SERVITIZATION STRATEGIES OF SUPPLIERS: EXPLORING THE IMPACT OF CUSTOMER MARKET MICRO SEGMENTATION CRITERIA

ROY HEILERSIG

S 2868601

MSC IN BUSINESS ADMINISTRATION; STRATEGIC MARKETING & SERVITISATION

FACULTY OF BEHAVIOURAL, MANAGEMENT AND SOCIAL SCIENCES, UNIVERSITY OF TWENTE

SUPERVISORS: DR. R.P.A. LOOHUIS, DR. Y. SAHHAR

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ABSTRACT

This research is conducted for a lithium battery manufacturer “LBM” based in the Netherlands. LBM is at the beginning of their servitization activities in the marine industry. Therefore, LBM is seeking to develop its service strategy and find servitization opportunities.

The primary goal of this research is to understand how customer micro level segmentation criteria could influence the servitization strategy of suppliers. The central question is: "How can servitization strategies be developed based on service logic micro level segmentation criteria, examined from the customers perspective?" To answer the main research question, multiple theoretical and practical sub-questions are formulated and answered.

The academic implication of this research is the contribution to extend existing knowledge regarding the relationship between servitization types and micro segmentation criteria. In practical terms, it offers valuable insights to managers, for understanding customer needs and formulating tailored servitization strategies for target groups.

To give answer to the formulated research questions, the methodology used in this research combines literature review, qualitative research consisting of customer interviews, two focus groups, and a case study at LBM.

This research explores the shift from product-centric to service-centric segmentation criteria and develops a framework linking these criteria to servitization strategy. The study further identifies six customer target groups based on service logic criteria, also is identified which services are most valuable to these target groups.

In conclusion, this research contributes to understanding servitization strategies in the lithium battery manufacturing industry. It highlights the connection between servitization and micro-level segmentation criteria, offering both theoretical and practical insights. The aim is to help LBM tailor their services to meet the specific needs of different target groups, ultimately increasing perceived value.

Keywords: micro level segmentation, servitization, service strategy, service logic

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1. INTRODUCTION

1.1 SITUATION AND COMPLICATION

1.1.1 The case firm

This research is carried out on behalf of a lithium battery manufacturing company which is based in the Netherlands. During this research, the company will be called: "LBM" (Lithium battery manufacturer). LBM is a global player and sells batteries in different business to business (B2B) industries. At this point in time, LBM has not fully developed their service strategy and is at the beginning of developing service innovation activities – also called servitization in the marine market. Therefore, they want to further explore their opportunities for service innovation in this market.

This research is conducted in order to advise LBM with formulating and improving their service strategy within the marine market. By doing this research, customers from different countries and industries will be investigated.

1.1.2 Servitization

Servitization can be described as the process of change in which manufacturing companies adopt a service-oriented approach and/or improve their services with the goal of meeting customer needs, gaining a competitive edge, and improving overall firm performance(Ren & Gregory, 2007). Much research has been done into servitization as a general strategy to offer bundles of services to customers usually focusing on keeping the customers operational. However, offerings vary and there are different types of servitization strategies, add-on services, maintenance and support services, R&D-oriented services & Functional and operational services(Parida et al., 2014). Servitization efforts are usually viewed from the supplier perspective. Which means that there is no clear understanding of what this should look like from the customer perspective. This can result in servitization strategies which are not formulated in a customer-centric way.

1.1.3 Service logic

When going through the servitization process, the value proposition of a company changes. In most cases, the value proposition of a company consists of certain attributes of product and/or services. When going through the process of servitization and start offering more complex offerings, the value proposition of a company shifts rather to the value that is perceived by the customer firm, then on the product itself. This should be the core element of a company's value proposition(Terho et al., 2012). Service logic focuses on the concept of value-in-use. This concept consists of all perceived consequences arising from resource integration (within a transaction) that facilitate or hinder achieving an actor's goal(Macdonald et al., 2016). With this value in use approach, we can better understand where opportunities for value (co)creation and service innovation lie in relationships. This approach also helps to better understand the perceived value by customers(Macdonald et al., 2016). Value in use emphasizes the dynamic and contextual nature of value creation, recognizing that value is subjective and depends on the unique needs, preferences, and circumstances of individual customers(Grönroos, 2011). Which are reflected by micro segmentation criteria, as they zoom in to these specific topics(Shapiro & Bonoma, 1984). Target groups are specific groups within a larger market, characterized by micro level segmentation criteria. They can be based on behavioural, demographic, psychographic, or other factors that reflect the needs, preferences, and behaviours of the customers(Shapiro & Bonoma, 1984). Per target group different types of services are valued, some customers for instance value knowledge, speed, and quality different. Service providers can use micro level segmentation criteria to tailor their offerings and interactions to each different customer segment and improve their collective value (co)creation(Grönroos, 2011). In the current situation only micro segmentation criteria are known developed from a product logic perspective. These product logic segmentation criteria do not reveal all services aspects of the customer, which could reduce value (co)creation.

