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**Integrating the factors of customer satisfaction
into ISO 9001 Quality Management System –
Case Study Terrafame Oy**

Master's Degree in International Business Management

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Abstract

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The aim of the thesis is to investigate how to improve the definitions and directions of ISO 9001 Quality Management System so that they will support achieving and maintaining customer satisfaction. The focus will be on recognizing the factors of customer satisfaction that can be integrated into the development of the QMS. In addition, the practical improvement suggestions will be produced to achieve the research objectives.

The research will analyze the status of how the factors of customer satisfaction are integrated into ISO 9001 QMS. It will be covered with research into the status of customer experience. The research will analyze the most essential factors that influence customer satisfaction in the context of the organization. The analysis will be conducted with customer interviews and the analysis of the existing customer feedback. The development of the QMS will cover the practical actions and improvements that can be implemented to improve customer satisfaction through ISO 9001 QMS and operational instructions.

The theoretical background is based on quality management, ISO 9001 QMS and customer satisfaction frameworks (ie. Kano Model and SERVQUAL), which supports the empirical part and development work. The scope of the research will cover the evaluation of the potential impact and developmental needs of ISO 9001 QMS definitions and processes. The thesis will not cover the status of customer satisfaction after the improvement actions have been implemented. Measuring the results after the implications have been applied will not be included in the scope of the research.

The research strategy of the thesis is a qualitative case study. The research utilizes an abductive research approach that is an iterative process between theories and empirical findings. Qualitative interviews will be collected as a data collection method. It will be supplemented with secondary data provided by the consulting company. The qualitative research approach will focus on finding the most essential factors that acknowledge customer satisfaction in developing the ISO 9001 QMS. The qualitative research approach will evaluate the status of the developmental needs. It also aims to evaluate the potential impact of improvements in the customer satisfaction point of view.

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List of Symbols

B2B	Business-to-Business
B2C	Business-to-Consumers
CAPA	Corrective and Preventive Actions
KPI	Key Performance Indicator
PFI	Priorities of Improvement
QMS	Quality Management System
ROI	Return on Investment
SOP	Standard Operating Procedures
TQM	Total Quality Management

1 Introduction

Customer satisfaction is one of the most central factors that have an influence on the organization's success and competitiveness. Many organizations have implemented ISO 9001 QMS which has been designed to ensure the high quality of product and services. The effectiveness of the QMS can vary depending on how the QMS integrates the factors of customer feedback and satisfaction. (Schlickman, 2003, p.4)

Organizations may have inefficiencies in how the factors of measuring and improving customer satisfaction are integrated in the ISO 9001 QMS definitions and directives. This may lead to situations where the QMS does not correspond to customer needs and expectations, which may decrease customer satisfaction and the organization's competitive position. (Dongmo et al. 2013, p. 1-9)

The aim of the thesis is to investigate how to improve the definitions and operational instructions of ISO 9001 Quality Management System so that they will support achieving and maintaining customer satisfaction. The focus will be on recognizing the factors of customer satisfaction that can be integrated into the development of the QMS. In addition, the practical improvement suggestions will be produced to achieve the research objectives. (Schlickman, 2003, p.4)

The purpose of the thesis is to improve Terrafame's quality management system in alignment with the ISO 9001 standard by integrating key customer satisfaction factors identified through qualitative research. The underlying reason is to improve the organization's ability to meet customer expectations, reduce quality-related disputes, and increase long-term customer satisfaction through a structured development of its QMS. The output of the thesis is improvement proposals based on the research findings of the customer insights.

The following research question will be asked "What are the most essential factors of customer satisfaction when developing the QMS?". The sub question is "What practical changes can be made into ISO 9001 to improve customer satisfaction?"

The commissioner company is a multi-metal mining and refining company, primarily known for its production for nickel, zinc, cobalt, and copper. It is based in Sotkamo, Finland. The company operates one of the largest nickel mines in Europe. The research will focus on the commercial department in Terrafame. The processes in the commercial department cover customer relations, solicitation of customers, marketing, sales of the products and logistics. (Terrafame, 2024)

The scope of the research will include building the theoretical framework of quality management, ISO 9001 quality management system and customer satisfaction, including the factors increasing customer satisfaction. The theoretical background will discuss the benefits for organizations when improving the quality. In addition, the relationship between service, quality and customer satisfaction will be discussed. This creates the foundation for empirical part and development work. The research strategy of the thesis is a qualitative case study combining the research approach with qualitative research and secondary data provided by the consulting company. The thematic analysis will utilize abductive analysis, which aims to balance between theories and empirical data (Thompson, 2022, p.1410-1421). Qualitative interviews and observations from the audit authorities will work as a foundation for the analysis to be made. After the analysis has been completed, the findings will work as a foundation for the development work. The relevant team in Terrafame will be collaborated to address pain points and present the practical output, i.e. developed tools and documentation to improve processes in the commercial department in Terrafame Oy. Brainstorming will be utilized to co-create solutions with internal stakeholders in the basis of research findings. The objective of the output is to implement improvement actions (schedule, priority, resource optimizing). (Thompson, 2022, p.1410-1421)

The scope of the research will be limited to focus on analyzing the current state, identifying improvement needs, and presenting actionable recommendations and KPI proposals to address the observed gaps. The changes against ISO 9001 standards must be reviewed, especially in the specific clauses related to customer focus. The research will identify the metrics that correlate with customer satisfaction or QMS performance.

The thesis will not cover customer satisfaction after the improvement actions have been implemented. The scope of the research is limited to integrating the factors of customer satisfaction into the ISO 901 Quality Management System and proposing actionable improvements. Measuring the actual impact on customer satisfaction after implementation is outside the scope due to time and resource constraints. Instead, the study relies on predictive methods and theoretical frameworks to achieve improvement in customer satisfaction. This approach ensures a focused and academically rigorous exploration of the research objectives for future studies to assess implementation outcomes. The research scope will not cover the time, resources and actions taken by Terrafame to apply the development suggestions.

The thesis concentrates on the quality of the processes and improving the customer relations point of view. This research has the potential to improve the ISO 9001 QMS so that it acknowledges and corresponds with the customer needs and expectations. This might lead to an increase

in customer satisfaction, which has the potential to increase customer loyalty, positive customer feedback and recommendations.

The research can help the ISO 9001 QMS to become more effective as it can help to identify the faults in current processes and directions, as well as suggest concrete improvement actions. More effective and customer centric QMS can lead to better operational effectiveness and decrease the faults and reclamations. (Ahmad & Allan, 2014, p. 45-47)

When the organization manages to improve customer satisfaction and operational effectiveness, competitiveness will increase in the market. The customers that are satisfied with the services and products become more reliable to the organization that can lead to a larger market share. (Ahmad & Allan, 2014, p.45-47)

The development needs and potential of quality and customer experience are highlighted in the thesis. This can help the organization to direct the long-term strategies and resources so that customer-orientation and quality management will have a more crucial role. The reliability of the stakeholders such as customers, partners and certification parties can be improved by developing and documenting the ISO 9001 QMS improvements. This can improve the capability to maintain and develop the high quality. (Raab et al, 2016, p. 40)

When the QMS improves and it becomes more customer-oriented, the personnel can be more committed to improving the quality and customer satisfaction. This can improve the internal culture and the motivation of the employees. To sum up, the research has the potential to have a large and positive impact on the organization's processes, customer relations and market position. (Raab et al, 2016, p. 40)

2 Theoretical Foundations for Customer-Centric Quality Management

The theoretical framework of this research serves as the foundation for understanding and addressing the key factors influencing customer satisfaction within a quality management context. This chapter contains an introduction to quality management establishing a foundational principle. The chapter will continue with comprehensive background information focusing on ISO 9001 QMS in the context of customer satisfaction. The theoretical background also includes a study of customer satisfaction. Drawing on established models and standards – such as ISO 9001 for process standardization, SERVQUAL for assessing service quality, and the Kano Model for prioritizing customer needs – this framework provides a comprehensive perspective for analyzing and improving organizational processes. By integrating these theories, the research aims to identify actionable insights that bridge the gap between customer expectation and service delivery, ultimately driving continuous improvement and enhanced satisfaction.

The concept of quality has been interpreted by categorizing the quality into manufacturer-oriented, the customer-oriented, and the competition-oriented concepts of quality. The manufacturer-oriented Quality Concept integrates within itself a product-and process-related understanding of quality. Variations in quality are reflected in the different features that define the characteristics of the product. The customer-oriented quality concept involves user-oriented and value-oriented understanding of quality. The quality arises exclusively from the customer's perspective as the person requesting the service is the one who decides the level of quality. The competition-oriented quality concept gives great value for competitive relationships. The organization's strategy often aims to be a quality leader. (Raab et al, 2016, p. 40)

2.1 Total Quality Management

According to Naidu et al (2006, p.27), Total Quality Management (TQM) is defined as an enhanced way of doing business in comparison to the traditional way. This aims to survival in world-class competition. The conformation and application of standardized quality management system models, e.g. ISO 9000 and TQM are vitally considered to be one of the most important phenomena in TQM development and globalization. (Magd, 2010, p.58). To obtain the transformation in culture and actions in the entire organization, the actions of management should be changed. Zairi (2002, p.52) emphasizes the importance of self-assessment done by organizations by

measuring their standards and performance to achieve the world-class status. The TQM implementation involved the background of economic and business pressures that derived an increased focus on the continuous benchmarking in the performance. The most essential concepts of TQM are being customer-focused, which means that customers are placed in the centre in all the activity done in the organization. This includes both external and internal customers and the customer's attitudes must be checked regularly. The amount of defective work should be cut down to minimize the rework. A constant improvement should be made to develop in all the activities. Naidu, Babu and Rajandra (2006) stated in their study that "a 5 % improvement in 100% of the areas is easier than a 100% improvement in 5% of the areas". (Naidu et al, 2006, p.27-28. Zairi, 2002, p.502).

Awareness, training and education of the workforce plays a vital role in TQM. The workforce should be informed about the general direction the company is headed; a wider range of jobs could be obtained when the staff is trained and educated regularly. Naidu, Babu and Rajandra (2006, p.28) give a great value also for measurement of work. This enables decision-making based on the facts. Garvare and Isaksson (2001, p.11-15) presents measurements and indicators that support sustainable development. These measurements could be categorized into four different categories: driving forces, state, reactive response and active response. (Naidu et al, 2006, p.28. Garvare et al, 2001, p.11-15)

Naidu, Babu and Rajandra (2006, p.29) present six basic approaches when obtaining the TQM.

1. A committed and involved management to provide long-term top-to-bottom organizational support.
2. An unwavering focus on the customer, both internally and externally.
3. Effective involvement and utilization of the entire work force.
4. Continuous improvement of the business and production process.
5. Treating suppliers as partners.
6. Establish performance measures for the processes.

