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Defining Satisfied Customer Experience through Improvement of a Company's Core Processes

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ABSTRACT:
The thesis characterizes customer experience by surveying employees' opinions about it in a company. Another important area in the study are core processes of the company which are chosen for examination due to their importance for customer satisfaction. The literature indicates that customer satisfaction is one of the key aspects in today's business world. It is also essential when developing quality culture in organizations. Processes are important for describing business operations in understandable forms, and they are used to improve customer experience.

The scope of the study is mainly concerning internal aspects of the company which means that employees' opinions are utilized mainly as sources. The studied area includes approximately over one thousand workers, so the study is assumed to reach quite many people. The study was carried out at a fairly high level because the company wanted it to be as useful as possible. This means that individual teams were not studied much but instead, the aim was to find out the consensus of employees in general. According to the company, some varying opinions have been noticeable regarding customer experience previously. The study handles three core processes of the company which also reflect the top level approach. The processes cover functions related to product development, sales and delivery.

The study uses mixed approaches which means that it sought to clarify both the current situation in terms of the customer experience, and the ways to improve the core processes in the future. Also, both qualitative and quantitative data collection methods were used. The main methods were interviews and an email survey. As a whole, ten interviews were conducted and 55 employees answered for the survey. The results were analysed with statistical methods, such as, bar charts and Kruskal-Wallis test. Literature sources provided support for the analysis, and they include, for example, text books related to quality management and process improvement.

One conclusion of the thesis is that employees had no consistency regarding customer experience, but the consistency varied quite much in different areas. The highest consensus existed in the opinions which were related to the current state of the company's customer experience. On the other hand, the lowest consistency existed in issues related to satisfaction measurement. Considering the core processes, the results indicate that two of the three core processes require more improvement, but the one process related to delivery is at laudable level already. In turn, the process related to research & development requires more customer input.

KEYWORDS: Customer satisfaction, process development, quality improvement

VAASAN YLIOPISTO
Tekniikan ja innovaatiojohtamisen yksikkö
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TIIVISTELMÄ:
Tutkielma pyrkii selvittämään asiakaskokemuksen ominaisuuksia tutkimalla työntekijöiden mielipiteitä eräässä yrityksessä. Toinen tärkeä osa tutkimusta ovat yrityksen ydinprosessit, jotka on valittu tutkittavaksi, koska ne sisältävät asiakaskokemukselle tärkeitä toimintoja. Kirjallisuus osoittaa, että asiakastyytyväisyys on yksi avaintekijöistä liiketoiminnassa nykyaikana. Se on myös välttämätöntä laatukulttuurin kehittämiseksi organisaatioissa. Prosessit ovat hyödyllisiä kuvaamaan liiketoimintaa ymmärrettävässä muodossa, ja niitä käytetään parantamaan asiakaskokemusta.

Tutkielma on rajattu pääosin koskemaan yrityksen sisäisiä piirteitä, eli lähteinä hyödynnetään lähinnä työntekijöiden mielipiteitä. Tutkittu alue sisältää noin tuhat työntekijää, joten tutkimuksen oletetaan koskettavan melko monia ihmisiä. Tutkimus toteutettiin varsin korkealla tasolla, koska yritys halusi tutkimuksen hyödyttävän sitä mahdollisimman laajalti. Tämä tarkoittaa esimerkiksi sitä, että yksittäisiä tiimejä ei tutkittu kovinkaan tarkasti. Sen sijaan tavoitteena oli selvittää työntekijöiden yksimielisyyttä yleisesti, koska yrityksen mukaan erimielisyyttä asiakaskokemuksen suhteen on ollut havaittavissa aiemmin. Tutkimuksessa käsitellään kolmea yhtiön ydinprosessia, jotka heijastavat myös ylemmän tason lähestymistapaa. Prosessit kattavat toimintoja liittyen tuotekehitykseen, myyntiin ja toimitukseen.

Tutkimus käyttää yhdistettyjä lähestymistapoja. Toisin sanoen tarkoituksena oli selvittää asiakaskokemuksen nykytilannetta ja ehdottaa parannuskeinoja ydinprosesseihin tulevaisuutta varten. Lisäksi tutkimusmetodeina hyödynnettiin laadullisia ja määrällisiä tiedonkeruumenetelmiä. Tärkeimpiä menetelmiä olivat haastattelut ja sähköpostikysely työntekijöille. Kokonaisuutena tehtiin kymmenen haastattelua ja 55 työntekijää vastasi kyselyyn. Tuloksia analysoitiin tilastollisilla menetelmillä, kuten pylväskaavioilla ja Kruskal-Wallis -testin avulla. Kirjallisuuslähteet tarjosivat tukea analyysille, ja niihin lukeutuu esimerkiksi laadunhallintaan ja prosessien parantamiseen liittyviä oppikirjoja.

Tutkimuksen johtopäätöksenä on, että työntekijöillä ei ollut yhteneväistä mielipidettä asiakaskokemuksen suhteen. Mielipiteet kuitenkin vaihtelivat melko paljon eri alueilla. Suurin yksimielisyys oli kysymyksissä, jotka liittyivät yrityksen asiakaskokemuksen nykytilaan. Toisaalta alhaisin yksimielisyys oli asiakastyytyväisyyden mittaamiseen liittyvissä asioissa. Ydinprosesseissa tulokset osoittavat, että kaksi kolmesta prosessista vaatii enemmän parannuksia, mutta toimitukseen liittyvän prosessin toiminnot ovat jo kiitettävällä tasolla. Toisaalta tutkimukseen ja tuotekehitykseen liittyvä prosessi vaatii enemmän asiakaslähtöisyyttä.

AVAINSANAT: Asiakastyytyväisyys, prosessien kehittäminen, laadun parantaminen

Foreword

One work is backwards again. This was probably the most extensive single project that I have done in my life so far. Overall, the implementation of this study went quite pleasantly, and I do not remember running into any major obstacles along the way. The schedule kept well throughout the work even though I had some doubts about it at times. I believe the Lord blessed me during this project and therefore, I managed to do it well. I want to dedicate the rest of this preface for thanking others.

First, I thank my supervisors from the university and company who provided support throughout the project. I want to also express my gratitude towards the company for providing great research topic that was also closely related to my studies. Also, my thanks to everyone who were involved in this study by providing data for it. I want to also thank every fellow student in the university for their help and cooperation during some challenging courses. Big thanks to every teacher and staff member of the university, as they helped me to achieve the knowledge that was required in this thesis. I also thank my loved ones for their continual support in my life.

Finally and most importantly, I want to thank and praise the almighty God. He has given me health, strength, faith and many other good things every day. Without Him, I could not have made this project. I want to end this preface to one of my favourite verses from the Bible which is: "*Everything is possible for one who believes.*" (Mark 9:23).

May God bless you.

Helsinki, April 2020
Jaakko Pentikäinen

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1 Introduction

Industrial revolution, which happened in the eighteenth and nineteenth centuries, caused many changes in customer satisfaction. American Henry Ford (1863–1947), who was the pioneer of assembly-line production, started to mass produce automobiles in the 1920s which lowered the cost of a single product. Also, decline in the importance of individual consumer realized because the number of customers expanded. This caused the scenario where U.S. companies held the dominant position over consumers until the 1980s. As foreign competition increased, Japanese companies, such as Toyota, started to reveal deficient quality of American products and therefore, customers also began to accentuate more quality when buying goods. (Allen, 2004: 1; Encyclopedia, 2020.)

This study aims to describe satisfied customer experience with the help of process development in a company. Satisfied customers are the main goal of the company's quality culture, and the definition for customer experience is currently quite comprehensive there. The purpose of this thesis is to specify the definition so that employees understand it in a common way and may utilize it better in practice. The study includes two research questions which are:

1. Do the employees have a common understanding regarding customer experience?
2. How should the main processes be improved to ensure superior customer experience?

The thesis is conducted in a certain section (also called factory in this thesis) of the company which includes four different smaller businesses. The explored section has approximately one thousand workers, and it is estimated that this study would affect all of them due to the satisfied customer experience description. Another master's thesis was also finished the year before this study where the current state of the factory's quality culture was defined. This study tries to provide some continuation for the results of the previous thesis.

The scope of this study is to mainly study the factory's internal perceptions regarding customer experience. The views of external customers are addressed to the extent that it is possible. Considering the second research question, the scope there is to mainly examine areas that are operating inside the core processes. This study includes three core processes, and they are (1) *development of products, services and technologies*, (2) *market and customer relationship management* and (3) *order fulfilment*. These processes are chosen because they impact the most on the customer experience according to the company. Sub-processes under the main processes are only handled in that case where it is necessary because the schedule is limited. The employees involved in the study are mostly specialists and managers at the factory, or sales persons working with the factory.

Different objectives are also determined for the study, and one of them is doing a literature review based on the current articles and books related to the topic. The literature includes, for example, text books related to process theory and customer satisfaction. The second objective is to collect data from the company's employees with interviews and surveys. Finally, the two main objectives are to describe answers to the research questions and deliver new improvement ideas considering the main processes. The finished version of the thesis is also presented for the company and for the university.

The research utilizes a mixed approach which means that both quantitative and qualitative research methods are applied (Timans et al., 2019: 212). Concerning the first research question, interviews with some managers are arranged to clarify the current situation with the satisfied customer definition. Also, a survey is implemented where five point Likert scale questions are used to see whether there exists consensus among the employees. The survey is used to study for both research questions. For the second research question, the organization's process databases are examined. They include information and process models concerning the factory. Some as-is to-be comparisons regarding the main processes are done by exploiting the information gathered from the interviews.

2 Theoretical review

This second chapter of the study describes theoretical aspects that are related to the topic. First, some issues related to customer experience are handled, such as, its current characteristics and how it is related to quality culture. Second, some features of process thinking are presented with examples of process diagrams and finally, process improvement mechanisms (e.g. Lean Six Sigma) are illustrated.

2.1 Characterizing customer satisfaction

Customer experience is emphasized by most companies, but not everyone fulfils it. Defining a satisfied customer may be hard because it depends on the nature of the interaction (e.g. selling a product or a service), and on the subjective needs of each customer. In this first part of the second chapter are illustrated some aspects that literature tells about customer satisfaction.

2.1.1 Current definitions and ways of measuring

In order to determine customer satisfaction, it is useful to first describe who or what are characterized as customers. This task may appear as quite challenging in business organizations because there are many parts and behavioural groups in the series of customers. Companies' databases about customers are often not perfect so this creates also difficulties when customers are not unambiguously defined throughout the organization. Therefore, it is important to explain whether the word "customer" refers to present, recent, potential, internal or external customers. For example, in a process driven approach customer is defined as the person or group that gets the work output. In this perspective customer is identified in three different categories: internal, external and self-unit customers. These categories are presented in Table 1 which also illustrates what specific attributes the categories have. (Edosomwan, 1996: 32; Grigoroudis & Siskos, 2010: 8–9.)

Table 1. Divergent customer groups (cf. Edosomwan, 1996: 32).

Category	Features
Internal customers	A person or a group inside a company receiving output from a certain process from other unit or a worker at the company.
External customers	Obtains the final result of the product or a service outside business organization. Are often purchasers of the final product or service that the organization produces.
Self-unit customers	Everyone is a customer for themselves. Measuring oneself, having a disciplined character and aiming for quality is recommended for all individuals.

Modern markets are labelled by a distribution of work force which means that there are many levels between original manufacturing and end consumption of a product or service. These levels may include, for example, several manufacturers, processors, wholesalers and stockers. Thus, customers are also often characterized to business-to-consumer (B2C) and business-to-business (B2B) customers. B2C customers are basically individual consumers who buy products or services, such as, a person buying a mobile phone from a phone dealer. On the other hand, B2B customers are usually organizations or other larger units which purchase goods or services to provide value for their organization and their customers. B2B customer is for example, a timber wholesaler, who buys wood from a forestry company and then sells the wood to hardware stores. When comparing B2B to B2C markets, the quantity of customers in B2B markets is usually substantially lower, but the purchases made are much larger. (Brennan et al., 2011: 11; Kleinaltenkamp et al., 2015: 129.)

After defining customer groups, we may continue to the explanation of satisfaction. Customer satisfaction is described as a customer's perception of gratification or displeasure about a certain product's or service's alleged performance to the customer's assump-

tions. For example, if the performance or encounter undercuts the assumptions, the customer is often disappointed. If the outcome is according to the expectations, then the customer is satisfied. Elated and greatly satisfied customers are acquired in a situation where the assumptions are surpassed. Customer expectations are influenced by various things, containing devotion that the customer has for a certain brand. If an organization aims to increase customer satisfaction, it should also consider how its performance would change. For example, trying to give everything to the customers with bargain prices may not create sustainability in the business. (see Kotler & Keller, 2016: 80–81; ASQ, 2020.)

A study conducted in 2019 indicates that customer satisfaction is the most prominent measure for marketing decisions globally. The analysis included more than 16 countries, such as, Australia, U.S, Russia, China and U.K, and over 4,000 marketing schemes from around 1,600 companies. The results show that satisfaction is the most utilized measure in eight of the 16 countries that were included in the study. According to the research, the second most prominent metric is ROI index (Return On Investment) which indicates how company's profits are related to its investments. (University of Technology Sydney, 2019.)

Measurement of customer satisfaction is often implemented in unified programs within business organizations which include also other metrics than only customer satisfaction. These other measures are, for example, customer loyalty and value, and they are used to predict overall performance of a business organization better. Only one indicator may not give enough reliable results so multivariate analyses are often implemented. In Figure 1 is presented one way of implementing a customer satisfaction measurement system. In the first phase are discussed the reasons of doing the program which may include, for example, dissatisfied customers. Second phase covers the implementation of research design that describes things, such as, data collection methods and the magnitude of the research. In the third phase are created questionnaires by which the data is gathered from customers. After that, the data is collected and analysed, for example, with

statistical tools. Finally, the customer satisfaction is improved based on the analysis. Arrows indicate that the process is repeated when a need for another improvement appears, and from every step is also possible to go back to complement the previous step. (Grigoroudis & Siskos, 2010: 12; Birkett, 2019.)

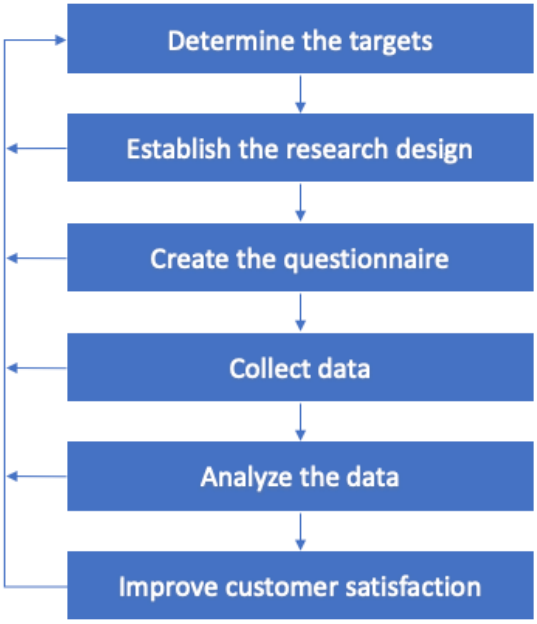


Figure 1. Executing a satisfaction measurement program (adapted from Birkett, 2019).

One practical example of a satisfaction measurement is NPS (Net Promoter Score) which purpose is to survey customer experience and therefore, anticipate business development. In NPS is used a scale from 0 to 10 to show how likely customers would recommend others to use a certain company's services or products. Often, a NPS survey is conducted which participants are grouped as follows:

- Promoters (score 9–10) are the ones who would strongly recommend the business to others, and they are greatly satisfied with the company's offerings.
- Passives (score 7–8) are satisfied, but they do not have robust relationship with the company and therefore, they may quite easily buy elsewhere.
- Detractors (score 0–6) are unsatisfied customers who may spread negative opinions about the business and therefore, damage its brand. (Satmetrix, 2019.)

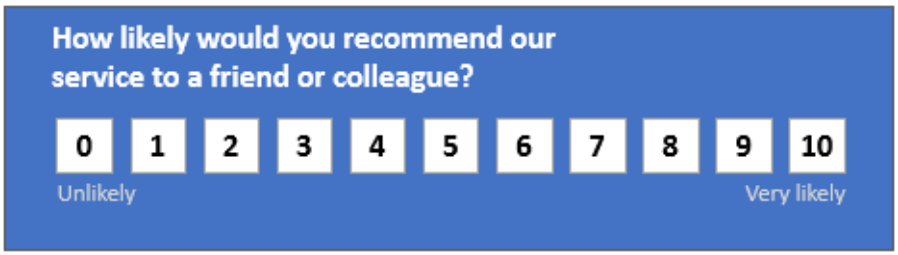
2.1.2 Transitions and opportunities in digitalisation

Digitalization is a common word used to describe the digital revolution of economy and culture. It depicts the change from an industrial time represented by analogue technologies to a time of shared knowledge portrayed by digital technologies. Customers play an important role in driving this change because one of the main reasons for organizations to start their digital transformation programs is to increase customer satisfaction. A study conducted in MIT also indicates that organizations, which have adopted new digital technologies, are 26 % more profitable than their rivals. (MIT, 2013; Lund, 2020; Innolytics, 2020.)

New technologies have changed customer manners substantially. Mobile applications, machine learning and automation enable a situation where customers can get the necessary information about what they want at any given time. Therefore, many customers emphasize digital services as a decisive element when buying something. In B2B companies this means, for example, that social selling should partly replace cold calling. Customers are already utilizing social media to a large extent so therefore, B2B sales teams should also contact their customers through different social channels. B2B selling requires often high expertise due to some large and complex sales projects, and information about the ongoing projects is also shareable to customers via social media. In turn, B2B marketing teams should exploit more online marketing activities. Customers expect now highly aimed ads which are only achievable by employing data-driven marketing policy. For example, search engine marketing and account-based marketing provide opportunities to implement highly personalized marketing campaigns. (see Lund, 2020.)

