



# Developing Technical Services in B2B Context

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## Developing Technical Services in B2B Context

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The aim of this research is to identify the aspects of a B2B technical service that contribute to adding value for clients when they assist their end customers. The primary purpose of this thesis is to examine how value co-creation can be enhanced in B2B context. A commission from an electronic company selling products that entail technical service in the B2B market was studied. The development task of the thesis focuses on developing an in-warranty technical service for the clients of the commissioner company. The theoretical framework covers warranty-related technical services and explores topics from value creation in B2B contexts, noting that electronic products serve as platforms for service exchange.

This thesis employs a research-based approach to address the gap in information regarding clients' ability to support their end customers with the commissioner's products. For the development work, service design was the chosen method, along with the Double-Diamond service design model. The development work identified three key findings: First, two identified subsegments from the development work, represented as personas, have three common needs. Second, three internal areas for improvement were identified to enhance clients' experience in response to their main need. Third, the company can improve its technical services by defining development actions, selecting a customer journey, mapping activities in a Journey Blueprint, and establishing internal processes. Specific development actions and internal processes were identified as part of the third key finding. By allocating resources to the identified internal processes, the company can enhance the development area and tackle a common need from B2B subsegments.

The findings indicate that the commissioner company can enhance its technical services by utilizing existing resources, which is feasible for implementation. This will provide clients with effective technical trainings, adding value to their roles, and will allow end customers to receive faster resolutions and personalized support, fostering trust and loyalty. Further research into B2B technical service offerings in the electronics industry is essential, as it can differentiate the company competitively and reduce e-waste while extending product lifespan.

Keywords: technical service, B2B settings, value creation, service design

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## 1 Introduction

Electronic waste is a problem in contemporary times due to the fast production, distribution, and consumption of electronics in the global market. The issue is further worsened by the absence of appropriate infrastructure for recycling on a similar scale as the production. And as a result, this contributes to global pollution and potential health threats caused by poor disposal of electronic waste.

In order to address the issue of excessive and poorly distributed electronic waste, it is important that companies adopt sustainable practices in different areas. According to Cooper (2005, 52), repairing electronics, among other sustainable practices, play a factor in prolonging their life cycle. Consequently, developing a technical service collaborates positively to reduce the environmental impact of electronic waste.

When configuring a service, a direct involvement between a service provider and customer is required, and this active relationship has the essential aim of meeting the customer's needs (Stickdorn, Schneider & Stickdorn 2012, 28). This perspective will be fundamental for the development of this thesis report, because the touchpoints between the service provider and the customer is of high interest for the thesis author. When researching the connection and communication between service provider and customer throughout the service, the notion of value provided for those receiving a service also becomes a relevant matter.

Companies offer services to different types of customers. When a service is provided to consumers (B2C) the notion of value creation is undeviating, due to the nature of the involvement between the service provider and receiver. However, when working in a business-to-business (B2B) setting, the perceived value of a service is influenced by how the end-customers of the B2B clients perceive the service provider.

Developing services in B2B contexts represents an additional layer of complexity because it requires a deeper understanding of the clients' expectations and needs when dealing with their end-customers, who often might also act as the service receivers.

A commission from a company was adopted for this thesis' development task. This approach was chosen to enable the thesis author to deal with the complexity of a real business developing a technical service. The thesis commissioner, who will be further introduced in the upcoming section, operates with direct consumers (B2C) and businesses as clients (B2B).

A technical service development for B2B clients is the focus of this thesis, and this was chosen due to commissioner's interest in increasing the perception of value in the B2B context for

expanding their presence in this sector. Furthermore, the author of this thesis is interested in exploring the complex relationship between service providers and their B2B clients, as this knowledge may be applicable in other contexts.

### 1.1 Background of the commissioner

The development task from this thesis report is done at a commissioner company that manufactures and distributes electronic hardware and develops its software as well. The company's headquarter is in Finland, and they directly sell its products to B2C and B2B markets located in Europe, Asia and North America.

Figure 1 provides a clear view of the commissioner company's actors in their sales markets. The main two direct customers markets are B2C and B2B. Among the B2B segment, a sub-segment of clients is particularly relevant, because they purchase and are authorized to resell the commissioner's products without affecting the products' warranty. From now on, the term "clients" refers specifically to this specific sub-segment of the commissioner's B2B clients.

This sub-segment plays a key sales role by distributing the commissioner's products to other markets and consequently contributing to the brand's growth in terms of awareness, logistics and profit. The end-customers from this sub-segment are the commissioner's indirect customers and are not restricted from receiving the technical services provided by the commissioner.

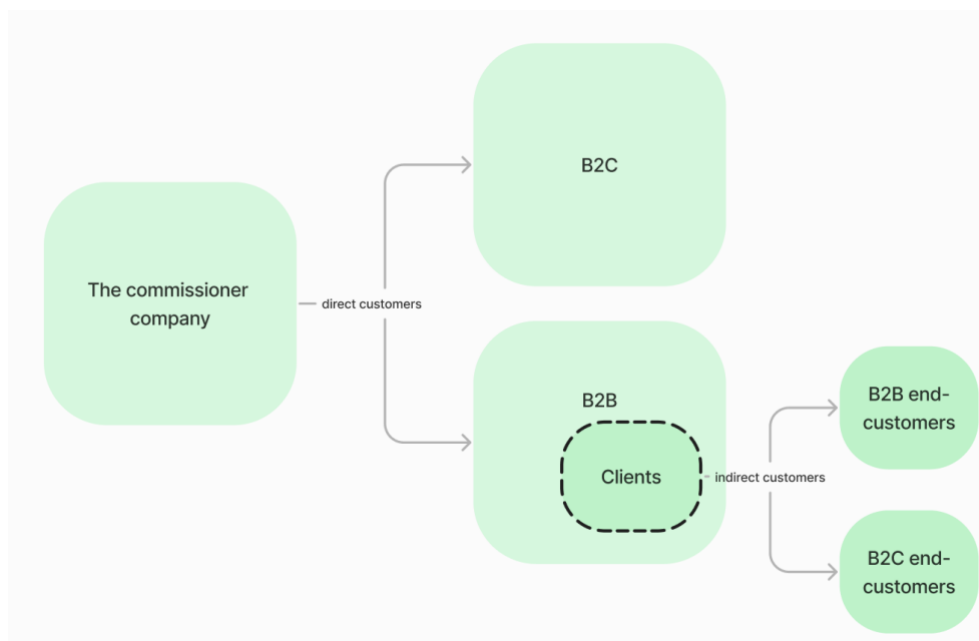


Figure 1: Visual representation from the actors involved in the commissioner's sales markets

The clients are strategically placed in regions where the commissioner company wishes to expand its presence, and they receive exclusive sales channels, prices, and privileged information regarding the product releases.

Due to their strategic importance for the commissioner company, the clients are the target group for this thesis' development work. Another factor that contributed for this decision was their close relationship with the commissioner company's employees. Moreover, there is a possibility that any developments made for the clients may be adapted and implemented for other markets by the commissioner after the completion of this thesis.

In November 2023, the commissioner company launched a new product exclusively for B2B and declared to focus its business on this segment. This new business direction reinforces the relevance of studying the technical service provided for the clients, because they represent a target B2B sub-segment for the commissioner company.

The commissioner company provides technical service to anyone who possesses a product, regardless of whether they purchased their product directly or through a client. The service is, however, affected by a warranty contract from when a product was purchased. The warranty period is covered by law, which varies according to the customer's segment and geographic area when they acquire a product. This will be further explained in section 2.1.

The technical service is composed by online assistance via ticket system, from Monday to Friday in European and North American time zones. Moreover, the service includes troubleshooting, which can determine the appropriate tasks: repair, replacements and refunds.

The technical support team is a critical interface for the commissioner company. As it is one of the teams directly interacting with customers, it addresses issues arising from product usage and collaborates with other internal teams for development actions, such as identifying possible software enhancements, product design opportunities, and accessory sales, for example. The technical team receives users' feedback and plays an influential role in product development, underscoring the importance of studying the technical service provided to the company's clients.

Currently, the process for technical service is the same for both B2B and B2C markets. In 2023, however, it was observed that some clients could provide initial troubleshooting to their end-customers, and one client expressed interest in offering local repairs to their end-customers.

When the clients resell the commissioner company's products, this entails their participation in logistics when their end-customers need to return their defective product to the

commissioner company. This may indicate that the clients may have standard responsibilities, but simultaneously different needs and capabilities to offer extended support to their end-customers. Currently, however, there is no distinction in the service levels provided by the commissioner's technical service to any B2B clients utilizing technical service.

Taking into consideration the interest and development of business in the B2B segment, the relevance of the technical support team for internal developments and the key role of clients, it was agreed by the thesis' writer and sales representative that identifying clients' needs is of interest to the commissioner. The commissioner company is interested in utilizing this information for offering customized service levels for the clients and exploring the creation of new forms of technical service for them. However, prior to developing services, it is necessary to understand the clients' needs and expectations when they support their end-customers.

When the technical service takes place, the commissioner company's support team is responsible for evaluating the need for repair and troubleshoot with the customer and, when necessary, repair the devices. A direct contact between the commissioner's technical support agent may be either with the clients or with their end-customers (B2B or B2C). The following figure displays two stakeholder maps, illustrating different scenarios of interactions between the commissioner and the clients utilizing the commissioner's technical service:

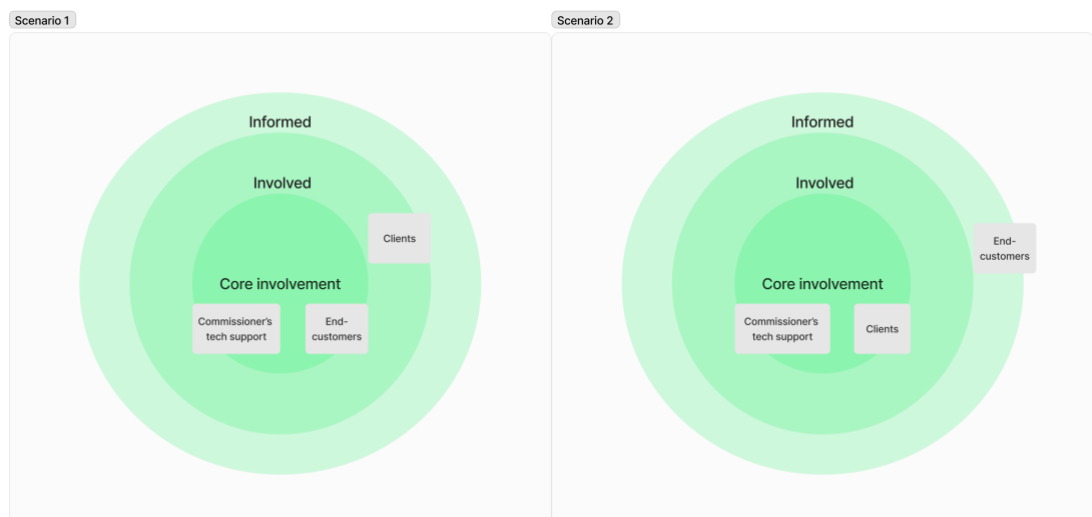


Figure 2: Stakeholder maps for the clients' technical service scenarios

The scenario 1 occurs when end-customers contact the commissioner's technical service directly and a troubleshooting process takes place independently. The clients are involved when a logistic-related operation is required.

The scenario 2 takes place when the clients engage the commissioner's technical support team, and the end-customer is left out of the troubleshooting process. The clients may or not have technical expertise to troubleshoot issues and will involve the commissioner separately for assistance until an issue is solved.

The variety of scenarios in B2B technical service causes a lack of clarity in asserting the clients' main needs. Given the above support possibilities, and the fact that this thesis writer works at the technical support team at the commissioner's and studies the master's degree in service innovation and design, studying the technical service in B2B context was naturally interesting topic of study and development at the workplace.

This thesis' development task and research project focuses on developing a technical service of electronics for the commissioner company's clients in the scenario 2 represented on the Figure 2, because it provides a possibility to deep the knowledge about the commissioner's clients and investigate their needs of technical service. The following section describes the research framing in further detail.

## 1.2 Research problem and development objectives

The commissioner company stated its business focus towards the B2B segment, and the writer of this thesis has agreed with the company's sales representative and technical support team management to explore opportunities for enhancing customer-oriented approach in technical services for the clients defined in the chapter 1.1.

The problem chosen for this thesis is that the commissioner company lacks in-depth knowledge about its clients' capability to offer technical support to their end-customers facing technical issues with the commissioner's products.

This thesis work is based on research questions, defined by the thesis writer as a part of the thesis work, and this thesis research's main purpose is to answer the following research question: How can value co-creation be enhanced in a technical service within a B2B context?

The research aim is to identify what aspects in a B2B technical service contribute to adding value to clients when they assist their end-customers.

The development task from this thesis is to develop a comprehensive proposal for a technical service that aligns with the needs of the commissioner's clients.

To help accomplishing the development task, the following development research questions were ascertained:

- A. What are the primary needs of clients who use the technical service?

- B. What internal areas should the commissioner company improve to ensure a positive experience for clients utilizing the technical service?
- C. How can the commissioner company structure its technical service to attend the needs from its B2B clients' subsegments?

The question A is the first step in identifying clients' needs and quantifying those who require similar strategies when designing the technical service. Different kinds of needs based on their technical capability to serve their end-customers will be outlined. Clients' subsegments will be determined as an outcome of qualitative research conducted during the development work, and further iterated later in workshop, based on their individual roles.

The question B aims to explore possibilities of support and possibly identify development actions for the commissioner's company to create structure for providing a customer-oriented technical service. This question will take into account the technical support team size and structure to determine the commissioner's feasibility to offer activities which will compose a service tailored to their clients' needs. The data for this research question will be collected via workshops with the commissioner's employees involved in the technical service.

The question C is crucial for the development task, and its goal is to ensure that the internal process is seamless for the commissioner company's employees involved in the service offer. A journey perspective will be utilized for gaining a sequential perspective on the support level for each client subsegment.

