own capabilities, the company knows what can be done without collaborating with other companies. In addition, when one knows one's own company well, one knows what the other departments are doing and what can be offered to customers. According to Vandermerwe (1996, pp. 770-771), one main issue when trying to create customer value has been the missing link between the marketing and sales department and the production department. This has resulted in marketing and sales promising the customers things that made selling easier but these things were never delivered because they were impossible to produce or the production people were not aware of them. To avoid this, marketing should pay

attention to easing the dialogue between the customer and the organization and focus on long-term results obtained by customers. Knowing competitors provides information about what might be possible to do and allows a company to compare itself among competitors. Some knowledge about customers and the products they purchase from competitors can be gained from competitors. (Manning and Reece 2007, pp. 142-145)

When concentrating on providing services, it has to be acknowledged that the service must be experienced by the customer (Grönroos and Voima 2013, pp. 133). Likewise, the product has to be used by the customer. Therefore, not all value is created by the provider or in cooperation between the provider and the customer. The customer creates some part of the value alone. That leads to the fact that the provider cannot affect all phases of value creation. Additionally, different forms of value creation and co-creation are occurring. The organization provides the market offering and the customer can be creating value alone or jointly. The customer alone creates value in using the product or service, which can be called value-in-use (Grönroos and Voima 2013, pp. 133). The provider and its partners create value together. Payne and Holt (2001, pp. 173) identified that customer value creation includes three types of actors, which are the customer, the employees of the company, and the external stakeholders. Value is created in at least four interactions: the partner and provider interaction, the provider alone, the customer and provider interaction, and the customer alone.

The customer can create value with his or her customers and the provider's partners can create value independently before starting to interact with the provider. This extends the value chain even further, but these are far from the provider and it is difficult for the provider to control these phases of value creation. Therefore, in this study, these actors are excluded. The different actors in the value creation process are presented in Figure 4, which is based on the identification of Payne and Holt (2001, pp. 173). It is vital for an organization's success to understand that everyone in the organization serves the customer and it is everyone's duty to work together to create customer value, but also to understand the importance of other actors.

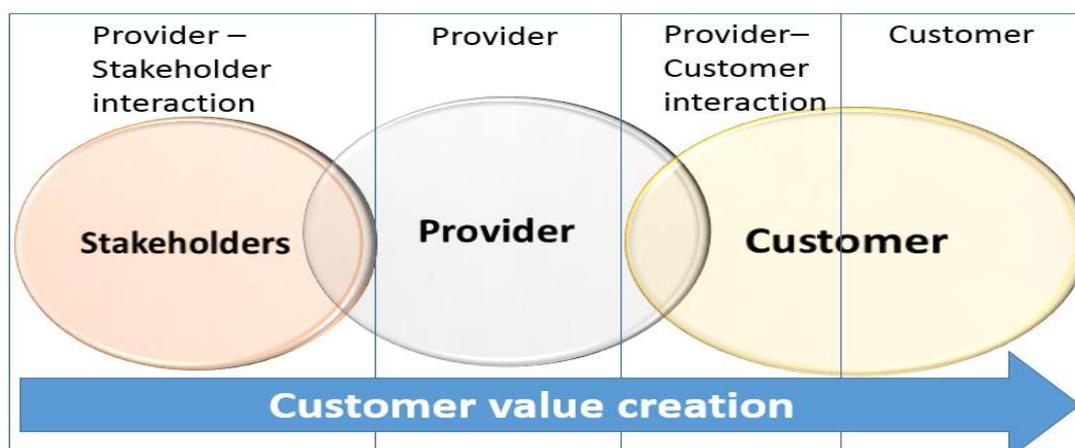


Figure 4. The actors in customer value creation.

Westerlund et al. (2014, pp. 10-11) developed a framework for business models in digital business in order to create customer value. The framework is presented in Figure 5 and it is a good summary of all the elements that are needed in the value creation process. It consists of five terms: value drivers, value nodes, value exchanges, value extracts, and value design. Value drivers are both individual and shared motivations of diverse participants, which enable companies to fulfill the need to generate value, realize innovation, and make money. Value nodes are the participants, activities, or processes that are linked with other nodes to create value. An exchange of value by resources, knowledge, and information forms value exchanges. Value extracts show the meaningful value that can be monetized and the relevant nodes and exchanges that are required for value creation and capture; in other words, it is the part that delivers the value. Value design demonstrates how value is intentionally created and managed.

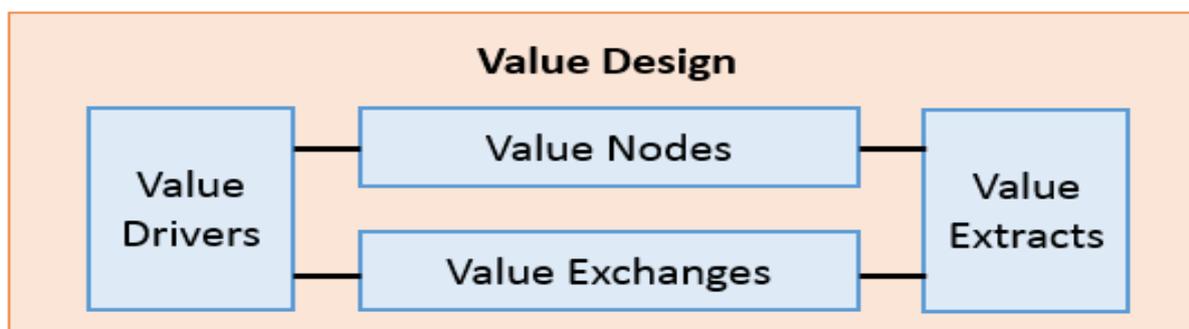


Figure 5. Framework for the value creation process. (Westerlund et al. 2014)

2.3 Elements and dimensions of customer value

In a fiercely competitive and changing business environment, organizations are trying to find out which elements create the most value for customers. In recent years, different approaches to key elements and how to measure them have been used. These key elements have been divided into different dimensions. These different approaches concerning customer value creation and measuring it are explained later. In this study, the focus is on digital business, and therefore the approaches presented are considered to fit the special features of digital business.

Value is created from a combination of different factors that are related to time, place, price, and needs, as Byus and Lomerson identified (2004, pp. 470), or time, quality, service, and cost, as Thorpe and Holloway (2008, pp. 30) stated. These factors can be divided into value elements or dimensions. These dimensions can be, for example, a product, service, or relationship, as Ravald and Grönroos (1996, pp. 23-25) divided them. Anderson et al. (2009, pp. 144) divided customer value creation into product leadership, customer intimacy, and operational excellence. To be able to provide customer value in these categories, a company should focus on three core business processes, which are product development management, supply chain management, and customer relationship management.

Buying products and services satisfy a customer's needs in use situations, so some part of customer value is created by a combination of the preferred attributes of the product and the performance of those attributes (Woodruff et al. 1993, pp. 35). Still, it is not enough to just develop high-tech products. As an element of value, quality can be seen as something self-evidence, as Ulaga said (2003, pp. 682). Customers expect to receive a certain quality when they purchase a market offering. If the provider's offering does not meet the quality criteria, the offering is not even considered. Therefore, quality needs to be good, but it does not necessarily provide any value for the customer. Additionally, the provided products need to be compatible with other products that the customer uses, in order to create value. Due to this, the focus has shifted to providing solutions that help customers to get the results they want rather than providing unique products or services (Vandermerwe 1996, pp. 772). The solution as a whole should increase the value, meaning that it augments all services, programs, and systems (Anderson et al. 2009, pp. 183).

Möller and Törrönen (2003, pp. 111-113) analyzed a business supplier's value creation potential. They suggested that a supplier's value creation potential could be evaluated by identifying the level of various functional values and the costs of achieving them. They divided the supplier's value creation into three dimensions: efficiency, effectiveness, and network functions. Efficiency means getting as much as possible out of the resources used, which results in lower costs. Effectiveness refers to the supplier's capability to produce new business solutions, which add more value than existing offerings. The network dimension refers to the supplier's networks and the actors in them, which might enhance the customers' business processes.

The process of creating value was divided into three aspects by Möller and Törrönen (2003, pp. 109). These three aspects are the core value, added value, and future value. Core value means the core product or service, its usability, and delivery. Added value includes new solutions and incremental efficiencies created by the use of the market offering. Future value is the possible new business opportunities caused by the market offering. This three-phase division results in value being created over time.

The supplier's capability to create value consists of several processes and capabilities, which can be divided into eight categories. These capabilities and their elements, which can be evaluated, are related to efficiency, effectiveness, and network functions. These capabilities are listed below (Möller and Törrönen 2003, pp. 115):

- Production: process records (capacity, speed, quality, flexibility)
- Delivery: process records (accuracy, flexibility in emergency cases, reliability)
- Process improvement: continuous cost reductions
- Incremental innovation: record of product improvements (better functionality, lower costs)
- Relations: beneficial support services, teamwork skills, clearly stated point of contact, the whole company committed, integrated information system
- Networking: wide network with key players
- Radical innovations: record of new offerings
- Mastering the customer's business: record of externalization options, understanding customer's business logic.

Ulaga (2003, pp. 677) stated that in value creation in business relationships, customers are using the value creation potential of suppliers as a criteria to decide when to invest more in, maintain, or divest from a relationship. He suggested that focus should be paid to the fact that differentiation cannot be done nowadays based on product quality. He identified value creation as eight relationship value drivers, which can be measured. The value drivers and the measures are (Ulaga 2003, pp. 682-690):

- Product quality: performance, reliability, consistency
- Service support: services and information flow, outsourcing activities
- Delivery: on time, accuracy, flexibility
- Supplier knowhow: improvements of existing products, new products, understanding of the market
- Time to market: prototype development, product testing
- Personal integration: communication, problem solving, mutual goals
- Price: product-related costs
- Process costs: order handling, storing, warranties.

These value drivers can be divided into qualitative and quantitative measures. Quantitative measures are, for example, delivery and quality performances. Qualitative measures are problem-solving abilities and support services. Ulaga (2003, pp. 691) has stated that qualitative aspects are normally more important than quantitative aspects.

Ravald and Grönroos (1996, pp. 23) studied value as a concept and how it is related to relationship marketing. They categorized value creation into three dimensions, which are the core product, supporting services, and the relationship. Similarly, Lapierre (2000, pp. 124) divided value creation in his research of customer value in industrial contexts into three dimensions, which are product, service, and relationship. These three dimensions have 13 value drivers total, which include ten benefits and three sacrifices. These value drivers are (Lapierre 2000, pp. 125):

- Alternative solutions
- Product quality

- Product customization
- Responsiveness
- Flexibility of services
- Reliability of services
- Technical competence
- Supplier's image
- Trust, which covers safety, credibility, security, and continuity
- Supplier solidarity with customers
- Price, both product and service related
- Time/effort/energy
- Conflict.

In Lapierre's research, it was stated that quality contributes the least amount of value, but the price driver, also known as the monetary cost, is important. It is important to note that the importance of the driver varies depending on the product and the industry. Especially for the ICE sector—information, communication, and entertainment—the key drivers are customization, technical competence, image, trust, and conflict. For the ICE sector, price is not significant and all three dimensions need to be treated equally—value cannot be created by just one dimension. (Lapierre 2000, pp. 130-131)

Walter et al. (2003, pp. 159) studied supplier relationships and stated that value can be delivered by a good relationship. They divided relationship quality into three dimensions: commitment, trust, and satisfaction. There are three functions that affect the quality of a relationship: direct functions, indirect functions, and network functions. Direct functions include cost reduction, quality, volume, and safeguards; safeguards are the supplier's capability to rescue the customer when something goes wrong. These functions are not dependent on other actors and they are realized in the provider's and customer's relationship. Indirect functions are beneficial for the customer in the future or in other relationships. These functions are marketing, scouting, innovation development, and social support. Marketing brings new potential collaborations for the customer and scouting refers to information shared with the customer about the market and new technologies. Innovation development includes supplier's innovation activities like new products or ideas of doing business

more effectively. Social support includes characteristics like good working atmosphere and personal bonds. The aspects of network functions have to be considered as well. The networks have the ability to enhance the customer's chance to build other relationships. (Walter et al. 2003, pp. 160-166)

Uлага and Chacour (2001, pp. 533) did research into how to measure customer value in business markets. They divided the attributes that can be measured into three categories: product, service, and promotion. Product-related attributes consist of usability, the consistency of the product, the range of products, and the product's characteristics. Service-related attributes are reliability and the speed of supply, product innovation, technical support, and the responsiveness of the service. Image, personal relations, the reliability of the company, and public relations form the promotion category. (Uлага and Chacoir 2001, pp. 535)

Heinonen (2004, pp. 207) categorized value into four dimensions: what is offered, how it is offered to customers, when it is offered, and where it is offered. All of these dimensions need to be considered when creating customer value. These dimensions include similar characteristics as the previous suggestions. The product or service quality has to be good, the supply chain needs to be efficient, and the timing needs to be right.

Sheth et al. (1991, pp. 161) divided customer value into five dimensions in their research about why consumers make the choices they do. These dimensions are functional value, conditional value, social value, emotional value, and epistemic value. This theory is seen as relevant for a full range of product types, like industrial goods, services, and consumer durables. Functional value is formed by the product's functionality or physical performance, like its reliability, durability, and price. Conditional value can be created when something occurs in a specific situation, like once in a lifetime. This kind of event can be an emergency or something special, like sending a Christmas card. Social value includes benefits gained through one or more specific social groups, which means, for example, image and corporate identity. Emotional value is created when an offering has the capacity to awake specific, positive feelings. The last dimension of value, epistemic value, is formed by an offering's capacity to evoke curiosity and satisfy the desire for knowledge. (Sheth et al. 1991, pp. 160-162)

Sweeney and Soutar (2001, pp. 203) developed a model for value creation where the creation potential is divided into four distinct value dimensions: quality/performance, emotional, price/value for money, and social. All of these dimensions can be measured. The quality and performance dimension is formed of a product's consistency, quality, and durability. Emotional value is formed by the positive feelings the product creates, like enjoyment and pleasure. Price involves reasonable costs and value for the money. Social value is created when the product makes the customer feel acceptable, improves the way the customer is perceived, and provides the customer with social approval. (Sweeney and Soutar 2001, pp. 212)

To be able to achieve a high level of service quality, a company needs to ensure that all the factors related to service meet the customer's requirements, as Fitzgerald et al. (1994, pp. 53) identified. They divided service-related factors into 12 categories, of which reliability, responsiveness, friendliness, communication, availability, and security are relevant for digital business.

Mejtoft (2011, pp. 672) divided value creation into three layers when value is created by digital resources. These layers are the manufacturing function, the supporting function, and the co-creative function. Mejtoft's division (2011, pp. 673) also highlighted that value is created in networks rather than internally. Digital resources have made it possible to interact with customers in all of the phases of the value creation process. The manufacturing function consists of effective production and supply chains, which includes more automatic and controllable manufacturing. Elements in this phase of value creation are highly visible. The supporting function includes collecting data to support the value creation processes. The third layer of the model is the co-creative function, where the network can think for itself in order to gain democracy in the development process. This will increase the amount of richness and speed of the opportunities. These different layers are not mutually exclusive and value creation should coexist in all of them. (Mejtoft 2011, pp. 674-675)

Weill and Vitale (2001, pp. 37) identified three aspects of business models that are vital when creating customer value. Based on their model, participants, relationships, and flows are the key dimensions. Participants are defined as everyone involved in the business, such as customers and suppliers; relationships are how the participants are linked among each other; and flows represent money, products, or services, plus information.

Because value and the potential for creating it can be seen as something very intangible, the division of intangible performance characteristics into three areas by Byus and Lomerson (2004, pp. 469) is useful. The characteristics are employee competence, internal structure, and external structure. Employee competence means the knowledge, talents, and experience achieved by the employees. The internal structure includes intangible assets, such as systems, patents, copyrights, models, and administrative procedures, as well as the organizational culture and climate. The external structure is made up of those intangibles that can die, like company image, product recognition, and customer loyalty, as well as relationships with customers, suppliers, and vendors.

Zeithaml et al. (2000, pp. 17-21) categorized the quality of the digital or electronic product into 11 elements, which are access, ease of navigation, efficiency, flexibility, reliability, personalization, security/privacy, responsiveness, assurance/trust, site aesthetics, and price knowledge. When considering a digital market offering, the when and where aspects are relevant, but can be quite similar between different providers. Digital products and services have to be available all the time and everywhere. Failing in these areas can be critical for providers.

Value has been divided into three dimensions in many of the theories, for example, in Lapierre's model (2000, pp. 124), Möller and Törrönen's model (2003, pp. 111-113), and Ravald and Grönroos's model (1996, pp. 23). These three dimensions are sometimes named a bit differently, but basically consist of product-, service-, and relationship-related attributes. In digital business, reliability and trust are key elements of creating customer value. These can be gained through mutual goals, making effort toward and spending time with the customer, and by showing respect. The summary of dimensions in value creation is shown in the Table 1.

Table 1. Dimensions in value creation.

Authors	Dimensions / Layers
Möller and Törrönen 2003	<ul style="list-style-type: none"> • Efficiency • Effectiveness • Network
Steht et al. 1991	<ul style="list-style-type: none"> • Functional • Conditional • Social • Emotional • Epistemic

Ulaga 2003	<ul style="list-style-type: none"> • Quantitative • Qualitative
Lapierre 2000	<ul style="list-style-type: none"> • Product • Service • Relationship
Byus and Lomerson 2004	<ul style="list-style-type: none"> • Employee competence • Internal structure • External structure
Ulaga and Chacour 2001	<ul style="list-style-type: none"> • Product • Service • Promotion
Walter et al. 2003	<ul style="list-style-type: none"> • Direct functions • Indirect functions • Network
Mejtoft 2011	<ul style="list-style-type: none"> • Co-creative function • Supporting function • Manufacturing function
Ravald and Grönroos 1996	<ul style="list-style-type: none"> • Core product • Supporting services • Relationship
Sweeney and Soutar 2001	<ul style="list-style-type: none"> • Quality/performance • Emotional • Price/value for money • Social
Anderson et al. 2009	<ul style="list-style-type: none"> • Product leadership • Customer intimacy • Operational excellence
Heinonen 2004	<ul style="list-style-type: none"> • Market offering • Supply • Timing • Place
Fitzgerald 1994	<ul style="list-style-type: none"> • Service quality
Weil and Vitale 2001	<ul style="list-style-type: none"> • Participants • Flow • Relationship

2.4 Measuring customer value creation

When evaluating customer value creation, the evaluation should include the whole experience a customer faces when using the offering, not just evaluating how good the product or service is. As Payne and Holt (2001, pp. 173) identified, customer value creation and management includes three

types of actors, which are the customers, the employees of the company, and the external stakeholders. This means that value is managed and created among different actors and in different phases. The entire product delivery system from the supplier to the customer should be measured.

As the benefits can be either monetary or non-monetary, the performance measures need to evaluate both of these aspects. When measuring something nonphysical, like the level of customer service, only personal judgement can be used as a measuring method, as Byus and Lomerson (2004, pp. 469) stated. When customer value is measured, both the supplier and the customer need to judge the performance in order to point out the critical points of disagreements. Customer value is always relative to something, for example, to a competitor's offering or a customer's expectations of the offering. The process of evaluating customer value was identified by Butz and Goodstein (1996, pp. 71) as follows: customer identification, planning the data collection, collecting the data, measuring, and implementation.

To be able to measure customer value and an organization's ability to create it, the organization has to understand how customers see the organization and its products and services. Since value is subjective and different customer and market segments value different things, organizations need to consider different customers, like former, present, and potential customers, as Ulaga and Chacour (2001, pp. 529) defined, or existing, emerging, and imagined, as Vandermerwe (1996, pp. 770) defined. On the other hand, Möller and Törrönen (2003, pp. 113) asserted that a customer can be important for the supplier either by his or her consumption volume, reference value, or technological learning. It is important to choose customers from all segments of the key customers when choosing the sample that will be evaluated. When selecting one key customer, the organization needs to understand what new information and opportunities will arise, which can be used for other customers. Since everyone is not the same, it is important to realize which information can be extracted that will improve the organization's overall ability to create customer value and what is the worth of the information, knowhow, and learning gained. (Vandermerwe 1996, pp. 777-778)

To understand the value the company provides, the company should gather detailed information about the customer's processes and how the company's market offering affects them. The information can be gathered by direct interaction with the customer's firm, like surveys and focus group

interviews, or indirect and informal surveys, such as asking the customer what kind of effects some changes in the company's present market offering would cause, or benchmarking. The gathered data need to be analyzed well and actions taken based on the results. (Anderson et al. 2009, pp. 64-67)

Kaplan and Norton (1992, pp. 73-74) stated that the measures of value creation should focus on lead times, quality, performance, service, and costs. In addition, an organization needs to clarify whether they are able to create value by launching new products, serving customers well, or improving their operating efficiencies, or by any combination of these. Measuring customer value creation is still quite difficult, since the existing measures are designed for evaluating the tangible outputs of mass production processes and are inappropriate for today's service- and quality-oriented environment (Byus and Lomerson 2004, pp. 466). Even though new measuring methods have been developed, they are often measuring old management processes.