(Naidu et al, 2006, p.29)

To make TQM sustainable, leaders have the responsibility to create and communicate the vision that leads the organization toward continuous improvement. The key drivers should be identified

to exemplify the characteristics that need to be displayed to compete successfully in the market. The stages of evolution should be identified and defined. TQM should take into consideration the following significant transitional periods that are production, service, customer and market orientation. The culture of continuous improvement means better quality with continuously less variation in the processes. This brings both incremental improvements and innovations in products, services and processes. Fact-based decisions must be made after analyzing the data collected from key customers, suppliers and stakeholders. This can enable the organizations to be more flexible and responsive to changing needs and continuously improve business practices. (Zairi, 2002, p.506)

As the ISO 9001 monitors and analyses the processes in the organizations, it identifies the opportunities for improvement and takes appropriate actions. The improvements made in the process of ISO 9001 for organizations are made with purpose. The requirements by customers alter over time or the need for improvements are discovered through competition. This requires improvements in the internal processes but eventually boosts profitability. Any decisions made through the QMS are based on the guided structure. This includes e.g. guidance for gathering and analyzing the data, monitoring and measuring processes and products, and internal auditing. Typically, ROI calculation is made before decisions. (Robitaille, 2016, p.20-22)

2.2 ISO 9001 Quality Management System overview

Customer satisfaction is one of the main aspects of quality management systems and organizational excellence models (Melki and Darabi, 2008, p.15). The ISO 9001 defines the requirements for a system establishment to serve the customers better. The purpose of ISO 9001 QMS is to help organizations consistently meet customer requirements while improving overall efficiency and customer satisfaction as the standard requires to measure and improve organizational processes. (Poksinska, 2010, p.4). It is the collection of processes, documents, resources, and monitoring systems that direct the work in terms of product quality. Thus, the requirements for organizations are to establish, document, carry out, and maintain the system to meet the requirements of ISO 9001. According to Robitaille (2016, p.1) the organizations are said to gain multiple benefits beyond the achievement of certification. This methodology helps the organization to run the businesses. For other businesses it is the usual way of running business, for others it may mean a radical change. Either way, the design of the QMS must start with the real needs of an organization not just focusing on the minimum requirements, but on the areas that need to be improved.

In addition, to aim the future success, the organizations must include expectations of customers in the implementation strategy. (Poksinska, 2010, p.7-8). The quality of products, customer satisfaction and process effectiveness can be improved in the organization (Schlickman, 2003, p.4).

The Quality Management System standards require universal organizational fundamentals. These fundamentals must be constant. The QMS are superimposed upon the overall operational structure of the organization. The organizations are not designed to follow a standard. The operating systems of the organization are enhanced using standards. According to Schlickman (2003, p.4), the QMS is most effective when it is transparent to the overall strategic goals and objectives set by the organization (Schlickman, 2003, p.4). The QMS may differ significantly from organization to organization as it is influenced by different organizational and external conditions. The most significant conditions can be maturity level of quality management, internal motivation, implementation strategy and involvement of stakeholders. (Poksinska, 2010, p.7)

To ensure the positive effects on organizational performance and employee development, organizations must practice the standard, rather than standardize the practice. There is considerable freedom in interpreting the requirements of ISO 9001:2000, which can lead to claims of existing processes already comply with the standard. Poksinska (2010, p.8) also emphasized the importance of involvement of people when aiming at positive results for organizational performance. A commitment and involvement need to be shown by the top management. For the employees' initiatives and energy to participate in carrying out the improvement work, the support from the top management is vital. (Poksinska (2010, p.8)

2.2.1 Benefits of ISO 9001 QMS

The design of the QMS must begin with the real needs of an organization. The organizations should focus on the areas that need to be improved. The objectives should include both the expectations of customers as well as the organization's targets. (Poksinska, 2010, p.8). When the processes and products are continuously improved, it can lead to an increase in revenues through product reliability and decrease in the costs through process efficiency. Increased revenues can be due to gained market advantage. (Tari et al, 2012, p.5, 297-322)

The ISO 9001 QMS has expanded to a wide range of industries. According to Robitaille (2016, p.4) the ISO 9001 brings consistency and definition to processes in organizations. This results in fewer defects and more efficient practices. It will act as a return on investment (ROI). ISO 9001 QMS can

result in decreased errors and fewer resources wasted on redoing, reworking and repairing. It can result in efficient ways of working and less firefighting. This can cause improvements in cost efficiency. (Robitaille, 2016, p.4)

An increasing number of customers are requiring ISO 9001 certification. Among environmentally sensitive consumers, demand potentially increases when organizations prevent pollution and take steps for reducing energy consumption (Tari et al, 2013, p.297-322). It also has the potential to relieve some of the stress on the organization's supply chain management resources. In other words, it is a very smart financial decision. It is costly for customers to conduct on-site visits, periodic audits, and other qualification activities. For organizations, the ISO 9001 QMS can help to solve problems, anticipate risks and manage changes. ISO 9001 is said to increase the market share, as the certified organizations' status work as a great marketing tool. In addition, the financial resources can be freed up, allowing organizations to explore new markets, conduct more research and development projects and adopt technology that boosts the ability to serve current and future customers. (Robitaille, 2016, p.4-6) The organization's motivation plays a big role whether the standard is internally driven or by external motives, e.g. customer pressure. Higher overall benefits were achieved if the standard was internally driven. Whereas the impact remained uncertain, when the standard was for external motives, e.g. customer pressure. (Poksinska, 2010, p.4)

One of the benefits of ISO 9001 is the efficiency and cash flow it can bring to organizations. It enhances the ability to monitor processes, analyze performance indicators, set objectives, and take action to improve. There can be improvement in systematization, e.g. improved documentation, work procedures, clarity of work, improvement in responsibilities (Tari et al, 2012, p.297). Eventually, it can boost efficiency by reducing waste and mitigate the effects of inefficient processes. Efficiency can also be boosted by productivity, savings in costs, reduction in mistakes and rework, shorter lead time and improved management control (Tari et al, 2012, p.297-322). This will also build confidence with customers. ISO 9001 can perform as a shortcut to becoming an approved supplier. ISO 9001 provides the structure and processes organizations need to obtain maintaining status as the supplier of choice over time. (Robitaille, 2016, p.6)

Regarding the benefits in terms of employees, it can boost motivation, satisfaction, teams, communication and knowledge. Improvements can be seen also in relationships with suppliers, authorities and other stakeholders (Tari et al, 2012, p.297-322) According to Nabavi and Azizi's research (2018, p.934), the ISO 9001 QMS can help organizations to increase the customer satisfaction of their customers and employers. As the QMS can help the organizations to recognize

customer needs and make improvement actions based on the findings. The process of improvements can be tailored to achieve customer satisfaction. The QMS can work as a framework for the continuous improvement to increase the probability of enhancing the customer satisfaction level. In fact, the literature review seems to designate that significant business benefits can be achieved if the standard is implemented as part of a continuous improvement strategy. (Poksinska, 2010, p.5) This can boost the confidence of the organization and customers as the organization can provide the product that continuously meets their needs. (Nabavi & Azizi, 2018, p.934)

Implementing the ISO 9001 QMS alone might not result in the aimed objectives. Nabavi and Azizi (2018, p.934) highlighted a few issues that were raised during the implementation of ISO 9001 QMS. Supportive actions are needed by the organization's management team. It was also emphasized in Magd's (2010, p.9) research that encouraging, information of the policies and strong coordination of upper managers and team leaders are required to achieve the transition for ISO 9000:2000. Nabavi and Azizi (2018, p.936) added that implementation might cause a high volume of documentation of the processes. This causes extra workload in comparison to the normal working environment. Improvement of processes needs additional costs, e.g. attracting new educated staff, the purchase of measurement equipment, training and so on. The ISO 9001 QMS requires commitment to follow the regulations and guidelines by the managers and personnel. (Nabavi & Azizi, 2018, p.936). Poksinska (2010, p.8) highlights that self-motivation of the organization enables improvements to be sustainable. The focus on real improvement might shift away if the organization efforts limit the satisfaction of the minimum necessary requirements and fulfilling auditors' demands. The high ambition and commitment level will probably lead to sustainable improvements. (Poksinska, 2010, p.8). In Magd's research (2010, p.9), one of the most critical factors is the well-structured system of procedures when implementing the ISO 9001:2000. On the contrary, the most significant problems that organizations faced when implementing the QMS were the need to change the regular system to fit the QMS, the resistance to the introduction of QMS and the lack of understanding of the importance of ISO 9001:2000 by all departments. (Magd, 2010, p.9)

There seem to be opposing comments towards ISO 9001 standardization. Poksinska (2010, p.8) summarizes that contemporary research on organizations is ignored by the standardizers. The standard is also based on management principles, which are claimed to be out-of-date. Documentation dominates the management of standards, not organizational behavior. Furthermore, the capability of improving the quality is questioned by different scholars. It is also claimed that the standard is a step backward rather than forward, as it makes things worse for their customers.

(Poksinska, 2010, p.2-3). Psomas et al (2015, p.7) evaluated the critical factors influencing ISO 9001 effectiveness and found out that elements of the internal business environment, the ISO 9001 QMS and the external environment constitute the main dimensions of the effectiveness. The elements of the internal business environment were company characteristics, human resources and internal motives for the ISO 9001 certification. They claimed that the company itself can enhance the effectiveness of ISO 9001 QMS by the infrastructure and characteristics, together with employees and their motives for quality improvement. (Psomas et al, 2015, p.7)

2.3 Customer satisfaction

According to Solomon, Bamossy, and Askegaard (1999, p.256), customer satisfaction is often defined as *“post-consumption consumer satisfaction/dissatisfaction (CS/D), which is usually determined by the overall feelings or attitude a person has about a product after it has been purchased.”* To simplify this, customers are satisfied if they get what they want. If the requirements or expectations are not met, they will not be satisfied. Customer satisfaction is not an absolute concept; it's a relative one. Customer expectations are comparative. (Mwegerano, 2014, 32. Hill, 2017, p7)

In scientific literature, for example, Kotler (1994, p.40) defines customer satisfaction as follows: *“Satisfaction is the level of a person's felt state resulting from comparing a product's perceived performance (or outcome) in relation to the person's expectations.”* The level of customer satisfaction is said to depend on the difference between perceived performance and expectations. The expectations are built as building blocks, which consist of consumers' past buying experience, marketer's and competitors' promises and comments from their peers. According to Brown (1992), in case the customer satisfaction level reaches the state in which the customer needs, wants and expectations through the product or service's life are met, it can result in repeat purchase, loyalty and favorable word-of-mouth. (Mwegerano, 2014, p.32)

Customer satisfaction in a business-to-business (B2B) context differs significantly from business-to-consumer (B2C) due to the nature of relationships, decision-making processes, and the complexity of services or products involved. (Kotler et al, 2016, p.40). In the context of customer service/service quality in a business-to-business market, it is a complex and multifaceted issue due to different parties having differing perceptions of what constitutes service quality and due to the several stakeholders, that can have an impact on perceptions of service quality. (Zolkiewski et al,

2007, p.313). In B2B, long-term relationships are crucial, and satisfaction often hinges on trust, reliability, and personalized service. Businesses value partnerships that contribute to their operational efficiency and growth. Key factors generating satisfaction are said to be responsiveness to inquiries and issues, consistent and transparent communication and relationship management. B2B clients often prioritize dimensions like assurance, responsiveness, and reliability when referring to the SERVQUAL Model. (Parasuman et al, 1988, p.12-40)