As a result, this thesis report will propose an internal coordination of activities for a customer-oriented technical service. This can represent a solution to the commissioner's lack of information on clients' needs when utilizing technical service, and it aligns with their business focus.

The customer-oriented perspective utilized in this thesis is founded on the notion that services aim to primarily benefit customers. Also, it is expected that the service provider engages in the customer's experience of service in their context (Heinonen & al. 2010).

The Service-Dominant logic (SDL) endorses this perspective when asserting that "the service-centered view is also inherently customer or beneficiary oriented" (Lusch & Vargo 2014, 74). Similarly, the Customer-Dominant Logic of Service (CDL) perspective also stresses the idea that companies should prioritize on delivering value that aligns with the needs and experiences of their customers by integrating themselves into customers' contexts (Heinonen & Strandvik 2015, 476).

Overall, the development questions were framed to support the structure of the development aim and direct the research towards defining a customer-oriented technical service process.

Technical services are typically regulated by a warranty period. Shafiee and Chukova (2013, 561) define this as a contract between a buyer and a manufacturer that requires them to repair, replace, or provide compensation to the buyer if the product has a confirmed issue during a pre-specified time.

Shafiee & Chukova (2013, 567) articulate the difference between “one-dimensional” and “two-dimensional” warranty policies. The first has as its main factor a time interval from the product’s age, while the second is more complex and considers the usage of the product in addition to its age.

For the development of this thesis, the two-dimensional warranty policy is refuted, as it is commonly used in the automobile industry and other sectors. Instead, the one-dimensional warranty policy is utilized, because it is primarily applied in the electronics industry and therefore aligned with the technical service provided by the commissioner company.

When referring to the one-dimensional warranty, in this thesis the terms “in-warranty” will be utilized for the period covered by the commissioner company, and “out-of-warranty” for the period that exceeds the warranty contract determined by the commissioner company.

When it comes to customers’ needs in technical services, Sonogo, Echeveste & Debarba (2022) investigate consumer practices in electronic product repairs. Similarly, Raihanian Mashhadi, Esmaeilian, Cade, Wiens & Behdad (2016) identify the most common issues, repair practices, and difficulties individual users face while their products are under inspection and repair.

There is a lack of research on customer-oriented practices in technical service in the B2B context. By understanding the needs of clients and their priorities with their respective customers, companies can enhance client satisfaction and obtain a competitive advantage in the B2B market when providing a technical service.

The following image represents the central position that clients’ needs should occupy in a service development when a customer-oriented perspective is utilized.

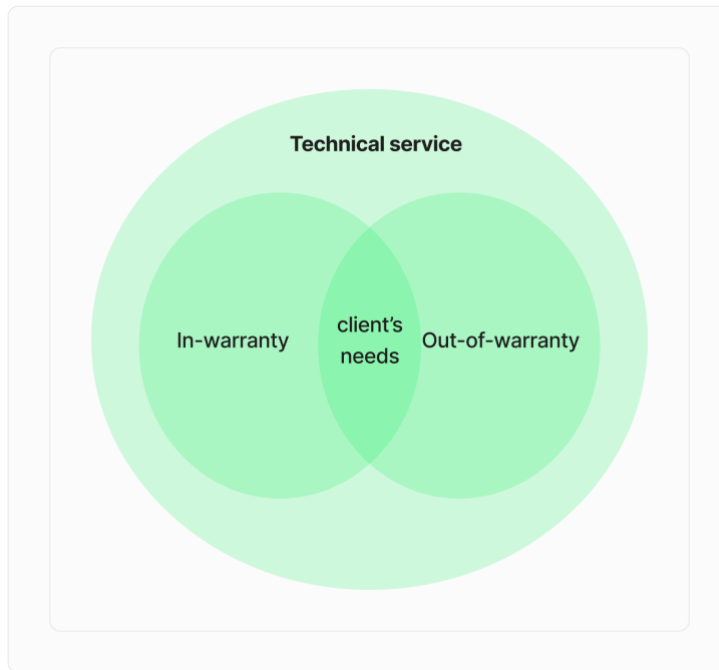


Figure 3: The client's needs as a central aspect of a technical service process.

This thesis aims to prioritize the clients' needs for the development work. This demonstrates a customer-oriented perspective in mapping in-warranty technical service for the clients interacting with the commissioner company.

It is a common practice for electronic companies to offer a technical service. Raihanian Mashhadi & al. (2016, 716) outline that designers or professional repair experts collaborated widely for a common comprehension of the repair practices of electronics. Correspondingly, Sonogo & al. (2022, 557) cite a study by Watson in 2008 to define the goal of repairs as "to correct problems and failures of the product to return it to normal operation". It can be inferred from this that it is regularly accepted to submit products to experts' analysis before replacing them, either by the consumer or by the company's initiative to examine the product.

### 1.3 Structure of the thesis

This section provides a chapter overview, which is described in the table 1:

<b>1 Introduction</b>	<b>2 Creating value for B2B clients in a technical service</b>	<b>3 Technical service process development setting</b>	<b>4 Development work findings</b>
Background of the commissioner	Technical service with warranty policy	Utilizing service design for service development	Clients' main needs when utilizing technical service

Research problem and development objectives	Value creation and the role of customers	Discover stage	Key internal areas for improvement to enhance client experience in technical services
Structure of the thesis	Interactions and value creation in B2B context	Define stage	Structuring technical services to meet the needs of B2B client subsegments
Research approach for the development work		Develop stage	Conclusions
			Prospects of future research and development areas

Table 1: Chapter overview

#### 1.4 Research approach for the development work

A research-based development work (Moilanen, Ojasalo & Ritalahti 2022) was employed in this thesis to address the lack of information regarding clients' ability to provide technical support to their end-customers who encounter issues with the commissioner's products.

This research approach is effective for developing solutions to identified problems and involves engaging relevant stakeholders throughout the research process (Moilanen & al. 2022, 18). Applying a research-based development work supports the task of developing a customer-oriented technical support in B2B context. It is a suitable approach to propose practices that respond to the clients' needs receiving a technical service. To accomplish that, this thesis' development work counts with the participation of the clients and the commissioner company's employees.

Research methods associated with research-based development approach share common characteristics. For this development work, it was noted that service design overlaps aspects with constructive research, action research and innovation research (Moilanen & al. 2022).

While both service design and constructive research aim to address specific problems and produce outputs, constructive research is specifically employed when a developed solution leads to the creation of new knowledge (Moilanen & al. 2022, 50). This method entails testing the acquired knowledge. In this thesis development work, the proposed solution of creating an internal coordination of tasks for a customer-oriented technical service is not considered a new knowledge but rather a service improvement of internal practices to best serve the clients, nor is tested or evaluated by the clients. Therefore, constructive research does not apply, even though some characteristics of it are present in this development work.

In action research, collaborating with stakeholders to improve and change an organization's actions is a fundamental aspect of the development process (Moilanen & al. 2022, 45).

Stakeholder participation is also largely employed in service design. This collaboration occurs in this thesis' development work when employees from the commissioner company, who are involved in the technical service, are asked to participate in specific activities during the development work. However, this thesis does not qualify as action research because the stakeholders are only involved in certain aspects of the development work rather than being fully engaged in both action and knowledge creation. Also, the outcomes of the development work are not tested or evaluated by the commissioner company's employees nor the clients.

Innovation production is another method that can also be aimed at services and internal tasks, similarly to service design. However, it implies the implementation of something innovative (Moilanen & al. 2022, 65). In this thesis' development work, the solution for the commissioner's problem is an improvement of existing internal tasks based on clients' needs, rather than pure innovation of technical services.

Service design was selected as the most suitable method for this research-based development work, as it is suitable for developing service businesses and creating practical solutions that meet customers' needs (Moilanen & al. 2022, 32) in practical contexts. Stakeholder participations are important in this development work, but the central focus of clients' needs in the technical service was the key factor for choosing service design as a method in this thesis. Aiming improvement of the clients' experience in the technical service fundamentally distinguished this method from the others listed above.

A variety of process models have been developed for service design. Moilanen & al. (2022, 57), explain that they typically have an emphasis on data collection, collaborative idea generation, the development of diverse models, and the implementation of rapid iteration informed by insights gained during the process.

This study employed service design methods and tools in conjunction with the Double-Diamond services design process model (Design Council 2024). The selection of the Double Diamond was the result of a comparison of different service design processes and chosen due to its visual description of the study's phases and its familiarity with the thesis author.

Data collection in service design is typically versatile and involves various stakeholders. Common methods such as interviews, surveys, and user observations are used to gain insights from customers or users. Additionally, mapping the customer journey and utilizing personas as visual representations of customer needs and experiences are widely employed tools in service design (Moilanen & al. 2022, 55-58). Some of these tools were utilized in this thesis' development work.

The process stages from the Double-Diamond are advantageous to follow during the development work, as they provide a framework for gathering diverse perspectives relevant

stakeholders, making informed decisions and utilizing iterative cycles of learning. The tools and methods deployed in this study were selected to follow the Double-diamond stages while better understanding and addressing clients' needs from the beginning until structuring the technical service proposal.

The development work was implemented as follows:

**January 2024:** Electronic survey sent to all clients regarding the knowledge transfer from the commissioner to clients and overall satisfaction with commissioner's technical service. 11 answers were received, and the data collected was utilized to frame interviews.

**March and April 2024:** The thesis author conducted 6 interviews and distributed 9 questionnaires to selected clients located in Europe and Asia. The topics explored included the clients' experiences with the technical and repair services provided by the commissioner company, knowledge transfer, and their technical capabilities for troubleshooting and repairs. The collected data highlighted the characteristics that significantly differentiate clients when they request technical service. Based on this data, personas and customer journeys were created to summarize the different groups of clients.

**May 2024:** Two workshops were conducted with the commissioner's staff, each lasting 1.5 hours. The first was Empathy Workshop, which aimed to share research findings and foster a deeper understanding of the clients' personas, as well as to identify their primary needs. The second was an Ideation Workshop, focused on identifying areas for improvement within the commissioner's company regarding technical service for clients. Participants were tasked with brainstorming solutions for one specific clients' need. The main outcomes from both workshops included identifying the clients' primary need, selecting an area for internal development, and generating specific actions for development.

**July 2024:** The thesis author created a Journey Blueprint to visualize the future state of the clients' journey when utilizing technical service from the commissioner company. This blueprint consists of three phases of the technical service, developed based on the identified actions for improvement and feedback from the commissioner.

Concepts related to value creation in B2B context and service design are vital for the development of this thesis report and for performing the development task, as they provide the necessary background information for developing a technical service. These concepts are discussed in the upcoming section.

## 2 Creating value for B2B clients in a technical service

This chapter is dedicated to exploring different fields involved in developing a technical service in a B2B context. From the repair perspective, it is necessary to highlight the role of warranty when a service takes place. Then, value creation and the roles of customers defined. And finally, the value measurement in B2B context is brought to attention.

### 2.1 Technical service with warranty policy

Studies have been held on technical service and repair of electronic products. From a business perspective, Murthy & Djamaludin (2002) identify relevant topics to manufacturers when managing the repair of new products. Shafiee & Chukova (2013) study the connection between warranty and maintenance. Jack & al. (2009, 611) discuss the cost structure involved in a “repair-replace strategy” for a product manufacturer.

A product warranty is a commitment from a manufacturer to repair product failures that fall within the warranty coverage (Ye & Murthy 2016, 21). Offering a warranty and providing technical support incur costs for companies and customers, which vary depending on the associated expenses and if the warranty period has expired. Multiple factors can influence the amount of these costs, including product reliability, the terms of the warranty, how intensively the product is used, the operating environment, and the logistics of providing service (Jack, Iskandar & Murthy 2009, 611).

The warranty coverage highly impacts the customers behavior (Ye & Murthy 2016). For instance, a customer decision-making of continuing with the current product or purchasing a new one is recurrent on products out of the warranty coverage. This contributes on the relevance of developing technical service when the service provided by electronic manufacturers companies free of charge for products that are still in-warranty.

### 2.2 Value creation and the role of customers

In the service-related literature, customers are often highlighted as one of the main actors interacting for a service creation. Fitzsimmons & Fitzsimmons (1999) remark the contact with customers as one of the characteristics for a service to take place. Similarly, Stickdorn & al. (2012) affirm that customers involvement naturally occurs when a service is being delivered. It can be affirmed that customers are central in a service, as their interaction with service providers and other stakeholders is essential. Similarly, the Service-Dominant (S-D) logic's authors (Lusch & Vargo 2006; Vargo & Lusch 2008) integrate customers in the direct resources engagement from the service provider and other stakeholders.

According to the S-D's perspective, customers are regarded as the beneficiaries of a service, and they hold the responsibility of determining value creation when interacting with the service provider and other stakeholders (Vargo & Lusch 2008). The responsibility attributed to them connotes the protagonist role customers occupy in service creation and development, and customers' inputs are crucial for a service creation and evaluation.

Value creation occurs from an interaction within a context, which is from where the co-creation emerges in the S-D logic (Lusch & Vargo 2006; Vargo & Lusch 2008). The interaction between actors is a central aspect from S-D because it enables a service to exist in the first place.

Lusch & Vargo (2006) distinguishes value creation from co-creation of value with an insightful perspective. While the first is more generic and embeds the interactions with the customer who creates value during the service use, the second emphasizes the value added to the service due to the customer's participation on it.

Explaining it further, Lusch & Vargo (2006) conceptualize the co-creation of value as a service component that brings the notion of value creation while the customer utilizes the service. This occurs during the interactions with the service provider and stakeholders.

The second distinction is the value co-production, a component that belongs to the service offer itself. This may be an enhancement or a shared production of the service that happened due to the engagement with customers and other stakeholders to happen.

The above theory of value co-creation is challenged by Grönroos (2011, 287). The author alleges that the roles and their relative importance are missing from the Service-Dominant (S-D)'s value co-creation perspective. He claims that perceiving customers and companies as co-creators of value fails to elucidate which roles and activities effectively contribute or not for value co-creation, and therefore the interpretation that both parts are engaged in a value creation process is simplistic. Therefore, value co-creation exists, but this term does not collaborate with meaningful data for decision-making in companies.