2.5 Managing customer value creation

According to Anderson et al. (2009, pp. 117), value management means that the company is managing its operations by the value it generates. In other words, the company is gaining a clear understanding of its customers' needs and priorities in order to deliver value to the customers. A customer value driven organization focuses on net customer value, as Butz and Goodstein (1996, pp. 70) pointed out, which means the difference between benefits and sacrifices.

"What gets measured gets done," said Peter Drucker as the basis for why performance measures are key tools for managing performance (Lucid and Lepidi 2011). However, Herbert Simon stated (1959, pp. 272) that decision makers never have all the existing information about the topic or matter they have to make the decision for. Their knowledge is more like an approximation of the real environment. Still, managers need to make decisions based on the information they can get and measuring provides some valuable information that is based on facts.

While managing customer value, organizations need to consider customer satisfaction, attitudes, competition, quality, and the boundaries between the customer and the supplier, but also customer understanding, problem-solving skills, behaviors, consequences, and alliances, as Butz and Goodstein (1996, pp. 70) identified. All of these aspects of customer value can be managed to deliver value. As many processes in a company's daily operations are automated by some digital technologies nowadays, the number of different systems is increasing all the time. It requires a lot of money, time, and effort to make them work together and management needs to focus on making decisions that cover all operations, not just a part of the process, like the procurement process. According to Heir et al. (2000, pp. 93), management needs to train employees properly, since a lack of training might result in non-effective processes.

As digital business is making it easier for companies to work outside the boundaries of their own countries, companies are facing new kinds of difficulties. For example, a company needs to get used to strange circumstances, especially different customer needs and demands, and it needs to understand different working cultures and special laws and rules (Heir et al. 2000, pp. 90). That requires a different management style, and changes the process of creating customer value.

In short, customer value is the value the customer gets in relation to the benefits and costs of the acquired product or service. Benefits can be monetary or non-monetary, and sacrifices are related to time, effort, money, and energy. Customer value is different for every customer, so creating it requires a lot of information about the customer and understanding about the customer's business. Creating superior customer value is one way to gain competitive advantage. Customer value is formed in many interactions, so many different actors and operators affect it. Additionally, value is formed over a lifetime, not at one specific point in time.

3 DIGITAL BUSINESS

Nowadays, companies are seeking new sources of competitive advantage and new sources of customer value. Digital resources have been harnessed to do this, since the new digital technologies can be used to deliver value to customers in ways that extend customers' normal conscious experiences in the context of time and space, as Watson et al. (2002, pp. 340) said. Manning and Reece (2007, pp. 5) emphasized the importance of the new technologies by stating that most economic transactions nowadays are due to the effective exchange of information in which digital resources play a huge role. Therefore, the importance of understanding digital resources and digital business is growing all the time.

Digital business can be summarized as transactions that occur or content that is delivered via a digital interface while value is created. The transactions through digital technologies and resources can be happening in different phases of the value creation process and in different interactions. The main effect of digital business is that it is changing the existing business in a holistic and customer-driven way by renewing the processes, for example, by digitizing processes and developing electronic services (Ilmarinen and Koskela 2015, pp. 22-23). In other words, the processing of information, goods, people, and processes are automated. Therefore, simulation systems, which try to verify the validity of developed products and services, are one way of practicing digital business.

In this chapter, the use of digital resources while turning into digital business is introduced in short. This introduction includes a brief clarification of what digital resources are, how they can be categorized, and what benefits and disadvantages of using them could be brought to organizations. All aspects of digital business are related to creating customer value.

3.1 Harnessing digital resources for future competitive advantage

To transform business in this new era of information to fit the needs of customers better, organizations have started to use technologies based on the Internet and wireless communications. The

new era of information, or the Information Age, describes the time when the virtual environment has become a main dimension of reality and digital networking technologies are directing lives, as Castells (2010, pp. 15-16) identified. Chaffey clarified (2015, pp. 4,15) that the new technologies based on the Internet and wireless communications can be called digital technologies or digital resources, and when these resources are used to create value, the concept can be called digital business.

The new digital technologies are affecting every aspect of people's lives, which is why they are the main drivers of innovation nowadays. According to Witell et al. (2015, pp. 1-2), innovation can be briefly described as an invention that has not yet been successfully introduced in the market or a renewal of an existing product that provides benefits to the organization that developed it (Toivonen and Tuominen 2009, pp. 893). The benefit of an innovation usually derives from the added value that the renewal provides to the customers. This aspect of benefits and added value strongly links new innovations with value creation.

There is a difference when using the terms *digitalization* and *digitality*. Digitality means using digital resources and the automatization of the processing of data, things, and people. Digitalization is transforming business with a customer-oriented view by using digitality, for example, by making processes digital or creating electronic services, as Ilmarinen and Koskela (2015, pp. 22-23) identified. The whole nature of an industry can be changed by using digital resources. Therefore, it is not easy to address all the possible changes caused by digitality. It is important to note that digital resources and technologies can be used in all industries, even though they are not used everywhere currently, and digitalization has the power of creating new opportunities in all industries. It can be said that digitalization will change the way people live and the way the world works.

Digitality affects business in three different categories. One category contains new digital products and services that the company provides to its customers. Using digital resources to transform either business processes or business strategies are two more categories of digitality (Bharadwaj et al. 2013, pp. 471). This makes it possible for digitality to be used as an interacting platform between provider and customer, to be a market offering, or to be a part of some operational process while

producing the offering. Therefore, digitality can provide a solution to one or more of the following questions:

- How are goods and services produced and designed (the process)?
- What kinds of goods and services are offered (the market offering)?
- How are goods and services brought to the market (the business model) (Brynjolfsson and Kahin 2000, pp 13-14)?

These three categories of digitality are not exclusive; they can be in force simultaneously. These categories are presented in Figure 6. If the market offering is something digital, it means that the main benefit from digitality for the customer is the product or service. For example, it could be a customer relationship management (CRM) system or a paid digital dictionary. If digitality is used in the processes, it can be, for example, a simulation system for product development. Simulation has been popular in recent years when verifying the validity of newly developed models (Pannirselvam et al. 1999, pp. 101). With simulation systems, a research and development department (R&D) can easily spot technical difficulties, since the systems show the assumed performance of the designed product. Digital resources used while interacting with customers implies, for example, a digital platform where customers order books that will be delivered to them in a digital form. In other words, the ordering, paying, and delivering occur in a digital form. This changes the way of doing business with customers regarding time and space.



Figure 6. The categories of digitality that affect digitalization.

Organizations should use digital resources to increase the provided customer value rather than reduce their own operation costs. The provided value for the customer could be price discounts, since value is calculated as the difference between the benefits and the sacrifices. It is important to remember that customers value a reduction in sacrifices more than an increase in benefits. (Cram 2006, pp. 48)

Since multiple technologies are involved in everyday business nowadays, coming up with new market offerings is more difficult and requires many joint actions with customers (Möller and Törrönen 2003, pp. 109). Digital resources can ease cooperation, since they can be used in different dimensions. These dimensions are the customer interface, the partner interface, and the internal information flow of the company. The processes related to these dimensions are improved by digital technologies. All of these dimensions are related to customer value creation since customer value can be created during all of these actions. (Chaffey 2015, pp. 180)

The Technology Adoption Life Cycle is a framework introduced by Moore (1999, pp. 7) where the levels of adapting and accepting new technologies can be divided into five groups. These five groups are laggards, late majority, early majority, early adopters and innovators. Laggards mean very late adopters of technology, and a member of the late majority is a follower, which adapts the new technologies after most people have already been using it. When the technology has already somehow proved itself but is not yet commonly used, the one using it is part of the early majority. The first ones using the new technology are innovators or early adopters.

Related to the Technology Adaption Life Cycle, three strategies for using digital resources were identified by Avonius (2016). These strategies are “doing something digital,” where the new digital strategy will be built upon the existing business, and no radical changes to the core business are made. “Making a totally new digital strategy” is used when significant investments in a completely new, separate business are made and “transforming the old business model to be digital” is used when new digital business is built based on the assets of the traditional business.

Watson et al. stated (2002, pp. 345) that the structures of organizations and management styles are changing, since organizations need to shift their focus from products to customers and the virtual

aspects have to be given attention. Companies will be facing difficulties in managing the complexity between devices, information, and users (Leminen et al. 2012, pp. 18). Therefore, Kyriazis and Varvarigou (2013, pp. 447) pointed out that new decentralized management mechanisms are needed in the future due to the huge number of digital devices being used. As the environment and business models are experiencing much change, the ways the companies are managed and the measurement systems used need to be changed.

Digital business involves transactions that occur or content that is delivered via a digital interface while value is created. As mentioned earlier, this can happen during different phases of the value creation process and in different interactions. The main effect of digital business is that it is changing the existing business in a holistic and customer-driven way by renewing the processes, for example, by digitizing processes and developing electronic services.

3.2 Advantages and disadvantages of being involved in digital business

Digital resources are changing the relationship between customer and provider. Digitalization will destabilize the leader of the value chain and the rules in it. Using digital technologies is also a question of costs. For example, a customer might require e-billing options and the provider might not be able to offer that kind of solution. Investing in an e-billing solution has to be judged against how much the provider wants to keep the customer. In addition, when the information becomes easier to access, the company's image might blur. The fierce competition makes it easy to find many options for the same need. (Heir et al. 2000, pp. 186)

The main advantage when using digital resources is the ability to generate value in new ways or increase the effectiveness of current ways. With the usage of digital technologies, data can be accessed, stored, and transformed more effectively, as Rust and Espinoza (2006, pp. 1075) pointed out. The new or more effective ways of creating value will generate time and cost savings for the provider, and therefore incremental profitability. Time and cost savings can be caused by increasing efficiency or effectiveness in processes due to lowering transaction costs, such as labor and material costs, or reaching a larger customer base, according to Watson et al. (2002, pp. 334). In

addition, because digital resources allow objects to evolve, becoming smarter and more reliable as well as acting in a more autonomous way, as Kyriazis and Varvarigou (2013, pp. 442) identified, the number of business models as well as operators will increase.

With digital technologies, the customer information gathering is more automated, which makes it easier to satisfy customers' specific needs. As more information and knowledge about markets are available and easier to gather, newer and better services and products can be produced. These new products fulfill customers' needs better, since they are based on more relevant and specific information. Since the information sharing is more accurate, the market offering will be customized based on the real needs of the customer. (Rust and Espinoza 2006, pp. 1072-1073)

Easier access to information with the help of digital resources enables suppliers to provide customers with more personalized customer service and to build closer relationships. For providers, it is easier to reach customers, since digital resources can be accessible everywhere and at any time. More personalized customer service and closer relationships will lead to customers trusting the provider more and therefore, they will buy more frequently from the provider. Additionally, more personalized customer service is possible when the provider is able to manage individual marketing materials better, which is enabled by the increased capability to store and transform information. (Watson et al. 2002, pp. 335)

With digital technologies, other resources are brought together in networks and the sharing of information is easier since the interaction between different actors is augmented to a greater extent. The digital resources enable links to be created between the actors in the networks. This will result in almost endless ways to utilize information as well as to connect an object, a business, or a consumer together, as Watson et al. (2002, pp. 341) stated. Information can be shared automatically by sensors that have been installed directly in the products or given to the users. This will result in earlier problem spotting, which increases customer satisfaction.

For the customers, digital technologies will bring lower costs with improved usability and a better information providing capacity. The improved usability will decrease the amount of time and attention needed so customers can focus on other activities. In the best situation, this would mean that customers are more willing to pay attention to, for example, new product testing. The digital

products provided by different companies can also match each other more easily, which will increase the benefits gained even more. (Watson et al. 2002, pp. 336-342)

Hannus (2015, pp. 9) divided the benefits from digitalization into four dimensions. These dimensions are related to strategy, management, customer value, and efficiency. The strategic dimension covers new business models and new ways of networking, while management includes new ways of managing the organization and developing a culture of finding new ways of doing business. Customer value covers new ways of delivering value for customers via digital resources and efficiency covers improving processes and operations. In addition, it is important to note the changes that digitalization brings to the networks and value chains, as well as to the key elements and structures in those.

The use of digital resources can be a source of competitive advantage but also a huge risk for the company, according to Chaffey (2015, pp. 30-38). He identified that some investments can end up gaining no added returns, and in customer service, the use of digitality can lead to bad customer service. This can be damaging for the image of the organization and ultimately result in losses. It is also vital to remember that new technology is not the only thing affecting the success of digital business. The right culture, clear and well-defined objectives, the required skills, and organizational structure are important aspects when dealing with digital business.

The rising competition in digital business has brought some difficulties. For example, the range of different choices has led to fierce competition for customers and each company is getting a smaller percentage of the customers. This fierce competition has made it more difficult for customers to recognize the provider of the service or product, as Rust and Espinoza (2006, pp. 1074-1075) stated, and this can be seen as wasted brand awareness.

Security and privacy are the key issues in using digital technologies, especially in procurement processes, according to Grewal et al. (2003, pp. 482). Customers are scared that confidential information could be spread to competitors. This could result in losses and wasted money on investments. This highlights the value of reliability and trust in customer value creation.

As described earlier, digitalization is going to change the way the world works. That will also change the normal rule of the marketing mix, or the 4 Ps as it is also known, which includes product, price, place, and promotion. In the future, companies need to focus on easy buying situations, owning the customer relationship and good communication, and more diverse pricing and solutions that can be compared to experiences. The new digital technologies are easing the interaction and the relationship between the supplier and the customer. As defined earlier, this brings benefits and disadvantages to both sides of the transaction. This is why customer value and the ability to create it with the help of digital resources need to be given more attention. (Heir et al. 2000, pp. 191)

4 PERFORMANCE MEASUREMENT AND MANAGEMENT

The initial goal of an organization is that various inputs, which can be, for example, land, labor, or capital, are processed in some ways to provide valuable outputs (Berry and Otley 1996, pp. 1). According to Lebas (1995, pp. 23), processing needs some actions, which normally have objectives and targets to reach and the successful implementation of these actions results in performance. Performance, in short, can therefore be summarized as various factors working together to produce something that is valuable.

As Lebas has stated (1995, pp. 23), managing performance to reach its objectives and targets without measures is hard or even impossible. It has been proven that people will pay attention to performance when it is measured (Berry and Otley 1996, pp. 1). This results in a need for performance measures in a company's daily operations and Thorpe and Holloway (2008, pp. 24) have suggested looking beyond measuring performance in order to manage performance. This means analyzing and improving operations based on the measures.

This chapter begins by defining the concept of performance measurement. The basis and meaning of performance measurement is clarified and the benefits from using measures are identified. Finally, the concept of performance measurement related to customer value creation is examined.

4.1 Usability of performance measurement

Performance involves actions taken to produce something valuable, and measuring performance should reveal something about those actions. DeNisi (2000, pp. 121) defined performance measurement as something that provides feedback to employees about the operations they have done, and the same information is used in management as the basis for decision making. Performance measurement is therefore a system that gives some kind of score to the performance of a certain employee, group, or unit. To extend the concept a little bit, Bourne et al. (2000, pp. 761) defined performance measurement as a process of collecting, analyzing, sorting, and distributing data.

Kaplan and Norton (1996, pp. 2) described performance measurement as something that helps organizations to gain future competitive success, and Molleman and Timmerman (2003, pp. 93) appraised performance measurement as being used to give responsibilities, engage, evaluate, or reward. As performance measurement should be based on the strategy of the company, it can be seen as a way to communicate strategy to all personnel (Ukko et al. 2007, pp. 40). In summary, performance measurement analyzes, manages, and improves the organization's operations and actions. Performance measurement helps to understand processes and shows where improvements are needed. If improvements are made, performance measurement reveals if any changes actually happened, and it reveals problems that bias, emotion, and longevity cover up.

Thorpe and Holloway (2008, pp. 28) wrote "Only when we try to measure performance do we fully understand what achieving it will require," resulting in the fact that measuring performance helps management to understand what resources the organization needs to keep its operations running. Measuring can also help to keep employees focused on the right things, since measuring something will make people pay attention to the matter that is being measured, as Berry and Otley (1996, pp. 1) stated. Therefore, measuring normally has behaviorist impacts and according to Ukko et al. (2007, pp. 39-40), measuring can improve the information flow of the company as well as the organization's financial performance, quality of market offerings, and operational processes. When having a performance measurement system, an organization can gain information about whether it is meeting its customers' and their own requirements and ensure that decisions are based on facts.

Nowadays, management is facing two kinds of pressure: to be even more customer oriented and to evaluate the performance of all of the organization's activities (Byus and Lomerson 2004, pp. 464). Furthermore, it is not enough to evaluate performance; rather, organizations need to continuously improve the evaluated activities. The difficulty in measuring currently is that the traditional measures are not suitable for the intangible methods of delivering benefits for the customers.

According to Hudson et al. (2001, pp. 1100-1101), the most critical elements of performance are quality, flexibility, time, finance, customer satisfaction, and human resources. The balanced scorecard, which is one of the major frameworks used for evaluating a company's performance and was

developed by Kaplan and Norton in 1992 (pp. 72), concentrates on four important perspectives: financial, customer, internal business, and innovation and learning. From these perspectives, the customer perspective is the most related to customer value creation. Customer perspective means how customers see the organization. From this perspective, one main way to be successful is to keep customers happy. Customers' focus and thus, their source of happiness, can be related to either time, quality, service, or cost. (Thorpe and Holloway 2008, pp. 30)

Performance measurement is used to collect, analyze, sort, and distribute data in order to analyze, manage, and improve the organization's operations. Even though the purpose of the measures is to deliver reliable information to support managers' decision-making and to change behavior, as Ukko et al (2007, pp. 39) identified, sometimes using measures to control performance leads to the behavior being changed in unanticipated ways. This results in the fact that measures can be easily manipulated, so testing is really important to make sure that the chosen measures are appropriate and the possibility for manipulation is reduced to be as low as possible. To increase the commitment of managers to achieve the targets, the managers need to participate in the target setting process.

Traditional performance measurement has been criticized a lot due to encouraging short-term decision making, lacking strategic focus, and focusing on historical data. This has led to a need for a more balanced view of performance measurement, which tries to balance the internal and external measures and the financial and non-financial measures. The idea behind the new kind of performance measurement is to provide signs of future business performance in the early phase as well as a record of what has been achieved in the past. The more the performance measurement systems have developed, the more the focus has switched to non-financial, external, and future looking measures. (Bourne et al. 2000, pp. 754)

As mentioned, a performance measurement system should provide complementary non-financial performance measures together with financial measures. These non-financial measures are related to operations like manufacturing, marketing, and research and development. The measures designed to evaluate these operations, according to Chenhall and Langfield-Smith (2007, pp. 267), could be related to quality, inventory, material scrap, equipment maintenance, and delivery. In

addition, a division of hard and soft measures is needed, as Lönnqvist and Mettänen (2003, pp. 32-33) stated. They identified that hard measures are grounded on initial values, like business transactions and the number of actions, and soft measures are based on attitudes, views, and feelings. For soft measures, customer satisfaction and employee satisfaction surveys are used and for hard measures, internal operational data is needed.

Performance has several time frames and it can focus on past actions, the current situation, or results planned for the future. Therefore, the measures can reveal the results of the achievements of the unit being evaluated as well as the future capabilities of the unit. By measuring performance, organizations can find out their past, current, or coming state and positioning. Hence, performance measurement can provide answers to one or more of the following questions:

1. Where have we been in the past?
2. Where are we now?
3. Have we reached the goals we have set?
4. Where do we want to go?
5. How do we get there? (Lebas 1995, pp. 24)

Whether the measuring is of the past, current situation, or future capabilities, the initial goal of measurement should be to find out the success of the implementation of the organization's strategy. In addition, according to Bourne et al. (2000, pp. 755), the information the performance measurement provides should be used to test the validity of the current strategy and challenge the assumptions made earlier.