The quality and performance of the product or service directly impact satisfaction in B2B settings. Products and services must meet specific technical and functional requirements. The key factors that have been identified affecting customer satisfaction are conformity to specifications, consistency in performance, reduced defects or downtime. ISO 9001 standard requirements emphasize quality assurance, risk management, and continuous improvement, which are crucial for B2B relationships. (ISO 2015). According to Kano et al (1984, p.40), B2B customers often seek tailored solutions rather than standardized products. The ability to provide customized offerings and additional support services is highly valued. This needs flexibility in addressing unique needs and offering training, consulting or after-sales support. (Kano et al, 1984, p.39-48) Other factors affecting customers are sensitivity to pricing. Customers expect competitive rates without compromising quality or service, the pricing models should be transparent. (Homburg et al, 2001, p.15-33)

The factors that can affect customer satisfaction are classified by Jones and Sasser (1995, p.88-99) as follows:

- 1) Basic features of the product or service
- 2) “Must-be” support, i.e. the minimum support expected
- 3) Corrective actions taken to counteract a negative experience
- 4) Unexpected or surprising good service offered

All in all, customer satisfaction is based on perceptions (values and quality), expectations (pre-purchase expectation and performance (post-purchase evaluation)). It is said that satisfied customers create more business and create profits for the organization. In fact, customer loyalty and satisfaction are said to be crucial for business survival. (Yaya et al, 2014, p.858 The customers’ loyalty to the product and brand of the company can be increased through customer satisfaction. The positive effects can be profitability, market shares and returns on investment. With repeated

businesses, the money can be saved, and costs can be cut in the long term. The new customers can be attracted, and good news spread as a marketing tool to others. According to Ahmad and Allan (2014, p.45-47), the cost of one new customer is equal to the cost of five loyal customers. These five satisfied customers will be able to generate new customers for the company. (Ahmad & Allan 2014, p.45-47). Boshoff (2005, p.410-425) states that loyalty is about satisfying the right type of customers, whom to deliver the superior experience for them to keep on continuing the business. (Boshoff, 2005, 410-425).

2.3.1 Factors of Customer Satisfaction

This chapter briefly explains the factors that might contribute to a satisfactory customer experience. According to the context of Unified Theory of Acceptance and Usage of Technology model (UTAUT) there are four main factors that can have an impact on willingness to use. These four factors are performance expectancy, effort expectancy, social influence, and perceived security. Performance expectancy refers to the use of technology that improves customers' performance. In the context of technology usage, it can be thought of as the degree to which the workload is reduced and how well the customer can take advantage of the technology used. Effort expectancy refers to the level of ease and effortlessness when using a product or service. Customer's effort includes time, money, and/or physical strength. The ease of use impacts the customer's willingness to use the product/service continuously. The social influence is seen in a more complex way. In short, customers are affected by the opinions and experiences of people close and important to them. Perceived security is the degree to which customers believe the safety of the product/service. (Liu et al, 2023,p.4-10)

According to the research of Liu, Quo and Huang (2023), three factors have a significant influence on customer satisfaction. These factors were performance expectance, effort expectance, and perceived security. The significant impact on continuance intention had on three factors: satisfaction, performance expectancy and social influence. (Liu et al, 2024, 18) According to the research of Zolkiewski et al (2007, p.317), five factors were identified by both customers and the selling company. Those were communication, invoice accuracy, installation, price and responsiveness. In terms of communication, the importance of both internal and external communication was stressed. Especially, the issues in internal communication can affect several processes in the organization and furthermore affect customer satisfaction. The significance of installation was emphasized in their research conducted for the organization installing fire protection systems.

The invoice accuracy was noted, especially by a manager in the selling company. He pointed out the number of customer complaints regarding the clarity of information on invoices. Price was also mentioned by both customers and the selling company's personnel, although there was no consensus on what aspects were important. Responsiveness was mentioned by many of the selling company's personnel, indicating that it was a key performance indicator used by the organization to judge the performance of engineers. (Zolkiewski et al, 2007, p.317)

Defining the factors affecting customer satisfaction involves a systematic process of gathering, analyzing, and interpreting data about customer experiences and expectations. To identify and define these factors effectively, the customer journey could be mapped. The purpose of mapping the customer journey is to identify the key interactions with the organization from start to finish. The map breaks the journey into steps, defines the customers' experience from their perspective, and explores the lifecycle into stages. Mapping their journey forces organizations to see their organization through customers' eyes and to put themselves in their customers' shoes. It also helps to describe the patterns, sentiments, pain points and opportunities to improve the experience at each stage. This also enables the organizations to identify the internal processes that are not aligned to their needs. The map helps to visualize the key factors that can drive customer satisfaction. (Villani, 2019, p.83)

The customer journey map starts with defining the buyer persona, which represents each of the customer segments. It helps to identify the target audience. The next step is to illustrate the customer journey touchpoints. One way of defining the customer touchpoints is to draw five main stages of the customer journey map. These five stages could be 1. Awareness and Research 2. Evaluation 3. Purchase 4. Delivery 5. Post-Sales Support. Each of the stages could define customer objectives, touchpoints, customer questions or inquiries and actions. Bottlenecks, customer pain points and behavior should be identified along the customer journey. (Touchpoint, 2024)

2.3.2 Measuring customer satisfaction

Why should we measure customer experience? According to Hill, Brierley and MacDougall (2017, p.3-5), there might be discrepancy between the customer experience and the extent to which how the expectations are met. In addition, personnel from both sides of the relationship have different perceptions of service quality. The service quality is also dependable on the wider network of actors that are surrounded by the organization. (Zolkiewski, 2007, p.320). There has been

a rapid evolution from product to service to experience. The focus has shifted from creating fast-moving consumer brands to building customer relationships through service marketing and now to creating compelling customer experiences. (Maklan & Klaus, 2011, p.771). A supplier's knowledge of customers' requirements might be insufficient. The feedback from employees working on the customer frontier is useful, but it is not objective. Customer feedback might not be illustrative enough as they do not indicate the extent to which the organization is satisfying the customers who are not complaining. In addition, complaints might not correspond to the total number of dissatisfied customers. (Hill, 2017, p.3-5)

By measuring customer satisfaction objectively, it will build an understanding of the customer's opinion of the organization and whether the customer expectations are met with the organization's performance. According to Maklan and Klaus (2011, p.771), the organizations and customers could be better if customer experience measurements are updated and it commensurate with advances in the conceptualization of that firms offer customers. It will help the organization to identify the PFIs (priorities for improvement), areas in which the greatest gain can be achieved in customer satisfaction providing that improvements are made in the performance. Providing that PFIs are addressed, the cost-benefit analysis should be undertaken. Staff can be coached for better understanding and ability to meet customers' needs. To achieve the improvement of service, goals could be set, and the customer satisfaction index could be monitored. Organization's performance could be benchmarked against other organizations. Especially, the profits could be increased through customer loyalty and retention. (Hill, 2017, p.3-5)

According to Maklan and Klaus (2011, p.771), there is a mismatch between what marketer are trying to achieve and what market research measures. Measuring customer satisfaction requires a clear definition of what we are measuring. According to Hill, Brierley and MacDougall (2017, p.8), the concept of customer satisfaction is said to be simple. Factors that are important to customers should be identified first. There are several things that are important to customers, but some might be more important than others, so the research should measure the relative importance of customers' requirements. (Hill, 2017, p.8)

While acknowledging that organizations are increasingly competing based on customer experience, Maklan and Klaus (2011, p.773) yet claims that there are issues when trying to measure the experience, i.e. there are no widely agreed measures of it. Service quality seems to be most measured among firms. Yet, its conceptualization seems to be too limited to capture the desired achievements – better customer experience. Most widely used measure of service is SERVQUAL,

into which Maklan and Klaus suggest the notion of quality to extend with to measure the customer experience. (Maklan et al, 2011, p.773-774)

In business-to-business markets, exploratory research could be done with one-to-one interviews. The exploratory research will define the accurate measure of customer satisfaction, and the objective is to truly measure how satisfied customers feel. The key to getting accurate results is to ask the right questions of the right customers. The customers should be asked what their main requirements are. The questionnaire should define the most important things for customers when being the customer of the organization. (Hill, 2017, p.8)

The effect of implementing the ISO 9001 QMS can be monitored by measuring customer satisfaction as Nababi & Azizi (2014, p.925) aimed in their research. They conducted research by questionnaires and interviews with experts, manufacturers and different manufacturing companies and ended up with 19 criteria affecting customer satisfaction. The affective criteria were divided into five main groups after the criteria was organized in the format of a hierarchical tree. The division for the 19 criteria was price and sales terms, after sales services, product delivery terms, quality of the applied raw materials; and technical specifications of the product. The AHP method was utilized to formulate the hierarchy for the criteria. (Nabavi & Azizi, 2014, p.925)

Customers' evaluation of the suppliers is based on the fact whether they have received the results, outcomes or benefits that they were seeking. Organizations' perspective is typically based on the product, people and processes. The perception by the organizations is that if processes have been followed and specifications are met, all the necessary is done towards customer satisfaction. This perception has the risk of not resulting in satisfied customers. (Hill, 2017, p.8)

Exploratory research is qualitative, which involves getting a lot of information from a small number of customers. The aim is to understand the customers and gather a lot of information. Depth interviews are typically face to face and one to one. Generally, the number of in-depth interviews is twelve, but in the case of a very small customer base, fewer interviews would be normal. The in-depth interviews should include a good mix of different types of customers, such as a mix of high-value and lower-value customers, customers from different business sectors, different geographical locations and a range of people from the DMU (decision-making unit). (Hill, 2017, p.57). In addition, as Zolkiewski, Lewis, Yuan and Yuan (2007, p.317) practiced in their research, they considered both designated buying centres and associated roles and key individuals in supplier firms and even in intermediary organizations. They noted that collecting perceptions from both

sides of a relationship is often neglected, especially in the business-to-business services marketing literature. (Zolkiewski et al, 2007, p.317).