Different customer satisfaction measurement tools are also utilizable with the help of digital technologies. In the previous part of this text is handled NPS measurement method which is dividable to relationship and transactional NPS. Relationship NPS is often implemented first because it measures the overall experience of a customer with a company. Transactional NPS surveys are then made based on the relationship surveys'

results. Transactional reviews study the experience that the customer has in a specific interaction with the company. For example, when a deal is completed in B2B sales interaction, salesperson may then send an inquiry including one question about the buying experience to the customer. He or she may then answer to the question by using the NPS scale which gives useful data to the sales department to develop their customer experience. Transactional inquiry is recommended to send as soon as possible after the interaction with the customer, but it is not useful to transmit them too often. In a situation where customer sends three messages to a company's customer service in one day, a transactional review after every interaction may not enhance satisfaction. In Picture 1 is illustrated a simple transactional NPS survey that is often sent through email or mobile application. The picture shows the NPS scale (0–10) from which the customer may choose a number indicating his or her satisfaction. (Reni, 2016; Gupta, 2020.)



Picture 1. Example of a transactional NPS question.

Digitalisation creates also challenges when utilizing it to develop customer experience. For example, sometimes organizations cannot derive the information they need to improve customer interactions because too many different technical applications are utilized at the same time. Technical solutions are often optimized to a specific purpose which produces challenges when trying to create system wide solution for a problem. Many solutions lead to a fragmented data architecture and therefore, they increase ambiguity about customer satisfaction. Digitalisation allows to gather huge amounts of data from the customers, but acquiring data from fragmented data architecture is demanding. Organizations utilize to some extent networking and software standards across their units, but there are still situations where each unit uses their own tools and data standards. (cf. Bolton et al., 2018: 785–786.)

2.1.3 Satisfaction as the aim of quality

Quality signifies the proficiency of an entity to satisfy stated and expected needs which means that a quality thing will work appropriately and is applicable to its planned purpose. Quality is often illustrated with statements such as “fitness for use”, “conformance for requirements” or “customer satisfaction”. It has also more sensible explanations, such as, adequacy or superiority of something. As organizations want to accomplish excellence in quality, they should consider three levels of a product’s or service’s cycle related to customer experience. These levels are:

- description of requirements
- the product architecture and conformance to needs
- the lifetime support of a product. (Kiran, 2016: 1–2.)

Total Quality Management (TQM) is a system which consists of three elements. The term *total* means that it is an organization wide concept, and the term *quality* refers to the features that were stated in the previous paragraph. The word *management* concerns management systems, leaders and employees which emphasize quality on their everyday work. The key element of TQM is customer satisfaction which is achieved by constantly acquiring feedback from employees and customers. The feedback helps to determine how products and services should advance so that they are more competitive. TQM does not concentrate only on one unit of the company, but it requires that every departments improves continually their offerings. (Kiran, 2016: 6; White, 2019.)

One of the most well-known quality researchers of the twentieth century, Joseph M. Juran, indicated in his book that quality comes from meeting customer needs with a product’s characteristics, and this results as customer satisfaction. In this definition, the aim is to provide high quality experiences to customers which means that some investments are often required from the company. Therefore, higher quality costs more for the company that is providing the product. Juran indicates that this problem is solvable when using the freedom from deficiencies approach. This means, for example, that re-

work, field failures and error rates of products and services are reduced which then lowers costs in the company. Juran mentions also that even though there exists no dissatisfaction regarding a certain product, it does not mean that the product is marketable. Some competitor may still provide better customer experience. (see Juran & Godfrey, 1999: 6–8.)

Another renowned quality researcher from the twentieth century, William E. Deming, regarded also customers' wants as the crucial part of quality. However, he did not regard customer needs as a self-evident concept. In his writings he mentions, for example, that customers have hardly any expectations because they are not the ones developing new products or services. Instead, the customer often knows only what to expect by looking what the market has to offer. For example, few customers expected that electric lights or telephones would exist before they entered the markets. These ideas came mainly from the manufacturers and not from the customers. However, Deming insists that this does not mean that the customer is not important. Instead, he believes that customers are essential to keep the business running and they give purpose to the company. Therefore, the manufacturer has to consider what the customer's expectations are in the future. When the producer has an idea about the needs, then he/she should convince customers about it. (Orsini & Deming, 2013: 49.)

Quality standards also recognize customer satisfaction as an essential element in business organizations. International Standardization Organisation's standard ISO 9001:2015 declares that an organization's top management should emphasize leadership and engagement to "customer focus". According to the standard, customer's wants and needs are the most important things when creating customer satisfaction. Therefore, the top management should advocate the whole organization to focus on these things. This should lead to the situation where customer focus is an explicit testimony for the company and not only a self-evident statement. For example, formal processes are then designed so that they follow fundamental customer needs including legal issues (safety etc.) and feedback about customer's expectations. (Jarvis & Palmes, 2015: 76.)

2.2 Aspects of process thinking

When offering a product or service to customers, it is often required to utilize processes. This second part of the theoretical chapter handles process thinking by first, giving some general definitions about processes and then, providing examples of how processes are used in corporations. In the final part are presented process management methods, such as, diagrams and also some measurement methods.

2.2.1 Exemplifying processes

A process includes a set of complementary activities which purpose is to convert inputs into outputs. To put it bluntly, it takes you from the current state to the desired outcome. An input in process thinking is described as the element that already exists when starting a process step or activity. Intangible inputs are, for example, employee's expertise, time and customer expectations. In turn, materialistic inputs are physical items, such as, a manufacturing part or a product. An output is the outcome of the process which is usually delivered to a customer. For example, in a book selling process the book that is sold to the customer is the output of the process. The basic process input-output model is presented in Figure 2. Here the feedback arrow indicates that after the implementation of the process, it is recommended to do some review about the performance of the process. This helps to improve the process activities before completing them again. (see Berman, 2014: 12.)

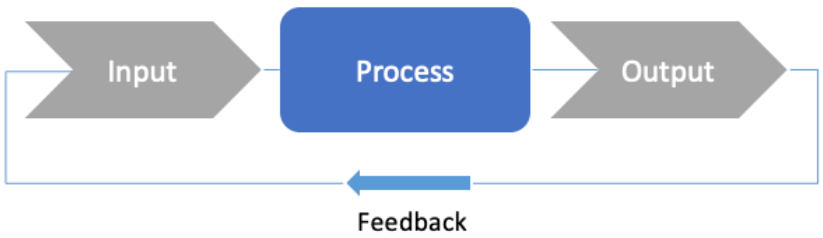


Figure 2. Simple input-output graphic of a process (inspired by Berman, 2014: 12).

The adoption of different process levels, and the concept of process hierarchy are important aspects in process thinking. Process levels identify where the process is located in hierarchy and therefore, they imply how significant the process is. Usually three levels are utilized that are high-level, mid-level and specific level. In Figure 3 is shown an abstract scheme about process stages. The value chain indicates how every process is linked to each other. Here high-level processes are concerned with architectural areas, and they are also dividable into three sub-levels. For example, in a university an example of a high-level process is the organization-wide planning of the university's strategy. Next is mid-level where red dashed line highlights that most of the process remodelling and advancement projects are done at this stage. In the university, a mid-level process could be, for example, the completion of a study program in a certain unit. The final level is specific level which shows exact assignments and actions that are done in different processes. At this level could be located a procedure for building a particular course in the university. (Harmon, 2019: 180–181.)

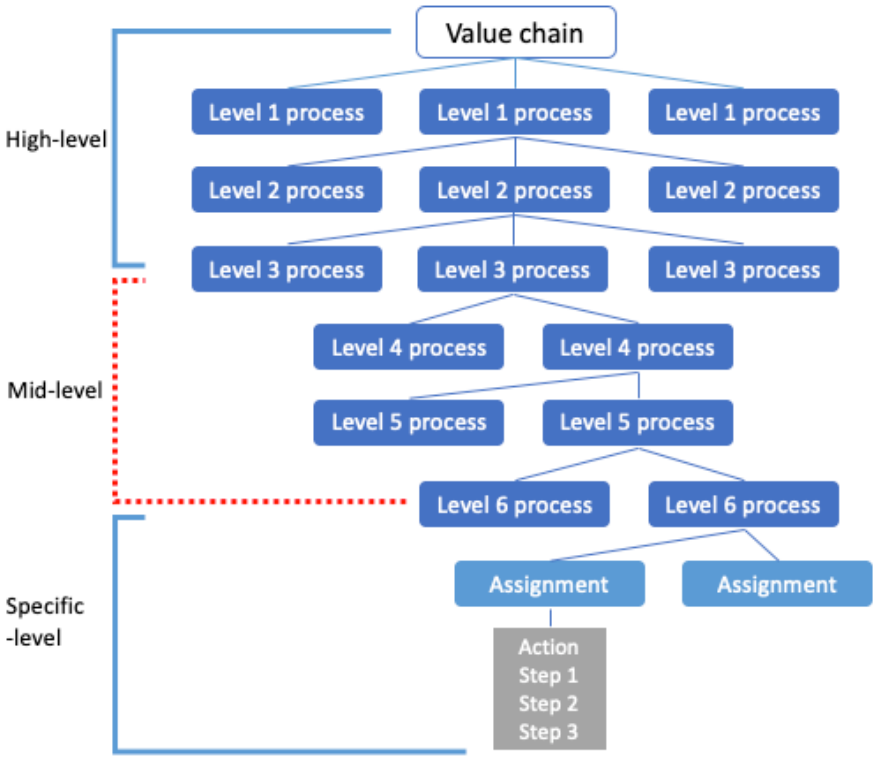


Figure 3. Different process levels (adapted from Harmon, 2019: 180).

Processes play an important role in creating the culture of quality in different environments. As previously stated in this thesis, customer is usually located at the output of a process and therefore, considering customer satisfaction is beneficial when utilizing processes. Optimized process usually advances some of the following:

- time
- quality
- expenses
- adaptability.

Achieving these attributes helps to create customer satisfaction. However, trying to optimize all of these concurrently may prove challenging, so it is recommendable to concentrate on one aspect at a time. One way of optimization is reducing the number of inputs and outputs in a process. High amount of inputs and outputs add organizational ramification and therefore, increase the risk of misunderstanding and errors. For example, in a selling process low amount of inputs (e.g. suppliers) help to deliver the product to a customer in time. (Krogstie, 2016: 75 and 78.)

2.2.2 Utilizing processes in business organizations

Leaders, from team managers to CEOs, are accountable for the performance of the continuous functions in their business organizations. If leaders want to understand the current situation and determine aims for the future, it is recommendable for them to utilize processes. Processes help to illustrate what actions are going on and how the organizations are performing. Many leaders use financial and strategy approaches for performance determination, but these views lack an overall view. A process approach describes how every part of the organization is linked to each other and thus, provides a great opportunity to contemplate how value is delivered to customers from different parts of the company. One good example of a process in a company is delivery process of products where the input is a manufactured product, and output is the delivered product to a customer. (see Harmon, 2019: 125–126.)

Processes give also support in business plans which purpose is to link a company's business philosophy to its activities. Emphasizing practical activities rather than abstract ideas give company a chance to differentiate its business which also clarifies the roles of the company's units. In a study, which was conducted in 2001, was built a framework which includes five organizational elements: employee executives, process adaptation, customer orientation, customer satisfaction and business outcome. Here process adaptation plays a central role by linking the management's ideas to customer experience. Figure 4 shows the connection in more detail below, and it also points out that process adaptation helps to deliver executives' ideas. This then leads to increased customer orientation and customer satisfaction. Finally, this should also enhance revenues that are part of business outcome. (Witell et al., 2001: 9–10.)

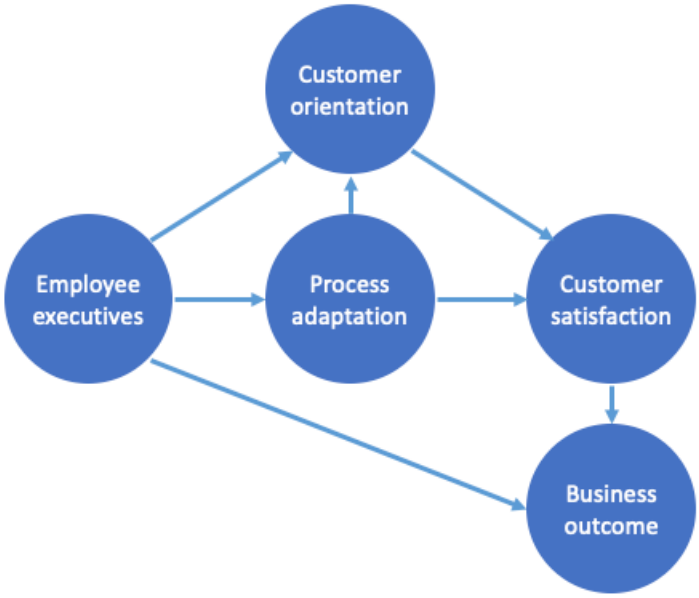


Figure 4. Role of process adaptation in business corporations (inspired by Witell et al., 2001: 10).

Problems with business processes will often reduce the company's ability to perform profitably. For example, insufficient management of processes and absence of organized approach will lead to unnecessary functions and add incompetence. A study conducted in 2018 revealed that a significant amount of its respondents believed that management of business processes is substantial for a company's success. However, the results of the

study show that many companies lack this systematic approach to processes. This also lowers employees' motivation to make recommendations about process improvements. One problem is also the insufficient communication between senior and middle management which generates misunderstandings in organizations. This leads to a situation where employees' potential is not fully utilized because the higher management is not aware of their skills. (Haračić et al., 2018: 40–41.)

2.2.3 Modelling processes

Processes are illustrated in many different ways, but the models usually have one thing in common which is that they have a starting and end point between which various functions take place. So far, we have handled processes on a general level as "black boxes", but on this part of the text we look inside processes and see what specific functions are implemented in there. Next, two different process modelling techniques are described which are SIPOC and swim lane diagram. (Harmon, 2019: 203.)

SIPOC comes from words suppliers, inputs, processes, outputs and customers. SIPOC is a high-level process map because it shows the main general steps. SIPOC describes, for example, the scope and the scale of the process. In SIPOC suppliers (S) are the ones that are offering the input (I), and customers (C) are the ones who receive the output (O) of the process. A convenient way to start mapping SIPOC is to begin from defining the customer's expectations. (Taghizadegan, 2013: 148; Simon, 2020.)

Figure 5 presents a simple SIPOC model where the whole process of creating a wooden chair, and delivering it to a customer, is described. Here suppliers include, for example, supplier of raw materials and employees who manufacture the chair. The input section includes the raw materials and also worker's skills. The process part shows the five basic steps that are required to make a chair for customers. In the output part is listed, of course, the end product which is the chair. Finally, in the customers part is listed receivers of the end product who may be, for example, individual consumers or furniture shops. (Mulder, 2019.)

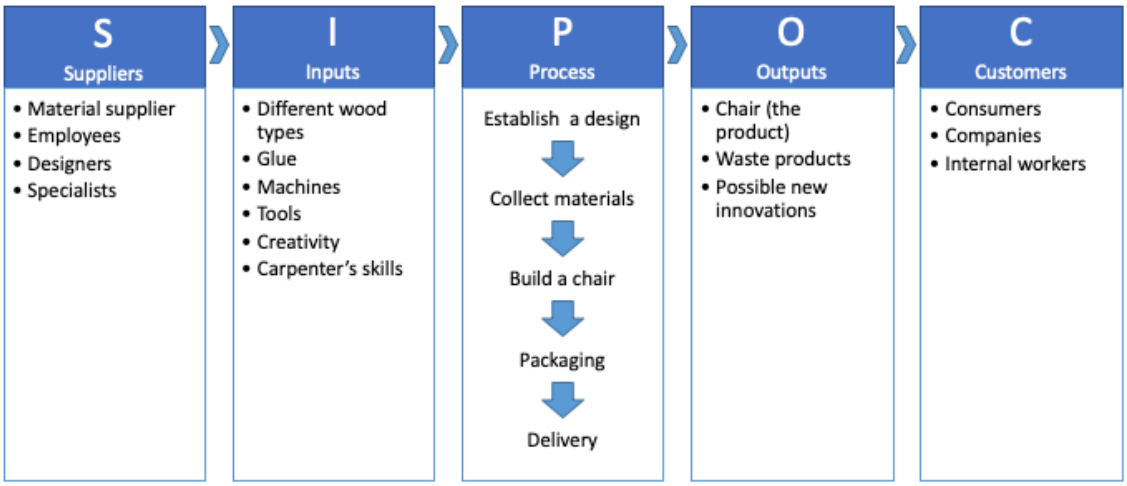


Figure 5. Example of a simple SIPOC diagram (adapted from Mulder, 2019).

Swim lane diagrams resemble largely process flow charts which are used to illustrate different tasks in a process. The characteristic that differentiates a swim lane chart from a basic flow chart is the lanes that depict the different persons, units etc. doing the tasks. Because the diagram resembles a swimming pool with different lanes for each swimmer, it is called a swim lane diagram. The diagrams are especially convenient when there is a need to describe information flows in business organizations. For example, order delivery, marketing and product development processes usually include separate entities that are not working in linear order and therefore, swim lane diagrams are often used to illustrate them. (Roser, 2015; SmartDraw, 2020.)

Figure 6 describes an example of a swim lane diagram that illustrates the process of receiving goods to a warehouse. The oval symbol illustrates here start and end point of a certain event, and rectangles are showing different tasks in the process. The diamond shape means an option or a question in a certain phase where alternatives to proceed are usually yes or no. The figure is then interpreted as follows: when the receiving notices that goods are not fitting to order, then the purchasing informs the supplier about rejection and thus, the delivery is failed. If the goods are fitting to order, then quality assurance performs quality check on them and then either accepts the delivery or rejects it. (cf. VisualParadigm, 2019.)