Measuring itself is just one part of using the performance measurement system since the effective use of it requires four main phases, which Bourne et al. (2000, pp. 755) divided into designing, implementing, using, and continuously updating the system. In the designing phase, the management needs to clarify the objectives of its operations. The management should know which factors related to the organization's strategy are crucial to the organization's success and what targets the organization has for these areas. The organization needs to define how to measure and control the performance in the critical areas and decide if there are any rewards or penalties for the managers

after achieving or failing to achieve these targets. After that follows the implementation phase, when the company ensures that the decided factors are possible to measure. The using phase can be described in the simplest way as a process of data collection, sorting, and distribution. This process includes measuring, reviewing, and deciding actions based on the measures. Finally, in order to effectively measure performance and successfully manage the organization's performance, the system needs to be updated based on the results. The phases of the life-cycle of a performance measurement system are presented in Figure 7. (Thorpe and Holloway 2008, pp. 25-26)

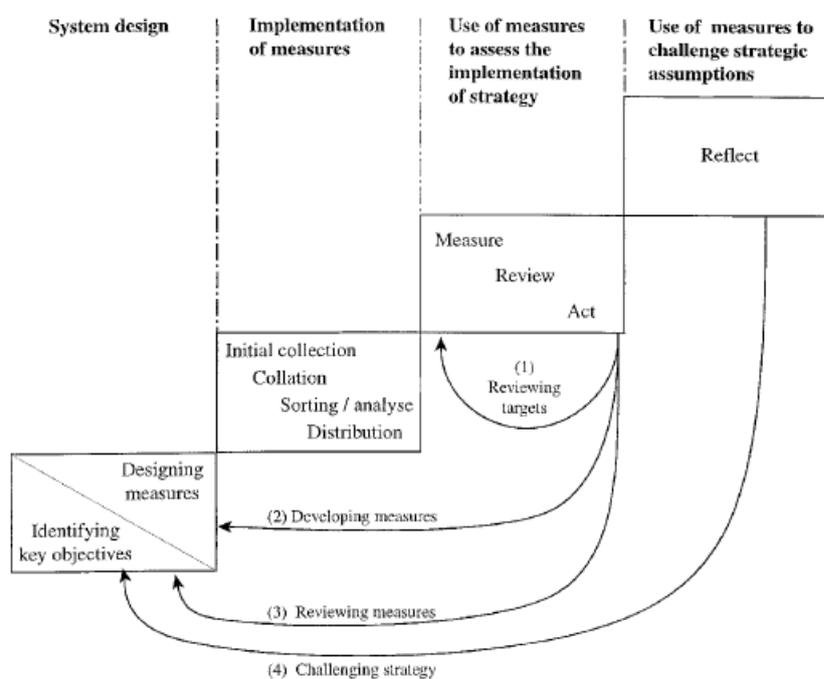


Figure 7. Life-cycle of a performance measurement system (Bourne et al. 2000, pp. 757)

As Folan and Browne (2005, pp. 666) have noted, the performance measurement system can be used to measure an individual, group, organization, system, or component, but to be most effective it should be designed to evaluate group, not individual, work. If possible, those whose performance is being evaluated should collect the data and information. All of the critical areas that are being measured have to be based on the organization's strategy and these should be consistent with the business's goals and objectives. The critical areas should consist of several critical activities. These

activities need to be well defined and measurable. Well defined activities means that the measures are understood by those being evaluated and the measures express information through as few and as simple a set of measures as possible. After having specific goals established, the objectives should be updated when reached. Measurement systems need to be monitored and updated during the measuring as well, especially if they are not revealing the information needed. (Folan and Browne 2005, p. 666)

The initial data for the targets and goals can be gained from three different sources and all of these represent one time frame. The historical data of the company, which tells what is feasible in given circumstances, because it actually happened, is one of the sources, as Thorpe and Holloway (2008, pp. 29-33) pointed out. In addition, they identified external benchmarking as a source of data that reveals what rivals have achieved, and therefore it could be feasible for the company. The coming requirements provided by the customers and shareholders, which mean information about what they will need in the future, is the third source. Higher levels of targeted performance are naturally more desirable, but might not be feasible to attain with the organization's current working methods. That is why a lot of attention should be paid to target setting and routines in the working processes must be established in order to measure the activities.

With a performance measurement system, managers are enabled to view performance in several areas of operation simultaneously. Performance needs to be evaluated and reported regularly, for example, daily or weekly, and the collected data should be constantly available to numerous levels of the organization. The information on the strategic objectives of the firm should be shared in all departments to provide organizational focus and the measures should allow all members of the organization to understand how their actions affect the entire business. (Folan and Browne 2005, pp. 666)

Performance needs to be compared to competitors and to the company's own expectations. For example, the company can be making similar profits as the previous year, but if the market is growing all the time the same profit is not good, as Eccles and Pyburn (1992, pp. 41) pointed out. Neely et al. (1997, pp. 1138) defined the measures needed to include a lot more information than just numerical values, such as the purpose of the measure, the target, what it relates to, how the

measures are made, how often it is measured and reviewed, who is responsible for measuring, the source of the data, and who is going to act based on the data and how.

4.2 Customer value creation and performance management

All the activities of an organization should be measured equally, including the customer value creation potential. To maintain a competitive advantage in the field of customer value creation, organizations need to develop a set of performance measures that fit their strategy. Folan and Browne (2005, pp. 666) identified that when designing and developing effective performance measures for customer value creation, it is important to review how effectively customers' needs and expectations are satisfied with a focus on the measures that customers can see.

As the measures provide information for management about how well the organization is achieving its targets and objectives, it is also a tool for managing the operations of the organization. According to Amaratunga and Baldry (2002, pp. 218), with performance management, the organization can improve its development activities. The activities can be related to, for example, strategy, corporate culture, resource management, or management styles. According to Hudson et al. (2001, pp. 1100), to be able to manage the performance measurement development process effectively, four elements need to be fulfilled. First of all, top management has to support the process and all the employees need to be committed. In addition, the objectives need to be clear and precise and they should have a time frame, in order to understand if the company is performing as planned.

Customer value creation in the eyes of performance results in customer satisfaction, as Slater and Narver (2000, pp. 121) stated. They mentioned that customer satisfaction normally results in customer retention and customer loyalty, which will result in sales growth. Increased sales can be gained by a bigger part of the customers' acquisitions since the more satisfied the customers are, the more they will be willing to give the provider a bigger share of their purchasing needs. In addition, customer satisfaction normally leads to closer relationships between the customer and the provider. In a closer relationship, more information is shared and better products are produced that fit the needs of the customers. As Kaplan and Norton (1996, pp. 3) stated, focus has to be paid

to new customers in order to allow new customer markets and segments to be served efficiently and effectively.

Since creating customer value can increase the provider's profits by customers buying more often or in bigger volumes, or because the customers recommend the provider to their partners, creating customer value will increase other elements of performance. For example, increased customer relationships by creating more customer value could end up accomplishing more innovations and new ways of doing business since the customers can share their opinions. In addition, increased sales volumes will result in positive financial performance. Providing superior customer value can lead to competitive advantage.

4.3 Measuring customer value creation in digital businesses

Customer value is formed of different elements, and therefore measuring it needs to take many different elements into consideration. Fitzgerald et al. (1994, pp. 1) have identified that companies need to focus on price but also on quality, product, and service innovation and flexibility to respond to customer's needs. Byus and Lomerson (2004, pp. 469) have defined three areas of intangible performance characteristics related to customer value creation: employee competence, internal structure, and external structure. Employee competence means the knowledge, talents, and experience achieved. The internal structure includes intangible assets, such as systems, patents, copyrights, models, and administrative procedures, as well as organizational culture and climate. The external structure covers other intangibles that can perish, like company image, product recognition, and customer loyalty and relationships with customers, suppliers, and vendors.

Everything can be measured, as Lönnqvist and Mettänen (2003, pp. 57) demonstrated; the only issue is how precise the measures need to be and how much effort, time, and costs the organization is willing to sacrifice for the measures. In relation to customer value measures, it is important to note that intangible success factors are hard to measure since there is nothing physical to measure. Good examples of intangible success factors are the atmosphere and level of knowledge. Especially in digital business, where customer contact can occur via a digital platform and no personal

interaction is happening, it can be difficult to evaluate the level of the atmosphere. For these intangible factors that are highly subjective, indirect measures are suggested. According to Pirnes (2002, pp. 44), there have been signs that in the future, the competition between companies will focus on gaining knowledge-based capital, which is intangible.

In customer value creation, there are several unique difficulties in measuring the process, since customer value and creating it are intangible. Therefore, management can lack the skills to measure customer value creation. In addition, the lack of time and resources causes problems and as there is no common understanding about how to define customer value, it is hard to measure it. Sometimes the systems do not support measuring and therefore, it is not possible to measure customer value creation in practice. However, digital resources are easing the measuring processes nowadays quite a lot. In addition, the missing understanding about what customer value is, the lack of acknowledging the importance of measuring performance, and the importance of customer value cause difficulties. (Lönnqvist and Mettänen, 2003, pp. 50-52)

As value is commonly created in many interactions and by many actors, the measures should include the activities of all the actors involved in the value chain. Therefore, value creation should be measured inside the provider, but also in stakeholder interactions and in interactions with customers as well as in the customer's operations. The entire product delivery system or value chain should be measured, meaning all phases from the supplier to the customer. In digital business, where the boundaries of companies are blurry, it is even more important to measure all actors.

5 FRAMEWORK AND MEASURES FOR CUSTOMER VALUE CREATION

All research needs to be based on previous knowledge, and therefore a review of the literature was needed at the beginning of this research. The literature review helped to gain understanding and knowledge about the topic. Based on the literature review, the framework for customer value creation was designed. In Chapter 2, the dimensions of customer value identified in previous research were presented. On the basis of these identifications, the framework was designed by first identifying the main dimensions of customer value creation in relation to digital business. The key elements of each dimension are then identified, and measures suitable for them are developed. In addition, the different actors in customer value creation were considered.

Many different frameworks for customer value creation have been developed, but many of them focus on the industrial context. Now, as digital business is getting more common, a framework needs to be designed that takes into account the special characteristics of digital business and the use of digital resources. None of the existing models is suitable for digital business, so there is a need to develop a framework focused on customer value creation in digital business. The chapter describes the designing of the framework.

5.1 Framework for customer value creation

The value elements have been divided into three dimensions in many of the theories, for example in Lapierre's model, Möller and Törrönen's model, and Ravald and Grönroos's model. These three dimensions have been named a bit differently but the same topics appear, which consist of dimensions related to product, service, and relationship. Based on the 14 earlier studies, in which different dimensions of customer value were identified, it is proposed that value creation in relation to the characteristics of digital business is divided into three dimensions. The key dimensions for customer value creation in digital business are product, service, and relationship and networking. Value will be created in all of the dimensions simultaneously and these dimensions are connected

to each other. Based on these three key dimensions, the key elements can be identified, since all of these dimensions include several characteristics and elements that can be evaluated. The dimensions are presented in Figure 8. These three dimensions were chosen because they appeared in most of the research. Some researchers described them in a slightly different way, but the content was similar. Digital business can refer to the market offering, the processes, or the business model. Whichever is the case, a similar way of creating customer value occurs.

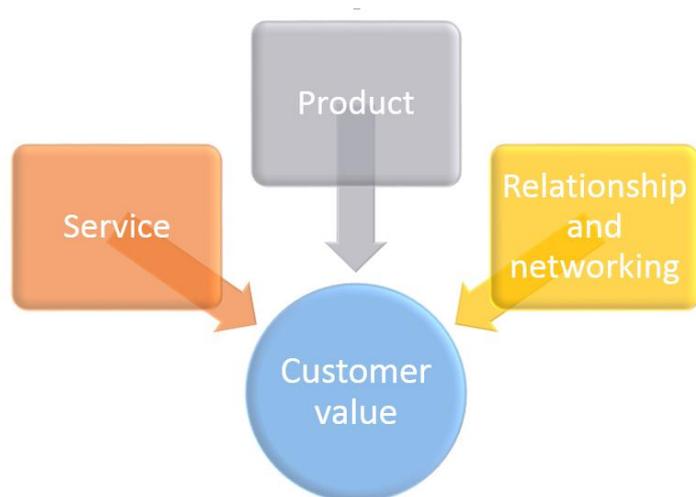


Figure 8. The three dimensions of customer value creation.

One dimension consists of market offering related characteristics, like quality, production, and price. The dimension is called *product*, but it also covers the offering if it is a service. This is an important dimension since in order for acquisition to happen, there needs to be a product or a service that the customer receives. This product or service is purchased to fulfill the customer's need or desire. Characteristics related to the end product are therefore important, and need to be covered while creating value for the customer. Especially, when operating with digital products or services, the provider has to focus strongly on its offering's reliability and trustworthiness. These two are the most important elements in this industry and these are related to the product.

Another dimension is *service*, which includes all characteristics related to the services provided by the organization, such as delivery and support services. In the service dimension, value co-creation occurs a lot. The co-creators are the provider and the customer. The customer and the provider are

interacting in the service and support interfaces. As the digital resources do a lot by themselves, service and support is something that differentiates companies nowadays. That is why the elements in the service dimension have to be included in the customer value creation framework.

The third dimension is *relationship and networking*, which covers all characteristics where relationships play some role. For example, this dimension includes networks and partners, but also the image of the company and the understanding of the customer's business. These elements are important, but sometimes companies might lack authority over these elements, since different actors are involved. Networks and partner relationships are important since normally, those who operate well in networks have an outstanding ability to make profit and they act as forerunners for the industry they operate in, as Pirnes (2002, pp. 8) stated. Pirnes (2002, pp. 10) divided the motives to network into either increasing knowhow, by, for example, outsourcing, increasing financial performance by sharing the risks, or increasing competitive advantage by synergy. Especially, a continuous need to outsource activities and an increasing number of subcontractors have led to the need to network. That is why the relationship and networking dimension is important.

Not all value is created by the provider or with cooperation between provider and customer. Therefore, the different actors in customer value creation need to be considered. The entire product delivery system should be measured, meaning all phases from the supplier to the customer. Still, customer value can also be created when customers interact with their own customers, and stakeholders can create customer value when they interact with their stakeholders. The whole value chain is therefore huge, but in this study the focus is on those actors and interfaces that the provider has control over and performance can be measured.

The three actors in customer value creation that the study focuses on—the customer, the employees of the company, and the external stakeholders—relate to digital business, because digital business has three layers that it normally affects. These layers are the customer interface, the partner interface, and internal information flow. The processes related to these layers are improved by digital technologies. All of these processes are related to customer value creation since some amount of customer value is created in all of these, and hence it is important to pay attention to all of these interfaces. In more detail, the partner interface is an important dimension, since the whole supply

chain needs to be considered when creating customer value. Most of the networking value is created in these interactions. Internal information flow is important because everyone in the company needs to provide customer value. Additionally, internal processes largely affect product-related value creation. The relationship with the customer is important, because most of the value is created in the customer interface. Most of the value created by services is due to the interaction between customer and provider.

The dimensions of customer value creation in relation to digital business are product, service, and relationship and networking, and these dimensions are further divided into elements. As product dimension includes everything related to the product or service, it can be divided into five key elements. These elements are:

- Product or service offering quality
- Production
- Price
- Incremental innovation
- New market offering innovations.

Product and service offering quality covers the attributes of the purchased product or service, like performance, reliability, consistency, security and privacy, customization, efficiency, and access. Production covers the attributes of capacity, speed, flexibility, and customization. Price is formed of everything related to the product costs and any discounts. Incremental innovation means providing new updates and augmented features of the core product, which makes it function better or lowers the costs of the process it is used for. New market offering innovations are all the new research and development projects, which result in new offerings and patents.

The service dimension includes all the services and support functions provided by the company. The service dimension can be divided into three key elements, which are:

- Price
- Delivery
- Support.

Price in the service dimension includes all costs related to the services, like warranties, storage costs, and order-handling costs. Delivery attributes are, for example, accuracy, flexibility in emergency cases, and reliability. Support includes attributes like the availability of the staff, responsiveness, technical knowhow, and sufficient information flow. In addition, the friendliness and personality of the staff and the security of the information are considered.

In the relationship and networking dimension, the aspects of the current customer-supplier relationship are covered, as well as the supplier's relationships with its external stakeholders, like partners and subcontractors. Relationship and networking can be divided into four key elements, which are:

- Networks
- Relationship
- Understanding
- Image/Corporate identity.

The attributes of the organization's networks are covered, including the organization itself and its relevant actors, like partners and subcontractors. According to Pirnes (2002, pp. 66-68), networks can bring new knowhow, increase capacity, or provide a critical evaluation of the company's performance. Market knowledge is increased by good networking. The relationship between the supplier and customer is an important aspect and it covers such attributes as teamwork skills, clearly stated contact people, the commitment of the whole company and its employees, information flow, mutual goals, and problem solving skills. Trust and reliability are important characters of the relationship and there characters include such attributes as loyalty and satisfaction, which are related to value creation. The understanding of the customer is an important aspect, and it means seeing things from the customer's perspective, understanding the customer's business logic, knowledge about the market, and providing externalization possibilities. In addition, the attributes of company image or corporate identity are covered, which include attributes like brand equity and the visibility of the brand.

Altogether, these three dimensions consist of 12 characteristics. Figure 9 illustrates the dimensions and the key elements.



Figure 9. Key elements of customer value creation.

All of these elements include different actors, meaning the customer, the employees of the provider company, and the external stakeholders. For example, in quality and production, the sub-contractors have an influence on the result. When making incremental or totally new innovations, the partners and customers can cooperate with the provider. In service, cooperation between the provider and customer is always required. Networks include many actors, and a relationship cannot occur without different actors. The company's image or corporate identity is always formed out of the opinions of other customers and partners.

Since digital business is changing rapidly all the time and there is a lot of competition, product quality is a given in the industry. If a company cannot provide the same quality as its competitors, the company cannot survive in the market. Product quality and customer service that is substantially below the competition will be judged unacceptable. Product-related characteristics do not create a lot of customer value in digital business, but they need to be acceptable.

In the service dimension, there can be a lot of variation, since some of the providers lack face-to-face service interactions. Still, the dimension is important when creating the customer value and a lot of attention needs to be paid to interacting with the customer through the digital technologies. In addition, the provider has to really understand the customers' business and market and be able

to provide solutions that fit the customers' needs and functions as promised. Building up the relationship requires a lot of time and effort, but such sacrifices are needed.

To succeed in these three dimensions, a company needs to focus on three core processes: product development (PM), supply chain management (SCM), and customer relationship management (CRM). PM helps to provide quality products and services, SCM ensures that supply and delivery are excellent, and CRM helps to develop good relationships. In all of these dimensions, it is important to focus on long-term results, try to suit customers' unique and changing needs, and involve the whole supply chain.

5.2 The measuring process

The process of evaluating customer value creation starts with customer identification. The customers need to represent all of the categories of former, present, and potential customers and also existing, emerging, and imagined customers. In addition, customers with different buying behavior need to be considered, like customers with bigger consumption volume as well as good reference value. The key customers should be influencers and leaders of the market but not the biggest players, since they seem to be more resistant to change. When choosing the respondents, the questions that the measures are trying to answer must be acknowledged. After choosing the customers, the data collection needs to be planned, meaning the time frame and the form of data. The method of collecting data is important, meaning choosing the object that will be measured and the measures that will be used to evaluate the object. As Neely et al. (1997, pp. 1138) defined, the measures need to include all of the following information: title, purpose, what it relates to, target, the way performance is measured, the frequency of measurement and review, the one who is responsible for measuring, the source of the data, those who act on the data and the actions they have to take, and extra notes and comments.

After the definition phase, the data needs to be collected. With the data, analysis needs to be done. Based on the results, actions are chosen and those actions need to be implemented in operations.

After establishing specific goals, the goals should be continuously updated when reached. Measurement systems need to be monitored and updated during the measuring as well, especially if the systems are not revealing the needed information. The updating process follows the same phases.

When developing a measurement system, it is important to keep in mind that there has to always be a possibility to measure the costs and the benefits, since value is the difference between benefits and sacrifices. The gap between value and price forms the incentive to buy. Value is always judged against something, for example, a competitor's offering or expectations. The entire product delivery system needs to be included in measuring and the level of co-creation and joint actions need measures as well.

Before starting to measure, it is important to make sure that top management supports the measuring, all of the employees are committed to the process, the objectives of the measures are precise, and the whole process of measuring and managing has a time frame. The measures should be designed to evaluate group, not individual, work. When measuring customer value creation it is important to focus on how well customers' needs and expectations are satisfied with measures that the customers can see. The key elements should consist of several critical activities, which are well-defined and measurable. The measures should be easy to understand by those being evaluated and express information through as few and as simple a set of measures as possible. If possible, the data and information should be collected by those whose performance is being evaluated.

To maintain a competitive advantage in the field of customer value creation, organizations need to develop a set of performance measures that fit their strategy. In this study, performance will be measured in the three dimensions of customer value creation: product, service, and relationship and networking. Based on the industry, the level of digitalization and the dimensions of digitality in use, different dimensions and key elements are emphasized. Performance should be evaluated and reported regularly, for example, daily or weekly.

5.3 Measures for customer value creation

Customer value has been divided into three dimensions: product, service, and relationship and networking. These dimensions are further divided into 12 elements. These elements are product quality, production, price (product related), incremental innovation, new market offering innovation, price (service related), delivery, support, networks, relationship, understanding, and image or corporate identity. For all of these elements, different measures are addressed to be able to evaluate how well the company is creating customer value.