1.2 RESEARCH OBJECTIVE

Although the literature on servitization is growing, the majority of the papers focus on supplier's efforts to adopt servitization in their business model and segment markets. As a result, we know little about servitization strategies examined from the customer perspectives. And this is important to know because differentiation is not only a supplier's choice but also the one of customers. Therefore, this research brings the customers focus to the fore and especially the notion of micro level segmentation criteria in understanding how this relates to the type of servitization offerings from suppliers.

1.3 FOCUS OF CENTRAL RESEARCH QUESTION

As mentioned earlier, much research has been done into servitization as a general strategy to offer bundles of services to customers usually focusing on keeping the customers operational. Most of the time the servitization strategy is described from the supplier's perspective and micro segmentation is done in product logic. Not much research has been done on the influence of micro segmentation criteria on the servitization strategies from a service logic perspective. Literature states that in order to create a proper service strategy, the customer's problems should be understood. In this way these problems can be taken away by delivering the right services. By researching what target groups based on service logic micro segmentation criteria value most in terms of relations and services, the most valuable service strategies per target group might become visible. This determines the influence of the service logic micro level segmentation criteria on the servitization strategy. In order to close the gap and understand how service logic micro level segmentation criteria relate to the type of servitization offerings, the following research question is formulated:

Research question: How can servitization strategies be developed based on service logic micro level segmentation criteria, examined from the customer's perspective?

In order to give answer to the research question the following sub-questions are formulated and examined:

- What are the different segmentation criteria in industrial markets, from macro to micro?
- How can we understand micro level segmentation criteria from a service logic perspective?
- What are the different servitization strategies in terms of types?
- How can the relationships between types of servitization offerings and decisive segmentation criteria be theorized?
- How can decisive segmentation criteria and servitization strategies in terms of types be matched in practice?

1.3.1 Explanation of the sub-questions

1. What are the different segmentation criteria, from macro to micro?

In the first sub-question will be described what the different segmentation criteria are from macro to micro. Defining what the different segmentation criteria are is important for answering the main research question. As it is important to understand the segmentation criteria for dividing and understanding the market.

2. How can we understand micro level segmentation criteria from a service logic perspective?

In the second sub-question will be described how micro level segmentation criteria can be understood from a service logic perspective. By explaining this, the relation between micro level segmentation criteria and service logic becomes clear. This relationship is important for answering the main research question because it is an essential part of this research.

3. What are the different servitization strategies in terms of types?

In the third sub-question will be described what the different servitization strategies are in terms of types. In this description a division will be made on type. Here will be described what different

types are possible. Understanding the different servitization strategy types helps by understanding answering the main research question. This is because servitization is better understood and in this way can better be connected to customers.

4. How can the relationships between types of servitization offerings and decisive segmentation criteria be theorized?

By answering this research question a theoretical framework will be created, to understand the relationship between segmentation criterion and servitization strategies. This is important for answering the main research question because this will make us understand the relationship between decisive segmentation criteria and servitization offerings in theory.

5. How can decisive segmentation criteria and servitization strategies in terms of types be matched in practice?

When answering this sub-question, the relationship between decisive segmentation criteria and servitization strategy is already theorized in sub-question four. During this sub-question the theoretical framework will be used in practice. So, that the relationship between certain decisive segmentation criteria and a company's servitization strategy of the case study company LBM will be matched in practice.

1.4 METHOD

To answer the formulated research questions, a combination of academic literature and qualitative exploratory research will be used. In order to answer the research questions, a case study will be done at company LBM. During the first part of this research a literature review will be conducted. This in order to get a better understanding of segmentation criteria, service logic and servitization strategies. A literature review will also be conducted in order to find out how a phenomenon can be theorized, and how segmentation criteria and strategies can be matched in practice. To get an understanding of the value in use and service needs from customers in certain market segments, semi structured interviews will be held. In addition to the interviews, two focus groups will be held. One focus group was held to brainstorm about the possible services that can be provided within the marine market by battery manufacturer. Another focus group is held to brainstorm about how the findings from this research can be implemented in practice. All literature and data will be used to create a servitization strategy for LBM.