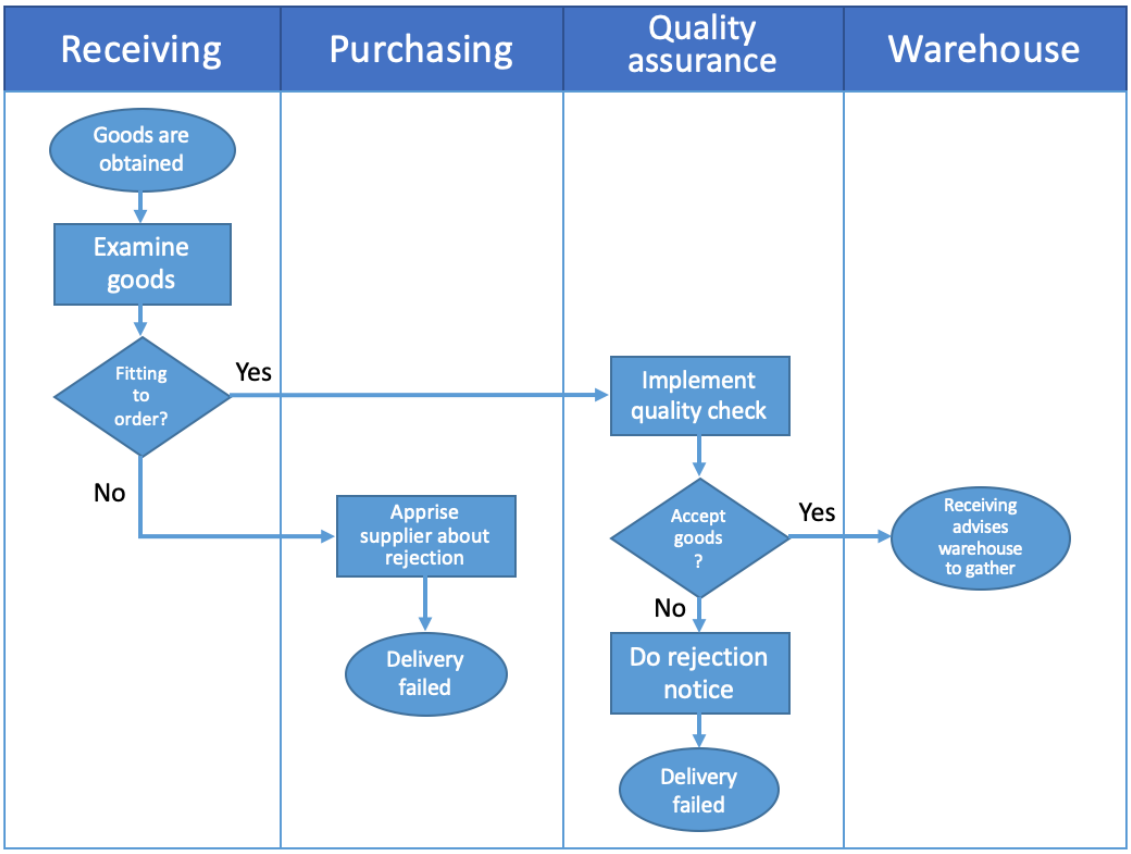


Figure 6. Illustration of a basic swim lane diagram (inspired by VisualParadigm, 2019).

Process modelling has some problems which occur, for example, due to insufficient design of the models or incompetent process model management. Also, the nature of the most process models is quite linear and sequential, and this type of illustration is not purposeful for every activity in an organization. For example, in the SIPOC model it is sometimes hard to determine the necessary inputs and outputs when they do not have linear connection through the process. On the other hand, in the swim lane diagram it is difficult to describe whether some activities are done many times or only once. Also, parallel tasks are problematic to illustrate reasonably because they will increase the complexity of the diagram. Different process activities have often some value hierarchy and time limit, and specifying these features with the swim lane diagram produces also challenges. (Harmon, 2019: 204–206.)

2.3 Process improvement techniques

As processes are utilized, process improvement is also needed. Even though there is a great situation in a corporation, it does not mean that the situation will last in the future. Therefore, it is advantageous to acquire knowledge about enhancing processes. This third part of the literature review shows different process improvement methods emphasizing mainly on prominent Lean Six Sigma and other well-known methods, such as, PDCA cycle and 5S. First, we define what Lean Six Sigma is and what are the main ideas behind it and second, we study what other tools are utilized in process improvement.

2.3.1 Lean Six Sigma

Lean Six Sigma (LSS) unites two significant organizational improvement approaches, Lean and Six Sigma, that are aimed to produce quality in organizational operations. The concept of Lean has Its roots at Toyota from where U.S. manufacturers accepted principles, such as, waste reduction in the 1980s. At this point, waste implies things that are not adding value in business processes, and these are, for example, overproduction, unused skills and rework. On the other hand, the Six Sigma concept concentrates more on reducing defects and variation in manufacturing processes, and the inspiration for it came also from Japanese quality models, such as, Kaizen. Six Sigma was first presented by Motorola in the 1980s, and in 2002 Michael George and Robert Lawrence jr. combined it with Lean ideology in their book “Lean Six Sigma: Combining Six Sigma with Lean Speed”. (Kenton, 2018; Rastogi, 2018.)

Six Sigma’s process improvement method is called DMAIC, and it is also utilized in LSS. The acronym comes from the words define, measure, analyse, improve and control that indicate different stages of process improvement. DMAIC is a data-driven approach that focuses mostly on identifying problems in processes and solving them with improvements. Next, the different stages of the model are presented in more detail. (see Kenton, 2018.)

In DMAIC, the define phase is the starting point and therefore, it is important to nail this phase because it will affect to the performance of the whole method. The first stage includes features and tools, such as:

- Project document
- List of performances
- Stakeholder analysis
- Voice of customer (VOC) and critical to quality (CTQ) analyses
- SIPOC

In the define phase are also determined the Y (the area which needs an improvement) and Xs (factors that are contributing to the Y). Y is therefore a function of one or more Xs. For example, when going to a doctor the factors (Xs) affecting to the waiting time are insurance type, physician precision and accessibility to a medical room. Here the CTQ factor (Y) is the length of the patient waiting time, and function is now the relationship between Xs and Y. (Taghizadegan, 2013: 8; Gitlow et al., 2015: 273.)

Next phases are measure and analyse which are closely linked to each other. The measure phase focuses mainly on statistical studying and root cause analysis. The aim is to collect data as much as needed so that the current state of the CTQ is clearly understood. It is possible to gather data with various methods, such as, manual interviews/questionnaires or utilizing existing databases. Pareto chart and histogram are useful statistical tools to identify the vital few things causing problems with CTQ in the measure phase. (Taghizadegan, 2013: 9–10; Gitlow et al., 2015: 312.)

The analyze phase is determined to come after the measure phase, but it often partially merges to the measure phase in process improvement projects. However, the analysing takes usually the most time because all available statistical tools are used here to identify the appropriate solution for the problem. Some deliverables of the phase are accurate diagram of the process and failure mode and effects analysis (FMEA) to reduce the number of factors causing CTQ problems. Also, some improvement ideas are already developed in this phase. (Taghizadegan, 2013: 11; Gitlow et al., 2015: 333.)

The fourth stage in DMAIC is the improve phase which purpose is to suggest different ways of doing things in the problematic areas. Also, the amount of the problematic Xs are reduced so that the process becomes simpler and has less variation. In the improve phase is implemented, for example, a new flowchart for the enhanced process which helps the persons working with the process to notify the changes. A pilot test is also carried out to see whether the improvements perform as desired. The test results should show that the sources of waste are removed and therefore, optimized process flow is ensured. (Taghizadegan, 2013: 11; Gitlow et al., 2015: 357.)

The final phase is control which aims to sustain the improvements of the process. This is done by ensuring that the newly designed Xs will stay at their locations, and that they are immune for environmental changes. In the control phase are standardized the changes using, for example, ISO 9001:2015 quality standard as a source. Also, a control plan for the process owner is developed and a review of the project's success is conducted. In Figure 7 are summarized all DMAIC steps in their order of execution (starting from define). The figure shows that DMAIC is a continuous cycle which is implemented every time when a new process problem appears. (Taghizadegan, 2013: 11; Gitlow et al., 2015: 375.)

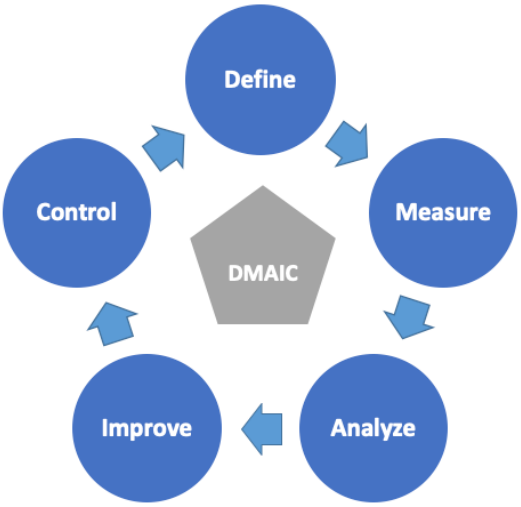


Figure 7. Five different phases of DMAIC.

2.3.2 Other enhancement mechanisms

This section of the text expresses more process improvement approaches, such as, PDCA model and 5S. First, the main ideas of PDCA are characterized and after that, the 5S model is explained.

PDCA cycle, where the acronym comes from words plan, do, check and act, includes four different steps to develop quality and processes in business organizations. The model was first established by Edward Deming, a well-known quality researcher from the twentieth century and therefore, it is often called also as the Deming cycle. PDCA is usually utilized as a continuous improvement tool due to its repetitive nature and also for discovering new ways of doing things to avoid problems in organizations. The model is exploitable for daily management in occasions, such as, maintaining single person's routines or structuring team meetings. Next, we will look more deeply into the different phases of the model. (Kiran, 2016: 9–11.)

The first phase in PDCA is plan which is related to the define phase in DMAIC. At this stage is diagnosed the nature of the problem while notifying the outcome expectations and quality demands of the process. Also, the improvement change is planned with the help of data analysis. In the next step, which is do, is realized the designed change plan and carried out the process to produce the outcome which is often a product or a service. The third step is check which includes measuring about the effectiveness of the change. If the adjustment is inoperative, then some analysis is conducted to determine whether redesign of the change is required. The knowledge acquired at the check phase is utilized in the next stage. In the final step, which is act, is put into practice the redesign that is acquired in the previous step. Also, the locations of the rehabilitated changes are determined here so that the process is optimally improved. If the cycle did not perform as it should have, then at the act phase is determined, whether it is applied again with a different plan. Figure 8 represents the different steps of the PDCA wheel, and from there is interpretable the order of the stages. (Kiran, 2016: 9–10; ASQ, 2019.)

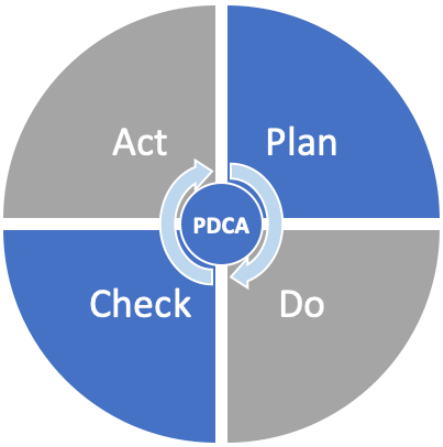


Figure 8. PDCA cycle illustrated (adapted from ASQ, 2019).

5S is a model which purpose is to help keep areas in order in organizations. 5S is not exactly a process improvement tool, but it assists in process improvement projects. It creates clean environments to the areas where processes are utilized. The noun 5S comes from five Japanese words that are seiri, seiton, seiso, seiketsu and shitsuke. In English they mean sort, set in order, shine, standardize and sustain, and each word describes a step in the method. The first stage of 5S, sort, includes sorting out all the materials, tools and equipment in a work area to notify whether they are useful. The second phase concentrates on putting the useful stuff in a logical order so that they are near the workers and ergonomically placed. The third step, shine, is mostly about cleaning the work place, for example, with sweeping and mopping. In the fourth step are created standards so that the advancements made in the previous steps will remain. The final phase, sustain, concentrates on maintaining the operations which help to keep 5S part of the organizational culture continuously. In Figure 9 are summarized the different steps of 5S, and it also shows that in which order the steps are made. (cf. 5SToday, 2019.)

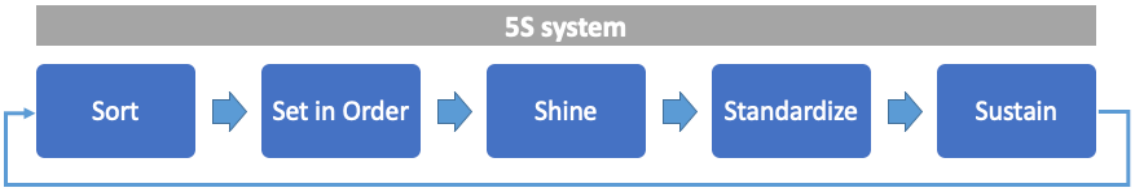


Figure 9. Various stages of 5S method.

2.4 Summary of the literature review

This theoretical chapter consists of three different parts. First, are described aspects of satisfied customer experience. Current literature indicates that satisfaction is achievable by meeting the customer expectations. Digitalization has also created new ways of measuring customer experience frequently, such as, sending surveys via email. Recognized quality researchers consider customer satisfaction as an essential feature in businesses and therefore, it is recorded in the approved quality standard ISO 9001:2015.

Second part describes process thinking by showing examples of using processes in corporations. Also, some process modelling techniques are described. Process is basically defined as a series of activities which occur between the process input and output. Processes are generally categorized according to their level of accuracy in organizations. Executives in business organizations use processes to help them understand the current situation of the corporation's performance and where to target in the future. Studies have also shown that processes play an important role in creating customer satisfaction. Convenient methods for illustrating processes are SIPOC model and swim lane diagram that exemplify linear processes well.

The final part of the theoretical chapter concentrates on different process improvement approaches. This section focuses mostly on Lean Six Sigma which combines two successful methods, Lean and Six Sigma. Lean is about continuous improvement in organizations, and Six Sigma concentrates on reducing defects in products or services. The central method of LSS is DMAIC which is a step-by-step process advancement approach. DMAIC's main idea is to find the root cause for the problem and remove it. Other improvement techniques include PDCA cycle and 5S scheme, where the cycle focuses more on improving ongoing activities. On the other hand, the scheme is about maintaining things in order in corporations.

3 Methods

In this third chapter of the study are outlined the research methods which are utilized to acquire answers for the research questions presented in the introduction. The research includes two main types of research problems which are nomothetical (how things are now) and normative (how things should be) (Helo et al., 2019: 14). First, the nomothetical problem is to clarify if workers of the company have similar opinions about customer experience. Second, the normative problem is to develop the company's main processes so that superior customer experience is assured in the future.

3.1 Ways to collect data

The first problem is studied by collecting data with interviews and a survey. Six different interviews were held mostly with people who know something about customer experience (e.g. sales people and managers) in the company. Also, six different questions were asked from the interviewees, and the questions are shown in Appendix 2 at the end of the thesis. The survey was sent via email to all managers and sales people of the corporation's certain section, and it was designed with a Webropol tool. It included ten different questions related to customer experience. An example of the survey's structure is shown in Appendix 1 at the end of the thesis.

The other problem is examined by interviewing the workers that are responsible for the core processes' functionalities or are working in the processes. Four different interviews were conducted, and the interviewees were working, for example, in research & development, sales and order fulfilment. The interview questions related to the second research question are presented in Appendix 2 at the end of the thesis. The interviews helped to explain whether the processes are obeyed, and what are the critical areas for development. The development of customer experience is also kept in mind when examining this problem. The Webropol survey included also five different questions related to the second research question.

3.2 Data set attributes

Data set will have both qualitative and quantitative characteristics. Interviews will produce qualitative data as they will handle larger concepts regarding customer experience. For example, the selling process is more reasonable to handle with interviews in detail than with simple survey questions because it includes many steps and activities. Quantitative questions are used to clarify the workers' opinions about the performance of the organization regarding customer experience and the core processes.

Likert scale questions are used in the survey and also, some open questions. In this study the Likert scale questions include five different options which point out how much the respondent agrees or disagrees with a certain statement, such as, "our company is customer oriented", or how well a certain area is performing (e.g. excellently, very well etc.). Quantitative data is acquired as the answers are grouped so that the amount of responses in different options are calculated. Also, some qualitative questions are used with the Likert questions to give more information on a certain opinion. In Appendix 1 at the end of the thesis are shown examples of questions that were used in the survey.

In total, 55 respondents answered to the survey from the total amount of 255 employees. The sample size is then approximately 20 % of the population size which is statistically not so significant. According to a sample size calculator provided by Creative Research Systems (2012), a better sample size would have been 155 samples with 95 % confidence level and confidence interval being 5 samples. As the sample size is now 55, the confidence interval is approximately 12 samples with 95 % confidence level. However, the survey produced also qualitative data which supports the results to a significant degree.

3.3 Analysing the data

The problem related to the first research question is analysed by comparing different answers acquired with the interviews and the survey to notify whether there are significant differences in opinions. For the survey questions, bar charts are mainly utilized as

analysing method since they are easy to interpret visually. Mathematical methods, such as Kruskal-Wallis test, are also utilized to some extent to test the consensus in opinions. The results are then supported with the qualitative data.

Considering the second problem, the interview and the survey answers are utilized to sort out development areas in the core processes. This problem is examined mostly with qualitative methods, although the survey produced some quantitative data about the current situation in the core processes. As-is to-be collation is exploited as one analysing method, and the four interviews are utilized mostly as sources in the comparisons. Analysis is also used to point out what CTQ factors the processes have regarding customer satisfaction.

In Figure 10 are combined the research methods which are utilized in this study. At the top are the two research questions, and the figure shows that emphasis is on the first question because it has more interviews and survey questions. The figure illustrates also that quantitative data is collected with the same survey for both research questions. The dotted lines indicate that some survey questions are also qualitative, and they are used to support the gathering of qualitative data which mainly comes from interviews.