Some of the measures are based on customer satisfaction surveys and are therefore soft measures. These measures are based on the customers' attitudes and feelings. The performance is judged against the customer's expectations by a seven-point scale where the answers vary from "much worse than expected" to "much better than expected," from "strongly disagree" to "strongly agree," or from "not at all" to "a very great extent." Other measures are based on the information available from the company's internal operational data, which are hard measures. All of the measures, both soft and hard, focus on nonfinancial and future looking measures.

Based on the literature review and the 12 key elements, suitable measures were defined. Based on the empirical study, the most relevant measures needed to be emphasized. It is important to note that the measures for customer value creation needed to be suitable for evaluating something intangible. This means that the measures needed to include knowledge, talent, and experience, as well as systems, patents, copyrights, models, administrative procedures, and organizational culture and climate. In addition, company image, product recognition, customer loyalty, and relationships with customers, suppliers, and vendors needed to be included.

6 MEASURING AND MANAGING CUSTOMER VALUE IN INDUSTRIAL COMPANIES

Research methods can be divided into qualitative and quantitative. The first one refers to studying social reality and gaining a deeper understanding into how the world functions, as Strauss and Corbin (1998, pp. 4) stated. The latter one is more common in engineering research and is numerically based, as Thiel (2014, pp. 115) identified. Qualitative research is not based on statistical procedures, but Thiel (2014, pp. 115) has pointed out that in qualitative research, it is common to convert qualitative results to numbers and to use statistics to draw reliable outcomes and conclusions. Normally, qualitative studies deal with topics like lived experiences, behaviors, and feelings as well as organizational functioning and cultural phenomena. The nature of the research problem determines whether it is more suitable to use qualitative or quantitative research. If one is seeking for meaning or the nature of an experience, qualitative research is more suitable as it aims to find out what people are feeling or thinking. (Strauss and Corbin 1998, pp. 10-11)

Research methods include all the same phases, which were identified by Totten et al. (1999, pp. 27) as formulating the research questions, selecting the tools to be used, identifying a sample from a population, collecting data, and finally deciding on the method used to analyze the data, analyzing it, and making conclusions. In this study, these phases are followed. Based on the objective of the study, the empirical study consisted of a web-based survey and semi-structured interviews.

In research, theory is needed as the basis for a study, but in qualitative research, theory does not tie the research together; rather, a new theory can be formed. Normally, in qualitative research, some topics and themes start to repeat themselves. These topics and themes need to relate to the research questions and to the research problem. The analysis can be summarized as pointing out perspectives from the data. Qualitative analysis structures the quality, elements, and meanings of the phenomena as whole. (Saaranen-Kauppinen and Puusniekka 2006)

The quantitative research method tries to explain and describe phenomena with the help of statistics and numbers and it focuses on finding numerical and statistical reasons behind the results

(Jyväskylän yliopisto 2015). In quantitative research, the analysis is based on variables that are represented numerically and that are intended to mean only one thing (Sandelowski 2000, pp. 253).

According to Greene et al. (1989, pp. 258-259), qualitative and quantitative methods can be used in the same research for several reasons. In this study, these methods were used to complement each other. Complementarity in mixing the methods means seeking elaboration, enhancement, and clarification of the results from one method with the results from the other method. In this research, this meant clarifying the results from the quantitative analysis of the web survey with the results of the qualitative analysis of the semi-structured interviews. Qualitative and quantitative methods were used to measure overlapping but also different views of a phenomenon to gain a better understanding of customer value creation. The qualitative analysis of the interviews was done to measure the nature and level of the customer value creation, and measuring it. The quantitative analysis of the questionnaire measured the levels and perceived ranking within the group of participants about the customer value elements and dimensions and the importance of and investments made in those.

Analysis in an empirical study are actions to be done to make sense out of the collected data. These actions can be reading through the data carefully, organizing the material based on themes and topics, thinking about what the data is saying and to what extent, and examining the research questions through the data. Important aspects of the topic related to the research questions are pointed out during the analysis. The analysis involves a dialogue between the theory, the gathered empirical data, and the researcher's own thoughts. The outcome should be something more than just the collected data. (Saaranen-Kauppinen and Puusniekka 2006)

According to Kananen (2014, pp. 99), in qualitative research, the data collection and analyzing take turns. Therefore, in this study, a literature review was done first, the theoretical data was analyzed, and a framework was designed. After that a questionnaire was sent to a sample group to evaluate the framework and to see what industrial companies think about these elements and if they have started to take them into consideration. Some conclusions were drawn from the answers, and the questions were asked again in the semi-structured interviews for deeper insight. The results from the interviews were analyzed and finally conclusions were drawn.

The design and execution phases of the empirical study are explained and the analysis of the results is presented in this chapter, both for the survey and for the interviews. The aim of the empirical study was to see how companies view the elements of customer value related to the unique characteristics of digital business and to update the framework based on the findings. The web-based questionnaire was sent to 23 industrial companies and the semi-structured interviews were executed with five respondents. In this study, the focus was on traditional industrial companies, since those companies have been doing their business as usual for several decades. As the business environment is currently changing a lot, it is important to examine whether they have been making changes in their business related to digitalization.

6.1 Questionnaire data collection

A survey asks questions from people in real world conditions. Surveys are a common way of doing research, since the costs of carrying out a survey are relatively low and the data and information can be gathered quite quickly. As Totten et al. (1999, pp. 26) identified, a survey always needs a research question to which all of the questions are related. A survey has the same phases as other research methods. The research starts with identifying the research question, and after that the tools to be used are selected, in this case, a survey. Then a sample from a population is identified, data is collected from the sample, and the method used to analyze the data is decided upon, the data are analyzed and conclusions are made. (Totten et al. 1999, pp. 27)

Nowadays, electronic surveys are commonly used since responses can be received quickly, postage and copying costs can be avoided, and the time needed for data entry is decreased, as Lazar and Preece (1999, pp. 63) have identified. In addition, since the data is not entered into the analytic system again by the researcher, errors and mistakes are avoided. Electronic surveys still have to follow the same principles as traditional surveys.

A questionnaire is as pleasant as interviews and the answers are as true. It is important to ask simple and understandable questions. Then it provides as much evidence as what could have been

gained when discussing with the respondents. Nowadays, since surveys are becoming more common and interacting with computers is more natural than having deep conversations, web-based surveys might provide more natural answers. Naturalness is as important as the reliability of the survey. (Mäkelä 1990, pp. 50)

6.1.1 Designing and executing the questionnaire

In this study, a web-based survey for a sample group was designed. The questionnaire was based on the literature review and the framework that had been developed. The aim of the survey was to find out how company representatives see the framework and the elements of customer value, and to update the framework based on the findings. In addition, some key findings that needed to be clarified later with semi-structured interviews were found.

Designing a survey starts with writing questions. The questions need to be clear and well written and are not allowed to lead or confuse the respondent, as Lazar and Preece (1999, pp. 64) stated. It is important to ask one question at a time. The questions can be either closed questions, where the respondent has only a limited selection of potential answers to choose from, or open questions, where the respondent can provide any answer he or she wants. Since the closed questions force respondents to choose one option from the choices given, it is important that the choices cover all the possibilities. Analyzing the results of closed questions is easier and simpler than analyzing open questions, but open questions make it possible to gather a full range of responses. Mixing these two methods is possible, meaning that some of the questions could be left open to ensure that participants are not forced to just give some answer, which could skew the results. In this study, the questions were closed questions, but the respondents were given the choice to provide an open answer as well. (Panacek 2008, pp. 15)

Questions that have multiple choice options and are based on rating a topic have to have an understandable scale. Thiel (2014, pp. 209-213) has pointed out some important instructions, which include that statements should be positive and short, written in clear language, do not trick the respondents, do not include multiple themes, and do not direct feelings onto the respondents. A

Likert scale is a common way of scaling questions. The scale can have any number of responses, but a scale with five choices is used the most and a scale with seven choices is used when a little bit more reliability is needed in the upper limits of the scale. Then, the possible answers range from strongly agree to strongly disagree. In this study, a five-point scale was used to keep the choices simple. (Allen and Seaman 2007, pp. 64)

According to Corbin and Strauss (2008, pp. 72), questions can be divided into sensitizing, theoretical, practical, and guiding. Sensitizing questions try to prove why something is happening, like issues, problems, and concerns. Theoretical questions help to make connections between concepts. Practical questions help to develop a theory; guiding questions guide the interview in a certain direction. In this questionnaire, the questions were theoretical, which attempt to find out the relationship between the elements in the concept of customer value creation.

When creating a survey as part of an empirical study, it is important to take into consideration that some errors might arise. Errors, especially in measuring, can happen in the design, and the collection, processing, and analysis of the data, as Pyy-Martikainen (2013, pp. 14) has stated. She pointed out (2013, pp. 16) the two most common errors: non-response and measurement. Non-response errors are unsuccessful attempts to gain the desired information from the sample group. Measurement errors from the respondents' side indicates a difference in the respondent's ability to separate the truth between observed and true.

In this study, the survey was formed from five themes: background, digitalization, measuring customer value creation, the dimensions of customer value, and the elements of customer value. The themes were related to the theory and to the framework. The survey was created with Webropol, an online survey tool.

The background questions

The first section concerned the backgrounds of the companies, for example, turnover and performance from other operational dimensions, like finance and operations. Performance from other dimensions was asked about to find out if there was correlation between performance from other dimensions and the company's customer value creation capability. Questions like turnover and the

operating unit were asked to see if the answers were skewed due to the backgrounds. For example, sales representatives and research and development workers have quite different states of mind.

Digitalization

The second part of the survey was formed by questions about digitalization and the level of digital resources used in the company. The level of digitality was asked about to reveal the Technology Adoption Life Cycle phase the company was in, meaning innovators, early adopters, early majority, late majority, and laggards. Since digitality can occur in three different dimensions (market offerings, processes, and the business model), these dimensions were asked about separately to see in which dimension digitalization was most commonly used. The questions used a four-point scale ranging from no digital resources in use to everything digital. From these questions, the Technology Adoption Life Cycle phase of the company could be analyzed in more detail.

The three different strategies of digitalization (“doing something digital,” “making a totally new digital strategy,” and “transforming the old business model to be digital”) were asked about and the possibility to answer to “no strategy at all” was given. As stated earlier, a lot of benefits can be gained by using digital resources and these benefits were asked about. The benefits from digitalization were divided into four dimensions: strategic, customer value, efficiency, and managing.

Measuring customer value creation

The third section of the survey covered measuring the customer value creation and in which actors and interfaces it had been measured, because value is commonly created in many interactions. In customer value creation, there are several unique difficulties in measuring the process, so these difficulties were asked about. The respondents could choose from given options and add their own opinions.

Dimensions of customer value

The fourth section dealt with the dimensions of customer value creation, which were determined while designing the framework. These dimensions were product, service, and relationship and networking and their importance was asked about separately.

Elements of customer value

The fifth and last section consisted of the 12 key elements defined in the framework. These 12 elements were each asked about separately and the respondents were asked to rate the importance of and the investments made in each element. This was an attempt to find out what the most important elements were, to see if there were differences in what the respondents considered to be important, and which elements were being invested in.

All of the questions were in Finnish; the questionnaire can be found in Appendix 1. After designing the questions for the survey, the survey needed to be tested with a sample group in order to maximize the effectiveness of the survey. This survey was tested with colleagues working in the Lahti unit. After testing the survey, it was sent to industrial companies operating in Finland. These companies were selected because they suited the scope of digital business. Although these companies have been doing traditional business for years, big changes are occurring due to digitalization and the accelerating use of digital resources. The respondents were intentionally from different units and work assignments in order to avoid some specific views and biases. For example, sales representatives and research and development workers have quite different states of mind; they have appreciations for different aspects of their products and services. The sample needs to be diverse, as Thiel (2014, pp. 197) stated, which is why different sizes of companies were included in the survey.

When designing a survey, it is important to make sure that it consists of a large enough sample that appropriate statistical analyses can be done and individual identities cannot be ascertained. The survey was sent to 23 technology companies operating in Finland by an e-mail that contained a link. This invitation to answer the survey was sent to one contact person in each company, and these contact people were asked to distribute the link to the survey to other employees. An introduction explaining the survey and its objectives was included in the e-mail. The sharing of the survey cannot be examined. While executing a survey, the researcher needs to control the response rate, which is the relationship between the sample size and the respondents. A lower rate of response can be acceptable if the reasons for not answering are understood. The response rate gives the survey reliability and validity, as Kitchenham and Pfleeger (2002, pp. 20) have stated.

The survey was published and the e-mails containing the link were sent out on April 12, 2016. After one week, a reminder letter was sent to get more responses, and the survey was closed on May 3, 2016. The survey was sent to 23 companies, from which 21 answers were received. According to Mäkelä (1990, pp. 52), it is better to gather a small amount of answers and then decide whether more data is needed, than try to gain huge amount of responses at first. In qualitative research, it is not important to focus on how many answers are gathered, but rather to focus on choosing the right respondents, as Kananen (2014, pp. 95) has stated. In addition, in qualitative research, one is the minimum for the number of respondents. Quantitative research needs more respondents. In qualitative research, the number of respondents is enough when adding one more does not make any difference and the material starts to repeat itself. In this study, the respondents were all relevant and operating in the technology industry where digitalization is causing changes and shaping the future all the time. The answers started to repeat themselves, so it was decided that 21 answers were enough. (Kananen 2014, pp. 95-98)

6.1.2 Data analysis and results from the questionnaire

It is important to make sure that the data allows the research questions to be answered or to find out if the data needs some kind of analysis to be able to answer the questions. From the 21 respondents gathered, analysis could be done. Based on the answers to the question about company turnover, at least 15 different companies were represented out of the 23 companies that received the survey. Therefore, the link had been distributed in some companies, but sharing cannot be examined. All questions were answered and there seemed to be no misunderstanding when answering the questions. Quantitative methods were used to analyze the data.

Digitalization

In all of the companies, digitality was in use in all of the categories: market offering, processes, and in the market. None of the companies said that everything in their company was digital. These companies, therefore, were not innovators but not laggards either; they all fit in some of the middle classifications of adopting new technologies. Based on the questions about in which dimensions

digitality was used and to what extent, it could be stated that digitality was most commonly used in production processes. This result of the most common dimension was found by calculating the number of answers of “a lot of digitality” and “everything digital” in these categories and comparing these results to each other. See a more detailed distribution of the answers in Appendix 2, Charts 5 and 6.

Most of the respondents were transforming quite a lot of their old business models to digital, so digitalization was implemented in the organizations’ strategy. Only one respondent answered that there was no digitalization strategy in his or her company, as can be seen from Chart 1. It can be stated that companies in Finland are focusing on implementing digitalization into their strategies.

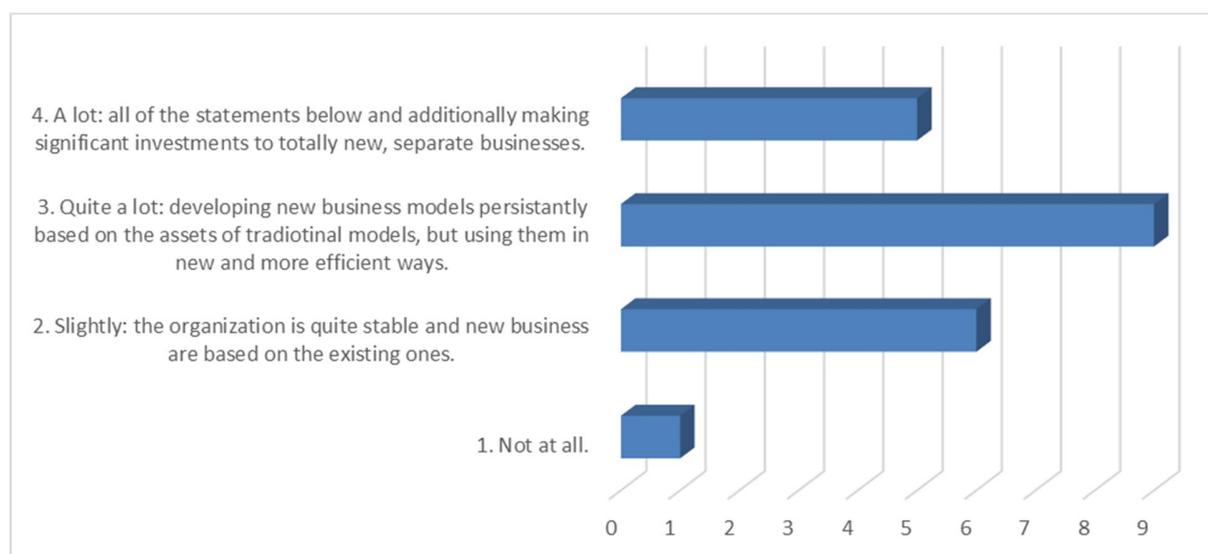


Chart 1. Digitalization implemented in the company’s strategy.

The main benefit from digitalization was seen to be related to efficiency, which includes improving processes and operations. This was due to the fact that most of the respondents (14) were working in research and development or production. The division of the respondents by unit can be found in Appendix 2, Chart 7. The sales respondents thought the main benefit of digitalization was to find new business models, new ways of doing business, and new digital solutions. Management, on the other hand, thought that digitalization brings benefits to all aspects of the company, so the benefits were related to strategy, increased customer value, efficiency, and management. All respondents thought that there were benefits from digitalization. See more in Appendix 2, Chart 8.

Measuring customer value creation

Customer value creation was measured in most cases as seldom or not at all (see Chart 2). The main difficulties concerning measurement were the lack of knowledge of how to measure customer value creation and the difficulty in determining customer value. All of the respondents thought that there were difficulties in measuring customer value creation; therefore, measuring is not a simple task. All the difficulties concerning measuring customer value creation can be found in Appendix 2, Chart 9. This result needed some explanation, and therefore was asked about later in the semi-structured interviews, in order to reveal what the reasons were for why measuring was occurring seldom.



Chart 2. Measuring customer value creation.

As Chart 3 shows, all of the different interactions related to customer value creation and co-creation were measured. This does not mean that one company was measuring all interactions; rather, it means that all of these interactions were seen as relevant for customer value creation. No new interactions or actors could be found. Customer value creation was measured most often in the provider's operations, in the customer's operations, and in their interaction. The measuring in the provider's and stakeholders' interactions was unusual. The reason behind this phenomenon needed deeper evaluation, and was examined in the semi-structured interviews.

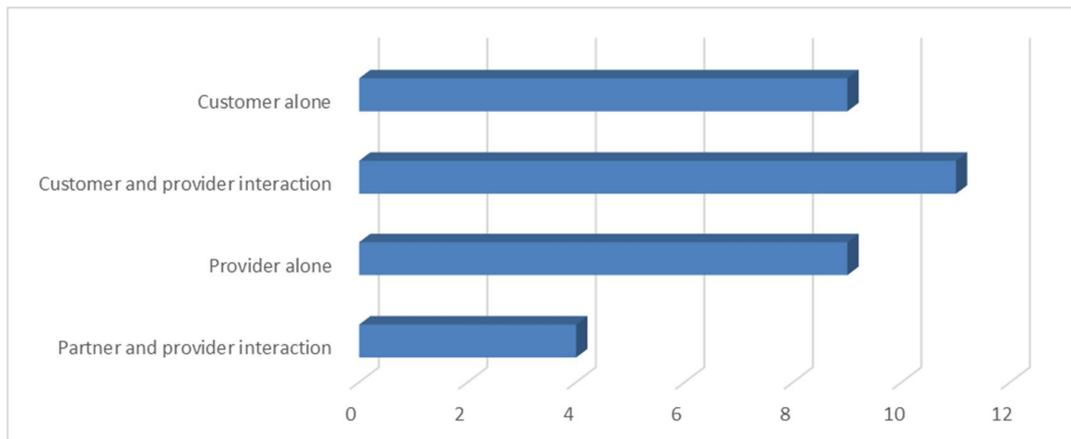


Chart 3. Measuring customer value in different interactions and operators.

Dimensions of customer value

Based on the survey, the product dimension was perceived as the most significant, and relationship and networking as the least significant (see Chart 4) when creating customer value. This needed further evaluation in the interviews.