1.5 RELEVANCE

1.5.1 Academic relevance

The theoretical contribution of this research is the new insight gained in the effects of service logic micro segmentation criteria on the servitization strategy of suppliers. Extending the literature on service logic, segmentation criteria and servitization strategies. In the current situation, most servitization strategies are based on the suppliers perspective. In this research the focus is on micro segmentation criteria of the customers perspective, and from which servitization strategy they will perceive the most value in use. By researching this, the segmentation criteria of Shapiro & Bonoma (1984) which are formulated by a product logic approach will be extended with an interpretation from a service logic approach. During this research is also identified how the service types of Ren & Gregory (2007) relate to service logic micro segmentation criteria. Therefore, this research will extend literature on the relationship between servitization, service logic and micro segmentation criteria.

1.5.2 Practical relevance

The practical contributions of this research are the new insights created for organizations, so they can better understand their customer needs. Which is visualized in the theoretical framework. By understanding their customers' needs, organizations can create better servitization strategies. In this way more value will be created and perceived by customers. Therefore, this knowledge will be useful to manufacturing firms as they can use this knowledge when formulating a servitization strategy for specific target groups.

1.6 OUTLINE

The outline of the paper is as follows. The second chapter sets out the theoretical framework of this research, starting with an industrial market segmentation approach. Secondly, products and their relationship to services are explained and the definition of a service is given. Third, servitization, service strategies are explained. Chapter three provides the description of the methodology, discussing the research design and data collection methods. The fourth chapter describes the findings of this research. The final and fifth chapters provide the discussion, implications, limitations, and directions for future research.

2. THEORY

In this chapter, relevant literature regarding segmentation criteria, service strategies, and service logic is discussed. By discussing these topics, the first four sub-questions will be answered. Trough answering these sub-questions, a theoretical framework will be developed. Which will be explained at the end of this chapter.

2.1 MARKET SEGMENTATION

To answer the first sub-question: "What are the different segmentation criteria in industrial markets, from macro to micro?" the different segmentation criteria in industrial markets will be defined. But before looking into this, the difference between macro and micro segmentation criteria will be explained.

Two different approaches to segmenting a market based on specific criteria are macro and micro segmentation(Sikarwar & Verma, 2012). The differences between these two approaches can be given based on scope, level of analysis and insights generated(Powers & Sterling, 2008). These differences will be further explained in table one.

	Macro segmentation	*Micro segmentation*
Scope	Focuses on broader market segments. Distinct based on broad characteristics(Sikarwar & Verma, 2012).	Zooms in on smaller segments within larger markets. Involves dividing the market in smaller niche segments, based on highly specific criteria(Sikarwar & Verma, 2012).
Level of detail	Operates on a high level of analysis. Examining market-level trends and patterns(Powers & Sterling, 2008).	Individual customer level of analysis. Aims at identifying segments based on unique needs, preferences, and behaviours(Powers & Sterling, 2008).
Insights generated	Provides insights into the overall market dynamics and competitive landscape. Helps to understand the market as a whole & identify general trends(Mora Cortez et al., 2021).	Generate insights into specific characteristics and needs of individual customer segments. Enables to customise marketing efforts and (service) offerings to precisely fulfil the unique demands of diverse customer groups(Mora Cortez et al., 2021).

Table 1 Macro VS micro segmentation

By considering both macro and micro segmentation, businesses can develop more effective marketing strategies, customize their offerings to specific customer segments, and align their strategies with the broader market dynamics(Mora Cortez et al., 2021).

2.1.1 The nested approach to industrial market segmentation

Shapiro (1984) has identified five general segmentation criteria. These five segmentation criteria are: demographics, operating variables, customer purchasing approaches, situational factors, and personal characteristics of the buyers. As can be seen in figure one.

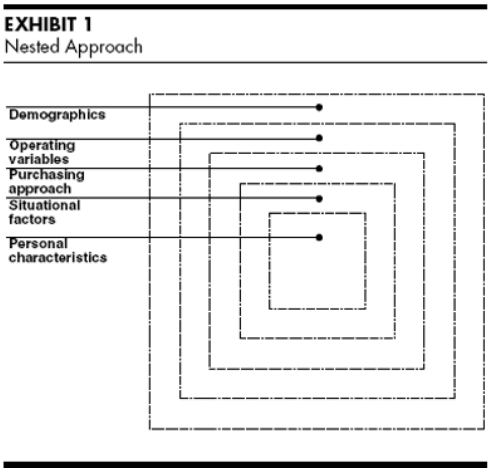

Figure 1 Nested approach (Shapiro & Bonoma, 1984)

Figure one shows that the different criteria are related to one another. The outer criteria is most easily noticeable, but when moving further in they are much harder to recognize. The outer criteria, demographics, can be seen as a macro segmentation criterion. The four inner segmentation criteria, can be described as micro segmentation criteria. By applying these segmentation criteria market segments can be identified. When zooming further in on these segments and applying more segmentation criteria, target groups can be identified. Which consist of a small customer group of the initial market segment.