Before conducting a depth interview, other employees in the organization should be talked to asking for the assumed customer requirements. These can be used as a prompt to check if the assumed customer requirements match the actual customer requirements. The other customers' thoughts can be also used as a prompt to direct in-depth interview with other customers. (Hill, 2017, p.57)

In terms of customer experience, an appropriate measure for the concept of customer experience is one that is based upon an overall cognitive and emotional assessment of value from the customer's point of view, rather than evaluating the benchmarks or expectations. It is suggested that it should capture the value-in-use of the organization's offer, not just the attributes of product and service delivery. The metrics should also assess the reasonable focal period, suitably pre and post the service delivery, giving the possibility to assess the experience over time and across channels. (Maklan & Klaus, 2011, p.777-778)

2.3.3 Maslow's Hierarchy of Needs

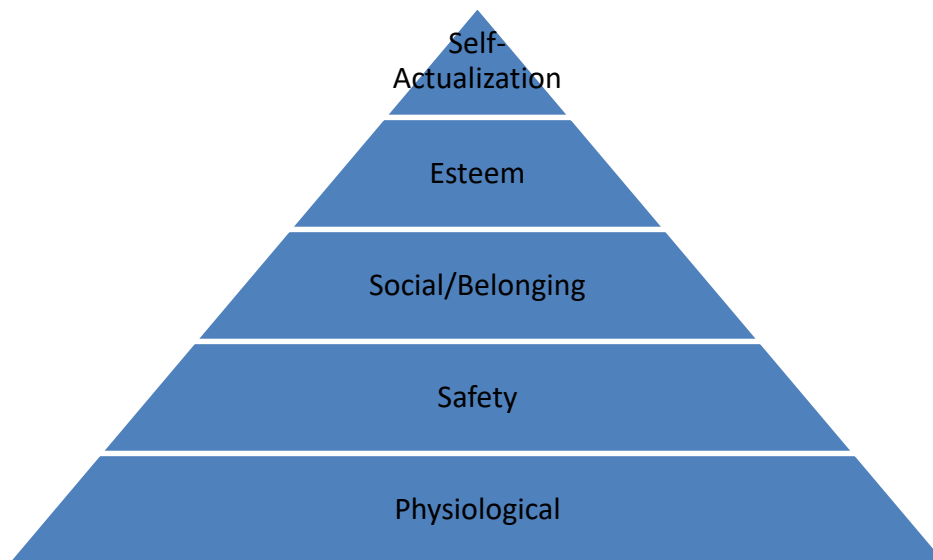


Figure 1. Hierarchy of Needs Pyramid (adapted from Conley & Hsieh, 2017, p.12)

The well-known foundational concept in psychology is Maslow's hierarchy of needs, that outlines the stages of human motivation. From basic physiological requirements, like food and shelter to

the pursuit of self-actualization, it offers a framework to understand how our needs evolve as each layer is fulfilled. While its principles are widely recognized, its application continues to shape fields as diverse as education, leadership, marketing, and personal development. It can work as an organizing structure for understanding the aspirational motivations in the workplace and in the marketplace. Conley and Hsieh (2017) utilized the theory in their book: *Peak* to help companies to build and sustain high-performance relationships with employees, customers, investors, suppliers, and the community. (Conley & Hsieh, 2017, p.12)

Maslow's hierarchy of needs provides a psychological explanation for how customer expectations are formed and prioritized. The model supports the idea of how certain service quality measurements – such as reliability, delivery accuracy, and technical competence – represent basic needs. If these factors are being absent, it leads to strong dissatisfaction. Maslow clarifies why customers react differently to unmet quality requirements. Conley and Hsieh (2017, p.105) illustrated this with the tourism industry and showed that successful companies evolve through three stages, from merely satisfying customer needs to surprising them, ultimately focusing on imagination-driven innovation in tourism. Each stage in the hierarchy presents different needs. This means that customers react differently to unmet requirements. Meeting customer's basic needs is essential for satisfaction but merely achieving this does not guarantee loyalty or competitive advantage. Customer needs are hierarchical. Basic customer needs must be fulfilled before advanced value-adding activities matter. (Conley & Hsieh, 2017, p.105)

Hierarchy of Needs explains why customers prioritize certain service elements and react more strongly to failures in basic expectations. In Conley and Hsieh's (2017, p.103) research, hotel customer hierarchy of needs were illustrated as the basic needs required by customers are a comfortable and clean bed. Moving up the pyramid, safety factors are followed by social / belonging factors. Hotel customers' safety factors are met by various factors; well-lit parking and electronic door locks could be one of the factors. The friendliness of the staff is one of the factors that meet the social and belonging needs. Esteem and self-actualization are followed when moving up the pyramid. These factors could be met by feeling like a VIP and identity refreshment actions. However, the reality is that if the foundational basic needs are not met, most of the customers aren't going to be interested in art on the walls. (Conley & Hsieh, 2017, p.103-104). The hierarchical structure clarifies why certain service attributes, such as reliability, delivery accuracy, and technical competence, represent basic needs. Whereas the absence of basic needs might lead to strong dissatisfaction. Maslow also supports the idea that customer satisfaction is driven by

deeper human motivations. Quality management is not only operational but also human-centered.

2.3.4 Service Quality Measurement

SERVQUAL metrics theory was developed after more stringent measures were needed in the service sector. The model measures the gap between customers' expectations and their perceptions of the service they receive. The SERVQUAL framework is widely used in service industries to assess and improve service quality. It focuses on five dimensions: Tangibles, reliability, responsiveness, assurance and empathy. (Rodrigues, 2013, p.1-2)

1. Tangibles: physical facilities, equipment, and the appearance of personnel
2. Reliability: Ability to perform the promised service accurately and dependably
3. Responsiveness: Willingness to help customers and to provide prompt service
4. Assurance: Knowledge and courtesy of employees and their ability to convey trust and confidence
5. Empathy: Caring and individualized attention to customers

SERVQUAL model can be utilized using quantitative questionnaires, which can be created for two sets of questions, the first one for customer expectations and another for their perceptions of the service. The questions presented should cover the five dimensions of SERVQUAL. After the survey has been completed, the SERVQUAL score should be calculated. The gap between expectation and perception should be calculated with the formula below: (Rodrigues, 2013, p.3)

Service quality = Perception Score – Expectation Score

While analyzing the results, the research should focus on dimensions that have the largest negative gaps, as they highlight significant service issues. The model focuses on customer expectations and perceptions, helping organizations understand service quality from the customer perspective. (Rodrigues, 2013, p.53). It defines the gaps that should be addressed while aiming at excellent service quality. On the other hand, quantitative analysis requires a vast number of interviewees and time to conduct the research. (Parasuman et al, 1988, p.12-40).

By several scholars, SERVQUAL has been challenged in terms of its conceptual, methodological and its validity of the dimensions. Customers assess service or experience against expectations (Croning Jr & Taylor, 1992, p.55-68). Customers' overall assessment of value is reflected by their experience rather than in relation to expectations. It is also claimed that SERVQUAL is not capable of capturing customer experience fully as the dimensions are too limited. (Maklan & Klaus, 2011, p.776-777) Other notable issue is that initial customer interviewed may often not be the end user, adding additional complexity to the challenge of collecting, analyzing and acting upon service quality/customer satisfaction data. (Yuan et al, 2007, p.317) Maklan and Klaus also summarize that SERVQUAL focuses on customers' assessment of the service process and human interactions. Whereas the experience is generated from three different encounter-types: communication, service delivery and usage. (Maklan & Klaus, 2011, p.776-777) However, Yuan et al (2007, p.316) have utilized in-depth pilot case study of one business-to-business service firm as they conducted qualitative research adapting the SERVQUAL Model in which their purpose was to identify service quality as a key performance indicator in their desire to maintain market leadership. (Yuan et al, 2007, p.316)

2.3.5 Kano Model

The Kano Model could be used as a tool for leaders when aiming to fulfill customer expectations. The Kano Model was developed in the 1980s by Noriaki Kano. Kano model aims to answer the question of whether measures for increasing product quality influence customer satisfaction (Raab et al 2016, p.42). The model has classified the customer expectations by three classifications: Basic, Performance, and Excitement. This helps the organizations to understand the quality expectations of their customers. The model can be applied to a broad range of potential organization requirements, e.g. customer, product and service offerings, quality, change, or leadership requirements. It is a helpful tool for thinking about several improvement areas to understand their effect. (Strodtbeck, 2016, p.67)

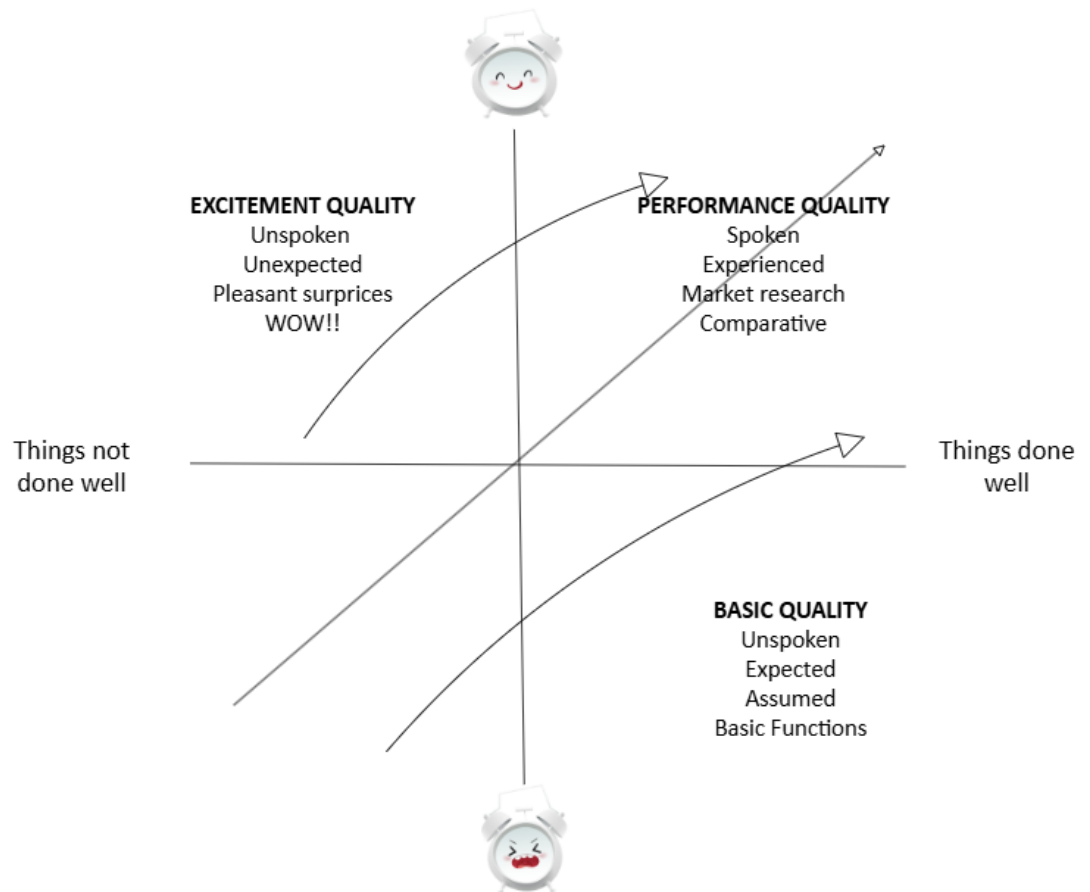


Figure 2. The Kano Model is a useful tool for organizations looking towards change (Adapted from Strodtbeck, 2016, p.67)