A developed perspective of value creation during a service is formulated by Grönroos (2011). According to the author, value is created, developed, and even destroyed during a service, which means that value is not static and should not be determined at the end of a service. The notion of value-in-use is proposed by the author to emphasize that customers, as users, actively participate in creating value for themselves through their engagement with a business (Grönroos 2011, 288). This perspective clearly does not exclude the inherent interaction between the company acting as a service provider and the customer, but it attributes to the customers the responsibility of incorporating value to their own practices during a service.

This point of view comes from the author's intent to emphasize the significant function of customers in value creation while acknowledging the contribution of companies in service production, but not necessarily in value creation (Grönroos 2011). The value-in-use aims to prevent misleading interpretations regarding the value created and provided to customers, particularly in management decisions that might overly focus on the role of companies delivering a service. The author argues that while the entire company process is essential for enabling value creation, not all elements of this process necessarily contribute directly to creating value for customers. The value creation is therefore primarily attributed to customers.

In value-in-use, the customer occupies a central role. They utilize a service by integrating resources from a company with other ones available, in a "self-service process" (Grönroos 2011, 286). From that, they create value for themselves. The company's role has been modified to facilitate value creation and not necessarily co-produce it. The facilitation role is also essential for a service, yet it acknowledges that the company's role is not central.

A company co-creates value with customers only if direct interactions occur with them. In this situation, the service provider can influence the process of primary value creation and for this reason, managing customers interactions effectively is crucial to positively influence customers' value creation process (Grönroos 2011). In different circumstances than direct interactions, the customers' value creation is independent. According to Grönroos (2011), in such situations companies can only facilitate this process by providing resources to customers.

### 2.3 Interactions and value creation in B2B context

When Vargo (2008, 213) narrates about customers and value creation, the author suggests that the customers are resource integrators, and that they operate within a "supply chain". This means that in the S-D logic's perspective, customers are perceived in a complex form that characterizes them as more than service receivers. Vargo (2008, 213) recognizes that customers are actors who act as their own primary resource integrator, with their own resources for value creation in a larger context called value-configuration space. The author also explains that customers have their own network and interact with the service provider in a network-to-network perspective. This perspective demonstrates that customers naturally work in complex environments and invariably affect other actors when utilizing a service, regardless of their context. This is a beneficial starting point for thinking about B2B customers, as it incorporates the complexity nature of customers.

Value-in-use can be experienced by B2B customers (Moeller 2008, cited in Gligor & Maloni 2022, 212), but when a service is developed in a B2B context, it is expected a higher complexity of interaction, which may cause difficulties in recognizing value creation between the stakeholders. Blasco-Arcas & al. (2020) state that inter-organizational collaborations and

resource utilization are multifaceted in B2B context, when compared to B2C. Similarly, Mencarelli & Rivière (2015) highlights that the multidimensional nature of a B2B context is hard to be captured by measuring instruments for value compared to B2C context. Lievens & Blažević (2021) describe B2B settings as multi-level engagement, which may present difficulties to understand stakeholders' different goals and expectations.

Traditionally, according to Mencarelli & Rivière (2015), the perception of value in B2B context has focused on economic and functional aspects, but emotional and symbolic dimensions are also relevant and should be similarly recorded. Utilizing the perspective that value creation begins with the engagement between the service provider and other stakeholders during a service, the idea of monitoring and planning interaction in B2B services also make sense to be designed.

In B2B contexts, the actors' engagement requires considering the interpersonal relationships between individual actors who represent different businesses. On top of that, there are restrictions and limitations that originate from interdependencies and competition between the businesses that each actor represents (Kumar & Pansari 2016, cited in Blasco-Arcas & al. 2020, 74-75).

Unclear and fragmented contributions on engagement dimensions for B2B settings are limitations for business development (Hollebeek 2019), and embracing the complexity of elements in both personal and business level that may affect a service in a B2B context tackles them. By adopting this perspective, the challenges emerged from the business interactions, such as conflict of interests, business priorities and competition, are incorporated when managing interactions between actors.

While there is a limitation in measuring perceived value in the B2B context (Mencarelli & Rivière 2015), service design is pointed out as a process that can enable companies to organize activities that involve stakeholders. These activities aim at creating value in a collaborative effort in a B2B setting throughout an innovation process (Lievens & Blažević 2021). This demonstrates the directions studies have been pointing to, with recognizing the knowledge gap and identifying a process that can be helpful to collect and organize activities that create value to customers in a B2B context.

Enlarging the notion of value creation in B2B context is favorable in the S-D logic. Lusch & Vargo (2006) are receptive to integrating other angles for making S-D more accurate in complex dynamics of value creation in contemporary service environments. The authors indicate an opportunity to improve S-D logic by establishing a clearer link to the concepts and findings from interactivity and networking-related literature. This connection could provide further insights into how interactions between parties and network dynamics contribute to value creation within service ecosystems (Lusch & Vargo 2006).

When it comes to actors engagement and value measurement in B2B experiences, Mencarelli & Rivière (2015) suggest utilizing value measurement models. By doing this, other dimensions of perceived value such as emotional or symbolic get the chance to be incorporated in B2B contexts. Adding such dimensions collaborates for enriching perspectives of value when designing an experience in B2B setting.

Lusch & Nambisan (2015, 166) explain that some electronic products act as service platforms. They enable the exchange of services and co-creation of value. Therefore, goods serve as distribution mechanisms for services, and service innovation is fostered when actors discover new solutions through resource exchanges.

The technical service provided by the commissioner company is the primary offering of the service platform. However, a repair service is occasionally included as a secondary offering for the technical service.

The repair service requires the product to be shipped to the commissioner company and is also governed by a warranty contract. Due to its specific characteristics, it is reasonable to study the repair service separately, even though it is integrated with the technical service. The focus of this thesis development work does not include a repair service journey.

To accomplish innovation, an effective interaction between actors and resources is needed. Lievens & Blažević (2021, 21) highlight customer journey map as a form of engagement platform in B2B context. It can be used to plan and coordinate actions, therefore defining tangible and intangible components when actors and resources interact (Lusch & Nambisan 2015).

For the continuation of this thesis, Grönroos (2011)' value co-creation perspective where a company collaborates with customers to create value in direct interactions serves as a foundation for the development work. Furthermore, the author's view on independent value creation is also incorporated. When direct interactions cease, research data should demonstrate how value creation takes place separately by clients and what resources provided by the commissioner company can facilitate an independent value creation.

Lusch & Nambisan (2015, 166) suggest that companies should design their service offerings. The development work of this thesis aligns with this suggestion when it proposes areas for improvement based on the clients' needs. This will help the commissioner company to make its technical service more customer oriented.

Tools for the development work were identified from the literature. Roles and objectives from the stakeholders will be incorporated in the form of personas (Hollebeek 2019). This is

tool aims to foster empathy with the stakeholders' perspectives to comprehend their needs. It is as well a visual way of displaying insights from the data collection.

To document the interaction between actors and resources and highlight needs from each persona, a customer journey map (Lievens & Blažević 2021) will be utilized to display a sequential actions and therefore open space to brainstorm areas of development from the commissioner company.

### 3 Technical service development setting

This chapter is dedicated to the empirical part of the thesis, and it describes the whole research development process done utilizing a service design process. The main goal of this development setting is to propose a technical service process for the commissioner's clients.

#### 3.1 Utilizing service design for service development

Fitzsimmons & Fitzsimmons (1999) utilize the New Service Development (NSD) terminology to refer to the process of creating and introducing new services to the market. The authors present an overall process for service development containing its own models and claim that service development incorporates service design on its formation.

Studies done by Roth & Jackson (1995) and Roth & Van Der Velde (1991) are utilized by Fitzsimmons & Fitzsimmons (1999, 5) to highlight the relevance of service design for a service development process: they say that service design goes into the service operations strategy detail, and specifies its "structure, infrastructure, and integration content". This implies the relevance of coordinating and defining steps and actors' roles when designing a service. In the thesis' writer view, this viewpoint reinforces the reasoning for applying design methodology in this thesis' development work.

The authors Polaine, Løvlie & Reason (2013) and Stickdorn, Hormess, Lawrence & Schneider (2018) provide practical examples of service design applied to develop a wide range of services across various sectors and contexts, including B2B setting.

In complex environments, organizing company resources in a way that is clear and understandable for customers can be challenging (Polaine & al. 2013, 24). Therefore, when developing technical services in a B2B context, service design is expected to clarify to the commissioner company how technical service can be structured in a way that promotes value to both clients and their end-customers.

A service can only exist with the participation of a customer, meaning that value is co-created together (Stickdorn & al. 2018, 24). In the context of this thesis in B2B context, this perspective underscores the importance of implementing a service design process, as the clients involvement is a crucial component of the development work.

A service design process is iterative and different frameworks exist to allow the designers to approach complex scenarios (Stickdorn & al. 2012). The Double-diamond process is the chosen framework for the development task, due to its comprehensible stages. By utilizing two diamond shape figures, it provides a simple visual representation of the divergent and convergent thinking required during a design process (Design Council 2024).

The stages are defined as “Discover”, “Define”, “Develop” and “Deliver”. The initial stage involves gaining a deep understanding of the given problem. The second stage utilizes the insights obtained during the discovery to redefine the challenge in a new and innovative manner. The develop stage represents drawing solutions and exploring sources of inspiration. And finally, the deliver stage represents the time to quickly test proposed solutions and discard ineffective ones, as well as iterate those that represent some potential (Design Council 2024).

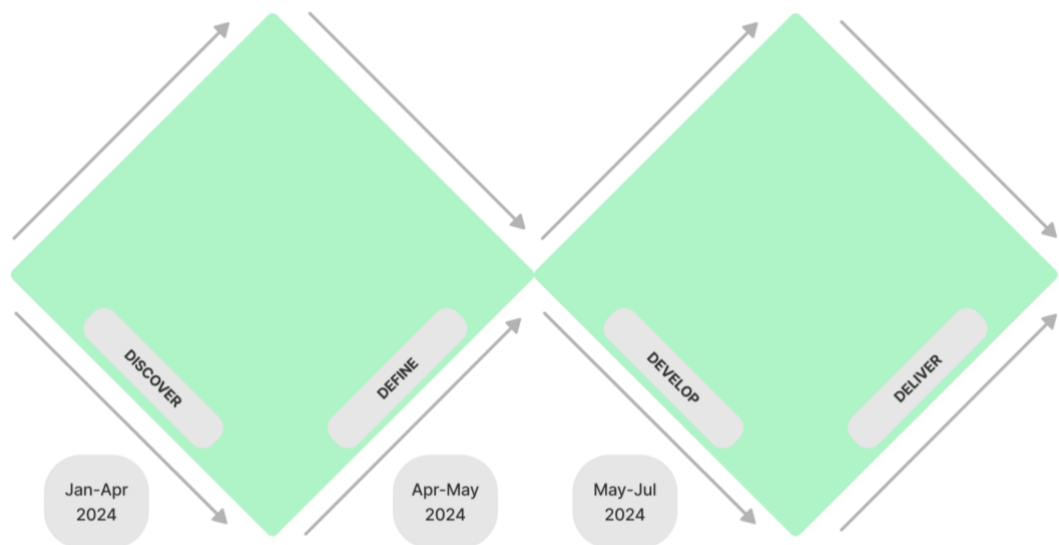


Figure 4: Double-diamond process with the development work time frame

The arrows around the two diamonds represent the process involving divergent thinking during the "Discover" and "Develop" stages, when exploring the topic comprehensively takes place. They also represent convergent thinking during the "Define" and "Deliver" stages, when implementing specific tasks and making decisions are required, on a narrower scope (Design Council 2024).

In this thesis' development work, only the initial three stages of the Double Diamond were implemented due to time constraints. They were all implemented from January to July 2024, and a variety of tools were applied in the form of research methods.

To provide a comprehensive view of the entire development process in this work, the table 2 shows each stage of the Double Diamond model along with the research methods and tools used, their objectives, and outcomes. The table is not organized chronologically.

Stage	Research Method	Objective	Outcome
Discover	Electronic survey	Access clients' availability for interviews, explore areas of investigation, such as their technical service capability and learning methods	The number and region of clients available for interviews was clarified. Qualitative insights on the clients' technical service provided to end-customers were integrated in the interview questions for continuing the development work
	Business-to-Business Depth Interviews	Obtain insights on clients' experience and their needs towards technical service	The needs of target clients in their context were identified, and utilized to define the personas and their journey when receiving technical service from the commissioner company
	Questionnaire with 3 clients	Adapted method for clients with language barrier. Obtain insights on clients' experience and their	The needs of target clients in their context were identified, and utilized to define the personas and their

		needs towards technical service	journey when receiving technical service from the commissioner company
Define	Data analysis of clients' depth interviews and surveys	Absorb the clients' viewpoints by clustering and analyzing the data into new categories	Identified six themes and three aggregate dimensions for the commissioner company to enhance technical service, providing essential insights for personas and their journeys
	Personas	Form a representation of clients with common needs and behavior patterns based on the collected qualitative data to present to the commissioner company	Transformed real feedback from the clients' perceptions into two fictional characters. Identified clients' roles that will be incorporated into their journey maps
Develop	Workshop I	Present the data collection methods and the two personas. Use a Customer Journey Map to help participants empathize with the clients' needs when utilizing the technical service. Allow participants to identify the differences and	Established purpose of the research and the alignment on the needs of clients, which will serve as the foundation for defining internal development areas

		similarities in the personas' journeys	
	Customer Journey Map	Provide a comprehensive view of both personas using the technical service. Build empathy, align the company with the clients' needs, and identify if there are different needs for each persona	Two customer journey maps were defined.  The pain points for each persona were identified and presented
	Workshop II	Classify and vote on the clients' main needs.  Collectively identify and prioritize areas of development for the commissioner company when providing technical service to the clients with Octopus clustering and voting session.  Brainstorm actions to tackle needs with How Might We and Affinity Diagram tools	Set priorities for development and specific actions based on the clients' needs when utilizing technical service  Three specific actions were outlined for one of the internal areas for development
	Octopus Clustering	identify the similar and different needs of both personas	One common list of four clients' needs when utilizing technical service was revealed and classified

	How Might We	Generate ideas on the opportunities for internal development, aiming to address the clients' main need	Around fifteen ideas were collected and displayed on the board. They represent specific actions for development, which will be grouped into internal areas for development
	Affinity Diagram	Consolidate the internal areas for development by the commissioner company	Three Internal areas for development were identified for the main need. One area was voted for further development
	Journey Blueprint	Integrate the development actions into the Journey Blueprint for a holistic view of the technical service	Outlined an internal support process that guides actions toward development, tackling the clients' main need when utilizing technical service

Table 2: Implemented research methods at each stage of the Double Diamond process

The design process is iterative and collaborative (Stickdorn & al. 2018, 21). As a result, some planned tools were replaced as needed during the development work. The table provided above includes only the ones that were implemented. Each tool's description and theoretical connections are detailed in chapters 3.2, 3.3, and 3.4.