2.1.2 Demographics (Macro)

The outer nest contains the most general segmentation criteria. These variables give a broad description of the company and relate to general customer needs and usage patterns. These include industry, company size and customer location.

The industry

Knowledge of the industry affords a broad understanding of customer needs and perceptions of purchase situations. Many companies have customers in different industries. In this case, the industry where the customers are active is an important segmentation criterion. In different industries customers have different needs.

In many cases marketers also wish to subdivide individual industries. Companies may be active in the same industry but still can have different service or product needs. Therefore, it is in some cases necessary to make a more detailed segmentation scheme.

Company size

Larger companies justify and require specialized programs, this has an impact on market segmentation. Smaller companies can for instance choose after segmenting the market to not approach larger companies due to their production capacity.

Customer location

The location of the customer is an important factor in decisions related to deployment and organization of sales staff. When producing products of low value-per-unit-weight or large volumes companies like to have customers close to them. Rather than having customers on the other side of the world.

2.1.3 Operating variables (Micro)

The second segmentation nest contains a variety of segmentation criteria called the operating variables. These variables make identification of potential and existing customers within the demographic categories able. In general, these variables are stable and include product and brand-use status, customer capabilities and technology.

Company technology

This operating variable can be seen in two ways: The manufacturing process or the company's product. A company's technology goes a long way towards determining its buying needs. Many products can be produced in different ways. With these different production manners company's need different capital equipment and supplies.

Product and brand-use status

One of the easier ways is to segment a market by brand and brand use. Users of a certain product or brand generally have some characteristics in common. In the end they have common experience with a product or brand.

A division can be made between customers and potential customers. The potential customers also consist of two groups: potential customers who already use this type of product and potential customers who do not use your type of product.

In some cases, it can also be useful to segment customers not only to whether they buy your products or from a competitor. In the last case it can be helpful to identify from which competitor they buy, as some competitors are easier than others to steal customers from.

Customer capabilities

Marketers might find companies with certain operating, technical or financial strengths and weaknesses more or less attractive. For many companies it is important to for instance have a supplier who is strong in the factors where they are weak in. In this way they solve their weaknesses. Another factor can be that the supplier wants a customer who has much experience with a product so they don't have to help them solve their problems, because they can do it themselves.

2.1.4 Purchasing approaches (Micro)

One of the overlooked yet valuable techniques for dividing an industrial market is through the analysis of consumers' purchasing strategies and corporate philosophy. This intermediate segmentation encompasses various factors, such as the formal structure of the purchasing department, power dynamics, the nature of buyer-seller interactions, general purchasing policies, and the criteria used in purchasing decisions.

Purchasing function organization

The organization of purchasing activities also determines the size and operation of a company's purchasing unit. In some cases, when a company has a centralized purchasing unit, a company that is not centralized has problems operating this way in sales. Therefore, this segmentation can be very useful.

Power structures

The influence of organizational units on purchasing approaches strongly differs among companies. When a company is focused on price, a marketer can use this in his approach to the company. In this way marketers can adapt their marketing programs to certain customers.

Buyer-seller relationships

A supplier in most cases has stronger ties with some of these customers than with others. In some cases, if a competitor has very strong ties with a company, the company will be unattractive.

General purchasing policies

Companies have different purchasing policies which have an impact on the selling companies. An example of purchasing strategy is auctions. Some companies prefer this purchasing strategy where other suppliers avoid this type of purchasing policies. Another important segmentation criteria is that some companies prefer leasing over buying. For certain companies this is very interesting, but others avoid this. Therefore, this also is an important criterion.

Purchasing criteria

Benefit segmentation in the customer goods market is the process of segmenting a market in terms of why customers buy. This is a very insightful form of segmentation, as it directly informs about the customer needs.

2.1.5 Situational factors (Micro)

Up until this far the focus was on grouping customer companies. From this point the focus is on the role of the purchase situation. Situational factors are like operational variables. The difference is that situational factors are temporary and require more detailed knowledge from the customer.

Urgency of order fulfilment

Urgency of orders differ on some occasions. For instance, routine replacements or emergency replacements require another urgency of order fulfilment. Therefore, another type of supplier is needed in some cases, which makes a purchaser interesting depending on the case.

Product application

The product application can have major impacts on the purchase process and purchase criteria and thus the choice of vendor. The reason for this is for instance the impact when the product will break down. When the product is not very important and has not a big impact the quality can be less than when it has a major impact.

Size of Order

Market segmentation can be done based on the size of the orders. When a company is highly automated, most of the time they rather have customers who place orders in large unit volumes. Marketers can also focus on different types of orders, for instance a small emergency order. This order is needed in a short amount of time.