Basic requirements are the ticket of entry. Basic requirements are rarely ever discussed, because they are expected and unspoken. The unspoken expectations can be e.g. the usability of windshield wipers or the door handles, when buying a car. These expectations go unnoticed, even if met well. If not done well, failure causes a high degree of dissatisfaction. Performance requirements come out of people's experiences and are spoken. The organizations that can meet the requirements better than another organization, tend to be more successful. The performance requirements tend to be what people see and want, and what they are willing to pay. "More is better" in terms of performance requirements and have the impact on organization's performance. Excitement requirements (also called thrill standards) are unexpected unlike the basic requirements. People have no context for talking about them; thus, they can't express them as requirements. This could be e.g. the Internet at the time of its introduction. It was impossible to

conceive of what it might do. Organizations that can deliver excitement requirements can be defined as world-class. Thrill standards are factors that have the highest influence on customer satisfaction with a product. On the other hand, if these standards are lacking, there is no feeling of dissatisfaction (Raab et al, 2016, p.43). This model and mechanism allow the organization to grow and change. It should be notable also that the evolution of requirements also changes over customer's experiences. First, excitement features can become tomorrow's performance requirements. In almost no time, they become basic requirements of any organization in the arena. (Strodtbeck, 2016, p.68. Raab et al, 2016, p.43)

Organization can evaluate its performance and offerings in the following way: The offerings can be categorized for basic, performance and excitement requirements. One of the advantages of the Kano Model is that it enables a better understanding of product standards: those criteria can be identified which influences customer satisfaction the most. Can organizations evaluate how they meet the basic requirements? Does the organization receive any complaints about basic or expected offers? The priorities for product development can be derived when product classification is made. On the other hand, if two product features cannot be fulfilled at the same time, prioritized criteria could be identified for those features that have a greater effect on customer satisfaction. Organizations should measure how many offerings fit the excitement category. (Strodtbeck, 2016, p.68. Raab et al, 2016, p.43)

The following points summarize the Kano Model in the context of customer satisfaction:

1. Basic needs (must-be) identify minimum requirements that customers expect, such as prompt delivery, basic service reliability, or adherence to ISO 9001 standards. Failing in meeting these leads to dissatisfaction, even if other aspects of service are excellent (Strodtbeck, 2016, p.68). Must-be needs align with ISO 9001's emphasis on meeting customer requirements consistently (ISO, 2015)
2. Performance Needs measure the attributes, where better performance leads directly to higher satisfaction, such as faster response times. These are linear factors that directly influence customer satisfaction levels and serve as benchmarks for continuous improvement in QMS (Oakland, 2014, p.266).
3. Excitement Needs (Delighters) explore the innovative service aspects that exceed customer expectations, such as personalized service recommendations or additional features. Delighters provide a competitive edge and create customer loyalty, making

them highly impactful when discovered through customer feedback (Berger et al., 1993, p.3-36).

2.4 How organizations can benefit from improving quality

Through both innovation and applications, and operational excellence and responsiveness, the customer demand can be fulfilled in the best possible way. The efficiency and innovation in processes should be evolved alongside each other when striving for success. (Hoover et al, 2001, p.1-

3) Customer satisfaction can be integrated in the organizations with a three-part system that is, the process operation, organization's personnel and customer expectation.

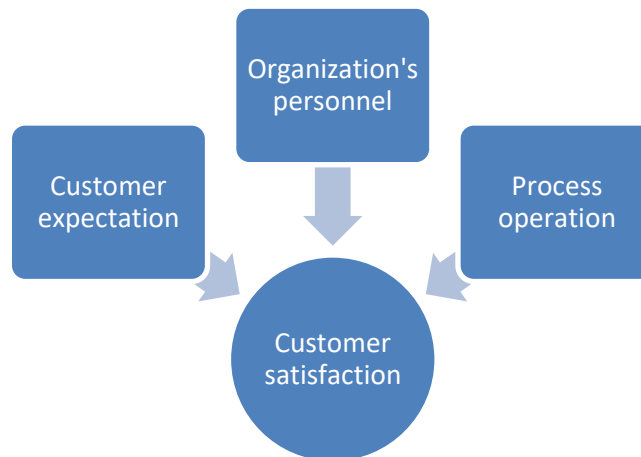


Figure 3. Customer satisfaction from the operations management perspectives (Adapted from Ahmad & Allan, 2014, p.45-47)

Operations management is affected by evaluating the performance of the operating units, understanding the objectives of the performance and designing new or improved operating procedures and systems to achieve competitive advantages. In addition, making short- and long-term decisions to influence operations and managing the workforce. The management of operations refers to the systematic design, direction and control of processes that services and products can be delivered to the customers. Operations management can be used to achieve organization goals e.g. by improving activities using technology or organizing processes. To increase the product quality, service quality and customer satisfaction, accurateness and effectiveness of coordination among the different segments of organization performance can be directed through operations management. (Ahmad & Allan, 2014, p.45-47)

An investment for fixing major customer issues can be seen as an investment in new beginnings. After a decision for continuous improvement has been made, clear objectives should be defined. In addition to clearly defined objectives, documented procedures, inputs, outputs, and identified roles and responsibilities must be directed in the organization. Kureemum and Fantina (2011, p.90-91) present a six-step approach for a constant cycle of continuous improvement.

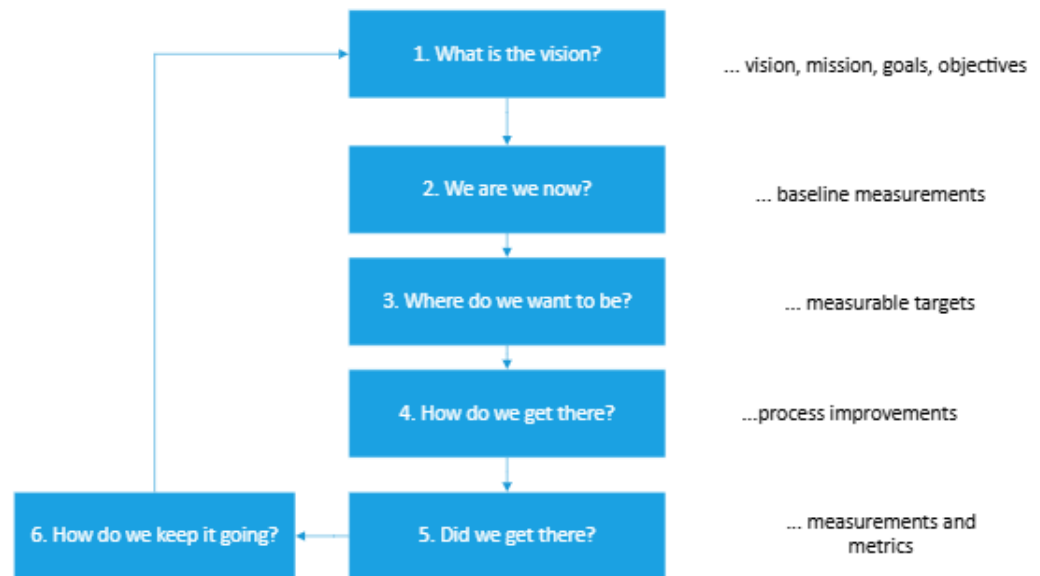


Figure 4. Continuous improvement cycle (Adapted from Kureemum et al 2011, p.90-91)

1. Embrace a vision of continuous improvement by understanding the high-level objectives.
2. Assess the current situation to obtain an accurate, unbiased snapshot of where the organization is right now with respect to business, organization, people, process, and technology. Use this information to determine how customers perceive the quality of your product or service.
3. Understand and agree on the priorities for improvement. The full vision may be years away, but this step provides specific goals and a manageable timeframe.
4. Work out the detailed game plan to achieve the next level of improvements.

5. Verify that measurements and metrics are in place to ensure that milestones are achieved, process compliance is high, and business objectives and priorities are met by the round of improvements.
6. Ensure that the momentum for continuous quality improvement is maintained by assuring that the changes become embedded in the organization.

(Kureemum et al 2011, p.90-91)

2.5 Relationship between Service, Quality and Customer Satisfaction

Dongmo and Onojaefe (2013, p.1-9) discusses that organization's ability to develop and implement processes that ensure a constant, consistent and timely delivery of quality products/services is an effective way to maximize customer satisfaction. The emphasis is on the quality of products and services. Quality Management differentiates a company's product and service from competitors. It can be seen as an essential property or distinctive attribute. The quality management in the organization is seen as a concept of customer and supplier cooperation for mutual benefit. To create customer satisfaction, low cost and continuous improvement, the sustainability of customer-supplier interfaces must be extended into products and service quality. (Dongmo et al. 2013, p.1-9)

In recent years, the service ethos is said to become a competitive differentiator. The changes and competitive market in the business environment have forced all businesses and organizations to take the service sector and quality more seriously. The service sector in general plays an essential role in improving the economy both domestically and internationally. The service sector is thus an important source of profit when considering the country's development and growth. The share of the service sector has increased considerably during recent years. (Ahmad & Allan, 2014, p.45-47)

As the market has grown, the importance of delivering quality services has grown. The purpose of quality is to maintain the existing customers to attract new ones. The quality is defined as value to customers and such value can be different from one customer to another. Customers' expectations, needs and requirements for the same product or service varied from one customer to another. Thus, the one who is determinant of the product or service, is the customer. To create quality products and services, it requires the organization to understand the customer's needs,

requirements and expectations. (Ahmad & Allan, 2014, p.45-47). Moreover, to maintain customers and employees' satisfaction, it is vital to recover effectively the service in case negative encounters have been experienced. Yaya (2014, p.856) summarized that customers need to have as many as 12 positive experiences with a service provider to encounter a negative impact of one bad experience. Companies should take advantage of the learning opportunities provided by the service failures as most customers are dissatisfied with companies handling complaints. (Yaya, 2014, p.856)

One of the main reasons for implementing the ISO 9001 QMS is customer satisfaction and process improvement. According to Dongmo and Onojaefe (2013, p.1-9), customer satisfaction is the direct outcome of production and administrative processes. To sustain the customers' satisfaction and competitiveness, strategic management is needed to improve the business processes. One of these improvements includes employee training and development, implementation of the ISO 9001 QMS and customers' satisfaction orientation. The purpose of these requirements is to gain more employee involvement to achieve the desired production and administrative processes. While product/service quality is prioritized, the administration should receive, review and resolve customer's feedback according to Dongmo et al (2013, p.1-9). This includes communication between administration and customers in case of customers' complaints and should be part of the organization's objectives among customer satisfaction oriented organization. This mechanism should provide synergies for maximizing the benefits of implementing the ISO 9001 QMS. The organization's understanding of customer requirements can be improved with employee training for new process improvement. This improves customer service. (Dongmo et al. 2013, p.1-9) Whereas Yaya et al (2014, p.857) summarizes in the article that only five percent of dissatisfied customers decide to complain about service failures. This can be due to the belief of organization's unresponsiveness, uncertainty of their rights and organization's obligations, concern of the high cost in time and effort of complaining and anticipation of negative ramification. (Yaya et al, 2014, p.857)

Quality can be defined into three types: quality design, quality conformance and quality of performance. Quality design refers to a design in which the product is designed to fit and meet the customer's needs. Quality conformance refers to a status where the product or the service has met the specific requirements set by customer. Quality performance indicates the product or service's capability of performing its intended function as identified by the customer. Ahmad and Allan (2014) states that quality is "doing the right things right, right away". To be regarded as

compliance with standard, we need to understand what the right things are and how the right things are best achieved. (Ahmad & Allan, 2014, p.45-47)