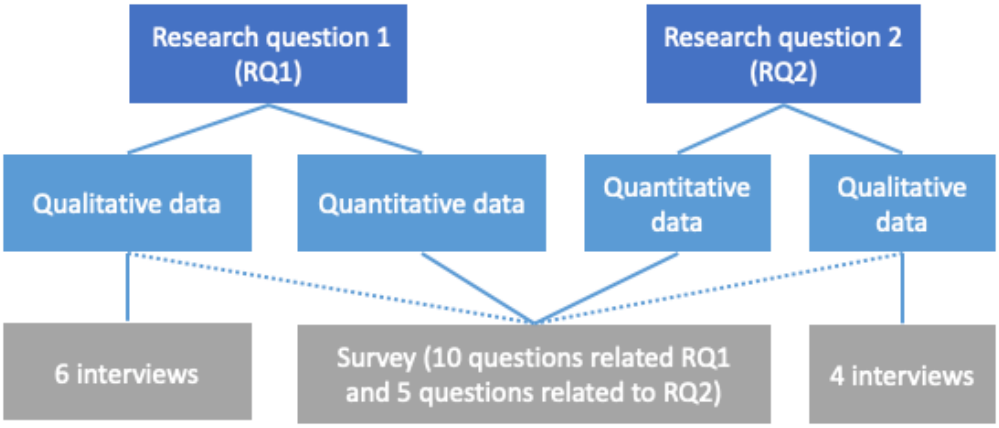


Figure 10. Summary diagram of the research methods.

4 Results

This fourth chapter of the study explains the findings that the gathered data provided. First, the findings related to customer experience are described and next, the current situation with the processes is identified. Also, improvement areas and methods are prescribed for the core processes. However, customer experience is considered in all stages of the analysis since it is the main focus of this thesis.

4.1 Examination of customer experience

This first part of the fourth chapter surveys opinions about customer satisfaction in the company, and the purpose of this part is to answer to the first research question. First, the conformity of the employees' thoughts is investigated and after that, are handled the factors that employees think will contribute to customer satisfaction in more detail. Third, current situation in the company is defined by utilizing, for example, opinions from external customers. After that, some improvement areas are considered regarding customer experience. Finally, some satisfaction measurement methods are processed.

4.1.1 Consistency of employees' opinions in general issues

The first question in the survey included a claim which tried to clarify whether there is a common understanding among employees about superior customer experience. In Figure 11 are presented the percentage frequency for every response, and the amount of total respondents (n = 55). The chart shows that most people choose the disagree option, and the agree option was chosen second often. This reveals that opinions are somewhat divided regarding this subject. Many said in their justifications for choosing disagree that most of the employees are not in direct contact with end customers in the factory. According to the arguments, this leads to a situation where back-end offices' views about customer experience differ to front-end offices' views. In this thesis, *back-end* refers generally to the organizations/teams who are not in direct contact with external customers. These are, for example, product development, manufacturing and technical support. On

the other hand, *front-end* refers to the employees who are in direct contact with external customers, such as, sales teams. The justifications for the agree option suggested that most workers seem to strive for customer's benefit at the factory. Some mentioned also that customer requirements are often emphasized, for example, during a project execution.

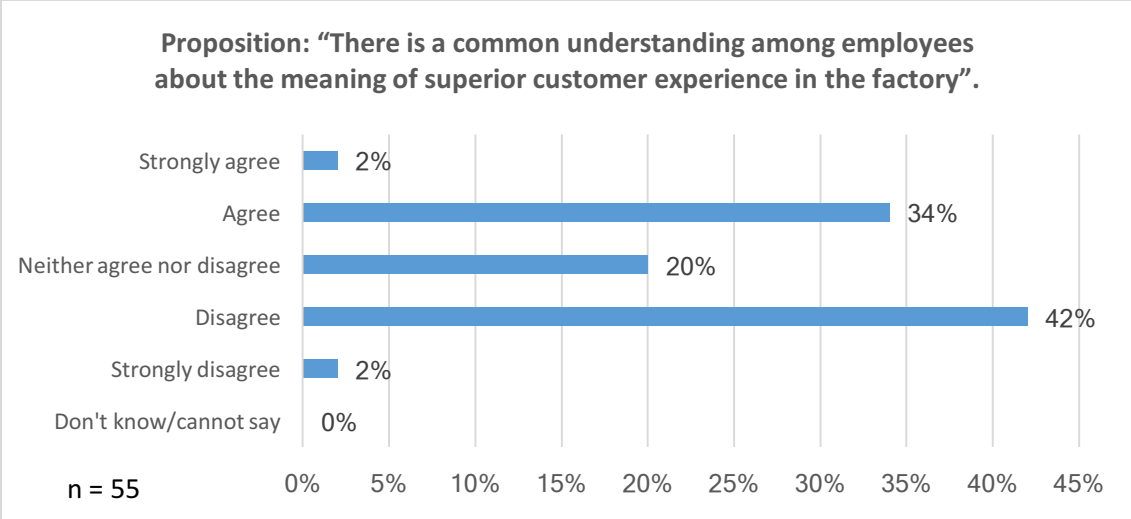


Figure 11. Horizontal bar chart concerning the first survey claim.

In the survey one claim concerned the factors that establish superior customer experience. In Figure 12 are presented responses for the claim, and it shows that 53 % of the respondents supported the claim by choosing the agree option. The justifications for this option said that product quality and delivery time are well known factors, and some issues are also communicated through the strategy. However, there was a mention that principles are clear for most of the people, but not everyone acts according to them. 22 % of the respondents chose the neither agree nor disagree option which indicates that many stand also on the middle ground concerning this subject. Some justifications for this option acknowledged that the factory is quite large and therefore, it is difficult to evaluate whether there exists a common understanding about the factors. Another justification said also that the factors are commonly understood at high level (e.g. top management), but the complexity increases when going to details (e.g. smaller units in the factory).

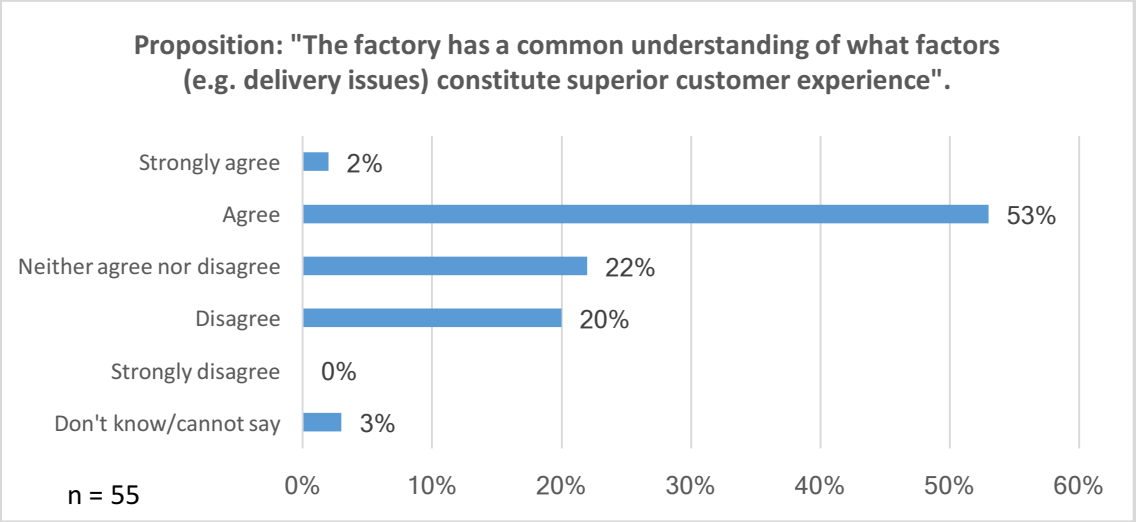


Figure 12. Frequency of responses for the second survey proposition.

As testing unity in the survey responses mathematically, a consensus measure developed by William J. Tastle and Mark J. Wierman was chosen since it is quite intuitive to interpret. The Likert scale is treated as ordinal data in this survey, because the order for the different options is defined but the exact distances between each option are not known. To calculate the measure, the Likert scale responses are assigned to numbers as follows: strongly disagree = 1, disagree = 2, neither agree nor disagree = 3, agree = 4 and strongly agree = 5. The don't know option is left out from this analysis since it does not provide information regarding opinions. Below are quoted rules for the measure:

1. *For a given (even) number of individuals participating in a discussion on some question of interest, if an equal number of individuals, n/2, separate themselves into two disjoint groups, each centered on the strongly disagree and strongly agree categories, the group is considered to have no consensus.*
2. *If all the participants classify themselves in the same category of the Likert scale, regardless of the category, then the consensus of the group is considered to be complete at 100 %.*
3. *If the mix of participants is such that n/2+1 participants assigns themselves to any one category, the degree of consensus must be greater than 0, for the balance in the group is no longer equal at the extreme categories.*
4. *In summary, a complete lack of consensus generates a value of 0, and a complete consensus of opinion yields a value of 1.* (see Tastle & Wierman, 2007: 536.)

Before calculating the consensus, the mean needs to be determined. The formula is described as follows:

$$\mu_X = \sum_{i=1}^{n} p_i X_i \quad (1)$$

where p_i is the probability of the answer option X_i which indicates the number (i.e. 1 to 5) assigned for each Likert answer option (Tastle & Wierman, 2007: 537).

The formula for consensus is specified as follows:

$$Cns(X) = 1 + \sum_{i=1}^{n} p_i log_2 \left(1 - \frac{|X_i - \mu_X|}{d_X}\right) \quad (2)$$

where X_i is individual Likert answer option, μ_X is the mean calculated in the first formula and $d_x = X_{max} - X_{min}$ is the width between Likert answer options. In this case, the width is $d_x = 5 - 1 = 4$. (Tastle & Wierman, 2007: 538.)

In Table 2 are calculated means and consensus measures for the two questions which response frequencies are illustrated in Figure 11 and 12. The table points out that mean value 2.93 is close to the third answer option in responses which is neither agree nor disagree. The mean value does not produce any significant results here, but it tells something about the emphasis of answers. The mean value of the second question is also close to the middle option, but it is slightly higher and thus, getting closer to the agree option. The consensus value for the first question is 0.644 which tells that the opinions are more consistent than dispersed (the value is closer to 1 than 0). The answers of the second question are even more consistent as the value 0.694 is higher.

Table 2. Mean values and consensus measures calculated for the questions.

Question	Mean (μ_X)	Consensus measure [*Cns(X)*]
"There is a common…" (see Figure 11)	2.93	0.644
"The factory has a common…" (see Figure 12)	3.37	0.694

In the interviews held with the employees were mentioned quite often the same factors that constitute excellent customer experience. However, the suggested factors varied to some extent depending on the function/team where the interviewees were working at the time. Persons, who were working with products, mentioned often product related issues, such as, product quality. Employees working with services suggested generally service related things, such as, the efficiency of a service. Almost every interviewee mentioned some aspects that are related to customer service ability, such as, listening to the customer and understanding what the customer wants. One person working at the top management affirmed that there is no common understanding among employees about superior customer experience, because customer groups vary greatly and supply chains are long. The person said also that the factory does not sell products directly to any external customer and because of that, there are quite little contact with the "actual" customers. In the next subsection (4.1.2) of this thesis are handled in more detail the factors that constitute customer satisfaction according to the employees.

Another analysis, that is possible to implement from the survey responses, is comparison between front-end and back-end businesses in the company. This analysis has some problems related to the reliability of the answers as only 10 employees out of approximately 100 workers answered from front-end businesses. In the back-end businesses, 45 employees out of approximately 155 workers answered. However, it is assumed that this analysis will have some utility when it is supported with qualitative data acquired from the survey and interviews.

In Figure 13 are shown the distribution of answers regarding front-end and back-end for the same question represented in Figure 11. The answers of front-end are displayed with grey colour, and the answers of back-end are displayed with blue colour. On the other hand, the total amounts of back-end ($n_b = 45$) and front-end ($n_f = 10$) respondents are presented in the lower left corner of the figure. The chart depicts that front-end businesses lay more on the middle ground and are slightly more agreeable concerning the proposition. It also displays that the same proportion from both businesses chose the

neither agree nor disagree option. This points out that the businesses have almost the same percentage thinking in that way about the claim. Although, this assumption may not be the truth as so few people answered for the survey.

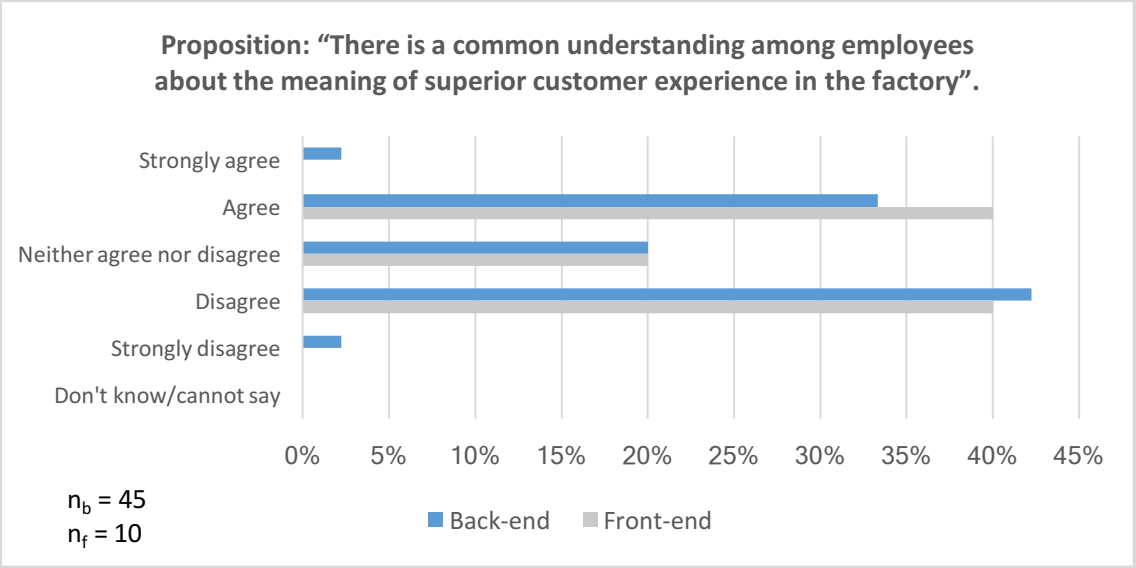


Figure 13. Front-end back-end comparison related to Figure 11.

In Figure 14 are shown comparison between front-end and back-end concerning the question specified in Figure 12. The chart illustrates that both businesses chose the agree option most often. This shows that front-end and back-end may think that there exists some common understanding regarding the factors creating customer satisfaction. The figure illustrates also again that front-end persons have chosen middle ground answer options more often than back-end persons. However, the small sample size may have caused this since a larger sample could have created more answers at the extreme ends. The chart also indicates that some back-end workers are not aware of the issue and therefore, they have chosen the don't know/cannot say option. This may mean that every front-end worker has at least some ideas about the situation regarding satisfaction factors, but in the back-end some do not have knowledge about this topic at all.

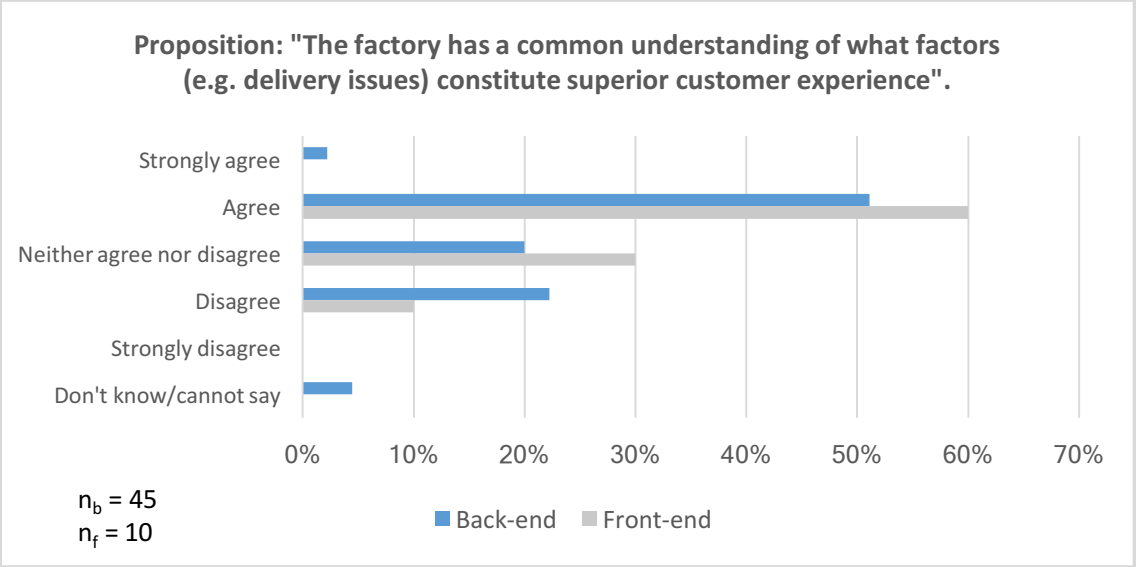


Figure 14. Front-end back-end comparison related to Figure 12.

To test the consensus between front-end and back-end businesses mathematically, Kruskal-Wallis test was chosen since it is a nonparametric test suitable for ordinal data. The test was implemented with SPSS statistical software, and in Table 3 are summarized attributes for the test. The null hypothesis for the test was that the front-end and back-end responses are similarly distributed. From the p-values is interpretable that the null hypothesis is accepted for both questions since p-values are quite large (over 0.05). In other words, the test suggests that front-end and back-end have similar answer distributions regarding the two questions and therefore, some consensus considering customer satisfaction. Of course, the test does not tell the whole truth, but it may provide some indications about the situation.

Table 3. Results of Kruskal-Wallis test.

Null hypothesis	p-value	Decision
Group distributions are similar (see Figure 13)	0.780	Accept the null hypothesis.
Group distributions are similar (see Figure 14)	0.527	Accept the null hypothesis.