### 3.2 Discover stage

The development phase of this study commences with the application of both quantitative and qualitative research methods for data collection. The quantitative approach was chosen due to its propensity to facilitate knowledge creation and enhance understanding of the area of research (Polaine & al. 2013, 3). The numbers and data generated from it aimed to help the thesis author to map the clients' needs when utilizing technical service and plan the continuation of the development research.

The primary approach to research is the qualitative method, which provides more data for insights (Polaine & al. 2013, 46). A deeper contextual understanding of clients' needs is required be the foundation for the "define" and "develop" stages, and the qualitative research is the most appropriate way to gather in-depth information.

In accordance with Arene's (2020) recommendations for thesis writing, all clients consent was obtained to partake in the research and to record their responses to surveys, interviews and questionnaires. Furthermore, both the context of the research and data management regarding their responses were briefly explained in the invitations and verbally during the interviews.

#### *Electronic survey with clients*

The electronic survey was selected as the primary data collection method due to its ease of implementation. It did not require additional resources to be acquired and provided quick responses (Hague, Hague & Morgan 2013, 169).

This research was employed to confirm areas of further investigation, such as the clients' capability to offer extended technical service and how they learn about the commissioner's products. Another intention was to assess the clients' availability for the next research method implementation.

Quantitative and qualitative data were aimed to be gathered from the electronic survey, to determine research method continuity and participant numbers. A semi-structured questionnaire was chosen for its ability to collect both types of information through open and closed questions (Hague & al. 2013, 107).

In collaboration with the commissioner's sales representative, the thesis author identified three main topics for investigation: Client identification (1) for distinguishing between the clients' B2B, B2B2C and both types of end-customers; Client capability (2) for evaluating the clients' ability to provide extended technical service; and Service from the commissioner company to clients (3) for assessing the satisfaction of the service provided by the commissioner company. To obtain feedback on the clients' opinion regarding technical service, the survey and interviews referred to "technical assistance" due to the clients' familiarity with the term.

The survey was launched during a sales online event with clients on Microsoft Teams on January 2024, and it was made available through Microsoft Forms. The table below presents the complete set of questions asked in the survey:

Client identification (1)	
1	What is your role in the company?
2	What customers segments do you support?
	a. B2B
	b. B2C
	c. Both
Client capability (2)	
3	What kind of technical service can you provide about the commissioner's products to your customers?
	a. I assist with technical issues to some extent.
	b. I do not provide technical service; the customer requests are directed to the commissioner's technical support team.
	c. Other
4	Please tell us more about the technical service you provide to your customers
Service from the commissioner company to clients (3)	
5	Do you consider you have enough information from the commissioner company regarding technical assistance?
	a. Yes
	b. No
	c. Maybe
6	How can the commissioner company help you in supporting your end-customers facing technical issues?
7	From 1-3 (1 being not satisfied and 3 very satisfied), how satisfied are you with the commissioner company's technical service?
8	Would you be available to talk about these topics in-depth on a separate call?
	a. Yes
	b. No
9	Is there anything else you would like to tell us?

Table 3: Electronic survey questions

In total, 11 replies were collected. The data was first downloaded to an Excel sheet and then uploaded to Figma, for a visual analysis.

At first, the answers were color-coded to separate two clients' groups: First, those who focus on B2B end-customers (utilizing blue sticky notes) and second, clients who target both B2C and B2C end-customers (with green sticky notes), as illustrated on Figure 5.



Figure 5: First clustering round

The analysis of the data occurred with an analytical approach, where patterns were created by reorganizing and grouping the data from the answers into comparable themes (Saldana 2011, 26).

Figure 6 contains three rows, representing the groups of clients formed in a second clustering round, based on their end-customers. A color-coding technique was employed to identify similar responses.

Upon analyzing the clients' responses to the survey in the second round, it became clear that different clients with the same end-customers do not necessarily provide similar support. Figure 6 illustrates this point: Group 1 consists of clients who serve both B2B and B2C end-customers, offering assistance in various ways and involving the commissioner company when needed. In contrast, Group 2, also shown in Figure 6, focuses exclusively on B2B end-customers and immediately forwards all technical inquiries to the commissioner company.

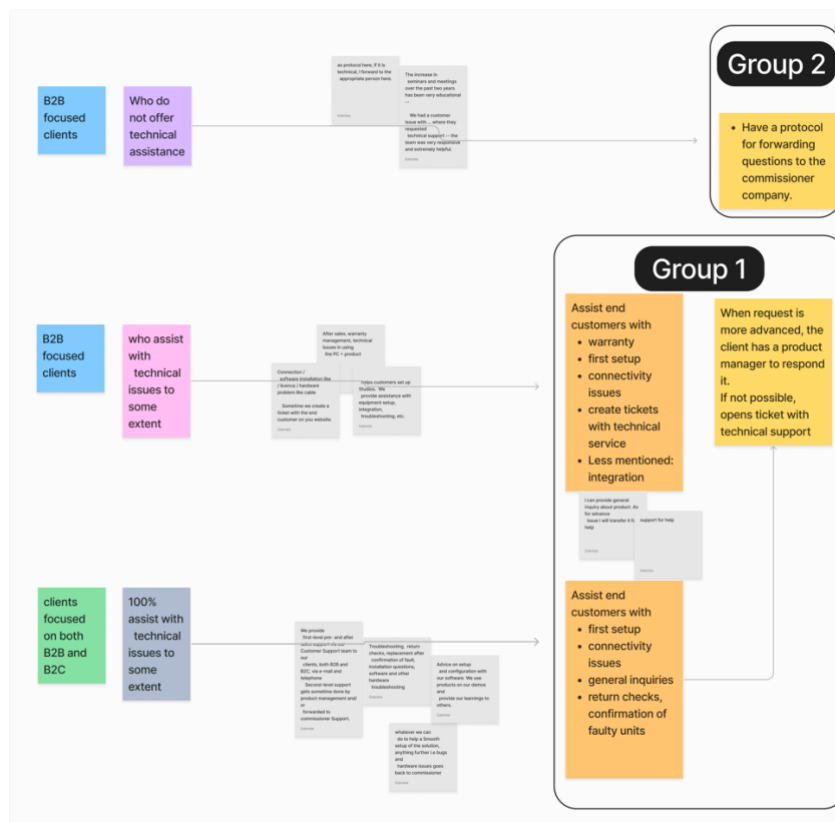


Figure 6: Second clustering round

Upon interpreting the answers collected in the survey, the thesis author concluded to investigate how both client groups identified in the Figure 6 support their end-customers and how they learn about the products of the commissioner company. It was also decided that in-depth interviews should be conducted to explore these topics.

In total, 10 out of 11 clients informed to be available for interviews, which allowed the continuity of the development research. The closed questions from the survey indicated overall satisfaction with the service provided by the commissioner company, but the open questions pointed a research gap on how different clients learn about the commissioner's products, and similarities in providing support to end-customers. The interview questions incorporated these insights for a more complete data collection.

### *Business-to-Business Depth Interviews*

The decision to interview clients was based on the preference for depth over sample size data (Portugal & Burge 2023). To gain a comprehensive understanding of the clients' viewpoint while utilizing technical service and assert their needs, it was necessary to extract a portion of their input and understand their context.

One-to-one depth interviews are ideal for B2B situations, because interviewees are more likely to share information about their company that they might withhold in the presence of colleagues or superiors (Polaine & al. 2013, 53).

The clients were carefully chosen based on those who replied to the survey, then their region and business relevance from the commissioner's perspective in developing business. Only clients based on Europe and Asia were consulted, due to their availability expressed in the survey and the local sales influence to invite them for an interview. In total, 10 interview invitations were sent but 6 happened.

The interviewees were also thoroughly selected. They were the contacts who are associated with technical service in their own roles, which assure their relevant answers for the development research.

An interview guide was built in accordance to Portigal & Burge (2023) recommendations, and base on that, a wide selection of question types were developed by the thesis writer. The reason for this planning was to induce the clients in sharing in different ways their perspective and pain points when explaining their operations and receiving technical service from the commissioner.

Client identification	
1	What is your role in the company?
2	What type of customers do you support? (B2B, B2C or both)
3	In which regions are your customers located?
Client capability and operation	
4	Please describe how you support your customers utilizing the Commissioner's products
5	How do customers contact you?
6	What are the common topics that customers contact you for?
7	What do you do when you are contacted to offer technical assistance?
8	What are your main challenges when dealing with Commissioner's products?
9	Let's say you have a customer facing issues, how do you help them solve it?
10	How do you differentiate customers in need of assistance within and without the warranty period?
11	For the clients with both B2B and B2C, what are the differences in their needs and the type of assistance required?

Service from Commissioner to clients - online information and knowledge transfer	
12	Please tell me how you learned the most about Commissioner products
13	How do you use the online information to help your customers facing technical issues?
14	What is the most relevant content about Commissioner products? Where do you consult it?
Service from Commissioner company to clients - contacting technical service	
15	What is an example of a technical assistance that went well?
16	What is an example of technical assistance that did not go well?
17	What do you value the most when contacting the commissioner for assistance?
18	What would you appreciate to improve in the contacts?
19	How much assistance do you need from the developer and software side? How is that working?
Service from Commissioner to clients - sending a product for repair	
20	Have you ever sent a product for repair?
21	When sending it, what was your impression of the technical service?
22	How would you want this process to be different?

Table 4: Interview questions

Clients were invited to participate in an interview, which formed a part of a thesis project aimed at improving their experience. The commissioner's sales representative and technical service manager actively promoted interviews and requested participation. Table 5 shows the details of each interview:

Interview number	Country of clients' origin	Date	Duration
1	England	03.04.2024	22 minutes
2	Netherlands	03.04.2024	23 minutes
3	Spain	09.04.2024	20 minutes

4	France	23.04.2024	41 minutes
5	Finland	24.04.2024	30 minutes
6	Germany	26.04.2024	23 minutes

Table 5: Interview details

All interviews were conducted by the thesis author and participants were assured of anonymity. The interviews were conducted online via Microsoft Teams and lasted 20-41 minutes each. Participants were also verbally requested to grant permission for the video and audio recording of the interview, which was carried out using the same application.

Each interview commenced with an introduction of the participant and a brief outline of the study's objectives. The interview questions were semi-structured and included a request for the participant to describe their role within the organization. The interviews were concluded by thanking the participants for their time and contribution.

#### *Questionnaire with 3 clients*

Part of the clients do not speak fluent English and only communicate with the commissioner company in written form. As it was determined that their feedback would be valuable, a questionnaire format for the same interview questions was applied to them.

While the questions remained consistent with those used in the interviews, they were adapted for written responses. Table 6 displays the questions used in the questionnaire.

Client identification	
1	What is your role in the company?
2	What type of customers do you support? (B2B, B2C or both)
3	In which regions are your customers located?
Client capability and operation	
4	Please describe how you support your customers utilizing the Commissioner's products
5	How do customers contact you?
6	What are the common topics that customers contact you for technical assistance?

7	What methods do you utilize to troubleshoot issues when you are contacted to offer technical assistance?
8	What are your main challenges when dealing with Commissioner's products?
9	How do you differentiate the technical assistance for products within and without the warranty period?
Service from Commissioner to clients - online information and knowledge transfer	
10	How have you learned the most about Commissioner products?
13	How do you use the online information to help your customers facing technical issues?
14	What is the most relevant content about Commissioner products? Where do you consult it?
Service from Commissioner company to clients - contacting technical service	
15	Please give an example of a technical assistance that went well
16	Please give an example of technical assistance that did not go well
17	What do you value the most when contacting the commissioner for assistance?
18	What would you appreciate to improve in the contacts?
19	How much assistance do you need from the developer and software side?
Service from Commissioner to clients - sending a product for repair	
20	Have you ever sent a product for repair?
21	When sending it, what was your impression of the technical service?
22	How would you want this process to be different?

Table 6: Adapted questions utilized for a questionnaire

The questionnaire took place in March 2024, and it was also published using Microsoft Forms. All the main contacts were contacted by email requesting their input. Participants were also assured of anonymity, and the answer time was around 20 minutes each.

Questionnaire number	Country of clients' origin	Date	Duration
1	South Korea	12.03.2024	17 minutes
2	Japan	26.03.2024	23 minutes

3	China	26.03.2024	21 minutes
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Table 7: Questionnaire details

The questionnaires provided qualitative data that was equally important as that gathered from the interviews because the clients responded to all the questions and shared their perspectives the same way as the interviewees. However, the limitations of using questionnaires for data collection was the inability to capture spontaneous reactions from clients and the lack of opportunity to ask follow-up questions that could potentially complement their answers. Despite the limitations, the development work was not impacted.

The questionnaire responses were transcribed and analyzed alongside the interviews to ensure all clients received the same treatment. All questionnaires and interviews were documented through recording. They were also stored in the thesis author's private Microsoft account and not shared across other users. The data was pre-defined to be permanently deleted after 6 months of their date of creation.