The increase in quality has an impact on customer satisfaction. The positive outcomes could be e.g. economic returns, an increase of positive words of mouth and less damaging negative words of mouth, marketable product and services (enhance reputation for the service firms), improvement of international competitiveness, reduced litigation and positive impact in reputation. All in all, Ahmad and Allan (2014) states that there is a direct and positive relationship between quality and customer satisfaction. Customer satisfaction increases if the quality increases. (Ahmad & Allan, 2014, p.45-47)

Customer satisfaction can be increased with the help of quality models. The purpose is to achieve high quality in meeting the customer's needs, i.e. with the help of organizational excellence and customer satisfaction. This focuses on improving competitiveness, which can lead to improvement of overall business performance. (Ahmad & Allan, 2014, p.45-47) Many companies rely on implementing a management system standard, e.g. ISO 9001. Yet, failures are said to be a common occurrence in several services offered. After a successful remedy of a service failure can lead to more satisfied, loyal and more likely to engage in favorable word-of-mouth about the company that the customers that have never experienced a failure. (Yaya, 2014, p.857)

In addition to customer satisfaction, the importance is to develop customer perceived value to attract more customers (Chang & Wang, 2011, p.333-359). The perceived value contributes to loyalty by reducing a customer's need to switch to competing organization. In general, loyalty is one of the core benefits when implementing the management system standards. Yaya et al (2014, p.857) supposed in their research that ISO 9001 certification directly and positively affects a service recovery, which leads to greater customer satisfaction, value and loyalty intention. The research conducted in bank industry resulted with no differences in e-service quality between certified and non-certified organizations. Whereas customer satisfaction and loyalty were about 47% stronger for banks implementing ISO 9001. The ISO 9001 certification is more likely to encourage satisfied customers to remain loyal to the firm. The essential factor is that companies must create a culture of service recovery to avoid losing customers to competitors. Customers should be educated to not only complain about service failures but also file a complaint. In addition, the employees should view the complaints as part of the service and encourage customers to complain in case of service failures. (Yaya et al, 2014, p.863)

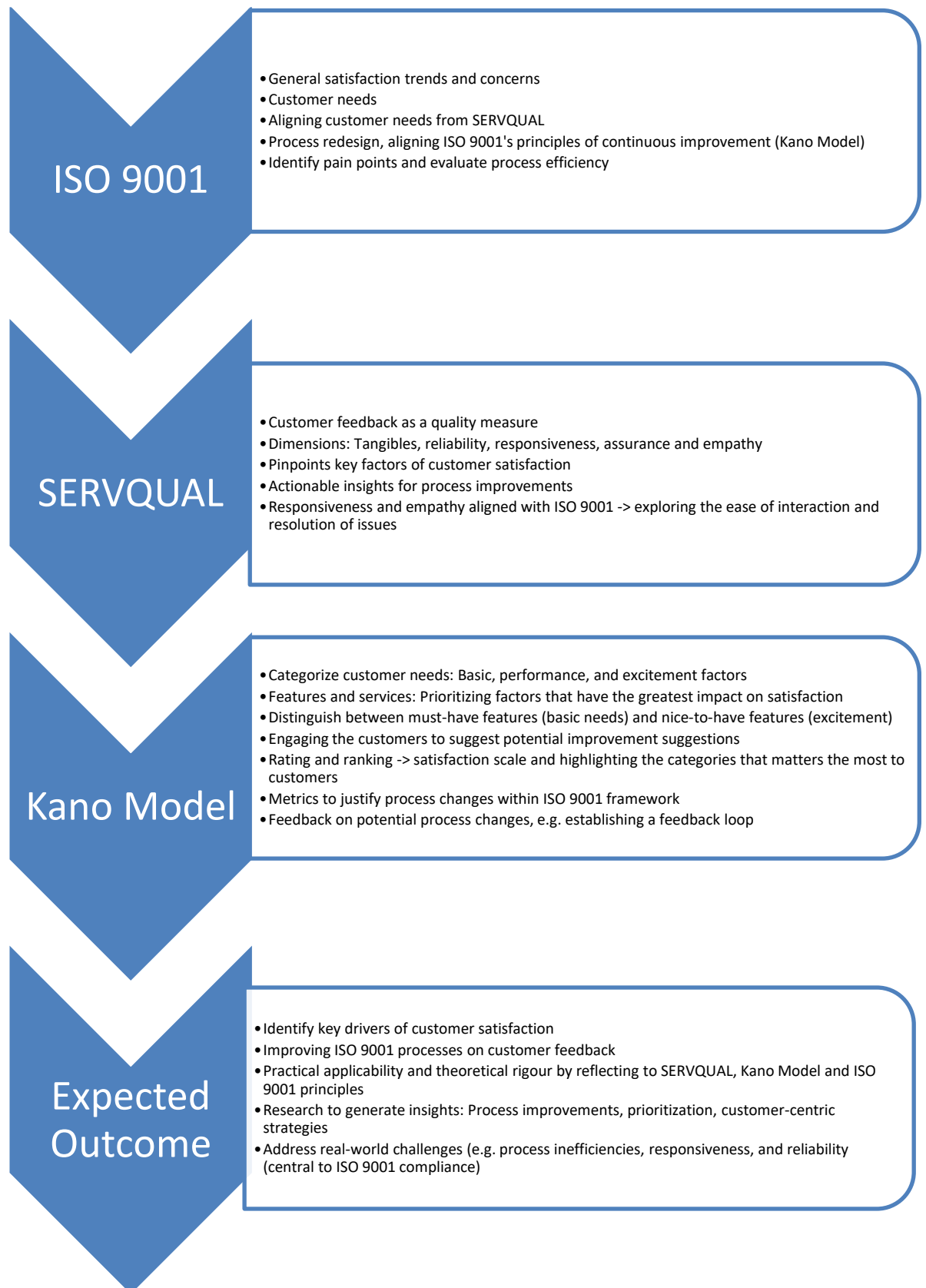


Figure 5. Combining theoretical models into empirical findings

The research integrates theoretical models and standards to guide both the data collection and analysis phases:

- Quality Management Systems (QMS): Emphasizes process standardization and continuous improvement to ensure customer satisfaction and operational excellence (Oakland, 2014, p.266)
- ISO 9001: Provides a structured approach to quality management with a focus on meeting customer requirements and achieving continual improvement (ISO, 2015).
- Kano Model: Used to categorize customer needs into basic (must-be), performance, and excitement factors to prioritize improvements (Strodtbeck, 2016, p.68; Berger et al., 1993, p.3)
- SERVQUAL Model: Applied to evaluate service quality dimensions like reliability, assurance, and responsiveness, offering actionable insights into service performance gaps (Parasuraman et al., 1988, p.12-40).

3 Research Strategy, Research Design and Development Methods

The purpose of this research is to extend our knowledge of the most essential factors that influence customer satisfaction in the context of organization. The research questions have set the parameters for the theoretical understanding to what is initially looked for. (Thompson, 2022, p.1410-1421)

The research will analyze the status of how the factors of customer satisfaction are integrated into ISO 9001 QMS. It will be covered with research into the status of customer experience. The research aims to improve customer satisfaction and find the best practices in operations management, which is typically used in case studies. Case studies are commonly used in research that aims to make an analysis of specific organizations or determine if a certain approach works in a particular setting. The empirical data derived in the case study can be used within limits to evaluate the effectiveness of certain theoretical frameworks. However, the access and continuity to organizations can be often challenging. Case studies can affect one or more units referring to organization, group, department or person and case studies typically explore issues, present and past. Typically, mixed data collection methods are used. These can include, e.g. combination of observation, surveys and interviews. The thematic analysis will utilize abductive analysis, which aims to balance between theories and empirical data (Thompson, 2022, p.1410-1421). The research will analyze the most essential factors that influence customer satisfaction in the context of the organization. The analysis will be conducted with customer interviews, questionnaires and the analysis of the existing customer feedback. The analysis of the findings will be made with mixed research strategy, which involves empirical investigation through multiple sources. (Adams et al, 2014, p.98)

3.1 Research strategy

The research strategy of the thesis is a qualitative case study combining the research approach with qualitative research and secondary data provided by the consulting company. Qualitative research employs data collection and analysis that are non-quantitative. Qualitative research is often used in the field of social sciences to study the customs and behavior of people from different cultures, and are also used in fields, e.g. sociology, psychology, education, history and cultural

studies. Empirical research refers to evidence based in the real world and contrasts with theoretical, which is based on abstract or analytical ideas. (Adams et al, 2014, p.98)

3.2 Research approach

The abductive research approach aims to explore the social world and describe the phenomena with understanding of participants and strong descriptions. The meaningful outcome of abductive research is to condense, synthesize and restructure it into a visualizable and comprehensive theoretical and practical implications of findings. The analysis will be an iterative process between theories and empirical findings. (Thompson, 2022, p.1410-1421). Abductive research is a methodological approach that can combine elements of deduction and induction to generate and refine theories or explanations. It is often employed in qualitative studies to develop new insights when existing theoretical frameworks are insufficient to explain observed phenomena. The purpose of the abductive research process is to gain a deeper understanding of the research problem. The abductive process allows flexibility as researchers adjust research questions, methods, and theoretical perspectives based on emerging findings. The process of abductive research can start by identifying phenomena that do not align with existing theoretical explanations. Preliminary theorizing could be done by developing initial ideas or hypotheses to explain the observations. Qualitative data will be gathered to explore the phenomena further, after which the iteration between theory and data can be proceeded. (Dupois & Gadde, 2002, p.553-560). The research aims to reveal practical and useful outcomes that can easily be applied to the commissioner's ISO 9001 QMS. The qualitative research approach will focus on finding the most essential factors that acknowledge customer satisfaction in developing the ISO 9001 QMS. The qualitative research approach will evaluate the status of the developmental needs. It also aims to evaluate the potential impact of improvements in the customer satisfaction point of view. (Adams et al, 2014, p.6, 9)

3.3 Data collection methods

Secondary data can be collected as the main source for the research of in addition to the data collection. This research utilizes secondary data collection as a supplement to the data collected. When collecting secondary data, one needs to consider whether the data is valid to the work and is it representative. Secondary data might be good when looking for trends and examining

longitudinal data. It might give good support for the documentation and explanation of methodology. (Adams et al, 2014, p.105) Secondary data used in this research is textual data with graphs provided by the consulting company. This data has been collected over a few months' time in a project led by the consulting company and participated by the commissioning company. The existing customer feedback will be analyzed to deepen the overview of status and to get a more complete picture.