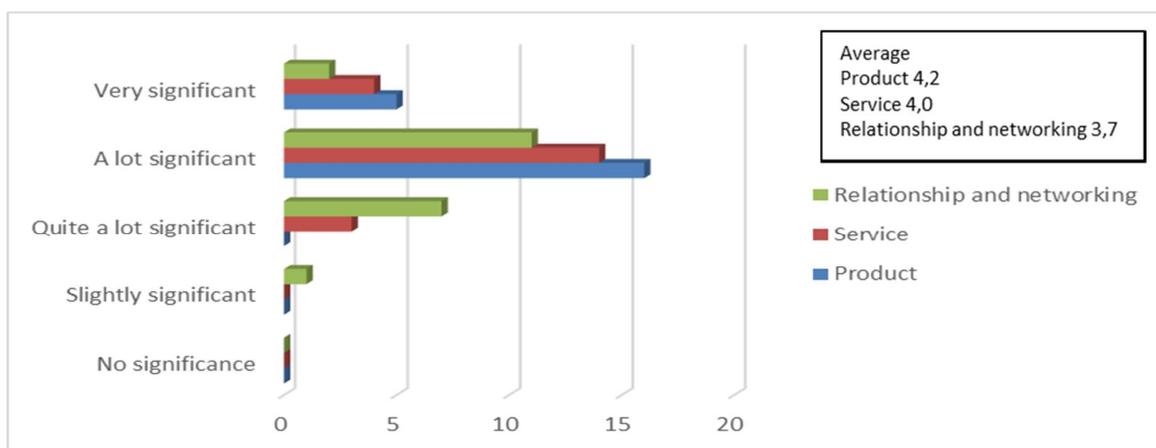


Chart 4. Significance of different dimensions.

Elements of customer value

The importance and performance of all 12 elements were generally similar, however, importance received slightly higher values than performance (see Table 2). The most important and most invested in element was the same: qualitative characteristics of the product or service. The top five

elements that companies invested their money and effort in were related to product dimension. The top five elements that companies thought were the most important were related to relationship and networking. It could be that quality was perceived as a necessity in order to compete in the markets, but value through service experience is created by means of collaboration and an effective customer relationship. That could be why investments in quality were made but the relationship was considered to be more important. Networks were not seen as important or invested in. In addition, service-related price characteristics were not seen as important. These two outcomes were asked about in more detail during the interviews because they needed deeper evaluation.

Table 2. The importance of and investments in customer value elements.

	Importance	Investments
Product or service offering quality	4,67	4,19
Production	4,38	4
Incremental innovation	4,3	3,76
Price (product related)	4,1	4
Price (service related)	3,57	3,19
New market offering innovations	4,15	3,7
Delivery	4,14	3,67
Support/Service level	4,38	3,86
Networks	3,9	3,48
Relationship	4,43	4
Understanding	4,62	3,76
Image / Corporate identity	4,57	3,95

In addition to the previous analysis, an analysis of variance was done. An analysis of variance is a statistical method used to test differences between two or more means. Testing is done by analyzing variances that could be statistically significant. The significance measure had to be under 0.05 before it was considered to reveal something. The analysis was done with SPSS Statistics, which is statistical analysis software. It can be used especially when one needs to understand the data and generate reliable results. The aim with SPSS was to find the significant variances of the means in the web survey by sorting the answers based on factors. The analysis below is categorized based on the factor that was used to analyze the answers. (IBM)

Backgrounds

The respondents from the production units thought that the service dimension was not very important and the sales representatives thought it was the most important. This strengthened the assumption that sales representatives and research and development employees have quite different states of mind. Including respondents from different units makes the research results more generalized. In the importance of customer value elements, the unit did not make any difference. It is interesting to note this, since the importance of the dimensions was different. On the other hand, different units thought that investments in elements were made differently. Production representatives thought that investments were made in production, delivery, and relationships. Marketing, sales, and management thought that investments were made in delivery and relationships.

When the respondents thought the company had good operational performance or good capabilities to renew and develop their operations, the end products or services were more digital or had more digital characteristics. When a company had good renewal capabilities, digitalization had been implemented well in the company's strategy. When the financial or operational performance was good, incremental innovations were seen as important. Good financial performance resulted in seeing price as meaningless and poor performance resulted in price being considered as important. The level of performance in all of the dimensions resulted in the same conclusion even though the variances were not significant in all dimensions. Therefore, the worse the performance, the more important was price. This indicates that price should not be the thing to focus on when trying to satisfy customers. Customers need something more; customer value is formed from other things than price.

When the company's financial performance was considered to be good, investments in corporate image were made. When operational performance was good, investments were made in production, incremental innovation, delivery, networks, relationship, and corporate image. If the company's renewal capabilities were considered to be good, investments were made in incremental innovation, new market offering innovation, service level, networks, relationship, understanding the customer, and corporate image. Good sales capabilities resulted in investments in delivery,

networks, and corporate image, and good sustainable development resulted in investments in quality, incremental innovation, new market offering innovation, networking, relationship, and corporate image. Since so many elements began to be invested in more significantly when performance in other dimensions was good, it can be stated that when the company's performance is good, it makes more investments in customer value creation. On the other hand, it can be said that when more investments in customer value elements are made, the company's performance starts to get better. With better performance especially, investments in relationship and networking were made. This shows that relationship and networking dimensions are seen as the key way to deliver added value. Significantly more investments were made in corporate image when the performance was good.

Levels of digitality in use and digitalization in strategy

If a lot of digital resources and technologies were implemented in the company's operations, they were in use uniformly in all of the dimensions (market offering, processes, and the business model). Least digital technologies were in use in the business model, meaning how goods and services are brought to the market. This means that the buying and delivery processes were still quite traditional and required face-to-face meetings. Similarly, if the level of digitality in use was low, the relationship with the customer was seen as important. So when the relationship is seen as really important, only some digital technologies were used to enhance the interactions. It is still considered that a relationship is based on the personal contact.

If digitalization was implemented well in an organization's strategy, there were a lot of digital characteristics in the end products and services and customer value creation was measured more often. In addition, implementing digitalization resulted in good performance in operations, in renewal capabilities and in the sustainability. Digitalization does not only mean implementing digital resources; rather it means changing the way of doing business and daily operations. This shows that when companies are more willing to change and develop, they also measure their performance more often and manage their customer value creation ability, which results in better performance.

Interestingly, the level of digitality in use did not make any difference in the level of investments. Therefore, the level of digital resources in use does not help in customer value creation, it can only ease measurement. A lot of digital resources do not help the company if digitalization is not a strategic decision. Companies that are more willing to change and develop their operations have been implementing digitalization in their strategies and therefore if digitalization was implemented in a company's strategy, investments in customer value creation elements start to increase, especially in terms of quality, incremental innovation, service level, and understanding the customer.

Level of measuring

From the answers it can be seen that those who did not measure at all considered price to be important. This is a quite old fashioned way of thinking. Those who measure are more innovative and find ways to create customer value other than price. Those who measured quite a lot considered incremental innovations to be important.

6.2 Semi-structured interviews

In qualitative research, interviews are also an important way to gather data. Interviews can be structured, semi-structured, and unstructured. In structured interviews, the same questions are asked of all respondents. In an unstructured interview, no exact list of questions are asked and the respondents have the opportunity to talk freely about the topic. In this study, the semi-structured approach was used. A list of themes and questions were decided in advance, but the questions could vary between the interviews. The order of the questions could also vary to make the flow of conversation fluent. Additional questions could even be asked during the interviews and the respondents had the opportunity to explain or deepen their responses. This allowed the discussion to go into areas that had not been previously considered but were important for understanding the topic. It is convenient to record the interviews to ensure the validity of conclusions which are made from the interviews. Therefore, the interviews were recorded. (Saunders et al. 2009, pp. 320-321)

6.2.1 Designing and executing the interviews

Data was gathered first from the web-based survey and based on the results, the semi-structured interviews were done. Six companies and organizations that suited the scope of digital business were selected for the interviews. Five of the chosen respondents agreed to take part in the study and interviews were carried out with them. All of the interviews were executed by the researcher with one respondent at a time. The interviews included questions that were decided in advance and concerned several themes. The discussions were informal and were facilitated using supporting questions and comments. Before each interview, digitalization and customer value terms were explained. The topics and main questions were sent in advance to allow the respondents to be prepared.

In total there were five interviews, in which the respondents represented two groups, industrial companies and development organizations. Three of the respondents worked in industrial companies where digitalization has brought many changes in recent years. Their views and opinions were relevant in order to see how things are really happening. These representatives were in manager positions, since the study needed a key informant approach. The respondents were chief executive officers (CEOs) and chief business officers (CBOs), because the study needed a comprehensive view and understanding of each company and how all the functions and operations related to each other. In addition, the respondents needed to have information about the investments the company was making. It was necessary that the respondents had been working for the company for several years. The three industrial companies were all in different stages of how much digitality they had implemented in their market offering. One company had a modeling tool, one made physical products that are needed in the construction industry, and one made automation solutions, including modeling and physical products. This sample gave the study the needed comprehensive view of how the topic was dealt with in different industrial companies. These three companies were suitable for the study since they are operating in the changing industrial business.

Two respondents were from development organizations, which represented entrepreneurs in South Karelia and Tavastia. Their opinions were relevant in order to get a bigger picture of what is happening in Finland. These organizations help entrepreneurs, companies, and public organizations

to grow and get needed education and information. One of the organizations was more focused on entrepreneurs and smaller companies, and only private companies were part of that organization. The other organization also had public organizations as their members and the private companies were bigger. The respondents were the CEOs of these organizations because they had the most comprehensive view of how the member firms operated. Different regions of Finland were important for the study, in order to generalize the results and avoid regional specialties.

The interviews were executed during May 2016. All of the interviews were taped and transcribed. The interviews were held in Finnish, because all respondents were native Finnish speakers, and misunderstandings could be more easily solved this way. The interviews lasted from 35 minutes to 80 minutes. The questions that were asked during the interviews can be found in Appendix 3.

There were seven themes during the interviews. The themes and questions were similar to the survey. The themes were background information, digitalization, customer value creation, value elements, measuring customer value, measures, and changes in the future. The questions were similar in both groups, but the company representatives were asked a bit more detailed questions. Some questions related to measures were included, since the object of this study was to design measures for customer value creation, and especially non-financial, external, and future looking measures. Outcomes from the questionnaire that needed to be analyzed more deeply were:

- Why was customer value creation seldom measured?
- Why were measurements of the provider and its stakeholders missing?
- Why were product-related elements being invested in so much, but the most important elements were seen as related to relationship and networking?
- Why were networks and service-related prices not seen as important in value creation?

Background questions were included in the interviews as a warm-up, to make the beginning easier. The results were not analyzed based on the background questions.

6.2.2 Data analysis and results from the interviews

In this study, a thematic qualitative analysis approach was taken. The interviews consisted of several themes and the answers were arranged so that the respondents replied to all of the themes. The analysis consisted of reading through the data carefully, organizing the material based on the themes, thinking about what the data was saying and to what extent, and examining the research questions through the data.

Arguments can normally be divided into deductive, inductive, and abductive. In deduction, the result is a necessary inference from something common to apply to something unique. In short, from a rule and a case a result is drawn. For example, we have a certain truth or a rule that all men are mortal. Then there is the case that Socrates is a man. As a result, Socrates is mortal. In induction, something unique is generalized to something common. For example, there is a random case that Socrates is a man. There is a previous result or knowledge that Socrates is mortal. In inductive inference, a rule is made that all men are mortal. In abduction, hypotheses are made based on the cases faced. Therefore, hypothesis is more like a likeness what could be true or an educated guess. In this Socrates example, the rule is that all men are mortal. We have a result that Socrates is mortal. Therefore, we make the assumption that Socrates is a man. In this study, an abductive approach was chosen. (Burch 2001)

Digitalization

The results from the interviews were similar to the survey. Digital resources were in use in all of the companies and in all of their dimensions: the market offering, the processes, and in the market. It was stated that the smaller the company, the less it had digital resources in use. On the other hand, the younger the entrepreneur, the more digital technologies were in use. Basic digital resources were used in almost all the companies, for example, bookkeeping, billing systems, and enterprise resource planning (ERP) systems. Digital end products and services were still quite rare. Digital resources were in use the most in processes like simulation systems and in sharing information between different operators.

Purchasing could be made easier with online sales systems. There was a belief that international companies are currently better at online sales than Finnish companies. Many other systems have been developed to ease communication between the company and its customers, for example, systems showing warehouse records, delivery information, and maintenance reports. In customer interfaces, digital resources were used to make interactions easier. However, an initial meeting is still needed for purchasing. That meeting needs to be personal and face-to-face. This resulted that business needs to have at least some humanity. This supported the findings from the survey. Simulation and automation systems were in use, especially if the company was bigger. Even the biggest companies were thinking that they need more developed systems and resources to use. Especially in networks and with subcontractors, more digital resources were needed to share information quicker.

Customer value creation

During the interviews, it was pointed out that product quality, support activities (service related), relationship, and understanding are the most relevant elements for customer value creation. It was noted that different customers do not value the same things, so every customer needs to be treated as unique. The reasons for why quality was considered important in the survey and many investments were made in it were explained as that product quality can be seen as something extra if it is really good, for example, if it is ensured by quality certificates. With certificates, some kind of dissociation can be done. Still, in most cases, the quality of a market offering is seen as something taken for granted and competitors can provide exactly the same quality. That is why something more is needed to win customers. In addition, the quality has to be good, so that customers can get the most out of the product. Relationship and understanding the customer include characteristics like good communication skills and a willingness to help and solve customers' problems.

Subcontractors and networks were seen as important, but none of the respondents gave them as their first answers; this needed to be asked about separately. Somehow networks were considered as something given; once the decision to begin operating with someone had been made, the partnership lost its focus and their importance was not considered. It was stated that subcontractors should be considered more as partners than subcontractors. A lot of subcontractors were used,

especially in the bigger companies, and smaller ones were working as subcontractors. Networking is therefore important. Small companies and entrepreneurs were worse about networking. One fact that was hindering networking is that Finnish people are independent. Finnish people want to do things by themselves; they are insecure about their partners and who is going to get the advantage and they can be jealous.

Service-related price elements raised concerns among the companies, because providing services requires a lot of resources, but customers are not willing to pay for them. Still, services need to connect with the product without interruption. Services were considered to be the most effective way to provide value. Life-cycle costs were getting more focus from the customers' point of view, resulting in the product pricing becoming not as important anymore for providers. Therefore, the whole value chain needs to be considered when calculating the costs of a product.

Value elements

The third theme was related to value elements and how much investment is made in the different value elements. Significant investments were made in understanding customers, and listening to customers was seen as the most important thing. Products and services need to be made for customers' needs. The development of products and services needs to start from the customers' needs, not the other way around, like developing the market offering and then finding the customers. Personality and focusing on maintaining relationships were important factors that increase understanding. Sometimes there was the mentality that the provider is trying to keep its customers at all costs. Therefore, it was stated that investments need to be made in real understanding of the customer. This could be gained through understanding the industry, production processes, the company culture, and the daily operations of the customer. All this information helps the products and services fit the needs of customers better and establish proficient sales processes, which are based on the customer value elements. With the investments in understanding customers, achieving long-term relationships was attempted. It has to be acknowledged that there are differences in customers' needs and desires. Additionally, silent information has to be acknowledged. Honest and open dialogue is needed: even when bad things occur, one needs to be able to talk about it. Customer satisfaction was seen as the most important measure to guide operations.

The investments in customer value creation produced benefits. These benefits were:

- Easier to fit customers' needs.
- Eased operations by learning from old mistakes and successes.
- Operations became established by knowing and understanding own processes.
- Longer relationships obtained with customers.
- Made it possible to join tendering.
- Customers recommended to other customers.
- Increased sales.
- Competitive advantage gained, which makes it easier to sell.

With more investments in customer value creation, processes and best practices can be established. As customer value is the difference between benefits and sacrifices, this has to be the focus of the whole customer value chain. The whole chain needs to be effective and all operators need to be committed to produce products and services that create customer value. With closer relationships with networks and subcontractors, all of the life cycle costs could be decreased. Still, the product itself is not enough; one needs to provide something extra, like augmented services.

Maintaining existing customer relationships was seen as more effective than gaining new customers, since it has fewer requirements, and therefore the company needs to know about their share of the customer's business. Clearly stated contact people was considered important when operating with existing customers. The importance of face-to-face meetings was highlighted, especially as they are reducing due to digital resources. Without personal contact, the relationship between provider and customer can become weaker. With new customers, humanity is highlighted even more. When people in key roles changed, especially in the development projects, the cooperation were facing difficulties. Digital resources helped to maintain the relationships and to share information, like Skype meetings. All companies must be aware of the digital era and the possible changes coming. Traditional trade fairs, meetings, seminars, and conferences are important for meeting and talking with people.

Companies need to focus on their core business; other operations need to be outsourced and performed by subcontractors. This brings networking skills into a key role and the digital resources in these interactions are important. Some resources were already in use, but in the future more will be required and more will be used. On the other hand, companies need to offer comprehensive products and service ranges. Just one market offering is not enough, it must be configurable and have different features, like options between big and small, fast and slow, or other added features. Also, the services provided with the product need to be comprehensive, including, for example, maintenance, support, and delivery services. In summary, everything around the core product was seen as elements that create value, meaning all augmented products or services related to the purchased product.

All three dimensions of customer value—product, service, and relationship and networking—were mentioned as important. Relationships were considered as part of service and networking was not seen as very important, especially at the moment. It was stated that networking should be given more focus. The customer value elements that got the most recognition are listed in Tables 3 and 4. The most significant ones were the top 11 elements, which were mentioned in at least three of the interviews as the elements of customer value. The elements were categorized as either market offering or service related.

Table 3. Service-related elements of customer value.

Services	Times mentioned
Understanding the customer	4
Friendliness	4
Speed	4
Flexibility	3
Service range	3
Availability	3
Location: close to the customer	2
Maintenance services	2
Longterm relationships	2
Fluency	2
Technical knowhow	2
Logistics: delivery	1
Differentiation	1
Willingness to grow and develop	1
Documentation	1

Table 4. Market-offering related elements of customer value.

Market offering	Times mentioned
Quality: especially certificates	5
Augmented products and services	4
Brand	4
Easy to use	3
Focus on core product	3
User friendliness	2
Operational realibility	2
Product range	2
Environmental friendliness	2
Price	2
Fit the needs	2
Production design: centralized to provide similar quality everywhere	1
Reseach and development	1
Availability	1
Flexibility	1
Saves time	1
Safety	1
Finishing (in production)	1

Measuring customer value creation

At the moment, the companies used a performance measurement system to manage their company's operations. That means analyzing and improving the operations based on the measures. In most of the cases, the people responsible for measuring were the executive committee or supervisors that were accountable for the operations (e.g., the chief business officer). The reasons for measuring were to lead and develop the processes, implement and execute the strategy, reward the employees, and develop products and services to better fit customers' needs. Customer and employee satisfaction were seen as the basis for operations and processes. Therefore, measuring the ability to create customer value resulted in easing the customer value creation. If there were some measures used, customer relationships were easier to maintain since there were some facts that could be provided to the customer. In addition, measuring helped to focus and develop operations that were important for customers.

Most of the companies measured customer satisfaction as the key source of information about their customer value creation abilities. With the information from customer satisfaction surveys, quick changes were possible. Customer satisfaction surveys were done once a year most of the time. Sometimes surveys were sent after a maintenance operation or delivery, but this was seen as too time consuming for the provider to ask and analyze and for the customer to answer. The response rate of these smaller surveys was low. Based on the information gathered, most companies chose 1-3 themes that they wanted to improve during the following year. Good results were highlighted to make them visible to all customers. These were seen as providing competitive advantage. Customer satisfaction rarely reveals the company's level of understanding of the customer because the understanding of the customer enables the product to be purchased. Understanding needs to be achieved before anything else can be done.

Other dimensions of performance, for example, operational performance, were not commonly considered to be related to measuring customer value creation. Companies were measuring things related to overall customer satisfaction, the speed and reliability of deliveries, complaints about quality and the time taken to answer complaints, and rotational speed, which shows the efficiency of internal processes and the work that is required from subcontractors. This shows a missing

understanding of all the elements affecting customer value creation. It was stated that the processes that are included in the development of the company need to be measured, like rotational speed. The fulfillment of standards and work safety were considered to be important to measure as well as the effectiveness of sales and environmental effects.

For the reasons why measuring occurs so seldom, it was stated that it is difficult to measure the monetary worth between cost and benefits for the customer, because many of the benefits are abstract. It was thought that there are no direct measures for customer value creation. Smaller companies especially were not measuring, because they needed to focus on their core business. It was acknowledged that with the help of digital resources, the data would be easier to access and it could be gathered from operations and actions that it has not been possible previously. Reasons that complicated measuring are listed below:

- A lack of education in topics related to networking, measuring, customer value, and customer satisfaction. In particular, entrepreneurs' level of education is low and managers in Finland were educated years ago.
- Attitude; Finnish people want to do things their own way.
- Difficult to find the right people to gather the information from.
- Customers are not always willing to take part in or sacrifice their time.
- Certain groups are more willing to answer the surveys, especially in the business to consumer (B2C) segment, so the results cannot be generalized to all customers.
- In the business to business (B2B) market, the customer is not the end user, so ensuring the product's or service's quality is difficult.
- Too difficult to evaluate the worth of failing versus succeeding (risk evaluation).
- Customers lack the skills needed to evaluate value.
- Lack of time and resources.
- The systems for measuring are not suitable, especially for smaller companies.