### 3.3 Define stage

In this section, the data analysis of clients' depth interviews and questionnaires take place to determine their main needs when utilizing the commissioner's technical service. After that, the areas for internal development are identified, based on the qualitative data collected and analyzed from the clients.

#### *Data analysis of clients' depth interviews and questionnaires*

After collecting the data, the clients' questionnaires and interviews were manually uploaded it to a platform called Condens for transcription and analysis. This platform was chosen because it transcribes the data automatically and allowed the author to analyze the data in one place. To ensure client safety and privacy, all data related to this development work stored in Condens was set to be permanently deleted by December 2024.

Upon completion of the transcription, the next step involved analyzing the data. Gioia, Corley & Hamilton (2013) explain a comprehensive three-stage process for qualitative data analysis, while Saldana (2011) also utilizes a concept for data coding that were be employed in this thesis development work.

The initial stage for data quality analysis is called "1<sup>st</sup> order analysis", and it involves selecting quotes and concepts from the data while paying attention to the language and topics used by the interviewees (Gioia & al. 2013, 20).

In order to apply this concept, the author carefully reviewed the in-depth interviews and questionnaires of the clients multiple times. Notes were taken and extracts of the collected data were highlighted in the Codens platform. This process allowed the thesis author to absorb the content and make connections from the clients' perspective. By following these steps, as per Saldana (2011, 95), patterns become more evident due to the intimacy created with the data.

After absorbing the clients' viewpoints, the data required coding. According to Saldana (2011, 95), coding is defined as a method of organizing, classifying, and subsequently restructuring data into emerging categories for further analysis.

The coding process consisted of two primary stages. Initially, upon identifying patterns, the author established preliminary higher-level data themes to encapsulate the most prevailing themes mentioned by clients during the depth-interviews and questionnaires.

Subsequently, the thesis author created and assigned codes to these data themes to categorize excerpts from in-depth interviews and questionnaires. The codes are referred to as "tags" in the Codens platform. These are key terms, as defined by Saldana (2011, 95-96) that convey meanings associated with segments of language-based data. Each group encompassed multiple tags, and an exemplar of a tag group can be found in Appendix 1.

The data themes were subsequently organized and refined, leading to the identification of five recurring themes, which are demonstrated in the Figure 7.



Figure 7: Data themes



designated as the clients' needs when utilizing the commissioner company's technical service. Figure 9 contains the final list to the 1<sup>st</sup> order concepts.

The "2<sup>nd</sup> order analysis" is the next stage for the qualitative data analysis process. It involves shifting the focus from describing the data to interpreting it through a theoretical lens (Gioia & al. 2013, 20). At this stage, the thesis author translated the concepts that emerged from the 1<sup>st</sup> order analysis that suggested on the Figure 9 new "2<sup>nd</sup> Order Themes" that can help linking the clients' needs with areas of improvement for a more customer-oriented technical service.

This process was repeated multiple times to ensure that all insights emerged from the data analysis, a term described as "theoretical saturation" by Gioia & al. (2013, 20).

The third and last stage of data analysis occurred when the thesis author refined and simplified the themes by grouping them into broader "Aggregate dimensions", also indicated in the Figure 9. This process, according to Gioia & al. (2013, 20), provides a more structured and theoretical understanding of the data, which contributes to the continuation of this thesis' development work.

The three aggregate dimensions outlined in Figure 9 represent areas for internal development by the commissioner company to improve technical service to be more customer oriented.

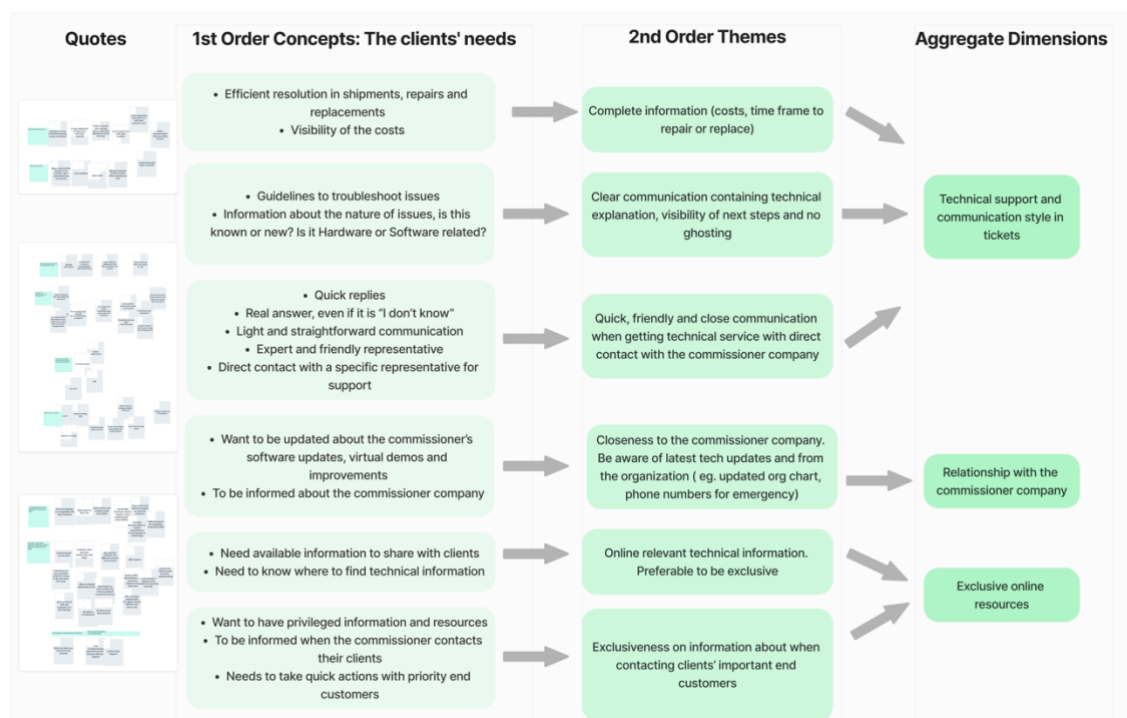


Figure 9: Data structure based on Gioia & al. (2013, 21)

## Personas

In order to effectively present the qualitative data to internal stakeholders, the thesis author created personas to describe the clients. These personas are fictional archetypes that serve as tools for representing specific groups of individuals with shared needs and behavior patterns, based on research (Stickdorn & al. 2018, 40).

The thesis author opted to employ this tool due to its potential to foster empathy, a goal highlighted by Stickdorn & al. (2018, 40), who explain that personas can assist teams immerse themselves in stakeholders' perspectives to comprehend their needs. This objective aligns with the continuation of the development work, making it a fitting choice at this stage of the process.

The process of creating personas was carried out after analyzing the data. To ensure unbiased decision-making, the thesis author revisited the data themes that emerged from the initial analysis and after thorough observation, decided to utilize the data group named "Individual Role" as a basis for creating personas.

Stickdorn & al. (2018, 41) recommend using relevant information to address research questions, and "Individual Role" outweighed other characteristics to highly distinguish the clients from one another as the key element in determining their needs when serving their end-customers and in consuming the commissioner company's technical services, as they are finding ways to serve their end-customers as well.

Figure 10 displays the two personas created for this development work. They illustrate how clients have different goals within their own companies, which in turn influence their behavior when they utilize the commissioner company's technical services.

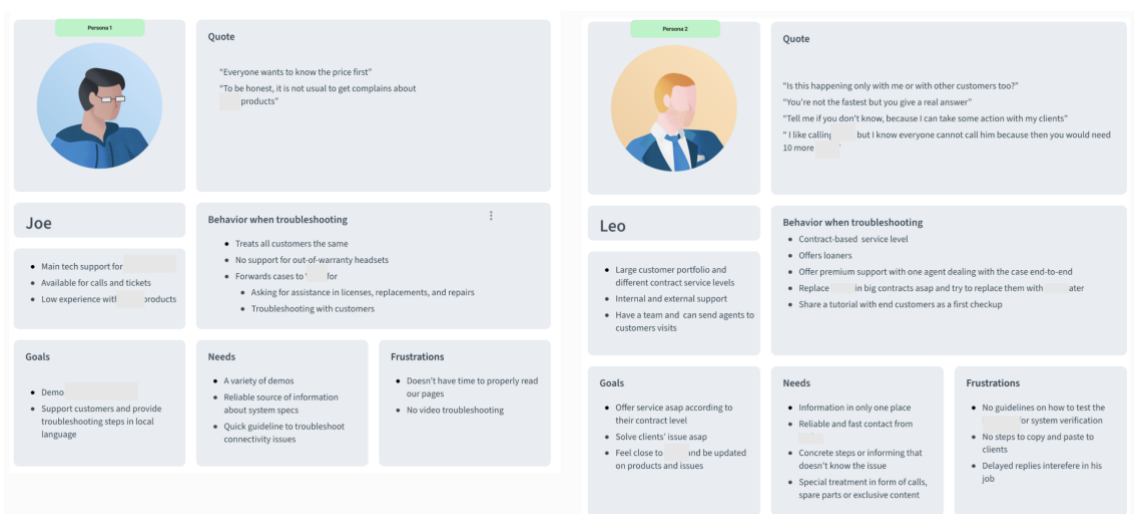


Figure 10: Personas representing clients subsegments

Both personas represent subsegments of clients and serves as the foundation for addressing the third research question from this thesis, which is explored in the Develop stage. These personas were utilized as a starting point in an empathy workshop, during which the company's employees also validated them based on their experiences with customers.

### 3.4 Develop stage

This phase of the process begins with a comprehensive examination of the subsegments of our clients, displayed as personas. Customer journey maps will be employed to incorporate the support dimensions identified in the Define stage, and to provide a holistic view of the technical service offered to the clients.

The differentiation of needs from each client persona will be further refined by the author of the thesis in collaboration with the commissioner company's employees involved on the technical service.

Ultimately, the objective of this stage is to identify areas for development based on the specific requirements of the clients' subsegments, leveraging technical service.

#### *Workshops*

A workshop setting was chosen as the optimal environment for presenting the background research, engaging stakeholders, and facilitating their understanding of the collected research results (Polaine & al. 2013, 75). In addition, the practical nature of workshops was found to be beneficial for promoting engagement and expediting decision-making processes.

This phase of the development work was carried out at the commissioner company, involving employees from different departments engaged in the technical service. When connecting individuals from different silos, co-creation is promoted (Stickdorn & al. 2018, 21).

Heinonen & al. (2010, 541) say that customer experiences go beyond direct interactions occurred between the company and customers. The workshops provide a suitable environment for understanding clients' needs and identifying areas for internal development towards a customer-oriented technical service.

For that purpose, it was decided that the ongoing development work would benefit from input from the employees of the commissioner company involved in the technical service. The tools employed in the workshops provide a common language for collaboration, allowing cross-functional teams to focus on customer experiences (Stickdorn & al. 2018, 13).

The roles of the participants in the commissioner company are detailed in Table 8.

Participant A	Technical Support Specialist
Participant B	Technical Support Specialist
Participant C	Head of Technical Support
Participant D	Technical Support Manager
Participant E	Solutions Engineer

Table 8: Workshops participants

Each participant is involved in providing technical services to the clients under study, thereby affording them a "shared perspective" (Stickdorn & al. 2018, 125) on the clients and service being addressed in this development work.

The thesis author held two workshops in May 2024, each lasting 1.5 hours due to time constraints from the participants. The thesis author fully designed and facilitated both workshops. For each session, all materials were prepared in advance, a social contract was agreed upon at the beginning, the session's goal was communicated, and the participants' roles were defined.

The first workshop focused on developing empathy for clients. The thesis author presented the research problem, discussed the collected data, and introduced two personas. The Customer Journey Map tool was used to help participants understand the clients' pain points, as well as their differences and similarities when utilizing the technical service.

The second workshop aimed at identifying areas for improvement in the commissioner company's technical service for clients. To achieve this, participants examined the pain points spotted in the Customer Journey Map, using Octopus Clustering to analyze the similar and differing needs of both personas. Additionally, participants brainstormed potential areas for development using the "How Might We" tool, with one area selected for further exploration using an Affinity Diagram.

#### *Customer Journey Map*

The customer journey map was carefully selected during this phase of the development process to render intangible experiences visible and foster a mutual understanding among team members. This tool significantly improves the likelihood of participants collaborating, with the customer's experience as the central focus (Stickdorn & al. 2018, 45).



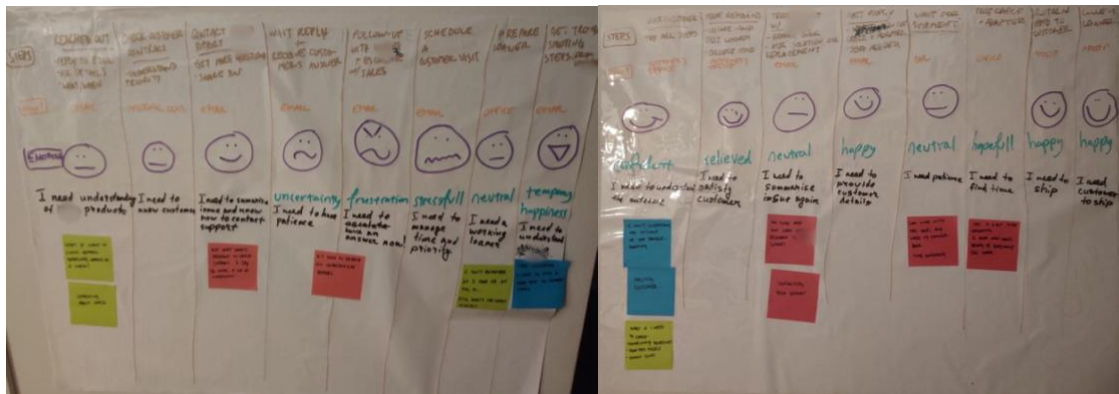


Figure 12: Customer Journey Map for the Persona 2

Upon the conclusion of the journey mapping exercise, the participants presented the journeys and were tasked with carefully reflecting on all of the clients' pain points at each step of the journey. This tool went beyond creating empathy and differentiating needs from each persona, but also revealed gaps in the clients' experience and created the basis to explore potential solutions (Stickdorn & al. 2018, 43).