4.1.2 Key factors in generating satisfaction

In the interviews, the first question was stated as follows: “What is your perception of superior customer experience? Name the three most important factors contributing to it”. When answering to this, interviewees mentioned quite often the same things in slightly different forms. The quality of a product, on time delivery (OTD) and the ability to serve the customer well were the three things from which at least one was mentioned in every interview. The email survey included also one open question asking the most important factors, and the answers included often similar issues. Below are two quotes from the interviews construing the critical factors more specifically. The first quote is from a salesperson dealing with external customers, and the other is from a senior manager:

> *OTD, good enough product quality, and professional and fast service are the most important factors. OTD must be on a good enough level so that other factors are significant. Considering quality, if there are defects too often, it will affect customer expectations and feelings about our products. Professional service means that our responses should also include information that is relevant to our customers.*

> *In frequent customer encounters the customer relationship (e.g. friendliness, expertise, speed) with the same customer is emphasized. In cases where the customer is no longer buying again or the purchase interval is long, the product/service quality and features are emphasized. For example, condominium pipe repairs are single-shot projects as they are done once every 50 years. The clothing trade is again more of a constant customer encounter.*

The next paragraphs will conduct the critical factors more specifically and first, OTD is explained. According to Marion (2020), OTD means that products (or services) are received by those who want them at the desired time. In some of the survey and interview answers were stated that OTD does not necessarily mean fast delivery. Instead, it means keeping promises about the agreed delivery date. For example, in larger projects the delivery of products may take over a year, but the customer is willing to accept this as long as the agreed time is fulfilled. In one interview were also mentioned that it is important to keep customers up to date when delivering products or services. For example, if some unexpected changes occur, they should be communicated to the customer as

soon as possible so that the customer may prepare to changes. A delivery tracking system is also useful for enhancing customer satisfaction when the customer wants to know where the delivery is going after it is sent.

Some survey answers mentioned lead time together with OTD as an important element when creating customer satisfaction. William Kenton implies (2019) that lead time describes the time which takes from the beginning of a process to its completion. It is often measured in production, supply chain management and project management. In one survey answer were stated that if the desired lead time is not achieved in a delivery process, it will cause often extra work for customers. They need to reschedule their actions and inform also their own customers which takes effort and time. The company studied in this thesis has usually long supply chains. If there appear any schedule problems at upstream, it tends to multiply at downstream of the supply chain. For this reason, there needs to be extra caution regarding lead times.

Ability to serve the customer was also one critical factor that was often mentioned in the interviews and survey answers. The interviewees stated that this factor means listening to the customer and understanding the customer's needs (cf. subsection 2.1.1 of this thesis). Also, answering quickly to customers was mentioned frequently, but opinions about the exact time varied to some extent depending on the interviewee. Some mentioned that one day is a general rule of thumb for response time in most of the cases. However, sometimes customers may require even faster responses. Of course, the best solution would be to answer immediately to the customer as the inquiry is received, but this may not succeed always in practice.

Expertise and answer quality were also stated often as issues related to customer service. Here answer quality means that a response should always include some useful information for the customer. One interviewee, who is working in technical support, stated that simple yes/no answer is insufficient at his position. In other words, some alternatives need to be also suggested to the customer's problem. Expertise means here that

customer service representatives (e.g. salesman) will find the right technical solutions that the customer wants. This requires that salesmen are educated and experienced on the field where the products and services are sold. The salesman or another person at the unit should also be able to offer life cycle services, because this was often stated as an important element in the interview and survey answers.

As the company is offering products and services, the issues related to them are crucial. In the answers were presented that quality and reliability of products and services are some of the key factors creating superior customer experience. Here product quality means that the product is easy to use, it works without unexpected faults, and it is compliant to its requirements (e.g. legal and standard requirements). In services, the quality is defined as fulfilling the promises and customer expectations according to one survey answer. As the customers are often using the products to run their processes, they need to be also reliable so that unexpected stoppages will not appear. If some failures happen, then the product must be easy to maintain so that the stopped process will start again quickly. The quality of the service becomes evident at failure situations because then the speed and success of the service are tested.

Another aspect concerning products and services are their features. In the answers, frequently discussed features were capability and configurability. Capability signifies that a product is able to do the tasks that it is supposed to do. Configurability indicates that product specifications are changeable according to customers' desires. On the other hand, in services capability means that a service person has enough expertise and skills to do the service professionally. According to the answers, safety is important for both products and services. Here safety means that a product or service should not cause any harm to the people using them. Finally, one crucial feature mentioned in some answers is the price of a product or a service. For example, a study conducted in 2016 supports this claim, as it revealed that price is one of the most significant resolution drivers when buying products or services (Jayasinghe, 2016).

In Figure 15 is presented a fishbone diagram which summarizes the key factors regarding customer satisfaction. The diagram includes four branches each of which represents one critical factor and its various components. These four factors then lead to superior customer experience.

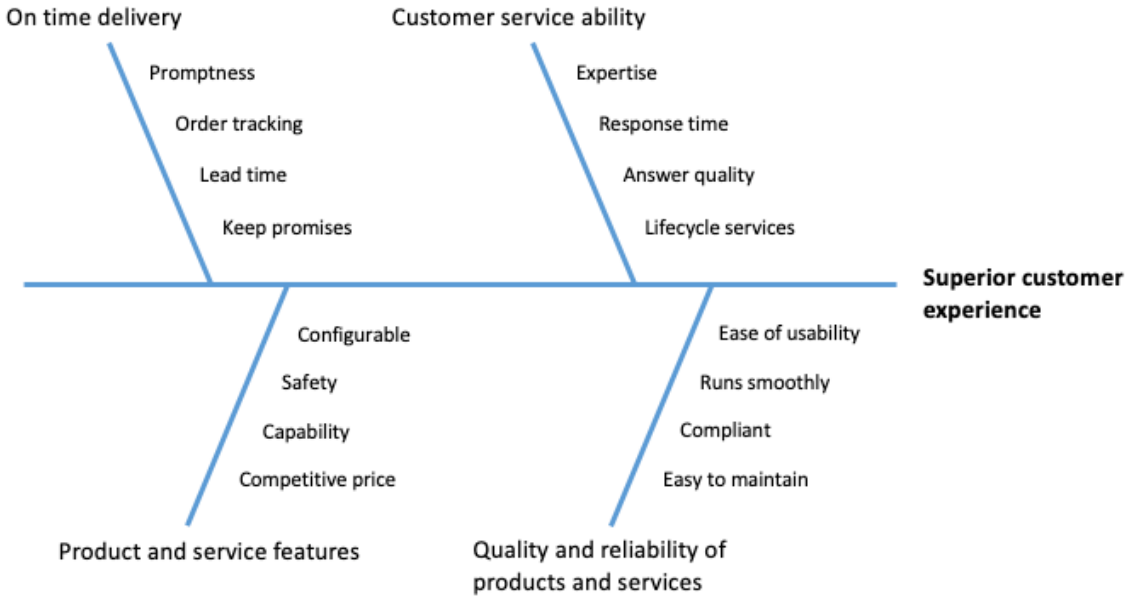


Figure 15. Fishbone diagram compiling the critical satisfaction factors.

One interview and survey question concerned the ideal situation in which superior customer experience is achieved. In the interviews the question focused more on the actions that are required for the ideal situation. Many interviewees mentioned that superior customer experience is achieved by putting yourself into customer's position and acting in a way as you would like to be served. This means that customers' problems are listened and understood so that they are number one priority in all actions in the company. Some interviewees suggested also that fulfilling promises and the effectiveness of internal cooperation will lead to the ideal situation. In connection with cooperation was also mentioned that taking responsibility of your own work is a vital element. Many suggested that superior customer experience is accomplished by exceeding customer's expectations in the survey question's answers (cf. subsection 2.1.3 of the thesis). In practice, this means that high quality products and services are always offered by providing better solutions than what the customer was expecting.

4.1.3 Present state and identifying improvement areas

The survey included a claim which tried to find out the survey respondents' opinions about the current level of customer experience at the factory. The claim and its frequency of responses are illustrated in Figure 16 below. The chart shows that nobody agreed strongly about the proposition. Most of the respondents chose the middle option, and many justifications stated that customer experience is at good level but not yet at excellent level. For example, some mentioned that product quality is fine, but internal customer experience needs more focus. The chart shows also that more are disagreeing than agreeing with the question. For the disagree option, the justifications suggested that internal organizations are not doing enough collaboration. One respondent also mentioned that customer experience relies too much on individuals' expertise and is not part of the culture yet.

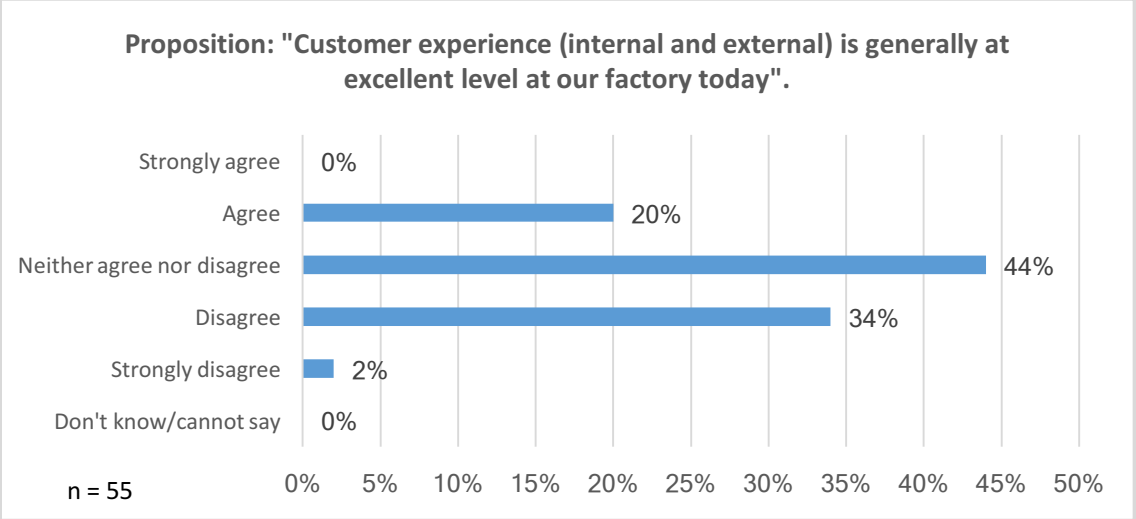


Figure 16. Horizontal bar chart concerning the status of customer experience.

Another question was also included in the survey which concerned the current situation. The question tried to show how well different organizations are meeting customer expectations at the moment, and the results are shown in Figure 17. The chart shows that most of the respondents think that their organization is meeting customer expectations well. The justifications proposed that systematic customer feedback has indicated that

the performance of their organization is on decently good level. This was explained by stating that product quality is on good level and OTD is often reliable. On the other hand, many mentioned that there are areas for advancement in their organizations. According to the justifications, various quality issues still exist and fluctuating opinions about customer expectations create confusion between the organizations. 4 % of the respondents chose also the don't know/cannot say option which may indicate that customer feedback has not reached some employees at all.

Figure 17. Distribution of responses regarding individual organizations.

The consensus indicator, which is presented previously in Formula 2, is utilized to study consistency of the workers' opinions regarding the questions presented in Figure 16 and 17. In Table 4 are shown the results in the similar way as in Table 3. The mean value 2.82 for the first question indicates that its answers are emphasized close to the neither agree nor disagree option. For the second question, the value is 3.09 which is also close to the middle option, but it is located more on the agreeable side. The consensus value for the first question is 0.740 which is already quite close to the value 1 (i.e. full consensus). On the other hand, the consensus value for the second question is even higher (0.753) indicating more consensus for this topic.

Table 4. Results of consensus for the two survey questions.

Question	Mean (μ_X)	Consensus measure [*Cns(X)*]
"Customer experience…" (see Figure 16)	2.82	0.740
"How well does your…" (see Figure 17)	3.09	0.753

In the interviews, one question concerned the factors which are currently weakening customer experience in the factory. Almost everyone proposed that deception of trust is one the main issues that sometimes impairs relationships with customers. Things related to this matter are, for example, unexpected changes in delivery times, quality issues in products and not answering to customer inquiries as promised. Also, one interviewee mentioned that customer cases do not end up to the right owners occasionally. This leads to delays in getting offers to the customers. Silo thinking was also mentioned as a weakening factor. Silo mentality means that different organizations are concentrating too much on their own work, and not doing cooperation with other units in the company (Kenton, 2020).

The sales organization, which is dealing with external customers, conducts relational NPS surveys at certain intervals with external customers. The promoter areas are determined with green cards, and the detractor areas with red cards. According to the previous survey implemented in 2018, the overall performance was quite good since green cards were given over twice as much as red cards by total amount of 67 respondents. In other words, the praised areas had much more positive feedback than the criticized areas had negative feedback. The survey indicated also that most praised areas concerned technical support, commissioning support and mutual benefitting. On the other hand, most criticized areas concerned lead times, logistics and product features.

4.1.4 Situation regarding measurement

The survey included some questions concerning about the measurement of customer experience. The first question in this part tried to clarify what the employees thought about the accuracy of the measurement at the moment. The results of the question are presented in Figure 18 below. The chart illustrates that most of the answers were divided between the options agree and disagree. Also, the options strongly agree and strongly disagree had quite similar amount of responses. The justifications on the agreeable side stated that customer surveys, such as NPS, are done quite frequently in their organizations. Also, some mentioned that other measurement methods are utilized to study how many cases are won or lost in monthly basis. On the disagreeable side, some stated that coherent measurement methods do not exist, but everyone seems to rather use their own methods. NPS was also claimed as being too inaccurate method. Some mentioned that they are not even aware of whether customer satisfaction is measured in their businesses at all.

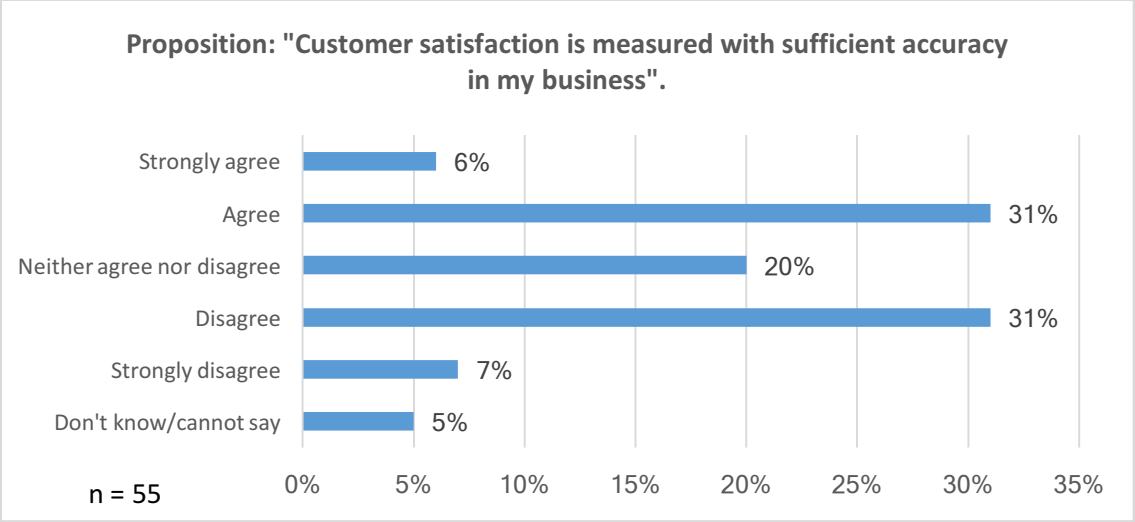


Figure 18. Distribution of responses regarding measurement accuracy.

The second question in this part of the survey analysed the regularity of satisfaction measurement in the factory businesses. The proposition and its distribution of responses are presented in Figure 19. The chart shows that the agreeable and disagreeable side

have quite similar distributions as in the previous question. However, the disagree option includes the most responses. Many mentioned in their justifications for this option that NPS surveys are implemented too seldom. For example, one respondent affirmed that last NPS study concerning their team was done three years ago. Another justification said that generally measurements are made only sporadically and not systematically. In turn, the justifications for the agree option stated that there exists also continuous feedback from the customers. One person even mentioned that they are utilizing monthly transactional NPS surveys to collect customer feedback (cf. Picture 1).

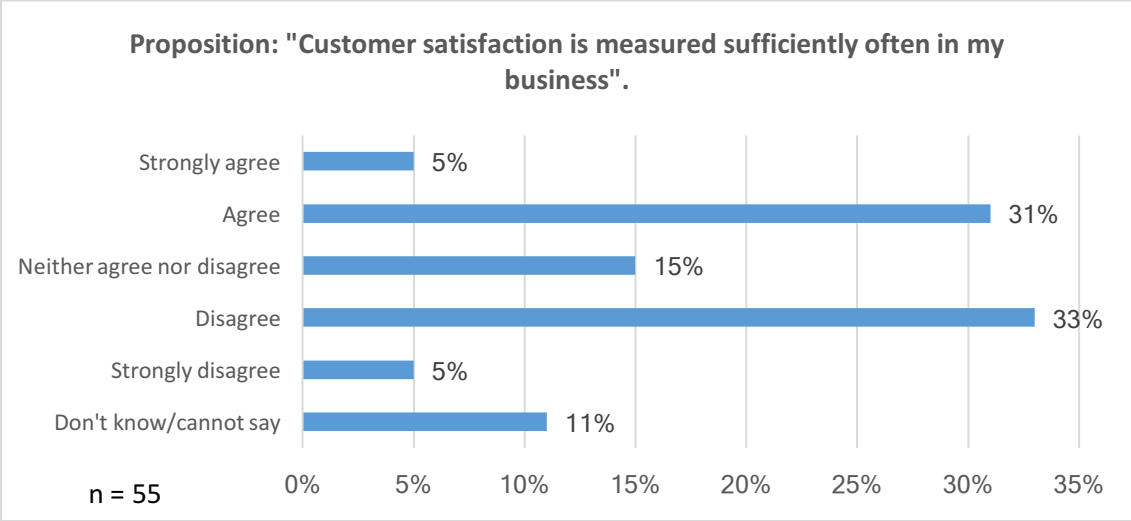


Figure 19. Distribution of answers concerning measurement frequency.

One question in the survey concerned the utilization of transactional measurement to collect customer feedback. The concept of transactional measurement is presented in the subsection 2.1.2 of this thesis. The survey proposition and its distribution of answers are displayed in Figure 20. The graph illustrates that vast majority are agreeing with the proposition. Some justifications on the agreeable side mentioned that higher repetition of surveys should also increase the accuracy of the measurement. Also, one respondent claimed that transactional surveys would help to immediately adjust the way of doing business for the customer. However, many suggested in their justifications that careful consideration is required in regular measurements so that customer will not get annoyed when receiving surveys too often.