Measuring was occurring inside the customer, in the customer-provider interfaces, and in the provider's processes. The subcontractor and networking dimension was not measured and it was con-

sidered to be difficult to measure partner and subcontractor interactions. Subcontractors were chosen once and afterwards it was trusted that they would act, operate, and perform as agreed. When making the decision, subcontractors were required to meet some quality standards. In addition, the stakeholder interface lacked measurement because companies could not see the benefits from measuring or did not know how to measure. Measures in this dimension will be implemented in the coming years; companies have not been ready and the mentality has been old and “wrong.” The most important information was gathered from customers because they know what they need and require. Finnish people are known for innovating things, but this does not fit the customers’ needs. That is why listening to customers was most important. In the B2B markets, it would be useful to get more information from the intermediary. This is due to the fact that in projects, a lot of money is wasted in hassling and intermediaries lack interest in the end customer. It was stated that the whole value change should be measured, starting from the networks and subcontractors and ending with the customer.

Measures

From the interviews, some relevant measures were pointed out, including the following ones:

- Satisfaction: Teamwork skills, Loyalty, Satisfaction, Information flow
- Rookie rate / Changes in key account managers
- Record of customer contacts
- Length of the relationship
- Quality and range of services: Friendliness, Speed, Reliability, Flexibility, Fluency

Comparisons with other providers were mentioned as important and the truthfulness of tenders was a way to increase satisfaction. Measures were based on the assumptions of what customer value is formed of. Some information was needed about what customers are developing and what kind of new technologies they are implementing. There will always be things the provider does not know about the customer. Customers cannot be fully understood, mostly because they do not know their own needs and requirements either.

Changes in the future

At the end of the interview, the researcher asked about changes in the future. The focus was on changes due to digitalization, but other changes were also mentioned. These are listed below:

- Urbanization. People are moving from rural areas to the cities, which will cause changes in city structures and economies.
- Demography. The aging population will bring new business models. Finland has a great chance to be the first in the new, arising industry since we have a large amount of aging population. People also live longer, and therefore have new needs, especially concerning the usability and clarity of products. The purchasing power of the aging group is huge. A lot of entrepreneurs and their companies are still missing people who will continue the business, so a lot of companies might disappear.
- Environmental issues. These are getting more and more important and digital technologies are seen as a tool to increase environmental friendliness.
- Development is accelerating all the time. This results fierce competition all the time, but it also creates more possibilities.
- Analytics are getting more important and the importance of separating the useful data is increasing.
- Digital resources bring new ways to fit customer needs that we do not even know about yet. There are a lot of possibilities to develop and harness digital resources, especially for smaller companies.
- More automated feedback is available.
- Systems between different companies are developing to ease information sharing.

Many changes were mentioned and the most of them were positive. Environmental issues were highlighted and digital technologies were seen as a tool to increase the environmental friendliness.

6.3 Summary of the elements and measures in customer value creation

The first part of the empirical study consisted of a web-based survey, which was sent to 23 industrial companies and 21 answers were received. This data was analyzed with quantitative methods. Based on the results, some topics were asked about further in semi-structured interviews. These interviews were carried out with five respondents. This data was analyzed with qualitative methods.

From the results, it can be stated that digitality is in use quite a bit, and in all dimensions. Digital resources are being harnessed well, especially in processes, but customer interaction and purchasing are still carried out the traditional way. Some potential benefits from digital resources in customer and provider interactions are not yet understood. Digital end products or services are not very common. Digital resources are in use more often in processes like research and development and in sharing information between different operators. Digitalization is being implemented quite well in strategies and the benefits from digitalization are related to the efficiency of processes. Implementing digitalization in the company's strategy resulted in measuring customer value creation and this correlates to better performance. Implementing digitalization indicates a willingness and ability to change.

Customer value is seldom measured. In the survey, it was stated that a lack of knowledge in how to measure customer value creation and the difficult determination of customer value are causing this. Companies need more education on topics related to networking, measuring, customer value, and customer satisfaction. It is difficult to find the right people to gather the information and customers are not willing to take part in providing information or sacrificing their time. In addition, there are certain groups that are more willing to answer questions, so the results cannot be generalized to all customers. How to evaluate failing was considered to be difficult. A lack of time and resources are the most common reasons to not measure and for smaller companies, the systems are not suitable. Networks and subcontractors are not measured. The reasons for this are related to the fact that networks were considered as something given, and once the decision to begin operations with someone had been made, the partnership lost its focus and its importance was not considered.

Companies need to focus on their core business, and other operations need to be outsourced and performed by subcontractors. This brings networking skills into a key role. Digital resources in these interactions are important. Some systems are used, but in the future more will be required and it is acknowledged that more will be used. Besides the core product, companies need to offer augmented products and services, including, for example, maintenance, support, and delivery services. Additionally, the core products need to be configurable and have different features, like options between big and small or fast and slow, and added features. Environmental issues are getting more and more important and digital technologies are seen as a tool that can increase environmental friendliness.

Price is seen as compulsory, but competing with price is not seen as a clever strategy. Focusing on price can result in worse performance, so the wrong focus might be hindering success. Price competition in some industries is still quite common, which requires that the quality is similar. Quality can be therefore something taken for granted, and competitors can be providing the same quality. This results in quality that must be good and similar with competitors' offerings, but it does not create extra value. Some quality certificates can add value. Service-related price elements were not important, because customers are not willing to pay for them. Life cycle costs are receiving more focus and the whole value chain needs to be considered when calculating the costs of a product.

Understanding the customer and therefore customer wisdom is the basis for all transactions and it is the only way to really create customer value, because by understanding the customer one is able to fulfill the customer's requirements and desires. Understanding the customer requires a close relationship with the customer and therefore, human interaction and humanity cannot be forgotten. Even though digital resources are making interactions easier, relationships still have to be built and maintained. The initial purchasing decision is based on the actual face-to-face meetings.



Figure 10. Elements of customer value compared to the results.

The highlighted elements in Figure 10 showed up from the empirical study. Delivery and support include friendliness, speed, flexibility, availability, and range of services. It is important to note at this stage that the service range was not thought about when designing the framework, therefore, it needs to be added. Augmented products and services fit under the incremental innovation category and also include comprehensive product or service ranges and effective research and development operations. The importance of augmented offerings, like services and maintenance, are increasing. From the product quality perspective, the usability of the product was highlighted. Sometimes there is a tendency to produce over quality, for example adding extra features, but that is always a bad solution since customers are not willing to pay extra for things they certainly do not need. All elements in the relationship and networking dimension were considered to be important. Focusing on the core product or niche market was a new element.

When performance gets better, companies invest more in creating customer value. In addition, investments in customer value correlate to better success in performance. When digitalization is well implemented, more investments are made in customer value creation. Implementing digitalization means that the company is willing and able to change.

The main elements were similar in the survey and interviews. The most significant elements in customer value creation in digital business were chosen to be relationship, understanding, focusing on the core product or service and its quality, incremental innovations, service range, corporate

image, and networks. Networks were included even though they were not in the results at the top of the lists. Still, it was acknowledged during the interviews that the whole value chain is important in creating value. For these elements, measures were chosen. The measures were financial and non-financial as well as hard and soft. Hard ones were gathered from the company's internal operational data and soft ones from satisfaction surveys. The soft measures, which were gathered from customer satisfaction surveys and reveal attitudes, views, and feelings, were evaluated by a seven-point scale system. Answers varied from "much worse than expected" to "much better than expected," from "strongly disagree" to "strongly agree," or from "not at all" to "a very great extent." The measures are presented in Figure 11.

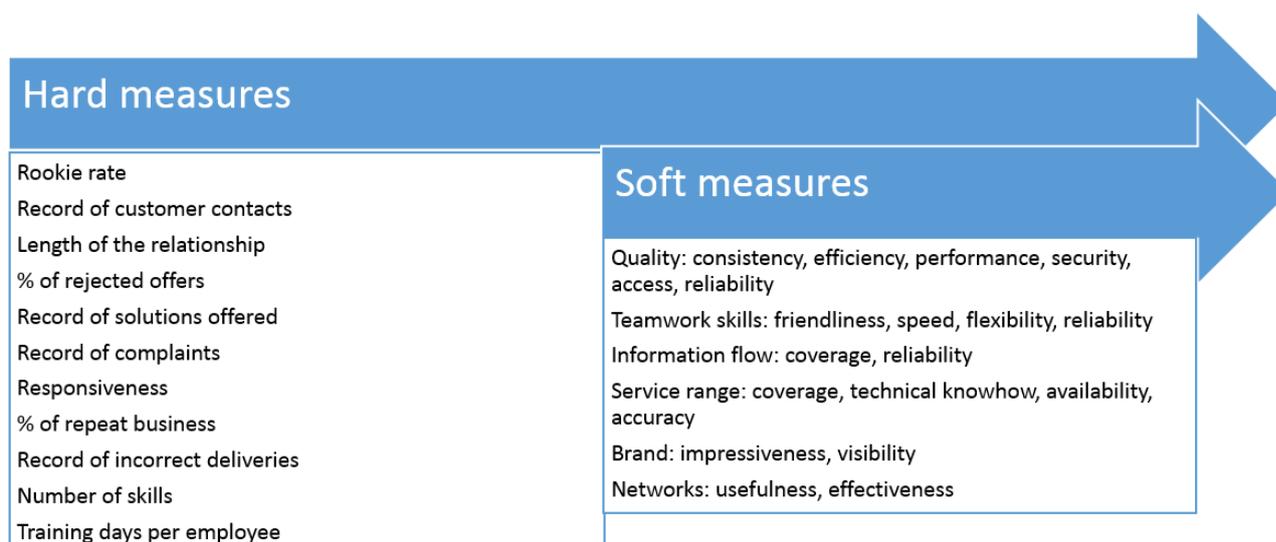


Figure 11. Measures for customer value creation.

To express which measures evaluate which element, Figure 12 is introduced.

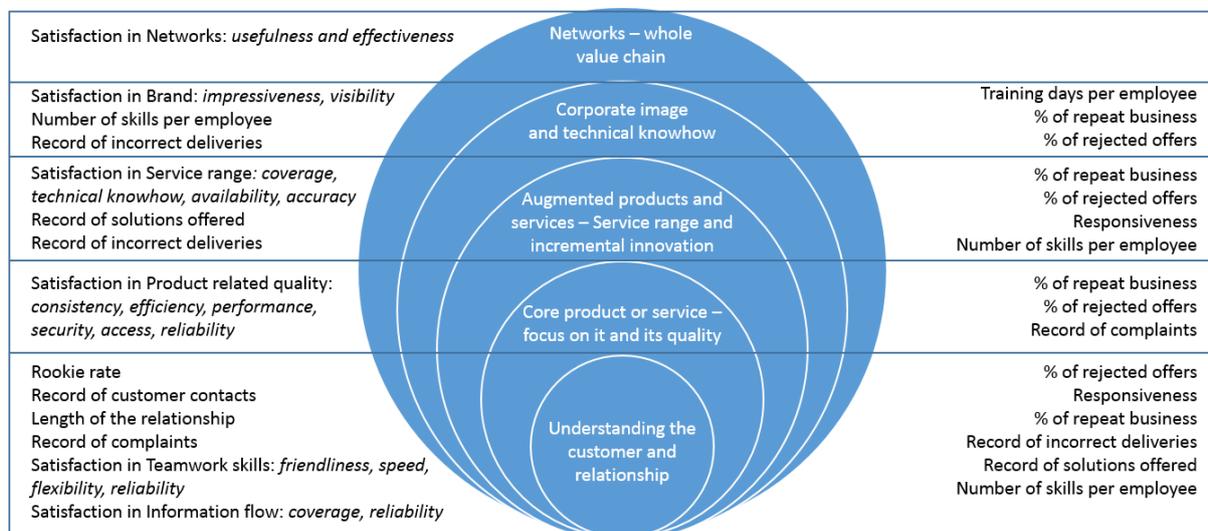


Figure 12. Elements of customer value and measures for those elements.

The measures need to include a lot of information to be used effectively. Two examples of customer value measures are presented below, which are time to answer and accuracy.

Responsiveness: Time to Answer—Days

- Purpose: To stimulate improvements in responsiveness to customers, improve the sales team's performance, and decrease the amount of time it takes to answer a customer
- Relates to: Relationship
- Target: Decrease the time by 24 hours by the end of the year
- Formula: The time between the customer's initial contact and when the problem is solved
- Measuring frequency: Monthly
- Frequency of review: Yearly
- Who measures? Sales team manager
- Source of data: Customer contacts saved in the ticketing system (ticket system, call center)
- Who acts on the data? The sales director, or the sales team manager
- What do they do? Monitor the amount of time to answer and investigate any unexpected results.

Satisfaction in Service Range: Accuracy

- Purpose: To enable the monitoring of delivery completion performance, improve delivery time, and ensure that the right quantities and right products are sent
- Relates to: Relationship
- Target: 98% schedule completion on time by the end of the next year, 98% completion with the right quantities by the end of the next year, 98% completion with the right products by the end of the next year
- Formula: Percentage of pieces to arrive at the customer's location when and as promised
- Measuring frequency: Weekly
- Frequency of review: Every two years
- Who measures? Sales team manager
- Source of data: Delivery receipts
- Who acts on the data? The logistics manager or the sales team manager
- What do they do? Investigate reasons for late or incorrect delivery and set up problem-solving teams to eliminate root causes.

7 CONCLUSIONS AND DISCUSSION

The objective of this study was to design a framework for organizations to create customer value in digital business. The draft for the framework was designed based on the literature related to customer value, value creation and co-creation, performance measurement and management, and electronic markets and the Internet of Things. The aim of the framework was to identify the key elements in creating customer value and to help organizations to measure their ability to create customer value. With the measures, organizations can manage their value creation operations. The empirical study aimed to find out how companies see the elements of customer value related to the unique characteristics of digital business. The empirical study included a web-based survey as well as semi-structured interviews. The framework was updated based on the findings from the empirical study to fit the characteristics of digital business better.

The research problem was: *How is customer value created, measured, and managed in digital businesses?* The object was to design a framework and in order to succeed, two research questions were formed. Those questions were:

1. *What is customer value and from which elements is customer value formed in digital businesses?*
2. *How can customer value creation be measured and managed?*

The research questions were answered by using qualitative and quantitative research methods and theoretical and empirical methods. The theoretical study was carried out as a literature review. The empirical study was formed by a web-based survey and semi-structured interviews. The research questions and the answers to them are presented below. The answers generated seven conclusions. These seven conclusions answer the research problem.

Conclusion 1. Customer value is the basis for all economic activities. It is something that is gained after using the product or service; it is not the product or service itself. Value is always a trade-off between benefits and sacrifices. Benefits can be related to time, quality, service, and cost. The sacrifices involve time, effort, money, and energy. Value is therefore the monetary worth a product or service provides or some non-monetary benefits, such as competencies, social relationships, and

knowledge. Value is always judged against something else, probably against the next best alternative or the customer's expectations. Customer value is always subjective and determined by the customer.

Conclusion 2. Customer value is formed of three dimensions and eight elements in digital business. The dimensions are product, service, and relationship and networking. The eight most significant elements of customer value creation are relationship, understanding the customer, focusing on the core product or service, the product or service quality, incremental innovations, service range, corporate identity, and networks. First, 12 elements were identified from the literature review and then, after the empirical study, the eight elements mentioned above were chosen as significant for digital business. Digital business can refer to the market, the processes, or the business model. Whichever is the case, similar ways of creating customer value occur.

Conclusion 3. Several different actors are involved in customer value creation. At least three types of actors are involved, which are the customers, the employees of the company, and the external stakeholders. The organization providing the market offering and the customer can be operating separately or jointly and their interactions can be either direct or indirect. This results in different forms of value creation and co-creation. For example, external stakeholders, like subcontractors, can affect the quality and production of products and services. Customers and partners might affect new product innovation and research and development. Service always includes interaction between the customer and the provider. Networks include all the actors in the whole value chain. A relationship requires cooperation with the customer. Image or corporate identity is always formed out of customers' and partners' opinions and views. Creating customer value is a task of the whole value chain. It is important to acknowledge all costs related to the whole life cycle. Additionally, different actors affect what customers' value. Customers' needs change based on the customer's customers' desires, the customer's competitors' actions, and the offerings made by suppliers and technology.

Conclusion 4. Customer value requires a lot of investment in different assets, like time, money, and effort. Every action and operation should be designed to create value and maintain satisfied

customers. To manage customer value creation in all the dimensions (product, service, and relationship and networking), three core processes need to be invested in: product development management, supply chain management, and customer relationship management. Product development relates to the product dimension, supply chain management relates to the service dimension and especially supply and delivery functions, and customer relationship management relates to the relationship and networking dimension. Providing customer value requires close relationships with customers. In a close relationship, customers are more willing to share information. Therefore, companies can provide products and services that fit the customer's needs better. To attract new and keep already existing customers, a company needs to create superior value for its customers. The superior value should be delivered continuously. At the moment, many companies lack the knowledge and skills to create and manage customer value. Therefore, much training for management is required, especially related to networking, measuring, customer value, and customer satisfaction.

Conclusion 5. The main sources of information concerning customer value creation are the customers, since they know their needs and constraints best. Additionally, information should be gathered from the company's internal operational data. The source of information divides the measures into soft and hard measures. Hard ones are gathered from the company's internal operational data and soft ones from satisfaction surveys. The soft measures reveal attitudes, views, and feelings and are evaluated by a seven-point scale system, and hard ones reveal business transactions and the number of actions.

Conclusion 6. To manage customer value creation, companies need a performance measurement system, which includes measures for the eight key elements defined earlier. The most significant measures for these customer value creation elements are:

- Rookie rate
- Record of customer contacts
- Length of the relationship
- % of rejected offers
- Record of solutions offered

- Record of complaints
- Responsiveness
- % of repeat business
- Record of incorrect deliveries
- Number of skills
- Training days per employee
- Satisfaction with quality (consistency, efficiency, performance, security, access, reliability), teamwork skills (friendliness, speed, flexibility, reliability), information flow (coverage, reliability), service range (coverage, technical knowhow, availability, accuracy), brand (impressiveness, visibility), and networks (usefulness, effectiveness).

Conclusion 7. Creating customer value brings a lot of benefits. By providing customer value, a company can achieve the increased loyalty of existing customers and enable new customers to be served effectively. In addition, established processes are gained and longer relationships with customers can be obtained. Creating customer value requires understanding the customer, and understanding the customer equals customer wisdom. Understanding the customer and customer wisdom, and therefore customer value creation, is the basis for all business transactions, since by understanding customers, one can provide products and services that fulfill customers' needs, requirements, and desires. A product that fits customer's needs, creates value for the customer and, in turn for the provider, results in increased sales and better financial success as customers buy more and more frequently. Creating superior customer value can also increase the company's business reputation, as customers recommend the company to others. It could be stated that investments in customer value creation increase the performance of other operations.

The selected literature was suitable for the study. The research methods used with the data gathered from the empirical study provided the evidence needed to answer the research questions and research problem. Therefore, the objectives of the study were reached. Some of the elements and measures might seem to be a bit obvious to an experienced practitioner, but they are needed for the less experienced and new actors arising in the industry. In Finland, there is a lack of knowledge related to customer value creation and measuring it, so these conclusions will provide helpful guidelines for companies.

The study had some limitations concerning the amount of data collected, since the sample was quite small. Even so, the results started to repeat. The sample represented different units of companies, so the results can be generalized. The empirical study only focused on Finnish companies, which has to be taken into account. Value drivers can be different from other countries and Finnish culture has some special characteristics. In addition, it has to be acknowledged that the companies participating in the interviews and the survey had implemented digitalization in their strategy quite well. That can have an effect on the results, but this sample was needed to find out which benefits can be gained through digitalization. It is important to note that the participants in the empirical study cannot be seen as representatives of the population of all digital business companies.

Combining both quantitative and qualitative methods is a good way to measure overlapping, but also reveal different, views of a phenomenon. In this study, it helped to gain a better understanding of customer value creation. In this study, the qualitative analysis of the interviews identified the nature and level of customer value creation and measuring it in the companies. By quantitative analysis of the survey, the levels and perceived ranking within participants' about customer value elements and dimensions, and importance and investments made in those, were analyzed.

It can be stated that the study is reliable. The results are stable, and if the study was performed again, the same results should be expected. In addition, the validity is good. The questions in the survey and in the semi-structured interviews answered the research questions, so the study has been researching the right thing. The respondents have saved their own answers, as the link was sent to certain people. Therefore the answers are from the selected group. From the interviews, transcriptions were done, so the data is confirmable. In this study, different sources of information for the literature review were used, meaning articles, books, and web pages. Different companies were chosen for the sample, which included companies from different cities and of different sizes, and the respondents represented different units of the companies, like sales, marketing, research and development, and production. It could be stated that in different units, the workers had different views and opinions. Including respondents from different units makes the results more reliable and more general.