### *Octopus Clustering*

A second workshop was conducted to concentrate on the aspects of the technical service that should be improved to make it more customer oriented. The thesis author used a clustering method during the workshop to help the participants in identifying the similar and different pain points of both personas.

According to Stickdorn & al. (2018, 182), octopus clustering is a method used to organize a large amount of data and provides participants with an overview of the material while fostering shared ownership of the ideas.

During this activity, participants quickly sorted the sticky notes, taking turns in the front row while others provided support (Stickdorn & al. 2018, 182). After several rounds, the clients pain points were organized into five groups and applicable for both personas, revealing a direction for the development work.

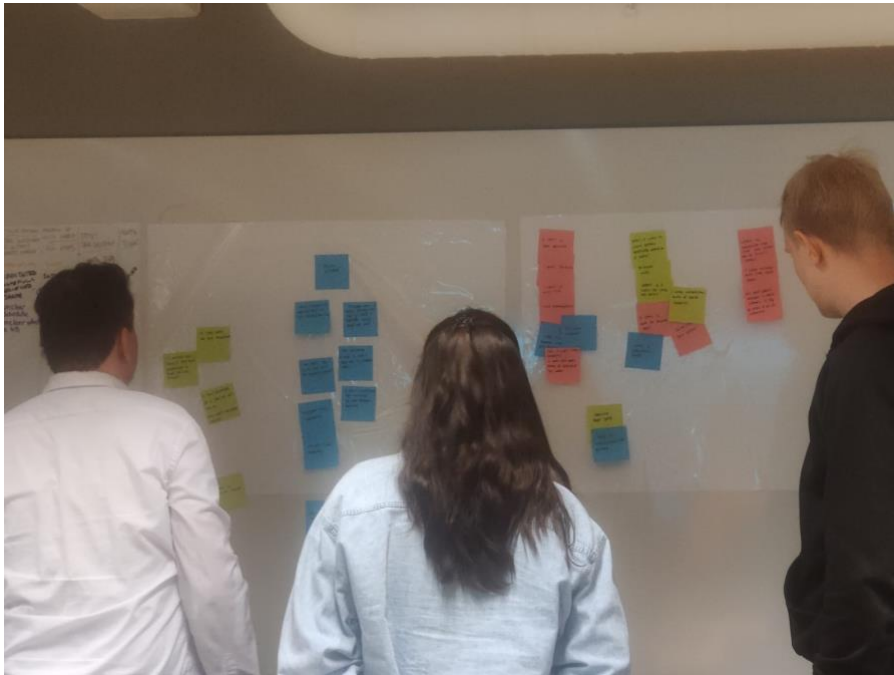


Figure 13: Clustering

Following the clustering process, the specific pain points of clients receiving technical services from the commissioner company were aligned with two perspectives. Firstly, with the personas, considering the context in which they provide support to their end-customers. Secondly, with the steps from the commissioner company, already creating space for ideation on a customer-oriented technical service

To streamline the next steps, the thesis author rephrased five pain points into sentences, as shown in figure 14, and described below:

1. “Communicating with the commissioner company is time consuming. The resolution time is unpredictable”.
2. “The troubleshooting steps feel random. Lack of structure and clarity when troubleshooting”.
3. “I lack accessible documentation about the commissioner company’s products. They would help me in different activities”.
4. “Explanatory guidelines are not available for me”.
5. “It is difficult for me to keep customers happy, I get stuck due to lack of instructions”.

The group agreed on criteria for using a voting technique (Stickdorn & al. 2018, 185) to prioritize pain points for further ideation, with a focus on the most impactful elements for enhancing the clients' experience when utilizing technical services provided by the

commissioner company. The prioritization process involved the use of sticky notes, as portrayed in Figure 14.

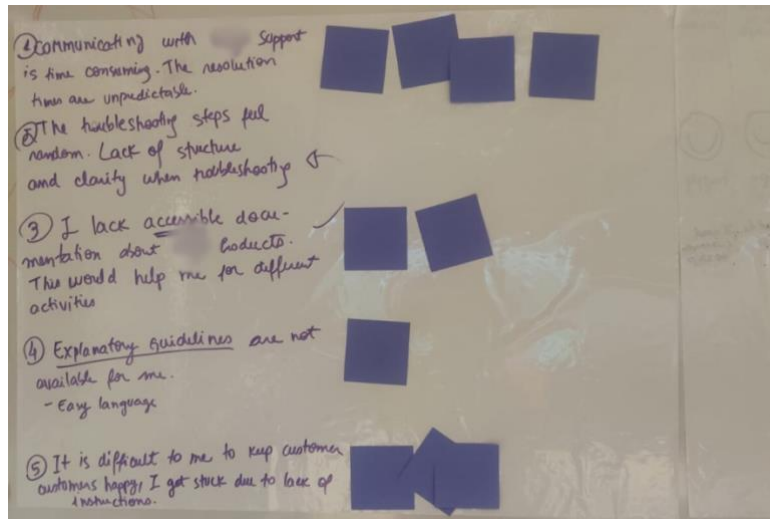


Figure 14: Final voting for prioritizing pain points

Clustering and voting were essential activities to refine and organize actionable points for improving the technical service of the commissioner company to be more customer oriented.

Out of the above pain points that were brainstormed for solutions, only the first one was chosen for development due to time constraints. The thesis author decided that using a voting system to select the key touchpoint that best represents the core of the service is a good way to begin, as Polaine & al. (2013, 117) also highlights. Although the upcoming process of generating ideas should be carried out for the other pain points, they are not within the scope of this thesis work.

#### *How might we*

After thoroughly analyzing and clarifying the clients' needs, the following step was to generate ideas on how the company could address them. While all five needs were important, we prioritized the voted most prominent one due to time constraints.

To facilitate this process, the thesis author utilized a "How Might We" exercise to identify opportunities for enhancing clients' experiences with the technical service. This tool simplifies complex ideas (Stickdorn & al. 2018, 31) and allowed participants to quietly explore potential solutions to meet clients' most voted need.

Around 15 ideas were collected and displayed on the board. These ideas were read aloud and interpreted by the participants to synchronize on the similar and different ideas they provided.

### Affinity Diagram

As the last exercise in the Workshops, affinity diagram was selected as the most suitable tool to consolidate the areas to be developed by the commissioner company. Following the structure provided by Holtzblatt & Beyer (2016, 127), the thesis author utilized the workshop environment to guide the group to create a hierarchy for the data, which revealed new insights.

The participants categorized the actions brainstormed in the “How might we” tool into similar contents to streamline what the commissioner company should do to improve the technical service. After organizing the development areas, they were grouped into three development areas, and the participants named each one of them. After that, another round of voting was conducted to prioritize which areas should be tested and implemented first. Figure 15 demonstrates the affinity diagram after the voting.

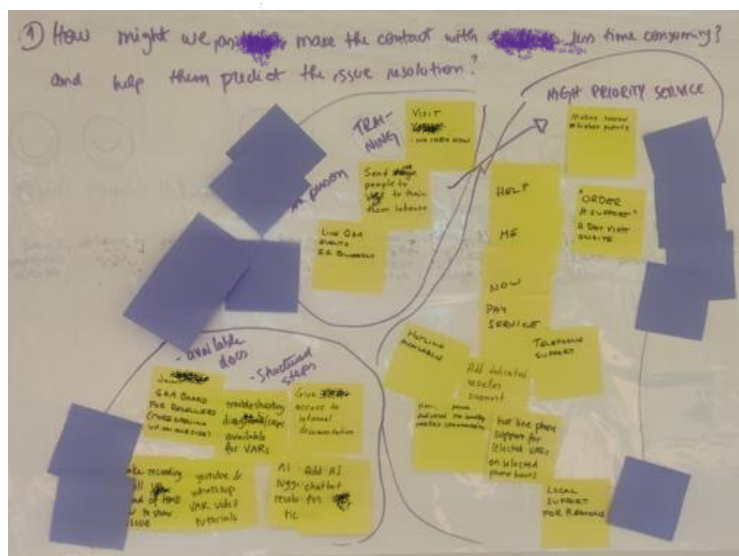


Figure 15: Affinity diagram and voting

As a result of applying the affinity diagram, three areas of development were identified:

1. Training
2. High Priority Service
3. Available documentation

These areas will be used as a framework for proposing a customer-oriented technical service. However, testing them will be out of scope for this thesis, due to time constraints.

The involvement of the commissioner company is crucial for aligning with business goals and internal capabilities to maximize the possibility of implementing a customer-oriented technical service.

#### 4 Development work findings

This chapter outlines the findings and insights derived from the research-based development work. Section 4.1 responds to the development research question A, section 4.2 addresses question B, and section 4.3 answers question C.

In order to acquire information on the topic for development work, data was obtained throughout the service design process via quantitative and predominantly qualitative research. Data analysis, and other service design tools were also employed in workshops. Validation of the findings took place during workshops, and the main insights are consolidated in this chapter.

##### 4.1 Clients' main needs when utilizing technical service

The initial steps to identify the clients' needs when using the technical services of commissioner company began in the Discover stage of the development work. The steps towards identifying clients' needs are based on the initial findings from qualitative data analysis, consolidated as three Aggregate Dimensions.

A visual representation of these dimensions is presented in Figure 9, and listed below:

- Technical Support and Communication Style in Tickets
- Relationship with the commissioner company
- Exclusive online resources

Although the Aggregate Dimensions are not a comprehensive list of needs, they provide essential information for creating personas and mapping their journeys, directly reflecting the elements that clients value when utilizing technical services, which will relate to their needs and the general areas for improvement within the commissioner company.

In the Define and Develop stage, empathizing and analyzing the personas and their journeys led to a list of pain points demonstrated in Figure 14. The term "pain points" is utilized to distinguish them from the Aggregate Dimensions captured in the qualitative data analysis, and from the final list of needs.

Throughout the continuation of the development work, it was identified upon the Customer Journey Map and Octopus Clustering tool in the Develop stage that despite Persona 2 having a

longer journey than Persona 1, both clients subsegments represented by the personas independently search for technical information and expressed very similar pain points. Therefore, it was concluded that only one final list of needs is necessary for both. Appendix 2 shows the journey maps with overlapping pain points for both personas, which give origin to their needs.

Three final needs were identified by the thesis author utilizing an analytical approach, derived from the analysis of the personas' journeys and the pain points identified by the workshop participants. The common needs expressed by clients when receiving technical service from the commissioner company are:

1. Fast and effective communication

Both personas consult the technical support team of the commissioner company to get assistance with issues faced by their end-customers. When they contact the commissioner company, they appreciate prompt responses to their inquiries and particularly value consistency and reliability in communication speed. The tone of communication is also important. Clients prefer direct, friendly contact with the commissioner company, and preferably knowing who they are contacting.

Both personas follow up with the commissioner company throughout their customer journeys to inquire updates on their cases, which negatively impacts their experience during the technical service. Other factors contribute to the effectiveness of the answers were pointed out by the clients, such as providing clear instructions costs and a timeline for handling, for example, return processes and other specific situations. Overall, the clients appreciate predictability in both technical and processual topics. Improving the communication enables clients to independently make informed decisions to handle their end-customers as they see fit and increases the trust with the commissioner company.

2. Structured troubleshooting guidelines for immediate and independent use

According to the qualitative data and journeys maps, clients need technical recommendation in the form of troubleshooting guidelines in two main scenarios. The first is when they need online documentation to support their end-customers, and the second is when they contact the technical support team of the commissioner company via email for specific assistance.

During interviews, it became evident that clients do not always understand when to apply certain troubleshooting steps. Similarly, it was identified in both personas' journeys that while they feel relieved and satisfied with the solutions provided by the commissioner company, there is still a degree of confusion on why certain steps solved a technical issue. They

perceive the troubleshooting steps as random, highlighting the need for structure and clarity in the troubleshooting process.

### 3. Available documentation about the products

Both personas independently study the products from the commissioner company to support their end-customers effectively. Persona 1 requires available documentation about the products in order to prepare for demos and troubleshooting calls. In contrast, Persona 2 visits end-customers and needs documentation to implement solutions on-site, considering the end-customer's contract and use case. Both personas value learning about the technology, use-case specifics and the latest updates on the commissioner company's hardware and software. They need available documentation about the product overall, to support end-customers in demos and even play a role in sales. Available documentation supports their growth in the industry and helps them providing value to end-customers, as well as keeping their roles relevant to their employers.

The process of identifying the clients' final needs was derived from the Aggregate Dimensions captured in the qualitative data analysis, and the pain points identified in the journey maps. These elements are interconnected. Figure 16 illustrates the transition from the pain points to the final needs and their alignment with the aggregate dimensions.