2.1.6 Personal characteristics (Micro)

People, not companies, make purchase decisions, but their choices may be influenced by the organizational framework and company policies. Marketers for industrial goods can segment markets according to buyer-seller similarity, motivation, perceptions, and risk-management strategies. Some buyers are risk-averse, while others are risk receptive. Personal characteristics such as style, intolerance for ambiguity, and self-confidence can affect a buyer's level of risk tolerance. Companies can segment markets based on these preferences, but data on personal characteristics can be expensive and difficult to gather. Developing sales information systems can help gather data to develop segmented marketing strategies, which can lead to sales success.

2.2 SERVICE LOGIC

To answer the second sub-question: "How can we understand micro level segmentation criteria from a service logic perspective?" an understanding of service logic will be provided. This sub-question will be answered in 2.3.

Marketing models of exchange had a logic which focused on tangible products in the past. In recent decades, new perspectives have emerged, emphasizing intangible resources, collaborative value creation, and relationship building. These perspectives are believed to be converging and forming a new marketing logic where services hold greater importance than tangible goods in economic exchanges. This service logic is a framework for understanding value creation, between two or more entities. Which can be seen from different perspectives. Relevant perspectives for this research are perceived value in use, value propositions, voice of customer and co-creation of value. Understanding value is important when applying service logic because it helps businesses to create better experiences for their customers by focusing on what they value most(Vargo & Lusch, 2004).

2.2.1 Layer-Model of extended product

In the introduction of this chapter tangible and intangible products are mentioned. The difference between this will be explained in this paragraph using the layer model of Thoben Eschenbächer (2001). The Layer model has been developed by Thoben Eschenbächer, et al. (2001) in order to structure the extended product approach. This model makes a division between Core product, tangible product and non-tangible product as can be seen in figure two. This division makes it easier for marketers to understand what the customer values in offerings (Thoben, Privaten, et al., 2001).

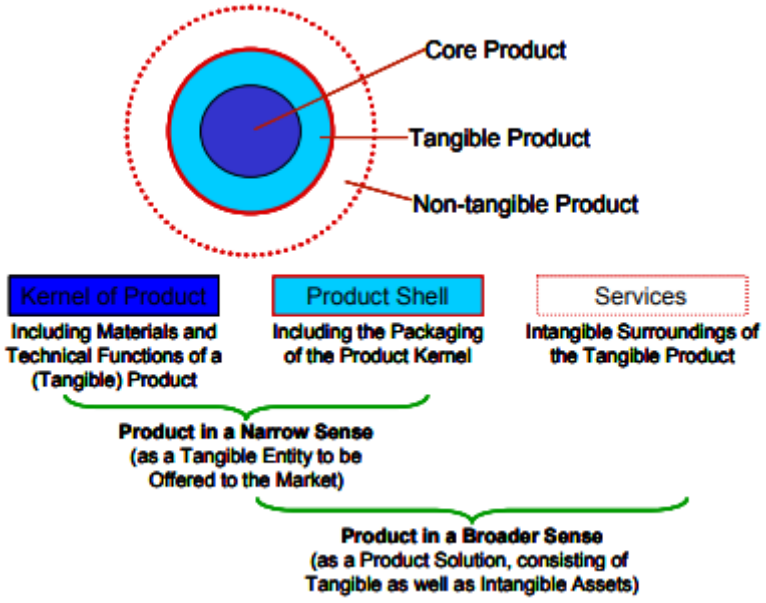

Figure 2 The extended product (Thoben, Privaten, et al., 2001)

Core product

The core product is the basic functional capacity of a product.

Tangible product

The tangible product is an added feature to the core product. This is either to enhance the product's performance or to distinguish it from competitors.

Non-tangible product

The intangible assets of a product are encompassed by the third ring, which surrounds the tangible product. Which can be conceived as services.

2.2.2 Value creation

In order to understand value, it is necessary to know how value is created and by which parties. Grönroos and Voima (2013) describes different roles of the firm and customer in the value creation process, across three value creation spheres. As can be derived from figure three, the three different spheres are: provider sphere, joint sphere, and the customer sphere.