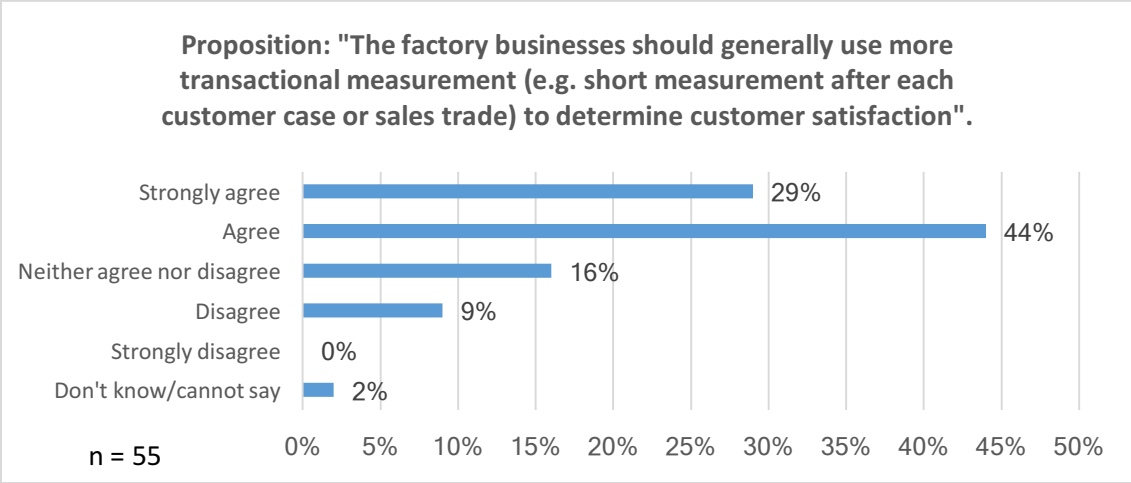


Figure 20. Frequency of responses regarding transactional measurement.

The consensus measure is exploited again to study the commonality in the answers. In Table 5 below are presented the results concerning the three previous questions handled in Figure 18, 19 and 20. The mean values indicate that the workers' opinions are emphasized on the middle ground when considering measurement accuracy and frequency. On the other hand, the mean value 3.94 demonstrates that the workers are quite agreeable for adding more transactional measurement. When considering the consensus measures, the value 0.580 points out that the lowest consensus is related to the measurement frequency. The value 0.706 establishes that the employees have quite much commonality in their opinions when considering transactional measurement.

Table 5. Means and consensus measures calculated for the questions.

Question	Mean (μ_X)	Consensus measure [*Cns(X)*]
"Customer satisfaction…" (see Figure 18)	2.96	0.591
"Customer satisfaction…" (see Figure 19)	2.98	0.580
"The factory businesses…" (see Figure 20)	3.94	0.706

In the interviews one question concerned the measurement of customer satisfaction. The question attempted to explain what kind of measurement methods are currently utilized and what could be applicable in the future. Some of the interviewees suggested that relational NPS is quite good, and it is currently used at least in the sales organizations. However, one person working in technical support mentioned that in seldom made (e.g. once a year) customer surveys the risk is that it only reflects the customer's feelings at the answering time.

Many interviewees mentioned that they see potential in using transactional surveys. Few suggested that star rating could be a convenient measuring method in repeated encounters. In other words, customers could give stars according to their experience where one star indicates the worst feeling and five stars mean the best grade. One interviewee mentioned that they are already utilizing transactional measurement after each service case. The person also said that the most important thing in the surveys is to make necessary alterations as soon as possible after the feedback. Otherwise customers will feel that the frequent surveys will not produce any useful results.

As considering satisfaction measurement issues, it is convenient to study the differences between front-end and back-end offices according to the company. In Figure 21 are illustrated differences between front-end and back-end answers concerning the question presented in Figure 18. The figure shows that the distributions are vastly different. Front-end organizations are much more agreeable with the accuracy of the measurement than back-end offices. Approximately 80 % of the front-end respondents are agreeing with the question's statement. In turn, circa 50 % of the back-end survey participants are disagreeing with the question's claim. Also, nobody from the front-end respondents chose the don't know option which indicates that there exist more knowledge regarding measurement in the sales organizations. However, the same proportions from both offices selected the neither agree nor disagree option which indicates that there are some consensus regarding this opinion.

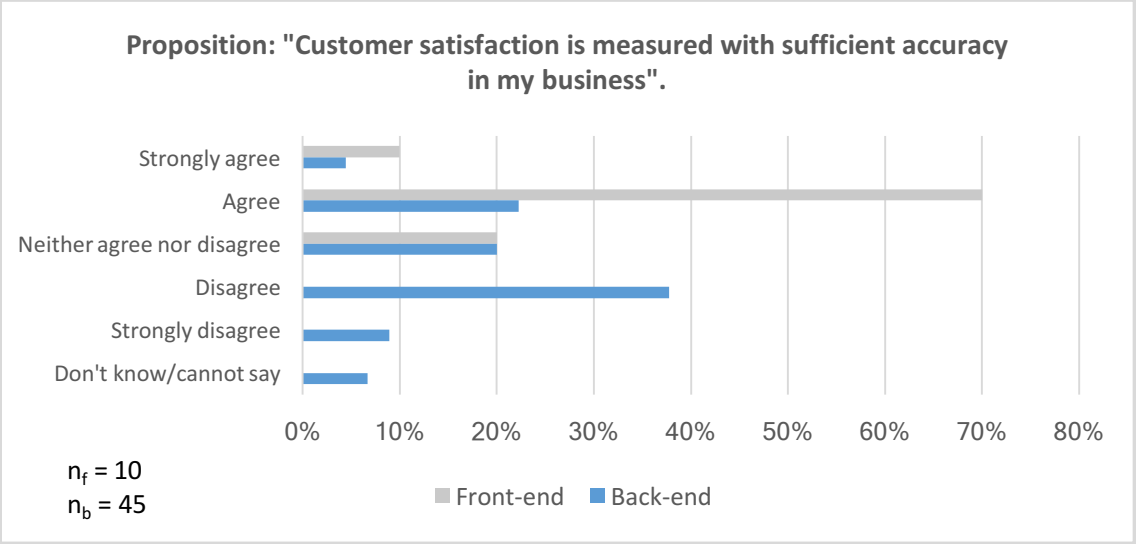


Figure 21. Front-end back-end comparison related to Figure 18.

In Figure 22 below are presented front-end and back-end collation considering the question presented in Figure 19. From the chart is interpretable that front-end offices are again more agreeing with the statement as over 70 % of the respondents from there are on the agreeable side. However, approximately 30 % from both offices chose the disagree option which indicates that similar proportion of workers from the offices are not satisfied with the current measurement frequency.

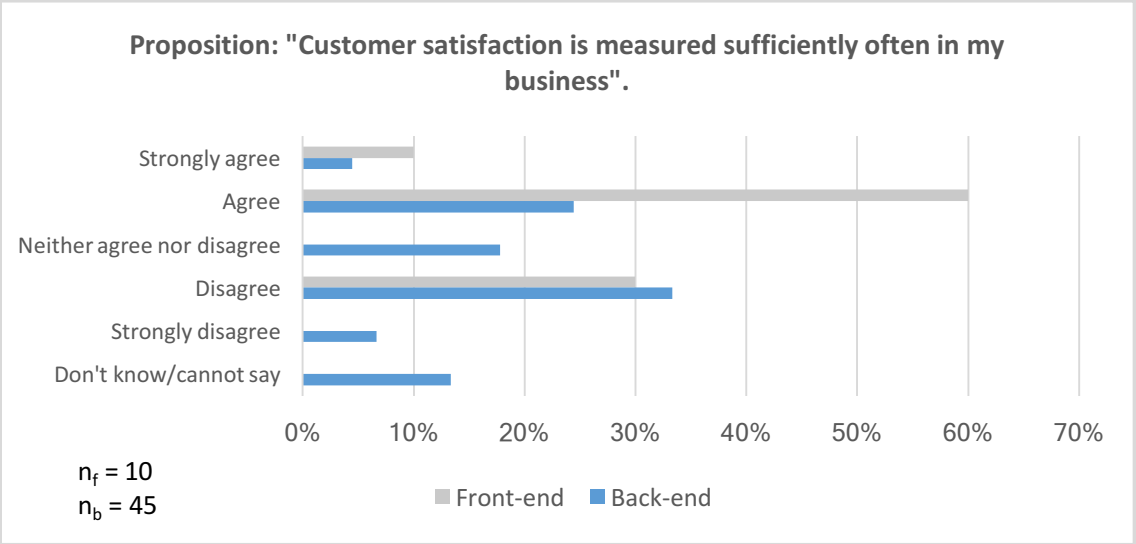


Figure 22. Collation between front-end and back-end regarding Figure 19.

As considering increasing transactional measurement, Figure 23 illustrates that front-end and back-end offices may think differently about the issue. Front-end seems to stand more on the middle ground whereas back-end offices agree strongly with the question's statement. The figure shows that over 35 % of the back-end respondents chose the strongly agree option, but nobody from the front-end respondents selected that. This observation may demonstrate that there exists strong need for more customer feedback in back-end offices. Though, similar amount of respondents from both offices chose the agree option which shows that there exists some consensus for adding the transactional measurement.

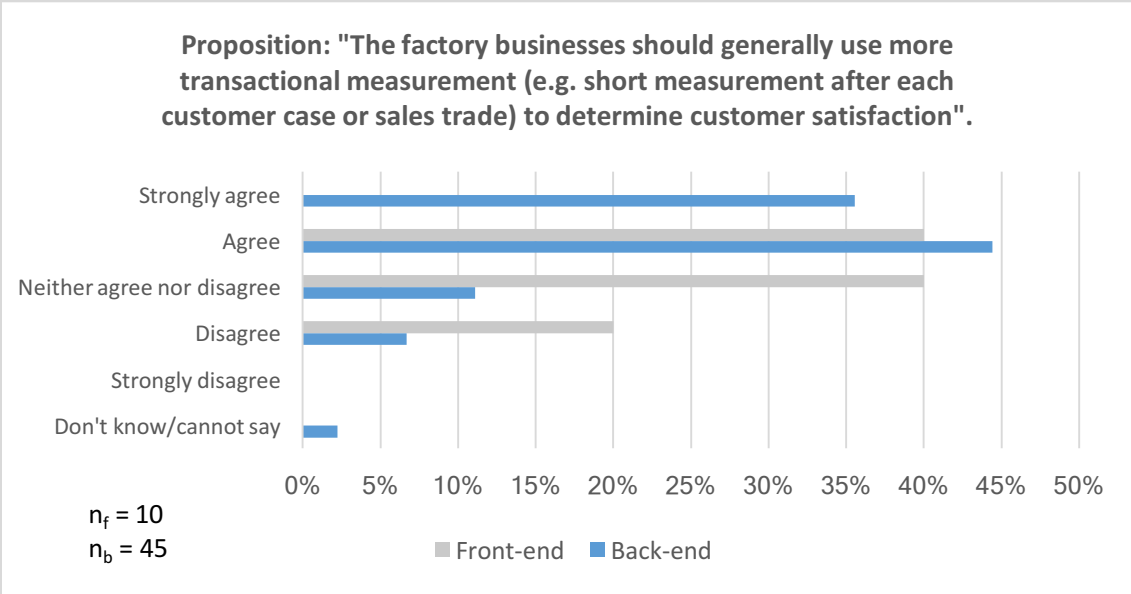


Figure 23. Front-end and back-end comparison concerning Figure 20.

To examine the differences between front-end and back-end opinions mathematically, Kruskal-Wallis test was exploited. In Table 6 are specified the results for the test. The table shows that p-values are quite small (less than 0.05) for all the questions related to measurement. These results suggest that there exists no consensus between front-end and back-end offices regarding the measurement. The highest p-value (0.034) is for the question concerning measurement frequency, and in there the null hypothesis could be accepted with a smaller significance level, such as, 0.01.

Table 6. Results of Kruskal-Wallis test for the measurement questions.

Null hypothesis	p-value	Decision
Group distributions are similar (see Figure 21)	0.001	Reject the null hypothesis.
Group distributions are similar (see Figure 22)	0.034	Reject the null hypothesis.
Group distributions are similar (see Figure 23)	0.006	Reject the null hypothesis.

4.1.5 Summary of the examination

In the first two parts of the subsection 4.1 are handled issues related to the employees' consensus in general things, such as, opinions regarding the factors that create customer satisfaction. The analysis shows that employees have some differing opinions about these issues when comparing all of the answers. However, front-end and back-end offices seem to think in fairly similar way about the general issues. Also, critical factors creating superior customer experience are described, and many employees mentioned things related to customer service skills and delivery reliability.

The last two parts of the subchapter 4.1 deal with things related to the present state of customer experience and measurement aspects. For example, the employees seem to stand on the middle ground (i.e. neither agree nor disagree) when considering the excellence of customer experience at present. Most survey respondents appear to think that the factory businesses are meeting customer requirements fairly well at the moment. Also, recent relational NPS survey confirms this view. The consensus measures are indicating that there exists quite much consensus about the current situation among employees. In the last part are described issues related to measurement. The highest consensus measure is provided for the question related to increasing transactional measurement. However, front-end and back-end offices seem to think quite differently about the issues related to measurement.

4.2 Developing the core processes by considering customer experience

This second part of the fourth chapter contemplates subjects related to the enhancement of the core processes. As mentioned in the introduction chapter, the core processes were chosen according to their importance for customer experience. The purpose of this part is to answer to the second research question of this thesis. First, the three processes are defined in more detail by explaining what functions they include, and what areas in the company they concern. Second, the key components related to customer experience are refined in the processes and third, the current status of efficiency is examined by comparing it to the aspired level. Finally, process descriptions are handled mostly at the upper level to notify what development they require.

4.2.1 Identifying the processes

As defining the core processes more specifically, the factory's process database is utilized. The database includes descriptions for all the modelled factory processes from which three are presented here. The processes are ordered to different levels (cf. Figure 3) from general core levels towards more punctual descriptions in the database.

In Figure 24 is presented the description for the *development of products, services and technologies* (DPST) process. The description is reconstructed from the company's database, and it includes most of the actual parts in a slightly simplified form. The figure demonstrates that first in the up is the headline box which includes the name of the process. Below the headline are three boxes from where the user of the database may access to lower levers by clicking the boxes. The lower levels include more detailed information, such as, process instructions, a SIPOC diagram and a process flow chart (usually a swim lane diagram). Also, a clickable "sub-processes" box is included in the figure since it is a core process description and therefore, it has many sub-processes. Below the accessible boxes are simplified illustrations of the development process' steps. Every step also includes a text field which tells more information about a certain step.

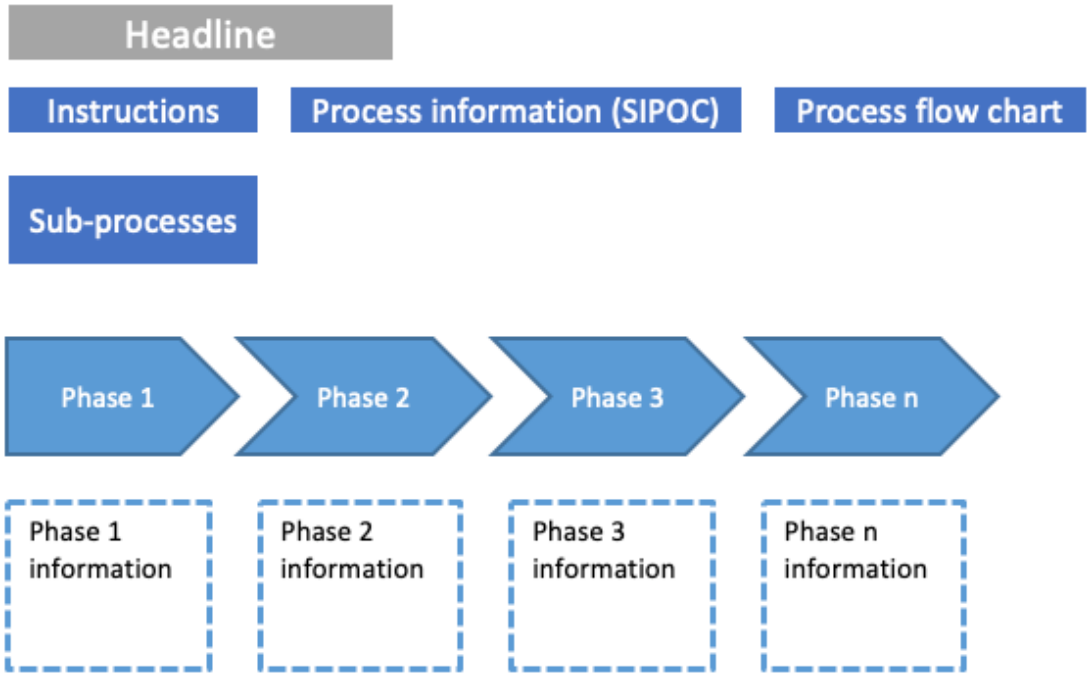


Figure 24. Reformed illustration of the DPST core process.

The second core process is *market and customer relationship management* (MCRM), and its process description is reconstructed in Figure 25. The headline box is again located at the top left corner, and below that is the instructions box as in the development process. The figure also shows that the core process is divided into three different areas at the main level. First, front-end is limited to its own category which includes, for example, different stages of the sales process. These stages explain mainly how product offering to external customers should go, and what to do when orders are received. Each stage includes also sub-phases which are presented below the main stages. After front-end section comes back-end section which includes various functions that are implemented or managed by back-end offices. These functions are, for example, tender support and order handling. Finally, common category is at the bottom, and its purpose is to support both front-end and back-end businesses. The functions in the common category concern, for example, technical support, marketing of products and sales tools.