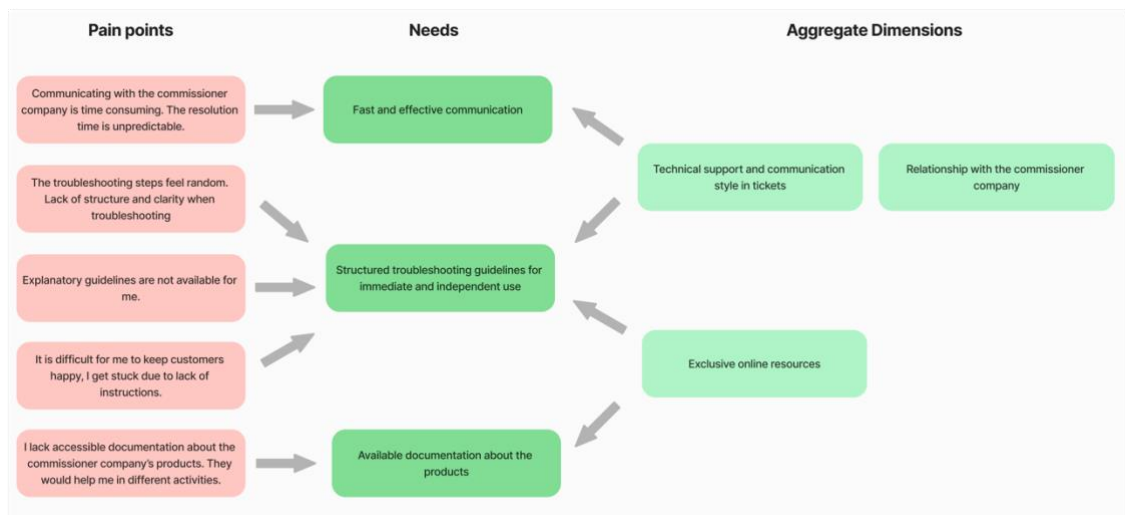


Figure 16: Interconnection between pain points, final needs and aggregate dimensions

The pain points in sentence format were rephrased and condensed into three needs, already highlighted above. The thesis author compared the needs with the initial aggregate dimensions and noted that all three dimensions are captured when the development research identifies the needs from the clients' journeys.

The first need “Fast and effective communication” connects with the aggregate dimension of “Technical Support and Communication Style in Tickets”. This is crucial for staying updated on end-customer cases and keeping clients’ satisfaction high. This need also relates to the “Relationship with the commissioner company” dimension, as knowing the technical support team was highlighted as an important item for the clients to trust on the commissioner company.

The second need “Structured troubleshooting guidelines for immediate and independent use” relates to the aggregate dimensions of “Technical Support and Communication Style in Tickets” and “Relationship with the commissioner company”. The reason for this is because clients demonstrated the need of reliable guidelines when facing end-customers, therefore utilizing published documentation, and when contacting the commissioner company’s technical support team requiring for technical service. The communication style in tickets and trust on the commissioner company is very important for this need. In addition, this need is related to the aggregate dimension of “Exclusive online resource”, because the clients indicated their preference for personalized online platform or content as resource.

The third need “Available documentation about products” connects with the aggregate dimension of “Exclusive online resources”. This need underscores the importance of providing technical information for the clients to be informed about the technology, products and be able to assist their end-customers independently, in order to succeed in their roles.

#### 4.2 Key internal areas for improvement to enhance client experience in technical services

Due to time constrains, internal areas for development were identified only for the clients’ first identified need “Fast and effective communication”, with the help of Service design tools during the workshops. Following that, specific actions were brainstormed, which were then structured into the following three areas for development, all aimed at addressing this primary need:

1. Training: Workshop participants recognized that in-person and online trainings are ways to positively impact the clients’ experience by providing them with the knowledge to independently address technical issues with end-customers. This is expected to make clients more independent and able to solve end-customer technical issues on their own, thus improving the relationship and trust with the commissioner company.
2. High Priority Service: To reduce communication and resolution time, it was suggested to develop a hotline phone support for immediate help for selected clients, possibly as an additional paid service.

3. Available documentation: The commissioner company proposed developing different media sources for clients, such as videos, a Q&A section with common issues, recorded pieces of training, and written troubleshooting steps.

To propose a technical service that aligns with the clients' needs, the commissioner company's workshop participants voted on which element would enhance the clients' experience the most as a criterion. "Training" and "High Priority Service" received the same number of votes. However, after further discussion, the participants agreed that the most feasible action for immediate implementation is the first area, "Training".

The commissioner company agreed that incorporating training, especially in the online format, is immediately viable as it makes use of existing resources, enhances clients' independence in dealing with their end-customers, adds value to their knowledge about the company's products, and it can be recorded for future reference, thereby creating readily available documentation. In-person training is also feasible, due to the pre-existing resource and staff experience in supporting clients.

The second area of improvement, "High Priority Service", directly addresses the main need of "Fast and effective communication", but it requires a complete restructuring of the commissioner company's support methods, affects the hiring team, and potentially modifies their sales offers. The commissioner company recognized the potential and importance of reviewing this, but since it required a high number of internal decisions on management level, it was decided that including on this area of improvement in the technical service will be out of the scope of this thesis work.

The third area of improvement, "Available documentation" requires a high internal coordination from different teams, regular maintenance and its own project for development for written content, therefore it is out of the scope of this thesis work, even though it has been noted for further internal development. This area will, however, be positively impacted by the first area of improvement and provide additional material to clients.

#### 4.3 Structuring technical services to meet the needs of B2B client subsegments

The internal area for development "Training" is designed to meet the first identified need "Fast and effective communication", as mentioned before. This area is highly feasible for testing and implementation because it does not require significant resources from the commissioner company. Therefore, from discussions taken in the second workshop during the Develop stage of the development work, it was brainstormed that the technical service should be structured to incorporate forms of training by following the steps below:

### 1. *Defining specific development actions*

The "Training" development area includes three specific actions that were generated during the Develop stage by the commissioner company using the "How Might We" tool. Figure 15 displays these brainstormed actions along with their respective development area, after a voting section. For convenience, the development actions from the "Training" area are listed below:

- Periodic in-person trainings at the client's location
- Online recorded trainings for most-common issues
- Online live Q&A with the commissioner company's technical support team

In-person training will have a significant impact on the overall relationship between the clients and our company. It has been suggested by the workshop participants that the sales department should be included in the in-person training sessions to ensure they are well-informed about the client's needs. This training should be provided at the beginning of a sales contract or annually, unless otherwise agreed upon separately with the sales team.

Online recorded training should focus on addressing common issues related to both hardware and software based on the feedback received from client tickets. It has been agreed that video format is the most suitable for providing easy-to-follow instructions. These videos should be made available on an exclusive online platform currently used for sales materials. Maintenance of these videos is aimed to occur quarterly, and two team members have been appointed to select and share the instructional topics. The Marketing department is expected handle the video production and publication.

The third type of training will be conducted online through live Q&A sessions, which was agreed to be organized monthly together with the sales team. It has been suggested that a time slot be reserved during an existing meeting for addressing client-specific questions. The workshop participants Head of Technical Support and Technical Support Manager were pointed out as responsible for coordinating this activity.

### 2. *Selecting a journey*

Both clients subsegments represented as the Personas 1 and 2 presented the same needs, as mentioned on the Development stage and in the section 4.1.

For the purpose of restructuring the technical service, the thesis author chose to focus on a single journey that affects both client segments identified in this work, as both personas have the same needs.

The journey from the Persona 2 has been chosen due to its extended duration, which provides with a greater opportunity to implement development actions across multiple touchpoints of the client's journey. This decision has been made in the interest of streamlining the process, incorporating both B2B segments and working within time constraints.

### 3. *Mapping the internal and external activities in a Journey Blueprint*

Structuring the technical service is illustrated by a Journey Blueprint. The choice to utilize this tool is based on the idea that journeys can be visualized while integrating the behind-the-scenes stakeholders and relevant activities (Polaine & al. 2013, 121).

The development area "Training" created three specific actions, aiming to tackle the clients' need for "Fast and effective communication". The Journey Blueprint of Persona 2 utilizing a technical service represents a future-state journey and incorporates the specific development actions from "Training" mentioned before.

The thesis author created a Journey Blueprint based on the data collected during the development work and feedback from the commissioner company at the end of the second workshop.

For an easier comprehension, the Journey Blueprint comprises three phases that encompass the different stages of the technical service. These phases are based on development actions and feedback from the commissioner company. The complete Journey Blueprint can be found in Appendix 3, and all the steps related to the "Training" area have been highlighted with circles for improving data visualization.

The Journey Blueprint is structured by Touchpoints. "Client actions" is the main one as it based on the Persona 2 journey, and it interacts with the "Front stage actions", to map the steps from a Technical Support Specialist from the commissioner company.

The two other touchpoints are created to observe how to structure the technical service, and they are not visible for the clients. "Backstage actions" contain the internal actions done by the Technical Support Specialist, while "Support process" list overall processes that the commissioner company should structure in order to test and implement this future-state journey.

The first phase of the proposed technical service is shown in Figure 17. It is named "Presenting resources" as it involves a first contact with the clients, in which different types of resources are introduced to them.

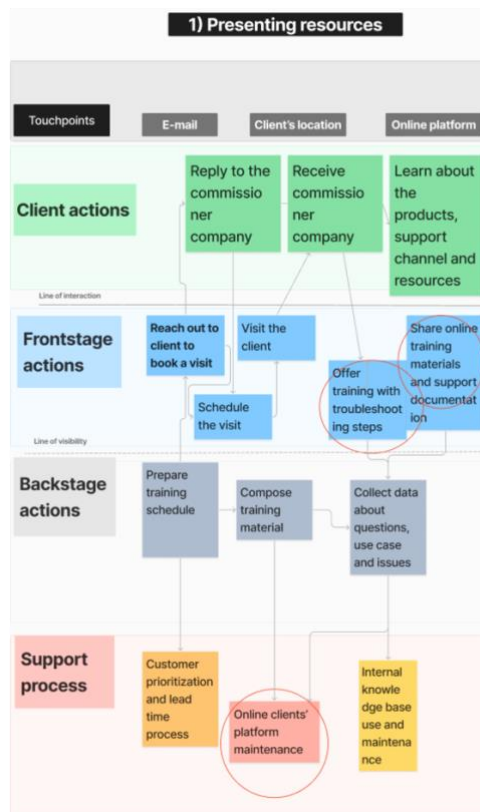


Figure 17: Phase 1 from Journey Blueprint

Two steps in the frontstage actions are circled in the Figure 17, as they refer to trainings. These steps fall under the development action of "Periodic in-person trainings at the client's location" provided by the commissioner company. Additionally, the development action of "Online recorded trainings for most-common issues" is presented to the clients as another resource.

A Support process "Online clients' platform maintenance" was defined by the thesis author, aiming to structure the necessary internal actions that will enable creating training material and updating the clients' exclusive online platform.

The second phase of the Journey Blueprint is named "During client issue" and indicated in Figure 18. It occurs when there is need for immediate support takes place during the warranty period, and the clients contact the commissioner company for technical service.

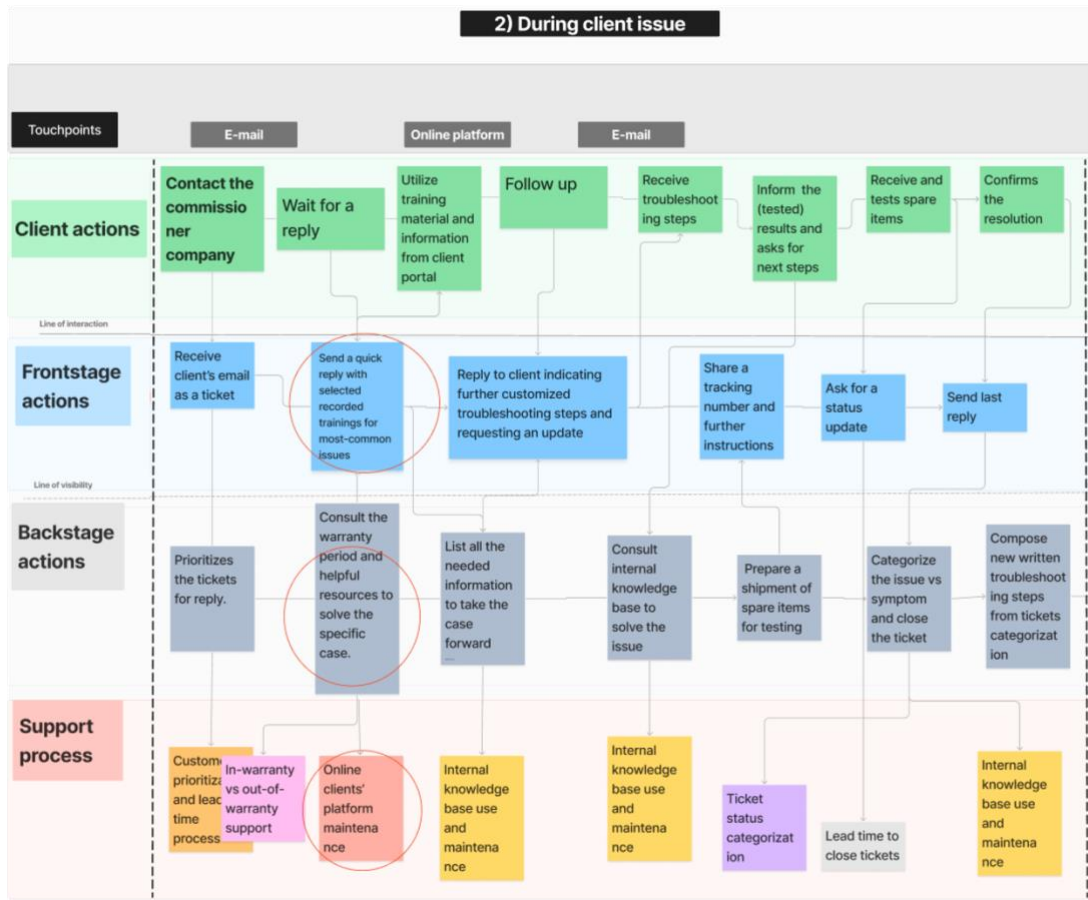


Figure 18: Phase 2 from Journey Blueprint

During the second phase, the development action "Online recorded trainings for most-common issues" is utilized by both the clients and technical support team during Frontstage and Backstage actions. This aims to make the technical support more efficient, and it reveals an insight, that the technical support team may also access previous trainings to provide support during the technical service.

The third and final phase, named "Updating resources" is shown in Figure 19. It refers to the moment when the technical support team from the commissioner company initiates the contact with the client for an online training, designed to provide product updates and reply to questions and concerns.