Data collection methods are customer interviews and the analysis of the existing customer feedback. Qualitative interviews can be conducted for 20-40% of the total number of customers. Qualitative interviews are effective because they allow for in-depth exploration of each customer's experience, motivations, and expectations. Nuanced feedback can be gathered. The number of interviews will represent 20-40% of the total number of customers, which is a significant portion as Terrafame obtains long-term relationships in customers. These customers represent diverse perspectives within Terrafame's customer base, making the insights more reflective of the whole group. Smaller samples can still yield valid results when participants have relevant insights. This can be applied for small customer bases. Since the aim is to understand customer experiences and needs in-depth, the smaller sample is appropriate for generating actionable insights rather than statistical conclusions (Patton, 2015). A small number of interviews, yet a significant amount may be enough to identify key themes or patterns, as a small, focused sample can often highlight core insights without needing to interview everyone. (Malterud et al, 2016, p.1753-1760)

Open-ended questions will be asked in the interview. Qualitative interviews are often used to explore ideas rather than to generalize results. Qualitative interviews are particularly useful for answering how, why, and what questions that explore people's experiences, beliefs, and motivations in depth. (Brinkmann, 2013, p.49)

3.4 Conducting the interview

As the research aims to understand in-depth motivations for people's behavior and feelings, the qualitative data is required in the research. Interviews are often used in business research and conducted face-to-face or by telephone. This type of data collection gives a mass of information collected but it consumes time and sample sizes tend to be small. People can be interviewed individually or in groups, which is more efficient. (Adams et al, 2014, p.97)

Conducting interviews to define factors that improve customer satisfaction requires careful planning, a well-structured interview guide, and the ability to elicit valuable insights from customers. This research will be conducted through this step-by-step process. (Goodman, 2014, p.13)

Questions that qualitative interviews typically address can be experienced-based questions, which seek to understand personal experiences, actions, and events from the participants perspective. Motivational questions can be used when the research aims to focus on uncovering why people behave in certain ways or make specific decisions. The research might also use perception and opinion questions to explore participants' thoughts, attitudes, and beliefs about certain topics. As the research aims to find out the participants' values and priorities towards Terrafame's processes, the interview should pose questions also focusing on these aspects. (Braun et al, 2013, p.3)

The objective and desired learning outcome should be identified before conducting the interview. If specific areas are desired to understand further like product satisfaction, service quality, or customer experience, they need to be defined (Myers, 2013, p.134). The purpose of this research is to extend our knowledge of the most essential factors that influence customer satisfaction in the context of organization. The learning outcome should determine the factors that lead to improved satisfaction, e.g. recurring themes, emotional responses, or specific pain points. The interview participants will be selected from Terrafame's long-term customers that represents also the continuity of the customer relationship in the future. The qualitative interview will utilize open-ended questions that encourage customers to provide detailed responses by avoiding yes/no questions. A structured interview guide will also include areas to be covered, e.g. product/service quality, customer support, customer experience of the deliveries and product and improvement suggestions. While conducting the interview, the rapport will be built, interesting points will be followed-up, dissatisfaction points probed. In addition, positive and negative feedback will be followed up. (Myers, 2013, p.134)

3.5 Data analysis

To get deeper into the set of questions, the research will utilize questions to gain a broad understanding of customer perceptions and experiences. The questions will provide baseline insights into overall satisfaction and areas of strength or weakness. (Cresswell, 2018, p.125) The questions will be aligned with ISO 9001 customer focus principle by identifying general satisfaction trends

and concerns. They also support SERVQUAL's emphasis on customer feedback as a quality measure. The questions that address the specific dimensions of service quality (tangibles, reliability, responsiveness, assurance and empathy), are directly related to ISO 9001's focus on meeting customer needs. Each dimension pinpoints key factors of customer satisfaction and enables actionable insights for process improvement. To break down the complexity of the set of concepts into manageable data points, each dimension has a meaningful question to be asked. (Parasuraman et al, 1988, p.12-40)

To detail which aspects of the SERVQUAL model will be utilized in the research, the SERVQUAL model will be broken down into its five dimensions and explained how each dimension is applied.

1. Reliability will be applied to assess the company's ability to consistently deliver the promised services, such as product delivery timelines or issue resolution. Reliability is critical in ensuring customer trust and compliance with ISO 9001, which emphasizes meeting customer needs consistently.
2. Responsiveness will be applied to measure how quickly and effectively the company responds to customer inquiries, complaints or feedback. This is proactive and responses to customer issues enhancing customer satisfaction, which was one of the objectives of the research.
3. Assurance will be applied to evaluate the competence, courtesy, and credibility of staff interacting with customers. Assurance is to foster customer confidence, aligning with ISO 9001's emphasis on employee competence and training.
4. Empathy will be applied to assess how well the company understands and prioritizes individual customer needs. This will support the personalized service, which is often a "delighter" in the Kano Model framework.
5. Tangibles will be applied to examine the physical aspects of the service, such as facilities, equipment, and communication materials. Well-maintained tangibles create a positive perception of service quality, contributing to overall satisfaction.

(Parasuraman et al., 1988, p.12-40)

The questions related to Kano Model will be used to categorize customer needs into basic, performance, and excitement factors. The features and services should be able to prioritize to find the factors that have the greatest impact on satisfaction. The questions will help to distinguish

between “must-have” features (basic needs) and “nice-to-have” features (excitement needs). (Berger et al, 1993, p.3-36). The insights gained can guide process redesign to focus on high-impact areas, aligning with ISO 9001’s principle of continuous improvement. As the research also aims to identify pain points in customer interactions and evaluate process efficiency, the qualitative interview includes questions that directly relate to ISO 9001’s focus on efficient processes and customer satisfaction. These questions also tie into SERVQUAL’s responsiveness and empathy dimensions by exploring the ease of interaction and resolution of issues. The set of questions also include open-ended improvement questions that engage the customers to suggest potential improvement suggestions. (Cresswell, 2018) Rating and ranking questions will be utilized to discover the satisfaction scale and highlight the categories that matter the most to customers. (Berger et al, 1993, p.3-36) These replies will be categorized with the help of Kano Model and will provide metrics to justify process changes within ISO 9001 framework. The research aims to gain feedback on potential process changes, e.g. establishing a feedback loop. (Parasuraman et al, 1985, p.41-50)

To summarize, the questions are designed to identify key drivers of customer satisfaction and support the research objective of improving ISO 9001 processes based on customer feedback. The practical applicability and theoretical rigor will be ensured by reflecting SERVQUAL, Kano Model, and ISO 9001 principles. The set of questions is designed to generate insights that directly inform process improvements, prioritization, and customer-centric strategies. The questions address real-world challenges, such as process inefficiencies, responsiveness, and reliability, which are central to ISO 9001 compliance. (Cresswell, 2018, p.125)

3.6 Development methods

The empirical data will be examined to find breakdowns in comparison to what is expected based on the theoretical framework of the phenomena. It aims to find the most logical solution and useful explanation for the phenomena, rather than discovering a singular objective truth. After the interview has been conducted, data will be actively read afterwards to discover meanings, to find out potential patterns and codes within the data. The coding highlights the summative, salient and essence-capturing words and attributes. Coding processes condense the related characteristics, and it is recommended to repeat at least 2-3 rounds. The coding will define the first link to the researcher’s interpretation of data (Seidel & Kelle, 1995, p.52-61). The coding will evolve

by rounds as it becomes more selective, deeper level of comprehension for the patterns and relationships are built. (Thompson, 2022, p. 1410-1421)

The research will use a framework by categorizing responses using Kano Model to understand which areas contribute most to satisfaction. With the help of Kano Model, we can differentiate between basic needs (product reliability), performance needs (e.g. speed of service), and delight needs (e.g., personalized attention). (Kano et al, 1984, 14(2), 39-48). The common themes will be prioritized by looking for the factors that are frequently mentioned by customers as important to their satisfaction. The research will focus on areas where improvement will have the biggest impact. (Myers, 2013, p.67).

It is viable for organizations to compare the current QMS to the requirements of ISO 9001 with gap analysis, where the actual performance is performed with potential performance. It is one of the strategic tools for improving and identifying the disparity between an organization's current performance and its desired objectives. Through gap analysis, the organization seeks to modify its current situation to reach a desired situation, i.e. "what ought to be" in place. The results of gap analysis indicate the critical areas where actions should be taken to narrow the gaps. The gap analysis devises an organization's implementation plan for improving the organizational effectiveness in many areas of organization. The areas can cover e.g. human resources or resource planning, market projection, information technology, and so forth. Gap analysis is conducted in 4 steps, which are 1. identifying an organization's key needs of the present situation, 2. determining the ideal future or desired situation of organization, 3. highlighting the gaps that exist and need to be filled, and 4. modifying and implementing organizational plans to fill the gaps. (Kim et al, 2018, p.3-5)

Organizations should define a list of factors that 1. define the current state 2. are needed to reach its target state and 3. there is a plan on how to fill the gap between the two states. This will work as a gap analysis checklist, which guides the user for recommendations of what documents to look at and what will meet the requirements. This will also give the auditor a view of what was observed and what factors did not meet the standard. With the help of the checklist, tasks should be generated for the implementation phase. Notes will be gathered for practices that do not meet the standard where additional documentation is required and observations relating to compliance with standards. (Altumi et al, 2017, p.116-118) Gap analysis will be made to identify discrepancies between the current state of ISO 9001 processes and the desired future state, based on the customer satisfaction factors. The current processes will be compared against SERVQUAL dimensions (i.e. tangibles, responsiveness). Insights from Kano Model will be used to identify which

gaps (basic, performance or excitement) should be prioritized. This method will provide a structured way to pinpoint improvement areas and ensure the developed processes address critical gaps. In addition, processes will be mapped and if necessary, redesigned. The existing processes will be visualized in order to proceed to be more efficient, customer-focused, and aligned with ISO 9001 principles. This enables researchers to simplify complex processes and ensures alignment with both ISO 9001 requirements and customer needs.

The key insights into the key factors will be summarized. The critical areas and the most valued aspects of customer experience will be highlighted for suggestions for improvement. Based on the feedback, relevant teams in Terrafame will be collaborated with to address pain points. Based on the research findings, evaluation of the current ISO 9001 processes will be conducted. This will gain insights into how the existing processes align with customer expectations and organizational goals. After the analysis has been made, the findings will work as a foundation for the development work. enhance areas of high satisfaction. These teams are related to product quality and customer frontier. (Griffin et al, 1993, p.1-27)

The practical output will include developed tools and documentation to improve processes in the commercial department at Terrafame Oy. The ISO 9001 documentation will be updated as the descriptions will be revised and improved. KPI's and checklists will be developed to support consistent implementation of customer-oriented practices. Customer feedback integrations tools will be monitored and developed to build a mechanism to gather feedback systematically. The feedback in the future will be collected and analyzed. Recommendations will be produced as an outcome to reach quality objectives and continual improvement. The development and recommendations will include long-term development suggestions and suggestions for future metrics. Below, the process is illustrated in a more detailed manner. After the data is collected and the analysis is processed the results are utilized for gap analysis to identify discrepancies between the status and the desired future. The process mapping tools are utilized to document workflows, and these are compared with ISO 9001 requirements. Gap analysis is conducted to identify deficiencies, e.g. unmet customer expectations or service quality issues. After Kano Model classification is done (must-be, performance, and excitement attributes), the strategies will be developed to address must-be and performance needs first, and feasible ways are explored to implement delighters. The ISO 9001 and SERVQUAL Perspectives are identified and practices adopted to enhance service quality and customer satisfaction.