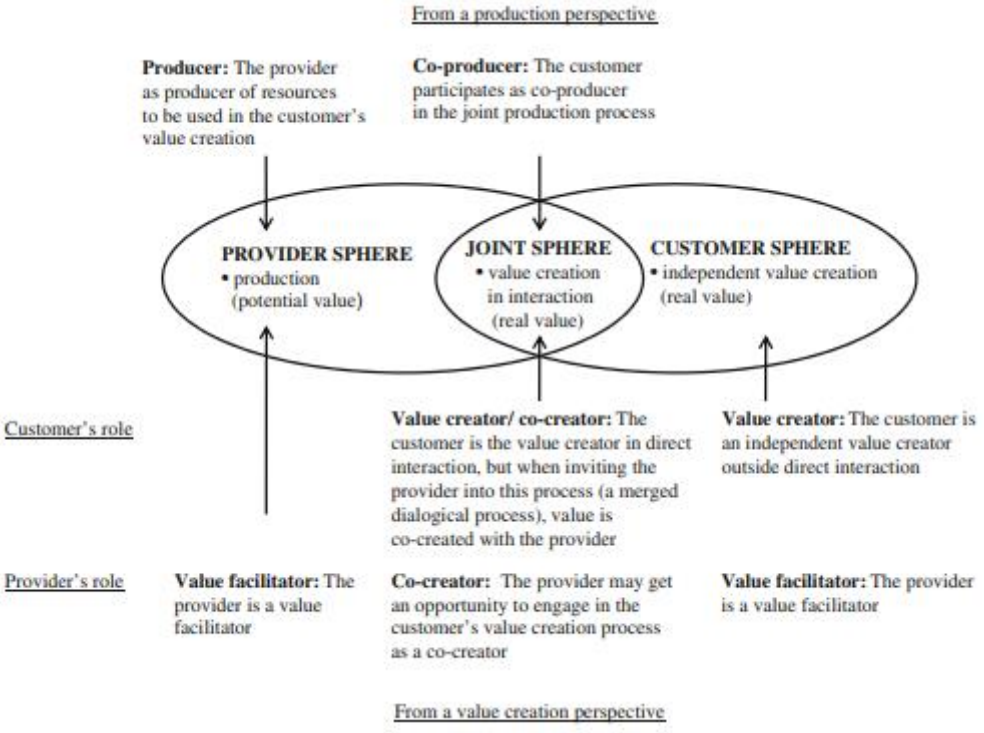

Figure 3 Value creation spheres (Grönroos & Voima, 2013)

Provider sphere: The provider is responsible for the production process, including design, development, manufacturing, delivery, back-office, and front office processes. The producer produces and provides the resources and processes for customers to use and facilitates their value creation. The provider creates potential value in use for the customer(Grönroos & Voima, 2013).

Joint sphere: The joint sphere is characterized by the direct interaction between the customer and the provider. Because of these direct interactions co-creation is possible, interactions do not always mean co-creation. Understanding customer practices, processes and outcomes in interactions allows a service provider to shift from a mere facilitator to a co-creator of value. The way the firm and the customer interact and collaborate greatly impact the co-creation of value. The boundaries of the collaborative sphere can differ based on the level of customer involvement and the company's actions. This affects the opportunities for value co-creation. (Grönroos & Voima, 2013).

Customer sphere: This is where individual value creation by the customer takes place. During this process, the customer is independent of the provider. The customer communicates only by means obtained from the provider. In this area, the provider plays a passive role, and the system is closed to the provider. The customer independently combines different resources and experiences to create value in different temporal, spatial, physical, and social contexts. The customer's value creation process is influenced by individual, relational and collective goals, as well as the wider customer network or ecosystem over which the company has no control(Grönroos & Voima, 2013).

2.2.3 Perceived value in use

The value proposition of a company changes when going through the servitization process. Instead of having a value proposition consisting of products and services. The value proposition when going through the servitization process can best be explained by the value in use perceived by the

customer(Terho et al., 2012). The so-called value in use, consists of all perceived consequences arising from resource integration (within a transaction) that facilitate or hinder achieving an actor's goal(Macdonald et al., 2016). By applying the value in use approach companies are better able to see opportunities for value creation and service innovation in B2B relationships. This approach helps us also to better understand the perceived value by customers(Macdonald et al., 2016).

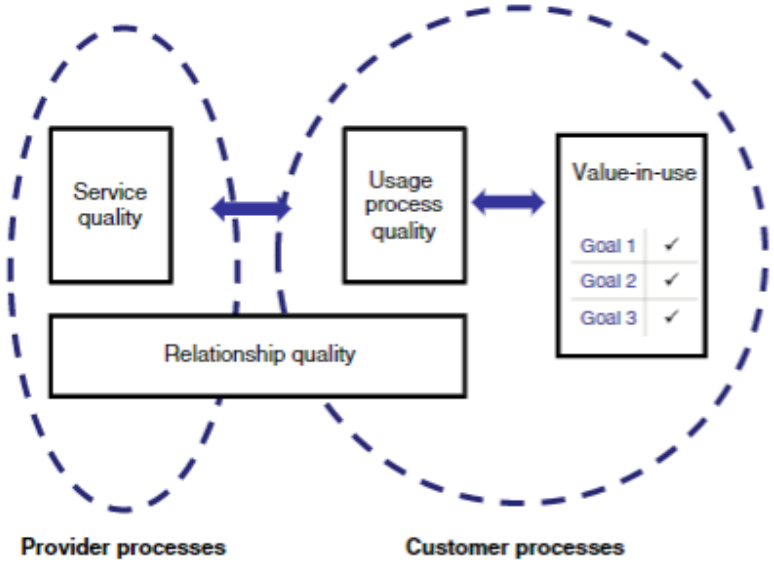

Figure 4 Framework for customer assessment of value-in-use(Macdonald et al., 2011)