For future investigation, an empirical study should be carried out to find out how these elements and measures reveal information about a company's ability to create value. It would be relevant for further studies to evaluate if there is a correlation between good performance in these measures and value creation ability.

8 SUMMARY

Digital business is getting more common and the competition in it is increasing all the time. Companies are trying to find new ways to gain competitive advantage and creating superior customer value is one way to do it. Providing customer value can result in increased sales, market share, and profitability. Therefore, a framework needed to be designed that took into account the special characteristics of digital business and the usage of digital resources. None of the existing models was suitable for digital business as such.

The objective of the study was to identify the characteristics of customer value in digital business and to design a framework to create customer value. Everything can be measured, if not with direct measures, at least with indirect measures. Therefore, even though customer value is quite abstract and sometimes it is difficult to measure value creation ability, it should still be done. As customer value is formed out of different elements, these elements need to be measured. In this study, measures for the chosen elements were designed.

The research problem was approached by using theoretical and empirical methods. The study began with a literature review. The review consisted of research published in academic journals between 1991 and 2016. The articles range across such disciplines as customer value, value creation and co-creation, performance measurement and management, and electronic markets and the Internet of Things. Based on the literature review, a framework for customer value creation was developed. The most significant elements in customer value creation were based on 14 studies. The elements were divided into three dimensions: product, service, and relationship and networking. These dimensions can be taken care of with three effective core processes, which are product development (product), supply chain management (service), and customer relationship management (relationship and networking). The key elements in the three dimensions were product quality, production, price (product related), incremental innovations, new market offering innovations, price (service related), delivery, support, networks, relationship, understanding, and image or corporate identity.

After the literature review, the empirical study was carried out, which consisted of a web-based survey and semi-structured interviews. The object of the empirical study was to update the framework based on the findings. The data from the survey was analyzed with quantitative research methods and the data from the semi-structured interviews with qualitative research methods. The elements in customer value creation were updated based on the findings. The final key elements were networks, corporate identity, incremental innovations, service range, focusing on the core product or service, the product or service quality, understanding the customer, and relationship.

For the eight key elements, measures were developed. These measures were rookie rate, record of customer contacts, length of the relationship, % of rejected offers, record of solutions offered, record of complaints, responsiveness, % of repeat business, record of incorrect deliveries, number of skills, training days per employee, and satisfaction with several characters including quality, teamwork skills, information flow, service range, brand, and networks. Satisfaction measures are soft and based on customer satisfaction surveys. They reveal attitudes, views, and feelings. The rest of the measures are hard; they reveal business transactions and the number of actions, and are based on internal operational data.

In digital business, customers are not always faced in real life; rather, the interaction occurs in electronic platforms. This has an effect on how customer value is formed. Still, the basics for customer value creation are similar in all industries. The special characteristics of digital business highlight trust and reliability especially, so the product or service has to take care of these. The traditional interaction between customer and provider cannot be forgotten and the business needs to maintain its humanity. In addition, digital business can refer to the market, the processes, or the business model, and whichever is the case, similar ways of creating customer value occur.

The main source of information needs to be the customers, but that also includes some potential and former customers, not just present customers. That would provide a comprehensive view of customer value creation. In addition, since customers' desires and needs are different and every customer needs to be treated as unique, different types of customers need to be taken along into

the evaluation process. Customers' needs are changing all the time and different actors are affecting them, like the customer's customers, the customer's competitors, and their suppliers. Therefore, a lot of attention needs to be paid to the changing needs of the customer.

In this thesis, all the research questions were answered and based on the answers, seven conclusions were made. It can be concluded that companies and their management need more training on customer value creation and how to measure it. This study provides some guidance in order to do so. Customer value is the difference between the benefits and sacrifices related to the product or service acquired, it is never the product or service itself. Creating superior customer value can be a competitive advantage, which can increase the performance of the company in other perspectives, like financial or operational perspectives.

Creating customer value requires understanding the customer and a lot of information sharing. Digital resources especially can be harnessed in the effective exchange of information. Therefore, digital resources play a huge role in today's business environment. Simulation systems can be used in product development processes so that products fit the needs of the customer better. Simulation systems can be used as an effective tool to create superior customer value, since they increase the understanding of the customer, which is the backbone of customer value creation.

Companies need to manage their customer value creation effectively, and measures for the elements of customer value are a good way to do it. All of the eight key elements have direct or indirect, and soft or hard measures. By successfully evaluating and managing the operations of the company, the company might gain the increased loyalty of existing customers and serve new customers more effectively. It might also increase sales and ease the establishment of processes. The established processes helps to obtain longer relationships with customers.

REFERENCES

- Allen, I. E. & Seaman, C. A. 2007. Likert Scales and Data Analyses. *Quality Progress*, vol. 40, issue 7, pp. 64-65.
- Amaratunga, D. & Baldry, D. 2002. Moving from performance measurement to performance management. *Facilities*, vol. 20, issue 5/6, pp. 217–223.
- Anderson, J. C., Narus. J. A., & Narayandas, D. 2009. *Business Market Management. Understanding, Creating, and Delivering Value*. 3rd ed. Pearson Prentice Hall; New Jersey.
- Avonius, L. 2016. Kuka tietää, mikä digistrategia toimii parhaiten? Updated February 23, 2016. [In Wau www-pages] [retrieved March 29, 2016] From: <http://wau.fi/artikkelit/kuka-tietaa-mikatalee-toimimaan>
- Berry, B. & Otley, D. 1996. *Performance measurement and control: research and practice*. The Chartered Institute of Management Accountants; London.
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A. & Venkatraman, N. 2013. Digital business strategy: toward a next generation of insights. *MIS Quarterly*, vol. 37, issue 2, pp. 471-482.
- Blocker, C. P. & Flint, D. J. 2007. Exploring the dynamics of customer value in cross-cultural business relationships. *Journal of Business & Industrial Marketing*, vol. 22, issue 4, pp. 249-259.
- Bourne, M., Mills, J., Wilcox, M., Neely, A. & Platts, Ken. 2000. Designing, implementing and updating performance measurement systems. *International Journal of Operations & Production Management*, vol. 20, issue 7, pp. 754-771.
- Brynjolfsson, E. & Kahin, B. 2000. *Understanding the Digital Economy: Data, Tools, and Research*. The MIT Press; Massachusetts.
- Burch, R. 2001. Charles Sanders Peirce. Updated November 12, 2014. [e-document] Stanford Encyclopedia of Philosophy. [retrieved May 31, 2016] From: <http://plato.stanford.edu/entries/peirce/#dia>
- Butz, H. E. & Goodstein, L. D. 1996. Measuring customer value: Gaining the strategic advantage. *Organizational Dynamics*, vol. 24, issue 3, pp. 63-77.

- Byus, K. & Lomerson, W. L. 2004. Consumer originated value: A framework for performance analysis. *Journal of Intellectual Capital*, vol. 5, issue 3, pp. 464-477.
- Castells, M. 2010. *The rise of the network society*, 2nd edition. Wiley-Blackwell; United Kingdom.
- Chaffey, D. 2015. *Digital business and e-commerce management. Strategy, implementation and practice*. 6th edition. Pearson Education Limited; Edinburgh.
- Chenhall, R. H. & Langfield-Smith, K. 2007. Multiple perspectives of performance measures. *European Management Journal*, vol. 25, issue 4, pp. 266–282.
- Corbin, J. & Strauss, A. 2008. *Basics of Qualitative research: Techniques and procedures for developing grounded theory*, 3rd edition. Sage Publications; USA.
- Cram, T. 2006. *Smarter Pricing. How to capture more value in your market*. Pearson Education Limited; Edinburgh.
- DeNisi, A. S. 2000. Performance appraisal and performance management: a multilevel analysis, in Klein, K. J & Kozłowski, S. W. J. *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions*, pp. 121-156. Jossey-Bass; San Francisco.
- Eccles, R. G. & Pyburn, P. J. 1992. Creating a Comprehensive System to Measure Performance. *Management Accounting*, vol. 74, issue 4, pp. 41-44.
- Eggert, A. & Ulaga, W. 2002. Customer perceived value: a substitute for satisfaction in business markets? *Journal of Business & Industrial Marketing*, vol. 17, issue 2/3, pp. 107-118.
- Fitzgerald, L., Johnston, R., Brignall, S., Silvestro, R. & Voss, C. 1994. *Performance measurement in service business*. CIMA; Cambridge.
- Folan, P. & Browne, J. 2005. A review of performance measurement: Towards performance management. *Computers in Industry*, vol. 56, pp. 663-680.
- Greene, J.C., Caracelli, V.J., & Graham, W.F. 1989. Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, vol. 11, issue 3, pp. 255–274.
- Grewal, D., Munger, J. L., Iyer, G. R. & Levy, M. 2003. The Influence of Internet-Retailing Factors on Price Expectations. *Psychology & Marketing*, vol. 20, issue 6, pp. 477–493.
- Grönroos, C. & Voima, P. 2013. Critical service logic: making sense of value creation and co-creation. *Journal of the Academy of Marketing Science*, vol. 41, pp. 133-150.

- Gummerus, J. 2011. Customer value in e-service: conceptual foundation and empirical evidence. Hanken School of Economics; Helsinki.
- Hannus, J. 2015. Strateginen uudistuminen – kuinka haastaa nykyisiä toiminta- ja ajattelumalleja? Updated January 22, 2015. [In CGI www-pages] [retrieved March 29, 2016] From: http://ratkaisu.cgi.fi/sites/default/files/ratkaisu15_jouko_hannus_talentvectia.pdf
- Heinonen, K. 2004. Reconceptualizing customer perceived value: the value of time and place. *Managing Service Quality: An International Journal*, vol. 14, issue 2/3, pp. 205-215.
- Heir, B., Juneja, E., Kalilainen, T., Karhusaari, W., Nylander, T. & Rasimus, T. 2000. *Digitaalinen tarjontaketju*. WSOY; Juva.
- Hoolbrook, M. B. 1999. *Consumer Value: A Framework for Analysis and Research*. Routledge; Wales.
- Holbrook, M. B. 2006. Consumption experience, customer value, and subjective personal introspection: An illustrative photographic essay. *Journal of Business Research*, vol. 59, issue 6, pp. 714–725.
- Huber, F., Andreas Herrmann, A. & Morgan, R. E. 2001. Gaining competitive advantage through customer value oriented management. *Journal of Consumer Marketing*, vol. 18, issue 1, pp. 41 – 53.
- Hudson, M., Smart, A. & Bourne, M. 2001. Theory and practice in SME performance measurement systems. *International Journal of Operations & Production Management*, vol. 21, issue 8, pp. 1096–1115.
- IBM. SPSS Statistics Base. [In IBM www-pages] [retrieved June 15, 2016] From: http://www-03.ibm.com/software/products/en/spss-stats-base/?S_TACT=M161007W
- Ilmarinen, V. & Koskela, K. 2015. *Digitalisaatio: Yritysjohdon käsikirja*. Talentum Media Oy; Liettua.
- Jyväskylän yliopisto. 2015. Määrällinen tutkimus. [In Jyväskylän yliopisto www-pages] [retrieved June 15, 2016] From: <https://koppa.jyu.fi/avoimet/hum/menetelmapolkuja/menetelmapolku/tutkimusstrategiat/maarallinen-tutkimus>
- Kananen, J. 2014. *Laadullinen tutkimus opinnäytetyönä: Miten kirjoitan kvalitatiivisen opinnäytetyön vaihe vaiheelta*. Jyväskylän ammattikorkeakoulu; Tampere.
- Kaplan, R. S & Norton, D. P. 1992. The Balanced Scorecard: Measures That Drive Performance. *Harvard Business Review*: January–February, pp. 71–79.
- Kaplan, R. S. & Norton, D. P. 1996. *The Balanced Scorecard: Translating strategy into action*. Harvard Business School Press; Boston.

- Keränen, J. & Jalkala, A. 2014. Three strategies for customer value assessment in business markets. *Management Decision* vol. 52, issue 1, pp. 79-100.
- Kitchenham, B. A. & Pfleeger, S. L. 2002. Principles of Survey Research. Part 2: Designing a Survey. *Software Engineering Notes*, vol. 27, issue 1, pp. 18-20.
- Kyriazis, D. & Varvarigou, T. 2013. Smart, autonomous and reliable Internet of Things. *Procedia Computer Science*, vol. 21, pp. 442–448.
- Lapierre, J. 2000. Customer-perceived value in industrial contexts. *Journal of Business & Industrial Marketing*, vol. 15, issue 2/3, pp. 122-145.
- Lazar, J. & Preece, J. 1999. Designing and implementing Web-based surveys. *The Journal of Computer Information Systems*, vol. 39, issue 4, pp. 63-67.
- Lebas, M. J. 1995. Performance measurement and performance management. *International Journal of Production Economics*, vol. 41, pp. 23-35.
- Leminen, S., Westerlund, M., Rajahonka, M., & Siuruainen, R. 2012. Towards IOT Ecosystems and Business Models, in Andreev, S., Balandin, S. & Koucheryavy, Y. *Internet of Things, Smart Spaces, and Next Generation Networking – Lecture Notes in Computer Science*, pp. 15-26, vol. 7469. Springer; Berlin.
- Lucid, B. & Lepidi, K. 29.4.2011. What Gets Measured Gets Done. [In ALN www-pages] [retrieved June 15, 2016] From: <https://www.alnmag.com/article/2011/04/what-gets-measured-gets-done>
- Lönnqvist, A. & Mettänen, P. 2003. Suorituskyvyn mittaaminen - Tunnusluvut asiantuntijaorganisaation johtamisvälineenä. Edita Publishing Oy; Helsinki.
- Manning, G. L. & Reece, B. L. 2007. *Selling today: creating customer value*. 10th edition. Pearson Education; New Jersey.
- McDougall, G. H. G. & Levesque, T. 2000. Customer satisfaction with services: putting perceived value into the equation. *Journal of Services Marketing*, vol. 14, issue 5, pp. 392–410.
- Mejtoft, T. 2011. Internet of Things and co-creation of value. In *Internet of Things (iThings/CPSCOM), 2011 International Conference on and 4th International Conference on Cyber, Physical and Social Computing*, pp. 672–677.
- Molleman, E. & Timmerman, H. 2003. Performance management when innovation and learning become critical performance indicators. *Personnel Review*, vol. 32, issue 1, pp. 93-113.

- Moore, G. A. 1999. *Crossing the Chasm – Marketing and Selling Technology Products to Mainstream Customers*. Revised Edition. HarperBusiness; USA.
- Morabito, V. 2014. *Trends and Challenges in Digital Business Innovation*. Springer International Publishing; Switzerland.
- Mäkelä, K. 1990. Kvalitatiivisen analyysin arviointiperusteet, in Mäkelä, K. Kvalitatiivisen aineiston analyysi ja tulkinta, pp. 42-61. Oy Gaudeamus Ab; Helsinki.
- Möller, K. K. E. & Törrönen, P. 2003. Business suppliers' value creation potential: A capability-based analysis. *Industrial Marketing Management*, vol. 32, pp. 109– 118.
- Neely, A., Richards, H., Mills, J., Platts, K. & Bourne, M. 1997. Designing performance measures: a structured approach. *International Journal of Operations & Production Management*, vol. 17, issue 11, pp. 1131-1152.
- Panacek, E. A. 2008. Survey-based research: General principles. *Air Medical Journal*, vol. 27, issue 1, pp. 14–16.
- Pannirselvam, G. P., Ferguson, L. A., Ash, R. C. & S.P. Siferd, S. P. 1999. Operations management research: An update for the 1990s. *Journal of Operations Management*, vol. 18, pp. 95–112.
- Payne, A. & Holt, S. 2001. Diagnosing Customer Value: Integrating the Value Process and Relationship Marketing. *British Journal of Management*, vol. 12, issue 2, pp. 159-182.
- Pirnes, H. 2002. *Verkostoylivoimaa*. WSOY; Vantaa.
- Pyy-Martikainen, M. 2013. Statistical analysis of survey-based event history data with application to modeling of unemployment duration. Tilastokeskus; Helsinki.
- Ravald, A. & Grönroos, C. 1996. The value concept and relationship marketing. *European Journal of Marketing*, vol. 30, issue 2, pp. 19-30.
- Rust, R. T. & Espinoza, F. 2006. How technology advances influence business research and marketing strategy. *Journal of Business Research*, vol. 59, pp. 1072-1078.
- Saaranen-Kauppinen, A. & Puusniekka, A. 2006. KvaliMOTV - Menetelmäopetuksen tietovaranto [e-document]. Tampere: Yhteiskuntatieteellinen tietoarkisto.] [retrieved May 31, 2016] From: http://www.fsd.uta.fi/menetelmaopetus/kvali/L7_1.html

- Sandelowski, M. 2000. Focus on research methods: combining qualitative and quantitative sampling, data collection, and analysis techniques in mixed-method studies. *Research in Nursing & Health*, vol. 23, pp. 246–255.
- Saunders, M., Lewis, P. & Thornhill, A. 2009. *Research methods for business students*. 5th edition. Pearson Education Limited; Italy.
- Sheth, J. N., Newman, B. I. & Gross, B. L. 1991. Why we buy what we buy: A theory of consumption values. *Journal of Business Research*, vol. 22, issue 2, pp. 159-170.
- Simon, H. A. 1959. Theories of Decision-Making in Economics and Behavioral Science. *The American Economic Review*, vol. 49, issue 3, pp. 253-283.
- Slater, S. F. & Narver, J. C. 2000. Intelligence generation and superior customer value. *Journal of the Academy of Marketing Science*, vol. 28, issue 1, pp. 120-127.
- Strauss, A. & Corbin, J. 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 2nd edition. SAGE Publications, Inc; California.
- Sweeney, J. C. & Soutar, G. N. 2001. Consumer perceived value: The development of a multiple item scale. *Journal of Retailing*, vol. 77, issue 2, pp. 203-220.
- Thiel, D. V. 2014. *Research methods for engineers*. Cambridge University Press; United Kingdom.
- Thorpe, R. & Holloway, J. 2008. *Performance Management. Multidisciplinary Perspectives*. Palgrave Macmillan; New York.
- Toivonen, M., & Tuominen, T. 2009. Emergence of innovations in services. *The Service Industries Journal*, vol. 29, issue 7, pp. 887–902.
- Totten, V. Y., Panacek, E. A. & Price, D. 1999. Basics of research (part 14) survey research methodology: Designing the survey instrument. *Air Medical Journal*, vol. 18, issue 1, pp. 26–34.
- Ukko, J., Tenhunen, J. & Rantanen, H. 2007. Performance measurement impacts on management and leadership: Perspectives of management and employees. *International Journal of Production Economics*, vol. 110, pp. 39–51.
- Ulaga, W. 2003. Capturing value creation in business relationships: A customer perspective. *Industrial Marketing Management*, vol. 32, pp. 677– 693.

Ulaga, W. & Chacour, S. 2001. Measuring Customer-Perceived Value in Business Markets. A Prerequisite for Marketing Strategy Development and Implementation. *Industrial Marketing Management*, vol. 30, pp. 525–540.

Vandermerwe, S. 1996. Becoming a Customer "Owning" Corporation. *Long Range Planning*, vol. 29, issue 6, pp. 770-782.

Walter, A., Müller, T. A., Helfert, G. & Ritter, T. 2003. Functions of industrial supplier relationships and their impact on relationship quality. *Industrial Marketing Management*, vol. 32, pp. 159-169.

Watson, R.T., Pitt, L. F., Berthon, P. & Zinkhan, G. M. 2002. U-Commerce: Expanding the Universe of Marketing. *Journal of the Academy of Marketing Science*, vol. 30, issue 4, pp 333-347.

Weill, P., & Vitale, M. R. 2001. *Place to Space: Migrating to e-Business Models*. Harvard Business School Press; Massachusetts.

Westerlund, M., Leminen, S. & Rajahonka, M. 2014. Designing Business Models for the Internet of Things. *Technology Innovation Management Review*, vol. 4, issue 7, pp. 5-14.

Witell, L., Syder, H., Gustafsson, A., Fombelle, P. & Kristensson, P. 2015. Defining service innovation: A review and synthesis. *Journal of Business Research*, in press.

Woodruff, R. B., Schumann, D. W. & Gardial, S. F. 1993. Understanding value and satisfaction from the customer's point of view. *Survey of Business*; Summer/Fall 1993, vol. 29, issue 1, pp. 33-40.

Zeithaml, V., Parasuraman, A. and Malhotra, A. 2000. A conceptual framework for understanding e-service quality: implications for future research and managerial practice. Report No. 00-115. Marketing Science Institute; Cambridge.