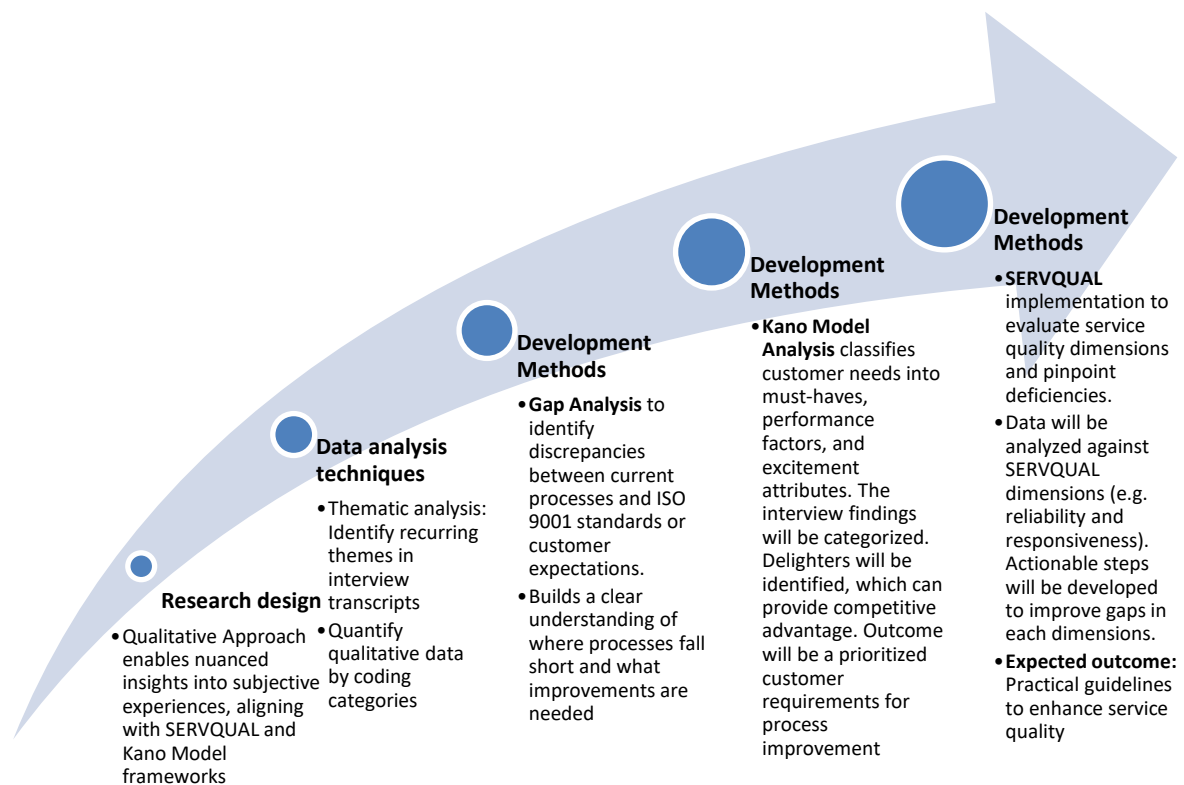


Figure 6. Research process flow chart

Conducting a gap analysis will involve identifying the differences between the current state of customer satisfaction (as reflected in the organization's existing practices in the commercial department) and the desired state (as defined by theoretical frameworks, such as ISO 9001, SERVQUAL, and Kano Model). The research will approach the gap analysis systematically as follows:

Benchmarks and standards are established using the theoretical frameworks:

- i. ISO 9001: Ensuring that processes are aligned with customer satisfaction and continuous improvement principles.
- ii. SERVQUAL: Identifying the idea performance in the five dimensions: tangibles, reliability, responsiveness, assurance, and empathy
- iii. Kano Model: Outlining expectations for must-be needs, performance factors, and delighters.

b. Identify Gaps

Compare the current state to the desired state using frameworks:

1. ISO 9001: Identifying any non-conformities or inefficiencies in processes.
2. SERVQUAL: Calculating the gap scores (difference between customer expectations and perceptions for each dimension).
3. Kano Model: Highlighting unmet must-be needs, underperforming features, or missing delighters.

c. Prioritize the Gaps

- i. Ranked the identified gaps based on their impact on customer satisfaction and alignment with strategic goals.

3.7 Reliability and ethics

Any research to be conducted should be integrated with ethical responsibility to do the work honestly and with integrity. Ignoring ethical manners, the research will fail. A short list provided by Adams, Khan and Raeside (2014, p.97) is about the factors that should be avoided.

- Being selective in sampling
- Not reporting survey response/participation rates
- Deliberately biasing the data collection instruments – for example, asking leading questions in surveys
- Making up data – because you cannot be bothered doing the data collection.
- Falsifying results – to make them fit your conclusion.
- Trimming – removing data that does not fit in with your analysis. This may be a legitimate thing to do but you must make clear what has been done and why.
- Biased or inappropriate analysis

(Adams et al, 2014, p.97)

Any research to be conducted should be integrated with ethical responsibility to do the work honestly and with integrity.

All participants must be fully informed about the research' purpose, methods, and intended outcomes before participating. Participants should voluntarily agree to contribute without coercion. The participants' identities and any proprietary or sensitive information should be protected. All the data should be presented anonymously. The participants' time and input should be respected by keeping the research activities reasonable in scope and duration. The purpose and limitations of the research should be clear. (Creswell et al, 2018, p.125)

3.8 The researcher's position

The researcher has prior experience working in the commercial department in Terrafame Oy, which offers practical insight but also creates a risk of assuming certain customer insights prior to the interviews. The researcher has experience working with the commissioner's customers and with ISO 9001 QMS. The author acknowledges the dual role of being a researcher and a partial insider in the commissioner's organization. The findings emerge through interaction between the researcher and the participants. The presence of the author may encourage openness as having prior cooperation with some of the interviewees. Anyhow, the author will use structured interview protocol. Interviews will be recorded and the data transcribed, which will minimize the bias. In addition, thematic analysis will be conducted which moved iteratively between theory and data.

4 Integrating the factors of customer satisfaction into ISO 9001 QMS

(CONFIDENTIAL)

5 Conclusion

(CONFIDENTIAL)

6 Discussion

(CONFIDENTIAL)

CHATGPT. (2024). OpenAI. GPT- 5, September 2024 – June 2025. Used to generate ideas, especially for narrowing down the topic that was originally brainstormed by the author and the commissioner. AI was also used to formulate research questions in addition to structure the scope of the thesis.

AI assisted to find references for the theoretical background. The assistance has been used also for grammar checking and preliminary structuring the empirical part. The responsibility for the content, analysis, and conclusions of the thesis is with the author. <https://chatgpt.com/>

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Research data management plan for the thesis

1. General description of the data

What type of research data (for example interview, survey, observation) is collected or used in the thesis?

Customer interview of commissioner's customers.

2. Documentation and quality of the data

How is the research data documented, for example, what kind of identifying information is used?

How is the quality of the data and its documentation ensured?

Interviews are held in Teams and they have been recorded. The interviewees cannot be recognized in the results. Interviewees are described as customers or interviewees.

All the data is stored in author's private folders that can be entered only with strong password.

The files cannot be reached by others than the author.

3. Storage and backup

How is the data stored? How is its information security ensured (for example, access to the data) during the thesis process? Who gets to access and process the data?

The recordings were stored on the author's computer and behind strong password. The recordings cannot be reached by others.

The files were stored for 3 months, after which those were deleted permanently.

4. Ethical and legal issues related to storage

How are possible ethical questions related to the storage of the data (for example, sensitive information linked to individuals, access to the data by others) considered? How are ownership and usage rights of the data managed?

The files cannot be entered by others than the author. The interview questions did not collect sensitive information that can be linked to customers. The customers cannot be recognized by readers. The ownership and usage rights are held by the author.

5. Opening of the data and long-term storage

Would it be possible to use the data later? How is this enabled?

All the data will be permanently deleted after completion of the thesis, in the spring of 2026 at the latest.

Interview questions – Customer satisfaction survey

Customer Satisfaction Survey

On a scale 1 to 5: 1= strongly disagree, 5= strongly agree

General customer experience:

1. Can you describe your overall experience with our services and product (NiSO₄/MSP)?
2. What do you appreciate the most about Terrafame's products/services?
3. Have there been any specific instances where we exceeded or fell short of your expectations?
4. Can you describe a time when you were very satisfied with our service? What made that experience stand out?

Service Quality

Tangibles

5. How important the appearance and quality of the product is to you (on a scale 1 to 5)
6. How satisfied are you with the appearance and quality of our the material, deliveries, packaging of the material (on a scale 1 to 5)?
7. Is there anything we could improve in terms of the physical presentations of our services or products?
8. What are the main factors that influence your satisfaction when using our product?

Reliability

9. How important is the willingness to help customers and provide prompt service to you (on a scale 1 to 5)
10. How consistently does Terrafame deliver NiSO₄/MSP deliveries in terms of the delivery schedule (on a scale 1 to 5)?
11. Have you experienced any issues with reliability (e.g. promised delivery schedule, customer service)? If so, what were they?

Responsiveness:

12. How important is the ability to perform the promised service dependably and accurately to you (on a scale 1 to 5)
13. How quickly do we respond to your requests, inquiries, or complaints? Have you experienced any challenges, delays or other defects in the customer support?
14. Is there anything we could do to improve the speed of quality of our response?

Assurance:

15. How important is the knowledge and courtesy of employees to you (on a scale 1 to 5)
16. How would you scale the knowledge and competence of Terrafame's representatives on a scale 1-5?

Empathy:

17. How important is the individualized attention provided to customers to you (on a scale 1 to 5)
18. How well do you feel our staff understands your unique needs and concerns based on the contractual terms (on a scale 1 to 5)?
19. Do you feel valued as a customer when interacting with us?

Prioritizing Needs

20. What are the essential features or qualities you expect from our services/products (excl. technical qualities)?
21. Are there any features or services you would consider delightful but not necessarily expected?
22. If the mentioned feature(s) were missing, how would that impact your satisfaction?

Customer effort and process feedback:

23. How easy it is to interact with Terrafame (e.g. deliveries, getting support?)
24. Are there any points in the process where you feel frustrated or inconvenienced?
25. How satisfied are you with our complaint or feedback-handling processes (on a scale 1 to 5)

Improvement questions

26. What changes or improvements would you suggest to enhance your experiences with us?
27. If you could change one thing about our service or product, what would it be?

Rating and ranking questions:

28. On a scale of 1 to 5, how satisfied are you with our overall service?
29. On a scale of 1 to 5, how would you rate the quality of the product/service?

Feedback on potential process changes:

30. We are considering a specific change, i.e. implementing a new feedback system. How do you think this would impact your experience?
31. What would you change about our product/service?

Follow-up and validation

32. Would you be willing to give feedback in the near future?
33. Is there anything else you would like us to know about your experience?

Data Reduction Matrix

(CONFIDENTIAL)