The framework as shown in figure four gives a structured approach to how customers perceive and evaluate the delivered services. The model suggests that customers' use of a provider's service is goal-directed. Goal setting involves arranging goals into a structured sequence or order of importance. Customer goals can be individual or organizational and they can move back and forward between these goals. Customers evaluate both service quality and value-in-use: indeed, their goal hierarchy includes a mental model as to how these levels relate. The same process applies to the usage processes. The co-created value through use of the service should also be considered. The customer's assessment of the usage process can also have a negative direction. The last element of this model is relationship quality(Macdonald et al., 2011). A relationship is an ongoing process of interaction involving one or more value exchanges(Crosby et al., 1990). Relationships function as an inter-organizational capability where exchange partners can identify the value-in-use they seek, develop a value proposition, and assess the quality of service and value-in-use achieved. The perceived excellence or superiority of this capability is what is referred to as relationship quality(Macdonald et al., 2011).

2.2.4 Voice of customer

Voice of Customer (VOC) is a methodology to analyse the customer value, or value in use. Voice of customer gives a clear overview of wants and needs, which are organized in hierarchical structure and then prioritized in terms of perceived value(Griffin & Hauser, 1993).

The voice of customer process gives valuable outputs and benefits. Firstly, it gives a deep and specific understanding of the requirements and expectations of customers. Secondly, it establishes a common language for the development team to facilitate effective communication and collaboration. Thirdly, the voice of customer data provides important input for designing specifications of new products and services. Lastly, the voice of customer is an important starting point for innovations(Griffin & Hauser, 1993).

The voice of customer consists of four key aspects: customer needs, a hierarchical structure of these needs, prioritization of these needs based on importance, and an assessment of customer perception of performance(Griffin & Hauser, 1993).
Therefore, the voice of customer allows businesses to gather and analyse customer requirements, leading to a better understanding of customer needs. This will lead to opportunities for product and service innovation(Griffin & Hauser, 1993).

2.2.5 Value propositions

In service logic, the value proposition shifts the focus from the attribute to the value that is co-created through interactions between two or more parties. The value proposition in service logic evolved around the concept of offering a unique and personalized experience that meets the specific needs and preferences of individual customers. In this perspective, the value proposition revolves around the benefits, solutions, and value that the service can provide to customers. The value proposition is customer centric and co-created. This means the customers are involved and engaged in the co-creation process. To ensure the delivered value meets the customers' expectations, the design and delivery should be done collaboratively(Skålén et al., 2015).

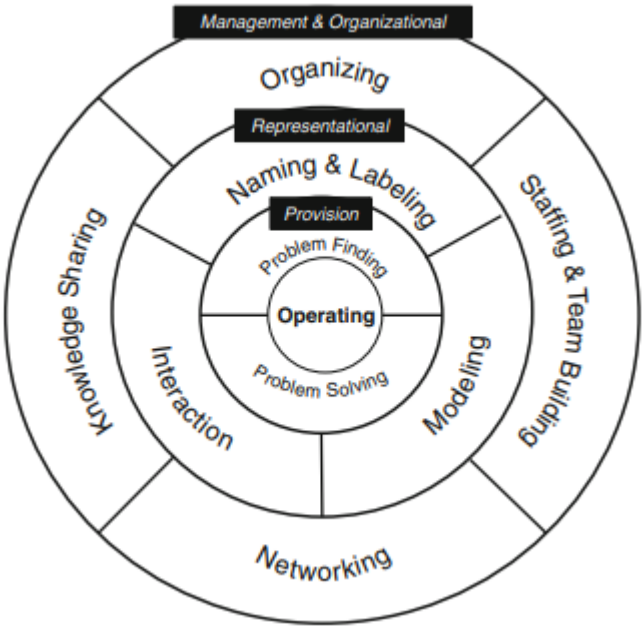

Figure 5 The anatomy of a value propositions (Skålén et al., 2015)

Figure five shows the connection between different practices who are involved in creating and delivering value propositions. The three different groups of practices involved are: provision practices, representational practices, and management and organizational practices(Skålén et al., 2015).

Provision practices are at the centre of the model. The provision practices consist of directly supporting customer value creation and therefore are crucial for the value proposition(Skålén et al., 2015).