APPENDIX 1. Questionnaire (in Finnish)

1. Taustatiedot

Yrityksenne liikevaihto vuoden 2015 lopussa (tuhatta euroa): _____

Arvioi palveluliiketoiminnan osuus liikevaihdostanne arvio 5 % tarkkuudella: _____

Asemanne yrityksessä:

- Työntekijä
- Asiantuntija
- Keskijohto
- Ylin johto

Yksikkönne toiminta-alue:

- Myynti ja markkinointi
- Tuotekehitys
- Tuotanto
- Ostot
- Yleisjohto

Yksikkönne koko henkilölukumäärä: _____

Millaisena pidätte yrityksenne taloudellista menestystä keskimäärin viimeisen 3 vuoden aikana?

Millaisena pidätte yrityksenne toiminnallista menestystä (esim. tehokkuus, tuottavuus, laatu) keskimäärin viimeisen 3 vuoden aikana?

Millaisena pidätte yrityksenne kykyä uudistaa toimintatapojaan?

Millaisena pidätte yrityksenne kykyä myydä tuotteita ja palveluita?

Millaisena pidätte yrityksenne kykyä kehittää toimintojaan kestävästi (taloudellisesti, ekologisesti, sosiaalisesti)?

1) Heikko 2) Tyydyttävä 3) Hyvä 4) Erinomainen

2. Digitalisaatio

Digitalisoituminen ja digitaalisuus ovat tiedon, tavaroiden, ihmisten ja prosessien käsittelyn automatisointia.

Digitalisaatio on liiketoiminnan kokonaisvaltaista ja asiakaslähtöistä muutosta uudistamalla toimintatapoja esimerkiksi digitalisoimalla prosesseja ja sähköistämällä palveluja.

Mikä on digitaalisuuden aste yrityksessänne?

Miten digitaalisuus näkyy lopputuotteissanne ja -palveluissanne? (markkinat)

Miten digitaalisuus näkyy tuotantoprosesseissanne? (teknologia)

Miten digitaalisuus näkyy palveluprosessissanne? (asiakaskäyttäytyminen)

1) Ei digitaalisuutta 2) Joitain digitaalisia piirteitä 3) Paljon digitaalisia piirteitä 4) Kaikki digitaalista

Miten digitalisaatio näkyy yrityksenne strategiassa?

- Ei ollenkaan.
- 2. Hieman: organisaatiota ei juurikaan muuteta ja uutta rakennetaan olemassa olevan liiketoiminnan varaan.
- 3. Melko paljon: rakennetaan pitkäjänteisesti uutta liiketoimintaa perustuen perinteisen liiketoiminnan voimavarojen uudelleenlaiseen käyttämiseen
- 4. Paljon: edellisten lisäksi merkittäviä investointeja kokonaan uuteen, erilliseen liiketoimintaan

Mitä hyötyä digitalisaatiosta on liiketoiminnassanne? Voitte valita useamman vaihtoehdon.

- Uusia liiketoimintamalleja ja monikanavaisuutta
- Vaikutuksia toimialan ja arvoverkkojen rakenteisiin ja menestystekijöihin
- Digitaalisia prosesseja ja prosessi-innovaatioita
- Tehokkaampia arvoverkkoja ja toimintoja
- Uusia ratkaisuja
- Asiakaskokemuksen uudenlaista muotoilua
- Ei hyötyä digitaalisuudesta
- Muu hyöty, mikä? _____

3. Asiakasarvon mittaaminen

Asiakasarvo tarkoittaa tuotteesta tai palvelusta syntyvää arvoa asiakkaalle eli hyötyjen ja kustannusten välistä suhdetta tietyn ajanjakson puitteissa.

Mitataanko asiakasarvon luontia yrityksessänne?

- 1. Ei lainkaan
- 2. Hieman (harvoin, muutamilla mittareilla)
- 3. Melko paljon (usein, useammalla mittarilla)
- 4. Paljon (systemaattisesti, monilla mittareilla)

Missä seuraavissa arvoverkon toimijoissa ja rajapinnoissa asiakasarvoa mitataan yrityksessänne? Voitte valita useamman vaihtoehdon:

Jos valitsitte edellisessä kysymyksessä vaihtoehdon 1. Ei lainkaan, jättäkää vastaamatta tähän kysymykseen.

- Oman yrityksen ja kumppaneiden (esim. alihankinta) rajapinnassa
- Omassa yrityksessä
- Oman yrityksen ja asiakkaiden rajapinnassa

- Asiakkaalla
- Muualla, missä? _____

Millaisia haasteita asiakasarvon mittaamiseen kohdistuu? Voitte valita useamman vaihtoehdon

- Ajan / resurssien puute
- Ei koeta mittaamisella olevan hyötyä
- Ei koeta asiakasarvolla olevan hyötyä
- Ei osata tällä hetkellä mitata asiakasarvoa
- Asiakasarvoa on vaikea määrittää
- Mittaaminen ei onnistu käytännössä
- Ei haasteita
- Muu haaste, mikä? _____

4. Asiakasarvon ulottuvuudet

Kuinka merkittäväksi yrityksen asiakasarvon luonnissa koette seuraavat asiat?

1. Lopputuotteeseen ja –palveluun liittyvät ominaisuudet (esim. laatu, tuotanto, hinta, lisäinnovaatiot, uudet tuotteet)

2. Palveluihin liittyvät ominaisuudet (esim. hinta, toimitus, tukipalvelut)

3. Oman yrityksen yhteistyöhön asiakkaiden ja kumppaneiden kanssa liittyvät ominaisuudet (esim. verkostot, asiakassuhde, asiakasymmärrys, brändi)

1) Ei merkitystä 2) Vähän merkitystä 3) Jossain määrin merkitystä 4) Paljon merkitystä 5) Erittäin paljon merkitystä

5. Asiakasarvon elementtien tärkeys ja panostus

Seuraavassa on esitetty joitakin asiakasarvon luontiin liittyviä ominaisuuksia.

Arvioikaa kuinka tärkeinä pidätte ominaisuuksia yrityksellenne luodessanne asiakasarvoa sekä panostustanne jokaiseen ominaisuuteen luodessanne asiakasarvoa.

Valitkaa jokaisesta parhaiten mielipidettänne kuvaava vaihtoehto.

1. Lopputuotteen tai -palvelun laadulliset ominaisuudet
2. Lopputuotteen tai –palvelun ominaisuudet tuotannossa
3. Lisäinnovaatiot olemassa olevaan tuotteeseen tai palveluun
4. Lopputuotteen tai-palvelun hinta
5. Muiden palveluiden hinta

6. T&K-toiminnot

7. Toimituksiin liittyvät ominaisuudet

8. Palvelun tasoon liittyvät ominaisuudet

9. Yhteistyöverkostot

10. Asiakassuhteeseen liittyvät ominaisuudet

11. Ymmärrys asiakkaan toimintaympäristöstä ja kilpailutilanteesta

12. Brändi

Pidetään tärkeänä

Panostetaan

1) Täysin eri mieltä 2) Jonkin verran eri mieltä 3) Ei samaa eikä eri mieltä 4) Jonkin verran samaa mieltä 5) Täysin samaa mieltä

APPENDIX 2. Results from the questionnaire

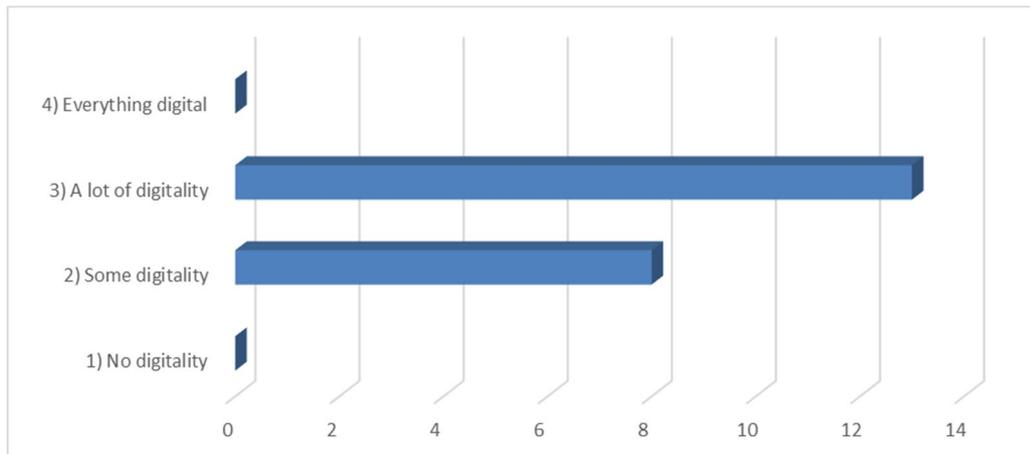


Chart 5. Level of digitality.

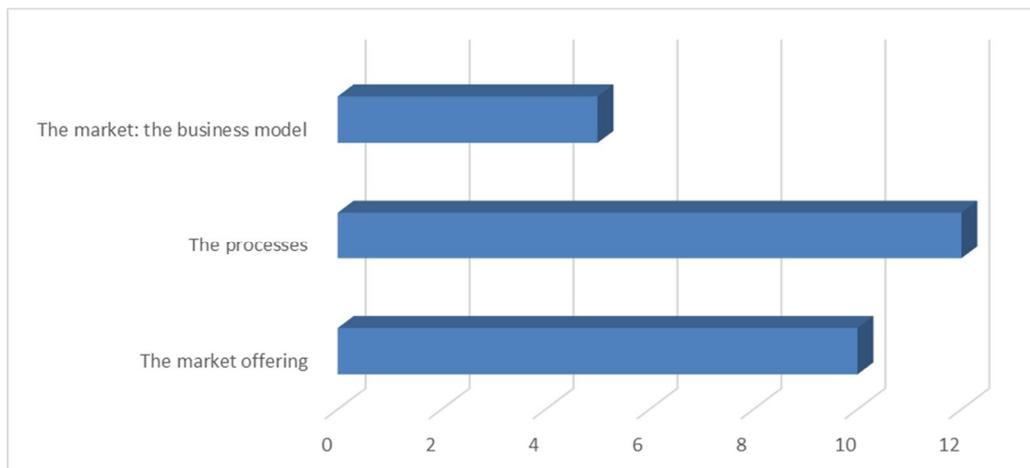


Chart 6. Dimensions of digitality in use.

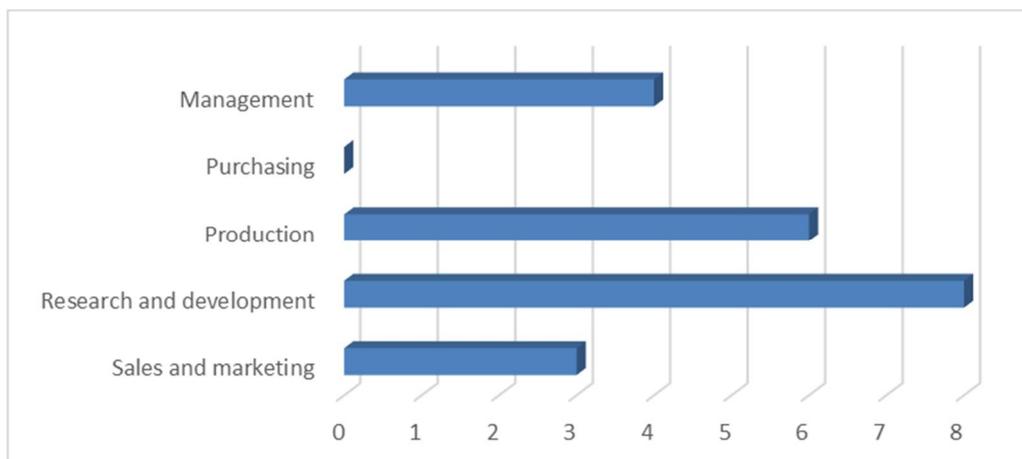


Chart 7. Operating unit.

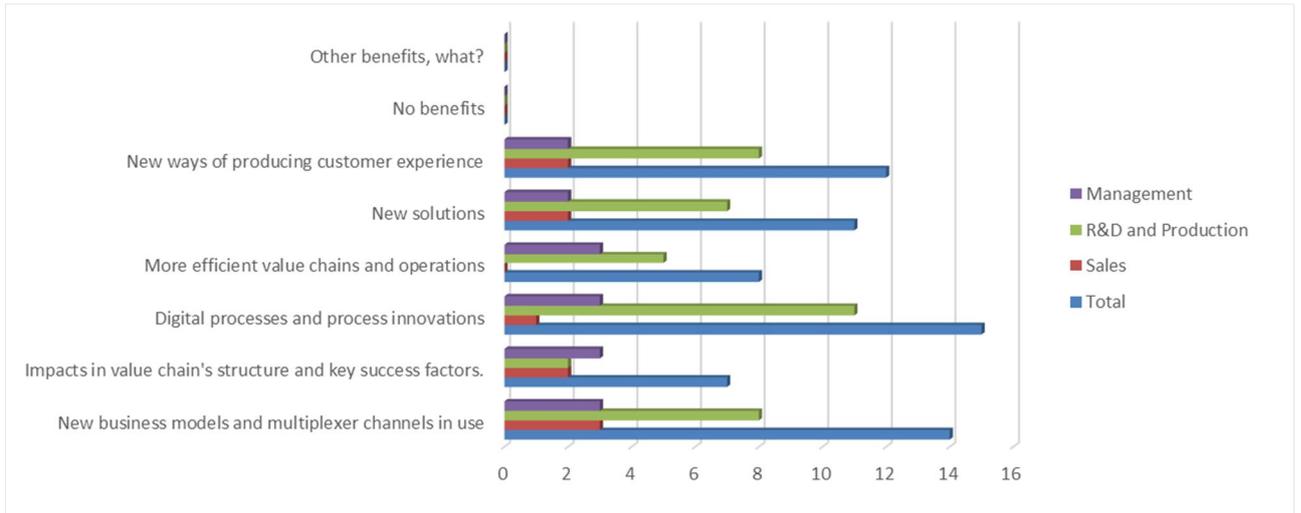


Chart 8. Benefits through digitalization.

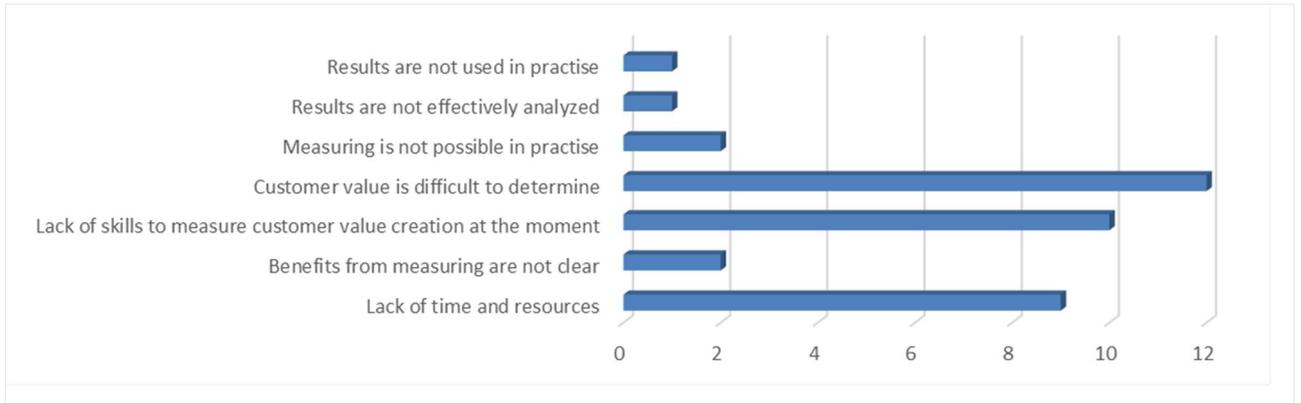


Chart 9. Difficulties related to measuring customer value creation.

APPENDIX 3. Theme interviews (in Finnish)

Taustatiedot:

- Lyhyesti mitä teet ja missä yksikössä toimit?

Digitalisaatio:

- Millaisella tasolla arvioisitte digitaalisuuden olevan yrityksessänne (ei ollenkaan, joitain, paljon) ja miten/missä digitaalisuus näkyy toiminnassanne: esimerkiksi asiakaskäyttäytymisessä (tilaukset ja ostot), prosesseissa (teknologiat, joita käytätte) ja markkinoissa (tarjottavat lopputuotteet ja palvelut)?

Asiakasarvon muodostuminen:

- Mistä asiakasarvo teidän tuotteessanne tai palvelussanne muodostuu?
 - Onko lopputuotteeseen ja –palveluun liittyvät ominaisuudet (esim. laatu, tuotanto, hinta, lisäinnovaatiot, uudet tuotteet) kaikista tärkeimmät luodessa asiakasarvoa?
 - Voidaanko laatua pitää itseisarvona?
 - Miten koette palveluihin liittyvät ominaisuudet (esim. hinta, toimitus, tukipalvelut) ja oman yrityksen yhteistyöhön asiakkaiden ja kumppaneiden kanssa liittyvät ominaisuudet (esim. verkostot, asiakassuhde, asiakasymmärrys, brändi) asiakasarvon luonnissa?
 - Koetaanko alihankkijat ja yhteistyöverkostot asiakasarvon luonnissa tärkeiksi? Miksi ei?

Asiakasviisaus:

- Miten paljon te panostatte asiakasarvon luontiin?
 - Mitkä ovat tärkeimmät osa-alueet ja elementit, joihin panostatte?
 - Miksi juuri näihin panostetaan? (Koska ne koetaan tärkeiksi?)
 - Panostetaanko lopputuotteen ja palvelun ominaisuuksiin, koska ”laatu on itseisarvo”, jota ilman ei pääse mukaan kilpailuun?
- Onko panostuksista ollut teille hyötyä?
 - Millaisia hyötyjä? (myynti nousut)
 - Kokisitteko, että panostamalla enemmän saavuttaisitte enemmän hyötyjä? Millaisia?

Mittaaminen:

- Millaisia kokemuksia organisaatiossanne on asiakasarvon mittaamiseen liittyen?
 - Onko asiakasarvoa mitattu?
 - Miten usein asiakasarvoa mitataan?
 - Kenen vastuulla mittaaminen on?
 - Mitkä ovat keskeisimmät syyt, miksi mittaaminen on ollut vähäistä/ei mitata? (esimerkkejä: Ajan/resurssien puute, Ei koeta mittaamisella olevan hyötyä, Ei koeta asiakasarvolla olevan

hyötyä, Ei osata tällä hetkellä mitata asiakasarvoa, Asiakas arvoa on vaikea määrittää, Mittaaminen ei onnistu käytännössä)

- Miten osaamista ja ymmärrystä voitaisiin kartuttaa?
- Mikä on asiakasarvon mittausjärjestelmän keskeisin käyttötarkoitus; mihin se on rakennettu ja suunniteltu?
- Missä rajapinnoissa / arvoketjun toimijoissa mitataan?
 - Onko asiakas mittaamisessa mukana?
 - Kokisitteko asiakasarvon luonnin mittaamisen tärkeäksi yrityksen ja alihankkijoiden rajapinnassa?
 - Miksi tässä rajapinnassa ei mitata/mitataan vain vähän?
- Mitä mitatulla tiedolla tehdään?
 - Miten tietoa analysoidaan?
 - Missä saatuja tuloksia hyödynnetään?
 - Muutetaanko toimintatapoja tulosten pohjalta?

Mittareista:

- Millaisilla mittareilla asiakasarvoa mitataan?
 - Millaista tietoa asiakasarvon muodostuksesta kerätään?
 - Miten mittarit on valittu?
 - Mitkä olemassa olevista asiakasarvoon liittyvistä mittareista ovat teille tärkeimpiä?
 - Onko saatu tieto hyödyllistä?
 - Millaista muuta tietoa mahdollisesti tarvitsisitte asiakkailta?
- Mittaateko yleisesti seuraaviin osa-alueisiin liittyviä toimintojanne ja millaisilla mittareilla:
 1. Lopputuotteen tai -palvelun laadulliset ominaisuudet
 2. Lopputuotteen tai -palvelun ominaisuudet tuotannossa
 3. Lisäinnovaatiot olemassa olevaan tuotteeseen tai palveluun
 4. Lopputuotteen tai -palvelun hinta
 5. Muiden palveluiden hinta
 6. T&K-toiminnot
 7. Toimituksiin liittyvät ominaisuudet
 8. Palvelun tasoon liittyvät ominaisuudet
 9. Yhteistyöverkostot
 10. Asiakassuhteeseen liittyvät ominaisuudet
 11. Ymmärrys asiakkaan toimintaympäristöstä ja kilpailutilanteesta
 12. Brändi

Tulevaisuuden muutokset:

- Onko alallanne tapahtumassa tulevien lähivuosien (3 vuotta) aikana suuria muutoksia digitalisaation vuoksi?
- Onko vielä jotain oleellista asiakasarvon ja digitalisaation kannalta, joka on jäänyt mainitsematta?