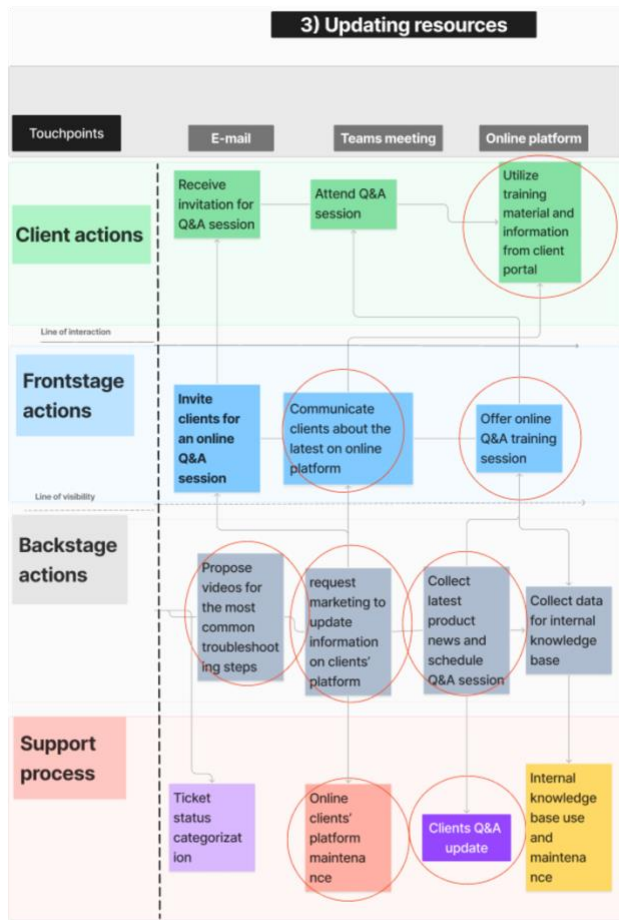


Figure 19: Phase 3 from Journey Blueprint

This phase is the only one to incorporate the development action of “Online live Q&A with the commissioner company’s technical support team”. In addition, it also involves the development action “Online recorded trainings for most-common issues” as an additional resource that is reinforced to clients, aiming them to utilize the trainings independently when supporting their end-customers.

#### 4. *Establishing internal processes*

All identified development actions related to “Training” have been incorporated into the Journey Blueprint. Each phase of the journey encompasses different moments of the future-state technical service provided by the commissioner company.

Two support processes were identified within the Journey Blueprint:

- “Online Clients’ Platform Maintenance”
- “Clients Q&A Update”

By focusing on these internal processes, assigning responsibilities and resources, the commissioner company can establish internal actions that will lead to the "Training" development area, necessary to meet the need for "Fast and effective communication", common to the B2B subsegments.

Planning the support processes, prototyping, and testing the actions outlined in the Journey Blueprint falls out of the scope of this development work. These tasks should be carried out independently by the commissioner company.

## 5 Conclusions

The purpose of this thesis was to address the research question: "How can value co-creation be enhanced in a technical service within a B2B context?" To answer this question, a commission from an electronic company selling products that entail technical service in B2B market was studied. The findings were based on both theoretical knowledge and practical development work.

The key findings from this thesis highlight practical steps for making the technical service of the commissioner company more customer-oriented. This shift is beneficial for implementation, as it enhances the company's ability to use service design as a method for decision-making and future service development. The main clients' needs provided valuable insights for the commissioner company by revealing aspects of clients' independent activities that are typically not captured through sales and support-related interactions in technical service.

The internal areas for development mapped during the development work represented specific areas for future implementation toward better technical service. It was essential to define areas for development in workshops, as this created an optimal environment for understanding clients and addressing internal restrictions that could hinder the implementation of actions aimed at meeting clients' needs. In selecting the development area, the decision was made to prioritize "Training" over "High Priority Service" due to feasibility considerations for the commissioner company. This decision indicates that while both areas are important, business considerations play a significant role in determining which areas will be improved first.

By selecting "Training" as a key development area, the commissioner company acknowledged that incorporating various training formats improves the overall client experience during technical service interactions. The "Training" area was created in response to a shared need for "fast and effective communication" among two client personas. This area provides resources that help clients become more knowledgeable and skilled in using the commissioner

company's products. Consequently, the technical service can be customized to suit the needs of the identified client subsegments.

Both the commissioner company and the thesis author agree that to fully meet clients' needs for "Fast and Effective Communication," it is also crucial to develop the "High Priority Service" area, although this aspect is unfortunately beyond the scope of this thesis.

A Journey Blueprint was used to map the future-state journey of a technical service. The thesis author proposes that value co-creation can be improved in all three phases of the Journey Blueprint, as direct interactions occur, facilitated by training and support from the commissioner company. Additionally, the author suggests that independent value creation can enhance the client experience through an online platform that gathers knowledge about the product. The Journey Blueprint effectively illustrates how the commissioner company can improve its technical services for clients.

Two support processes were identified within the Journey Blueprint: first, "Online Clients' Platform Maintenance," and second, "Clients Q&A Update." These support processes are suggested as feasible actions for the commissioner company. While prototyping and testing them are beyond the scope of this thesis, participants from the commissioner company acknowledged that visiting clients and organizing regular online training sessions can significantly enhance the client experience.

The findings from this thesis contribute to the commissioner company by increasing its competitiveness and enhancing client loyalty. Moreover, the results indicate that the company can improve its technical services by effectively utilizing existing resources, making implementation feasible.

When the internal processes are put into action, clients will receive specialized training, which adds value to their roles. These initiatives will equip clients with the knowledge they need to independently address technical issues with end-customers. This approach is expected to foster greater independence among clients, allowing them to resolve technical problems on their own while maintaining close contact with the commissioner company. As a result, this will improve their relationship and build trust with all the companies involved in the technical service.

Finally, when the key findings from the thesis are implemented, they will positively impact end-customers, as they will receive faster resolutions and personalized support, further enhancing their trust and loyalty.

The collected data revealed that clients' experiences with technical services were significantly shaped by their individual roles and goals regarding end-customers. Additionally, the findings indicated positive effects on these aspects.

The key findings underscore the need for electronic companies to enhance their competitiveness by adopting a more customer-oriented approach in their technical services. This could distinguish service providers in the B2B market.

The thesis author employed effective service design methods and tools to explore the interactions between the commissioner company and its clients. These methods were well-documented and based on relevant literature.

Service design played a crucial role in identifying practical solutions with an emphasis on clients needs. By following this approach, the author was able to collaborate effectively with the commissioner company to identify gaps in their service and brainstorm actions that aligned with client needs.

The development work for this thesis was documented in detail, with the Double-Diamond service design process model proving instrumental in planning and coordinating the necessary tools for the project. The stages of Discover, Define, and Develop structured the application of this development work.

Literature was essential for understanding specific aspects of technical services and warranties, which helped the author define the scope of the development work. Additionally, key considerations regarding overall value were important in planning data collection and formulating interview questions. Furthermore, literature related to service design, along with methods for development work, was vital in shaping the service design approach and tools used, as well as analyzing qualitative data.

Challenges arose during the development work. For example, during the second workshop, participants engaged in debates on relevant topics. To encourage more in-depth discussions about the development actions the commissioner company could take regarding technical services, the thesis author implemented spontaneous voting sessions.

Recruiting clients for interviews posed another challenge, but support from the commissioner company helped overcome this obstacle. If possible, the thesis author would have preferred to conduct in-person interviews to capture more nuances in the clients' responses. Additionally, regarding the development work, the commissioner company lacked the time to collaborate on the Journey Blueprint. The thesis author would have favored conducting this work in a workshop setting to gain deeper insights from employees involved in the technical service.

The author of the thesis took careful steps to minimize biases during the development process by consulting clients from various regions, company sizes, and serving different markets. For instance, during data collection, multiple clients from different countries were interviewed and responded to questionnaires, which helped enhance the consistency of their feedback regarding the commissioner company's technical service.

Identifying clients' needs and areas for internal development involved multiple research methods, including data analysis from in-depth client interviews and questionnaires, as well as workshops. This approach allowed the results to be interpreted and contextualized within the clients' journeys. Additionally, literature was referenced to support the data analysis and to frame the methods and tools used. By employing these strategies, biases were minimized.

B2B environments are complex due to the interpersonal relationships between individuals from different companies, which interfere in their interactions. Additionally, creating services in B2B contexts requires a comprehensive understanding of clients' expectations when attending their end-customers.

Value co-creation in B2B contexts can be enhanced by recognizing clients' needs and carefully planning interactions with them. By implementing actions that address these needs, the overall client experience is improved. In the realm of technical services, this means that direct interactions take place when clients contact the company for technical assistance in utilizing electronic products.

Qualitative research in a B2B context has shown the importance of understanding the journey clients take to support their end-customers. This was achieved by discussing their actions during interviews.

### 5.1 Prospects of future research and development areas

Further research on technical service offers in B2B context is needed, since this type of service is increasingly important in the electronics industry, as it helps reduce e-waste, prevents improper disposal of products, and extends products' lifespan.

The Journey Blueprint requires prototyping, which should be conducted independently by the commissioner company. To avoid biases, the Blueprint should be viewed as a set of tools in development (Stickdorn & al. 2018, 125) aimed at delivering a technical service that addresses clients' needs.

Based on the conclusions of this thesis, the author thesis recommends that the internal area of "High Priority Service" is also developed by the commissioner company, to effectively address the clients' main need identified in this development work.

Furthermore, other needs recognized during the development work are recommended to be developed by the commissioner company. This will significantly contribute to delivering exceptional technical service.

In relation to technical service, the warranty clearly delineated the scope of the development work. It would be advantageous to investigate out-of-warranty scenarios to further enhance the client experience in a B2B context.

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### Appendix 1: Data group example

Work style (site)

Give this Tag a description or summary...

Type to filter for Tags, Sessions, Session Information or Keywords sorted by: Unsorted

Select all 7 6 14

**Gabriela**  
customer visits and calls

End customers receive dedicated support from a single technical person throughout their case

In many cases, guidance is provided by e-mail. For some customers to provide documentation for setup.

Sometimes it'll be in person, on site, sometimes remotely. Depends really. I mean obviously we're going to do a demo, it's going to be on site if we're doing the kind of pre sales conversation.

we don't use them ourselves as extensively as of course the end customer does. So I would say that that is the biggest issue that we experience in, in terms of supporting the end users because they use it in a well in a day-to-day basis and we only use the headsets for demoing

It's a client who has a contract signed with us for the maintenance I'm going to probably send the directly send them new headsets and and after that I will take back the the headset that has an issue and I will manage it with you for the return

I have a team of tech guys who are only on the tech port and but usually they contact me

We mainly sell

I think I see they have a contract with this that and so we have we need to that the big contract.

For example, I need to answer in two hours and I need to take the headset in 24 hours and stuff like that. So first I see if it's a big client or a smaller client for me, and 2nd I directly ask them for the serial number of the product. Mm hhm. I go to the support of and I give them the serial number

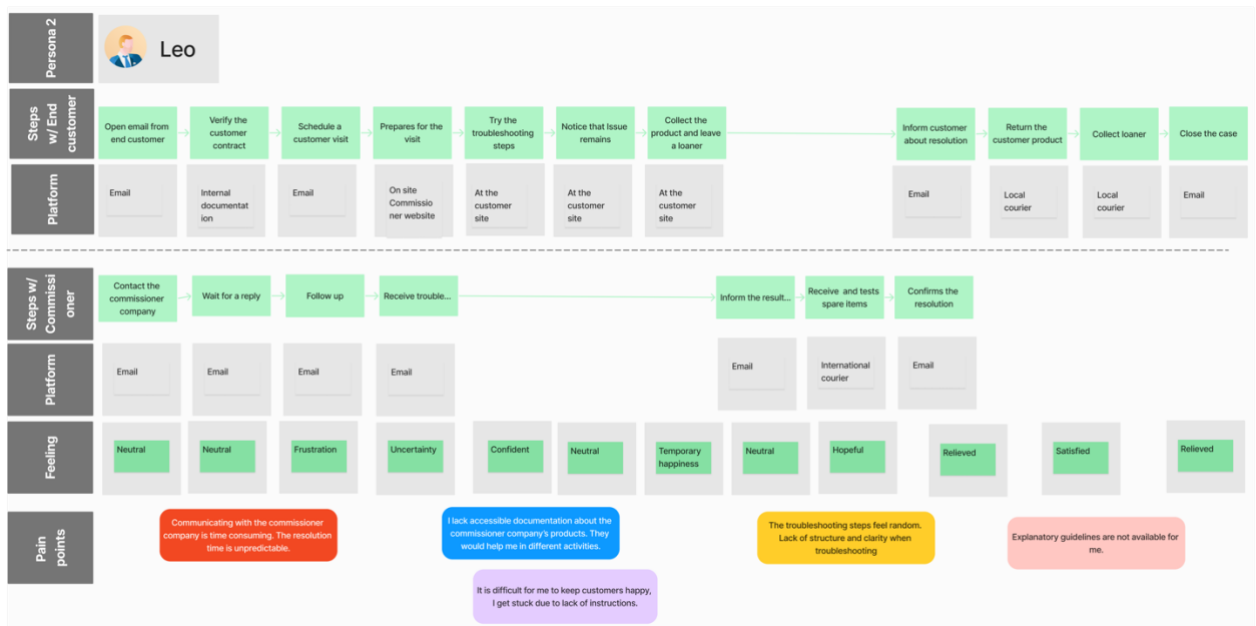
We've made a deal for example at 1 million with this client and the guy in the installation has like 7 happy. I'm just gonna send him a new and not bother him when they send us back. If you send us back a refurbished

we have headsets for the immersion headsets and so sometimes I just send them for the time that they need it and when we receive the new refurbished, I will make the exchange

but this situation is only when they already have a services contract with us they have a regular contract. I'm not going to do that. I'm just going to do regular things and wait for them to give me that. We are sure that the warranty is still active

I should use more website, but I personally don't have the time because I should get another guy working with me. And I have a lot of different sites to handle, more than 70 sites without counting the more regular clients.

## Appendix 2: Customer Journey maps with overlapping pain points



Appendix 3: Journey Blueprint



3) Updating resources

2) During client issue

1) Presenting resources