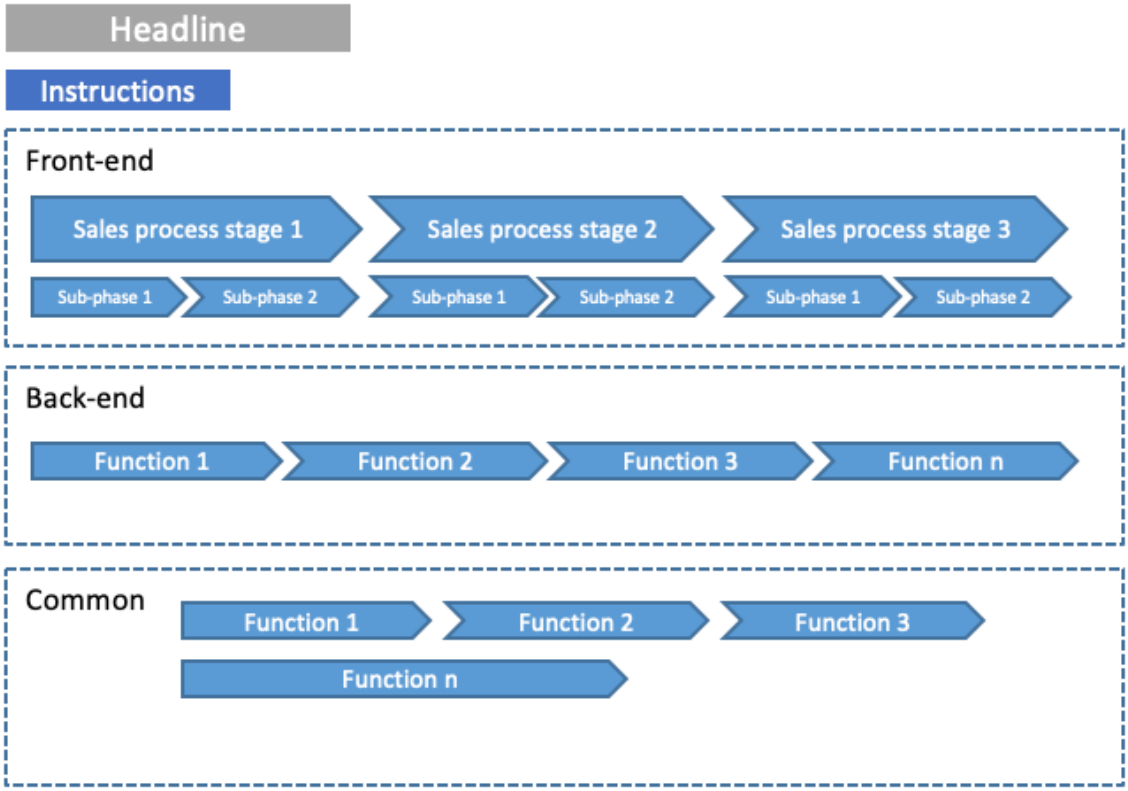


Figure 25. Reconstructed design of the MCRM core process.

As the company's operations are thought chronologically, the final core process is *order fulfilment* (OF). In Figure 26 is reconstructed the illustration of the process. The headline and instructions boxes are located at the top right as previously, and below them are two categories: products and services. These categories divide the OF functions in a quite simple way; functions concerning products are at their own limited area and the same goes with services. The product functions include, for example, detailed information about delivering products from the stock and processes to deliver custom made products to the customer. The support tools help to find right products and documents for the different product functions. The services area contains mainly functions related to providing lifecycle services. These services include, for example, supply of spare parts, repairs and warranty related work. Each function is clickable in this core process description at the company's database which means that they allow to access to more detailed descriptions at lower levels of the database hierarchy.

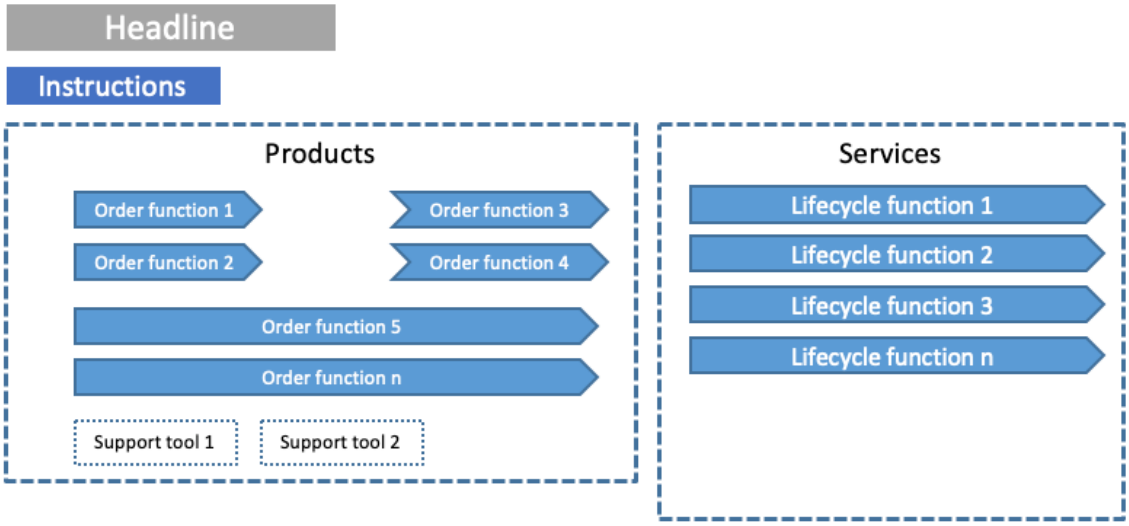


Figure 26. Re-done decoration of the OF core process.

4.2.2 Critical factors for customer satisfaction

In the four interviews, which were studying the second research question, one question concerned about the key factors that help to attain superior customer experience in the core processes. As considering the DPST process, a manager working in research & development (R&D) was appointed as the interviewee. The person mentioned that compliance, quality and reliability of products and services, and ease of use are the three most important aspects in the DPST core process. The manager said that compliance means here that certain customers have certain levels of requirements for each product, and meeting these requirements is essential for achieving excellent customer experience. With reliability and quality of products and services, the person meant that these two aspects should always be taken into account as it is almost self-evident that customers want products to last in use as long as possible. Also, considering the third aspect, which is ease of use, the person said that ease is noteworthy in general. The usability of the products should be such that even a fairly inexperienced person would learn to use them quickly. Finally, the person stated that the R&D department should also design products so that they are easy to maintain and fix.

When contemplating the MCRM process, one person working as a back-end sales manager mentioned that three most critical factors are bidding response rime, offer quality and management of change. Here bidding response time means the time that it takes to create and send offers to internal customers from back-end offices. The internal customers are usually front-end offices (e.g. sales organizations) which will then sell products to external customers based on the offers made by back-offices. Therefore, the speed of the response time is crucial in back-end as delays affect up to end customers. Regarding the offer quality, the manager stated that technical characteristics and commercial terms of the offer are good to do right the first time. For the change management, the person justified that the unexpected changes should be managed by not producing too many losses to the company. At the same time, the best possible solution must also be ensured for the customer. Finally, the person stated that most of these above-mentioned factors are valid for both internal and external sales processes.

For the OF core process, a service manager working in the process was interviewed. The person suggested that one of the critical areas, when providing services, is the ordering system. This means, for example, that information about prices and delivery times are correct in the system. Customers may then know what they are ordering, and when they are going to receive the services they want. The manager stated also that it is important to confirm customers' orders correctly the first time. Considering services, customer needs to often suspend their own activities during product repairs, so it is important to keep the agreed dates. The manager suggested that above-mentioned aspects should at least fulfil customers' expectations in general, but exceeding them may require something extra. The person proposed that this extra could be, for example, providing a tracking code for the deliveries, or delivering services or products faster than the customer wanted. However, the manager said also that superior customer experience requires seamless cooperation between all of the core processes. In other words, it does not improve much of the overall impression if only one process is working well.

One global sales manager gave an interview about critical factors concerning all three core processes. Considering the DPST process, the person mentioned that product fit is essential which means that a product has enough features, but not ones that are not useful to customers. For the MCRM process, the manager suggested that in customer relationships, ease of collaboration is important. Different customers have different needs which means that some customers regard lifecycle services as essential factor. On the other hand, some customers prefer that technical support is always available for the products. Considering the OF process, the person stated that items should arrive reliably at the customer and any possible delays are notified beforehand. Also, when renewing customer's old products, it is important to think how new products will fit into the old products' places.

In Figure 27 below are concluded some of the previously mentioned critical factors concerning the core processes. Three factors are identified for each process in the figure, and they are not in any particular order of importance. When comparing the factors to the fishbone diagram presented in Figure 15, many similarities are identifiable. For example, product compliance, ease of use, and quality and reliability are also presented in the previous figure. Also, keeping promises is mentioned in the OTD branch of the fishbone diagram. When considering the figure below, it is important to notify that the factors are based on only four persons' opinions, so it may lack some reliability when considering the real situation in the factory.

Figure 27. Critical factors regarding the processes summarized.

4.2.3 Current level of performance and achieving the preferable status

In the survey one question concerned the present situation of obeying the core processes. In Figure 28 are presented the distribution of responses for the claim. The figure indicates that most of the respondents agree that processes are followed well as approximately 40 % of the respondents chose the agree option. The justifications for this option said that most of the processes are followed correctly, but the newer processes are followed less accurately. However, many chose the middle option and disagree option which shows that they are not fully agreeing with the claim. Some justifications for these options stated that processes are obeyed, but collaboration between the processes does not work. Some respondent said also that there exists too much variation at the moment. In other words, some processes are followed quite well, and some are followed quite poorly. Another respondent stated that there is much room for improvement in the DPST core process, and the OF core process is obeyed the best currently.

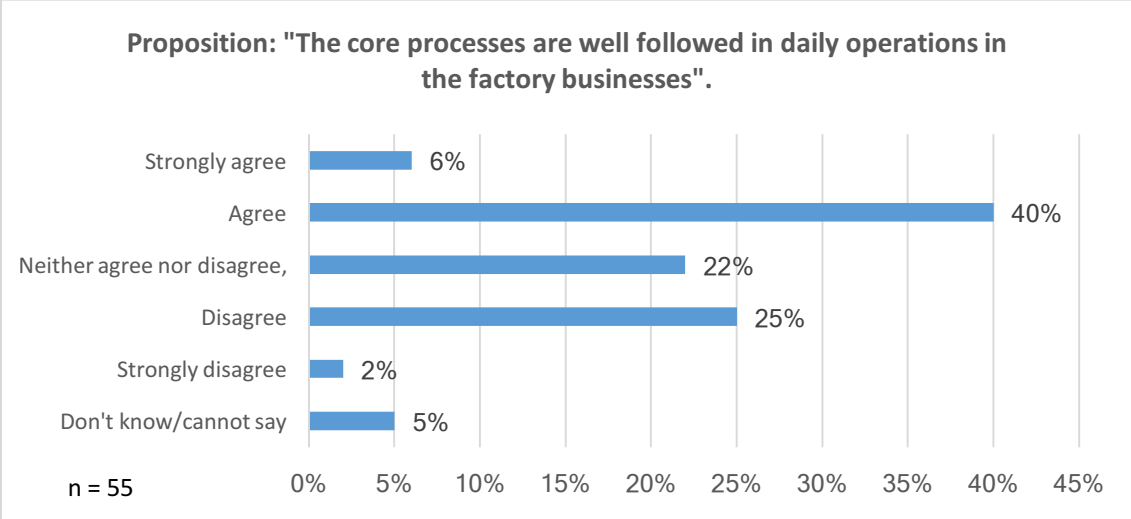


Figure 28. Horizontal bar chart concerning the core processes.

The last survey question was open form question, and it was the same as the second research question of this thesis. Many respondents suggested that when improving processes, DMAIC and VOC analysis (cf. subsection 2.3.1) should be utilized. This means, for example, that customer feedback related to the processes is collected regularly and that

provides the basis for improvement. Some said also that customer feedback is already quite exploited in the MCRM and OF processes, but the DPST process needs more input from customers. Many mentioned that cooperation between all the processes should be increased significantly by exchanging information and taking various stakeholders into account.

In the interviews two questions concerned about the current situation of operating with the core processes, and how the processes should be developed. Starting from the DPST process, the manager working in R&D stated that regular reviews are implemented at various checkpoints in the process currently. However, the person mentioned that more reviews are required between the checkpoints. In other words, the decision-making model is at good level in the checkpoints, but the design model needs improvement between the points. The manager also claimed that product development workers are currently quite far away from end customers. This has led to a situation where information about customer requirements comes through many "filters" (e.g. front-end offices) to development teams.

When contemplating the development areas for the DPST process, the R&D manager stated that more data about customer needs should be gathered through practical examples (e.g. end use cases) into some kind of digitalized tool. The tool should also be available for workers in R&D functions so that they could utilize the information. The manager stated that this kind of tool would help to harmonize the understanding regarding customers' needs. Also, reviews should be implemented more often in product development processes so that internal and external customers are included. The person suggested, for example, that end customers could come to see the products during their development stages. Proactivity is also important which means that feedback is gathered before or at the beginning of a certain development process. Finally, the manager suggested that collaboration between front-end and back-end offices should be increased substantially. In Table 7 are concluded the aforementioned aspects regarding the DPST core process.

Table 7. As-is to-be comparison regarding the DPST process.

As-is	To-be
Regular reviews are conducted in various checkpoints, but there exists room for more reviews.	Reviews should also be applied between the checkpoints so that stakeholders are included.
R&D workers are quite far away from the end customers, i.e. there are little direct contact with external customers.	Arrange more meetings with end users during development stages of a product.
No access to reliable data about customer needs.	R&D workers should have a system where necessary customer data is collected.

As considering the MCRM core process, the interviewee working in the process told that most of the minor processes are followed largely but not quite literally. The person stated, for example, that one weakness is the traceability of tenders which means that there does not exist uniform designation policy or control for offers. Also, digital order processing system is not working well enough because automatic orders from customers are not always passing through the system. However, response time for customers and offer quality are at quite good level at least in the area where the interviewee is working. Also, factory acceptance tests for new products have gained positive feedback from external customers according to the interviewee.

As looking improvement areas for the MCRM process, the interviewee suggested that a uniform designation procedure should be developed for offers. It could be implemented, for example, by utilizing some electronic software which provides each offer with a name that identifies the customer and the date of the offer. This could then facilitate the traceability of tenders. Also, the interviewee mentioned that process descriptions must be meaningful and descriptive of reality. According to the manager, the descriptions are currently quite realistic at the main level of the MCRM core process, but there exist always opportunities for improvement. In Table 8 are summarized the aspects of present situation and the wanted future situation for the core process.

Table 8. As-is to-be comparison regarding the MCRM core process.

As-is	To-be
Processes and their descriptions are on quite good level but not exactly realistic.	The efficiency of processes must be developed in terms of customer experience.
Tenders are not traceable enough.	A common system could be utilized which systematically names bids.
Customer orders are not getting through without some problems.	The order processing system needs to be developed so that orders are handled without any problems.

The OF core process is obeyed quite well in general according to the interviewee working in the process. The person told, for example, that service functions have thought about their activities through processes already many years. This portends, for example, that most of the sub-processes under order fulfilment have an owner that is responsible for the operation and development of a certain sub-process. The interviewee said also that the aim is to constantly think about the improvement of operations in terms of the customer and quality at the service functions. Nonetheless, the person said that there was a fundamental change in the service organizations a couple of years ago which forced to think operations from the ground systematically. Therefore, process thinking is on quite good level at the OF core process.

As considering the future for the OF process, the interviewee told that proactivity should be increased in orders. This means, for example, that some kind of foresight is done in order to know what components or services are required by customers in the future. This allows the order functions to prepare in advance for customer needs and also deliver faster when needed. Maintenance schedules of the products could be tracked, for example, by electronic remote controlling. The interviewee mentioned also that leading and lagging measures are currently utilized in orders, but the emphasis should be on leading indicators. Leading indicator is a predictive measure which studies areas for improvement (Wong, 2018). Here it is, for example, the efficiency of OTD which helps to

predict customer satisfaction regarding order fulfilment quite well. In Table 9 are summarized features regarding the current and desired statuses for the OF process.

Table 9. As-is to-be comparison concerning the OF core process.

As-is	To-be
Processes are obeyed quite well in general.	Implement continuous development to ensure good level in the future also.
Foresight is done to some extent regarding customer needs.	Increase proactivity by utilizing electronic remote control tools.
Leading and lagging indicators are utilized for orders.	Prioritize leading indicators more when measuring the efficiency of orders.

The global sales manager, who gave answers concerning all three processes, told also some ideas regarding the current situation and wanted future status. For the DPST process, the person stated that the aim is often to make standard products suitable for large masses in there. This is more or less problematic as many customers want also quite customized solutions. Therefore, more customer-specific solutions should be made to ensure customer satisfaction. For the MCRM process, the manager suggested that close relationships with customers are on the plus side. On the other hand, there exists too much slowness in cases of implementing solutions for customer problems. Therefore, the efficiency of the sales processes should be improved in general. Considering the OF process, the manager proposed that order and delivery tools are old-fashioned. The person reasoned this by stating that there exists no online store for products and services at the moment. As a solution, the manager suggested that customers' ordering systems should be somehow integrated to the company's ordering system. This could reduce customers' effort when they are placing orders for products and services.

4.2.4 Advancing process descriptions

One survey question concerned about the process descriptions of the core processes. It tried to clarify whether the descriptions are illustrated in a way that rational results are possible when obeying them. The distribution of responses for the claim are shown in Figure 29 below. The chart points out that most of the respondents chose the agree option which indicates that process illustrations are generally at quite good level. The justifications for this option suggested that the descriptions are documented quite extensively and are available for almost everyone in the factory. However, some respondent mentioned that the descriptions provide consistent results but not always in a customer focused way. The neither agree nor disagree option was also chosen quite many times, as 34 % of the respondents selected it. The justifications for this option stated that the process descriptions could be more precise in general because now they cover quite wide areas. Some respondents also claimed that the DPST and OF core processes are illustrated quite well, but the MCRM core process lacks descriptions at lower levels.

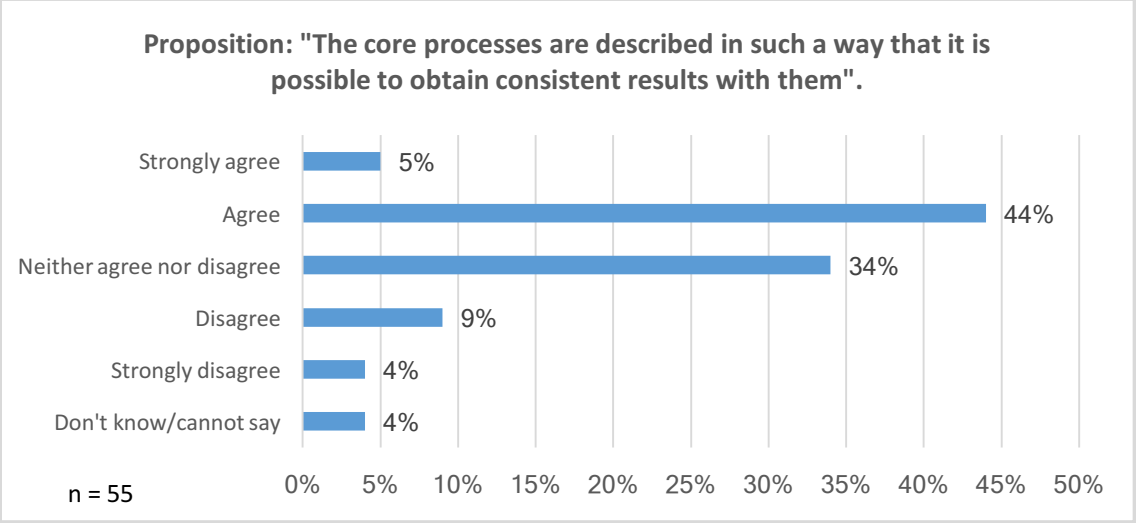


Figure 29. Distribution of answers concerning process models.

As contemplating the description of the DPST process, which is illustrated in Figure 24, the interviewee working in the process told that it is generally quite well illustrated. For

example, some reviewers of this process description have given positive feedback. Decision-making models are mainly described in relation to each process, and design models are also illustrated to some extent in the process. However, the person suggested that in the future, it is important to distinguish these two models clearly enough in the process charts. This would then help both models to better pursue their own purpose. The person stated also that Lean thinking (cf. subsection 2.3.1 of this thesis) is utilized in development processes, and it should be utilized more when improving the descriptions in the future.

When considering the illustration of the MCRM core process, that is shown in Figure 25, the interviewees were not experienced with the description. However, the author of this thesis has access to the description and therefore, brief review is done here by him. The description is quite clear at the upper level since it divides front-end and back-end functions to their own categories. Also, common tools are limited to their own section. The front-end sales processes, and their different sub-phases are also quite well illustrated in logical orders. However, many of the sub-processes lack descriptions when looking deeper from the main description. Therefore, this is one area for development regarding the MCRM core process model.

As suggested by the service manager in the previous subsection of this thesis, the functions under the OF core process are quite process oriented. The interviewee told, for example, that every process description under order fulfilment are reviewed carefully and continuously. According to the manager, new description is generally modelled so that a process owner makes first a suggestion about it. After that, either the supervisor or the head of the unit approves the description. Finally, a specialized worker creates the definitive digital description. The interviewee told also that each model is thought in terms of customer experience. Therefore, the only suggestion regarding the OF core process is that the level of activity is kept at least at the current level. In Table 10 are concluded the areas for improvement regarding the descriptions of the three core processes.

Table 10. Overview of the improvement ideas for the process models.

Process description	Improvement suggestion
Development of products, services and technologies.	Separate decision and design models more clearly in the descriptions.
Market and customer relationship management	Model more sub-processes for each function.
Order fulfilment	Maintain the current status regarding all the descriptions.

4.2.5 Summary of the development section

The first part of the subsection 4.2 defines the illustrations for the three core processes. The descriptions indicate that each process has a specified structure which explains that the processes have different purposes to some extent. After the descriptions, key aspects regarding customer experience are determined for each core process. Considering the DPST process, the critical factors are more related to product features, such as, quality and ease of use. When looking the MCRM and OF core processes, their factors are more concerning customer service attributes, such as, response time and keeping promises.

The last two parts of the subsection 4.2 concentrate on the improvement targets regarding the processes. First, as-is to-be comparison is implemented for every core process. The results show that more customer feedback is required in the DPST process. Considering the MCRM process, sales software should be more advanced in general there. As looking the OF process, leading measures should be emphasized more when examining the success of orders. Finally, some improvements for the process models are suggested. The analysis shows that the descriptions for the DPST and MCRM core processes still need attention, but the illustration for the OF core process is well established.

5 Conclusions and recommendations

This final chapter of the thesis summarizes the completion of the research and provides ideas for development regarding the problematic areas. The main purpose of this chapter is to conclude answers for both research questions presented in the introduction chapter.

5.1 Overall architecture of the study

The thesis begins with introduction which explains some background information regarding the topic of this thesis. The introduction shows that Henry Ford played a significant role in the history of customer experience. The two research questions, to which this study seeks to find answers, are also defined in the first chapter.

After the introduction, the research continues with the theoretical section which deals with three concepts. First, the main issue of this thesis, which is customer experience, is contemplated. The literature suggests that customer satisfaction is achieved by fulfilling customer expectations. Second, processes are studied, and this section shows that processes are often arranged in hierarchies in organizations. Finally, some process development mechanisms are considered. This part indicates that Lean Six Sigma is a useful method to develop any kind of business processes.

The research methods utilized in this study are explained after the theoretical section. This study uses mixed procedures, as it includes two types of research problems, and two types of studying approaches. Both research questions were studied with qualitative and quantitative methods.

Next comes the fourth chapter which is the most notable part of the study. It analyses the collected data and provides answers for the two research questions. Next are contemplated the answers that were acquired in the results chapter in more detail.

5.2 Resolutions for the research questions

The first research question tries to examine whether the employees have consistency in their opinions regarding superior customer experience. As looking the results provided by the fourth chapter, the short answer to the question is that there exists no consistency. However, when the issue is looked a little deeper, one notices that the consensus of the employees varies quite much in different areas. For example, the first section of the subchapter 4.1 shows that there exists some consensus (Cns(X) values are over 0.6) about general issues among all the employees. Also, Kruskal-Wallis tests were accepted for both questions which indicates that front-end and back-end may have some consensus in this part.

The second part of the subchapter 4.1 presents that the interviewees mentioned often the same critical factors, but their opinions varied to some extent depending on their position at the company. For example, persons working with products suggested usually things concerning products, such as, product reliability. On the other hand, employees working with services proposed often issues related to services, such as, answering to customers on time. Overall, the four most frequently mentioned concepts were: on-time delivery, customer service ability, product and service features, and quality reliability of products and services.

The third part of the subsection 4.1 indicates that the employees have the most consensus when considering the current situation of customer experience at the company. The quantitative analysis provided Cns(X) values that are over 0.7 for both survey questions in this part. Many respondents seem to also thought that the factory is achieving customer satisfaction fairly well but not excellently at the moment. The results indicate also that the employees appear to think that their own organizations are meeting customer expectations better than the whole factory.

The final part of the subchapter 4.1 studies measurement issues. First, the current situation regarding the accuracy and frequency of satisfaction measurement is clarified.

Considering all the respondents, the answers were quite divided for these topics. The consensus values confirmed this conclusion as the values were below 0.6 (lowest in the whole thesis). However, the third measurement question, which examined the increase of transactional measurement, provided pretty high consensus value (over 0.7). Also, most seemed to think that transactional measurement should be increased vastly in general. As the consistency between front-end and back-end offices were studied, the opinions were quite varying. For example, back-end appeared to think that measurement is not so frequent and accurate as front-end claimed it to be. Back-end offices were also more agreeing for increasing transactional measurement. Kruskal-Wallis tests demonstrate that there exists no common opinion between front-end and back-end regarding measurement issues.

The second part of the fourth chapter tries to provide answers for the second research question which contemplates ways to enhance the three core processes. First, the core processes architectures are determined with the help of the company's process descriptions. Considering the DPST process, the description shows currently its various stages and includes also links to more detailed sub-descriptions. On the other hand, the MCRM process is divided to three different sections from which each includes various functions. The OF process is divided to two categories which are products and services.

The second section of the sub-chapter 4.2 summarizes the key factors related to customer experience for each core process. The results indicate that the factors of the DPST process are more concerning product and service features, such as, product compliance. As looking the MCRM process, the factors are now related to customer service quality, such as, response time to customer. Similarly, the factors concerning the OF process are related to customer service, as they concern mostly the reliability of delivery and the functioning of ordering systems.

The final two parts of the sub-chapter 4.2 concentrate on process development and therefore, they are answering straight to the second research question. As looking the

DPST process, the analysis indicates that customer insight is needed significantly more in development teams. This can be improved by arranging more customer meetings and providing more customer data to R&D section, for example, through a digital software. According to the results, the MCRM process requires more integrated working methods. In other words, offer structures should be more consistent since their naming practice is currently quite fragmented. Consistency could be achieved by utilizing common offer instructions, or by developing a system that creates offers automatically. For the OF process, the analysis indicates that maintaining the current level of performance is mostly enough for the future. Therefore, utilizing continuous development is suggested for the OF core process.

As improving the process descriptions, the analysis signifies that decision and design models should be separated more clearly in the DPST process. This means that some remodelling is required in the process database so that the separation could be implemented. In the MCRM process, more sub-processes should be illustrated since there are not much descriptions at lower levels currently. According to the results, the modelling of OF processes is implemented quite systematically currently. Therefore, it is recommended that the current status of descriptions is maintained at least there.

5.3 Advancement suggestions for the future

Considering the recommendations for the first research question, many interviewees mentioned that one should offer such a service for customers that would also satisfy the service provider itself (cf. to the end of chapter 4.1.2). One sales person affirmed that this idea is closely related to the Golden Rule of Christianity. The person added that the rule is actually the only idea that is necessary in customer interactions. The Golden Rule is described at least in two occasions in the Bible. For example, the gospel of Matthew (7:12) defines it as: "*So whatever you wish that others would do to you, do also to them, for this is the Law and the Prophets.*" In the gospel of Luke (6:31), it is described as: "*And as you wish that others would do to you, do so to them.*" (BibleGateway A, 2016; BibleGateway B, 2016.)

As the two aforementioned Bible verses given by Jesus are such all-encompassing, no other recommendations are really needed for achieving superior customer experience. However, few other instructions are given to ensure that development will focus on right areas. The results indicate that communication between front-end and back-end offices should be increased significantly. In practice, this may be done by developing common systems where ideas and thoughts are shareable between all workers. Secondly, silo thinking should be reduced by developing cooperation between individual workers and teams. One practical method is to arrange gatherings between workers regularly and continuously. Also, measurements should be implemented often enough to notify whether the consensus is improving in the company.

As the results demonstrate, there seems to generally exist a demand for more customer voice in back-end offices. Thus, measurement of customer satisfaction should be implemented so that customer feedback is also shared to the back-end workers. The situation appears to be currently that mostly front-end is gathering and utilizing customer feedback systematically. However, if the front-end is mainly keeping the information from customers to itself, it is quite difficult for the back-end to make their work more customer-friendly. The results indicate also that transactional measurement should be increased in general in the factory.

As looking the recommendations for the second research question, some advancement ideas are already suggested in previous parts. However, some practical improvement methods, which are presented in more detail in the subchapter 2.3 of this thesis, are suggested here. As the core processes needs to be developed, it is recommendable to use the DMAIC method in most cases since it is quite comprehensive. PDCA cycle is proposed to utilize in minor processes, as it is suitable for continuous development. 5S is also a useful method to support the process improvement because it helps to keep things in order, for example, in R&D.

In summary, the implementation of this study went quite well since the schedule was kept, and cooperation with all the persons involved in the study succeeded. Data was also collected to the extent where some data had to be compressed. Still, the research had some challenges. For example, the sample size for quantitative data remained quite small when it is proportioned to the population size. Therefore, the quantitative results may not be fully generalizable to the whole population. However, qualitative data was also gathered to a significant extent, and it is assumed that this provides support for the lacking quantitative data. Another challenge in the analysis was that feedback from external customers could not be utilized much since it is mostly confidential. However, the theoretical literature provided quite good insight concerning customer satisfaction in general.

For future studies, it is recommended to explore the ideas presented in this study more specifically. For example, it could be studied how customer satisfaction is achieved in individual teams at the company. Customer experience could also be examined according to different customer groups as the company's customers are quite varying. This thesis provides the basis for the present situation regarding the core processes and therefore, future researches could focus on the enhancement of individual processes. For example, implementing DMAIC to a certain process could already be in itself a suitable topic for another master's thesis.

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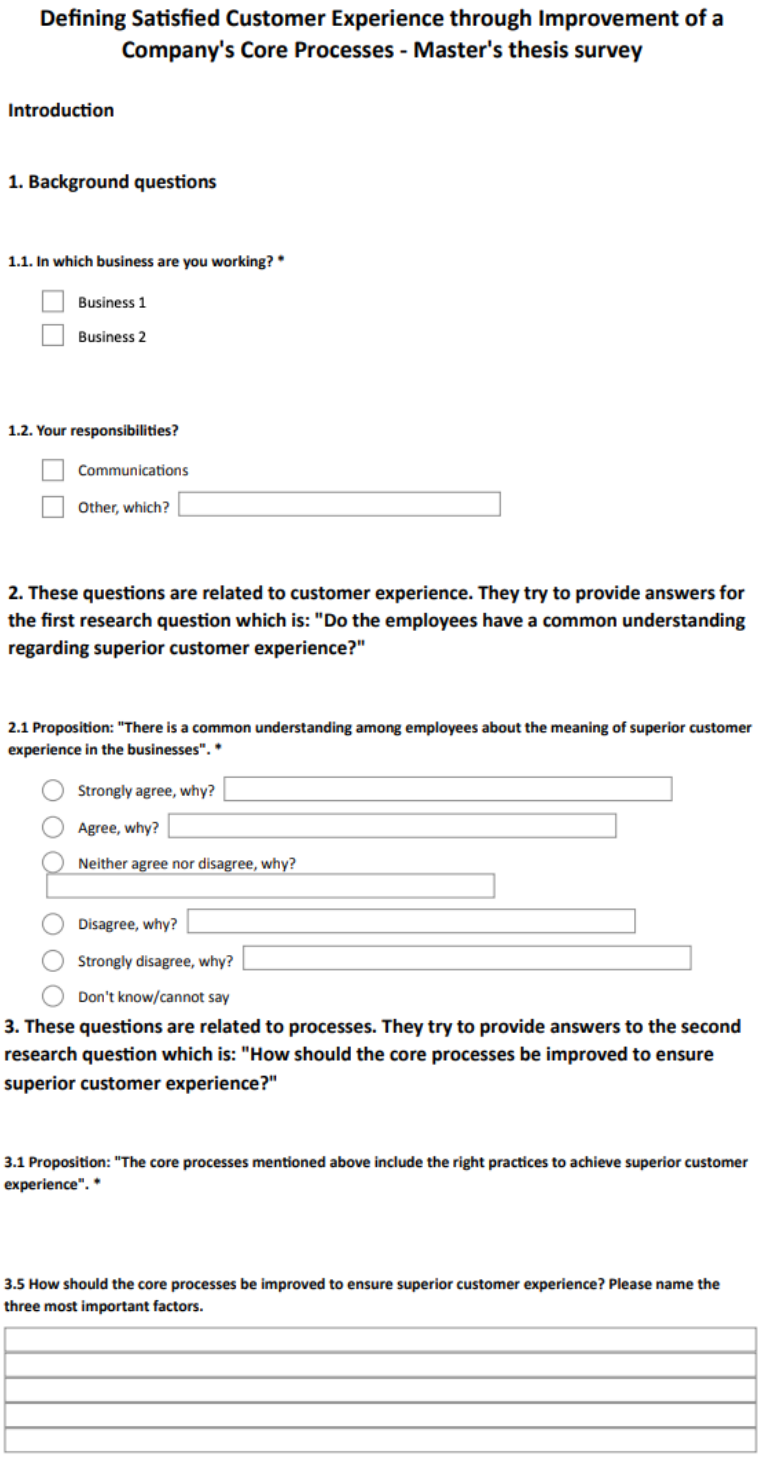
Appendices

Appendix 1. Framework of the survey.



Defining Satisfied Customer Experience through Improvement of a Company's Core Processes - Master's thesis survey

Introduction

1. Background questions

1.1. In which business are you working? *

- [ ] Business 1
- [ ] Business 2

1.2. Your responsibilities?

- [ ] Communications
- [ ] Other, which?

2. These questions are related to customer experience. They try to provide answers for the first research question which is: "Do the employees have a common understanding regarding superior customer experience?"

2.1 Proposition: "There is a common understanding among employees about the meaning of superior customer experience in the businesses". *

- ○ Strongly agree, why?
- ○ Agree, why?
- ○ Neither agree nor disagree, why?
- ○ Disagree, why?
- ○ Strongly disagree, why?
- ○ Don't know/cannot say

3. These questions are related to processes. They try to provide answers to the second research question which is: "How should the core processes be improved to ensure superior customer experience?"

3.1 Proposition: "The core processes mentioned above include the right practices to achieve superior customer experience". *

3.5 How should the core processes be improved to ensure superior customer experience? Please name the three most important factors.

Picture 2. Reduced version of the survey's composition.

Appendix 2. Interview questions.

- What is your perception of an excellent customer experience? Name the three most important factors contributing to it.
- Do you think it is enough to meet the customer's expectations? Why is it enough / not enough?
- How to get from so called neutral satisfaction to excellent?
- How should customer satisfaction be measured? For example, what tools (e.g. transactional NPS) should be used and how often?
- What do you think are the three most important factors that weaken the customer experience?
- How do you think everyone should act in their daily work so that superior customer experience is achieved?

Picture 3. Interview questions concerning the first research question.

- In your opinion, what are the three most important factors related to core processes that help to achieve an excellent customer experience?
- What is the current situation in terms of operating according to the core processes?
- What do you think the situation should be in the future?
- What is the current situation regarding the process descriptions, and how they should be improved?

Picture 4. Interview questions concerning the second research question.