Representational practices involve articulating and communicating the value proposition. They play an important role in shaping a perception of the value that is being offered, externally but also internally(Skålén et al., 2015).

Management and organizational practices consist of aligning, organizing, and managing provision and representational practices. These practices ensure that the firm fulfils its part of the value proposition and integrates the necessary resources efficiently(Skålén et al., 2015).

According to Anderson et al., (2006) the term value proposition is used in three different ways. Which are explained in table two.

VALUE PROPOSITION:	ALL BENEFITS	FAVORABLE POINTS OF DIFFERENCE	RESONATING FOCUS
Consists of:	All benefits customers receive from a market offering	All favorable points of difference a market offering has relative to the next best alternative	The one or two points of difference (and, perhaps, a point of parity) whose improvement will deliver the greatest value to the customer for the foreseeable future
Answers the customer question:	"Why should our firm purchase your offering?"	"Why should our firm purchase your offering instead of your competitor's?"	"What is *most* worthwhile for our firm to keep in mind about your offering?"
Requires:	Knowledge of own market offering	Knowledge of own market offering and next best alternative	Knowledge of how own market offering delivers superior value to customers, compared with next best alternative
Has the potential pitfall:	Benefit assertion	Value presumption	Requires customer value research

Table 2 Three approaches to value proposition (Anderson et al., 2006)

These approaches have differences in creating and expression of the value proposition. From the three different approaches resonating focus creates the most customer value(Anderson et al., 2006).

2.3 MICRO SEGMENTATION CRITERIA AND SERVICE LOGIC

In this paragraph will be explained how we can understand micro level segmentation criteria from a service logic perspective.

In service logic, the focus is on value in use and co-creation of value through interaction between providers and customers(Grönroos & Voima, 2013). The Nested approach consists of four main types of micro segmentation criteria: operating variables, purchasing approach, situational factors, and personal characteristics. Shapiro and Bonoma (1984) created these segmentation criteria from a product logic perspective. Which therefore does not match when service logic is applied, because the product stands central within these segmentation criteria. Therefore, reframing these micro segmentation criteria is needed. By reframing the segmentation criteria to the service logic, the focus shifts towards understanding customers service-related needs, co-creating value, considering contextual factors, and recognizing the influence of individual customer characteristics. By applying these segmentation criteria, better service strategies can be developed for customer segments by service providers.

2.3.1 Operating variables

Customers can be segmented based on their competences, skills, and resources that contribute to value co-creation. These can either complement each other or by giving the other party what they don't possess. Alternatively, interactions can be enhanced through the presence of shared knowledge, competences, skills, or resources, leading to a more seamless and valuable communication experience. Services currently used by customers can also be used to segment the market. This will identify where the customer currently experiences value from, and what their needs are in terms of services. Another factor is the customer's technological readiness and ability to adopt and utilize technologically enabled services and integrate digital platforms. This factor identifies if the customer is able to utilize technologically enabled services and integrate digital platforms, so if they can perceive value via digital platforms.

2.3.2 Relationship approach

Shapiro and Bonoma (1984) speak of the purchasing approach when they explain the different types of segmentation criteria. Customers can have different orientations when it comes to the duration and intents of a relationship. For example, some clients are looking for a long-term relationship and strengthening the relationship. While other customers do not aim for long-lasting relationships, and do not focus on strengthening the relationship. Factors of this can be long/short term orientation, interactions, trust, and loyalty. Another aspect is the degree of service complexity and the role of the customer in the co-creation-process, which describes the desired joint sphere. A distinction could be made regarding the role the customer wants to play or plays during the co-creation process. This can vary from an active to a passive role. One customer is looking for a simple transaction, where as much as possible is automated. While other customers are mainly interested in more complex personal service experiences. When applying the purchasing approach segmentation criteria from a service logic perspective the name no longer fully corresponds to the load it should cover. Therefore, the name "Relationship approach" will be used.

2.3.3 Situational factors

Just like in the model of Shapiro and Bonoma (1984), situational factors also a deepening the operating factors. Customers can also be segmented based on active participation in the co-creation process. Examples of this are providing active feedback, sharing ideas, and actively participating in the design or improvement of products and services. Differences among customers can also be identified based on specified service usage, or specific needs. Factors like customization, convenience, personalization, speed, flexibility, and responsiveness can be considered as examples.

2.3.4 Personal characteristics

Personal characteristics are also important from a service logic perspective. But by applying these segmentation criteria from the service logic perspective, they do not change from when they are applied from a product logic perspective. Therefore, they can be used in the same manner.

2.3.5 Conclusion micro segmentation criteria and service logic

Concluded can be that the micro segmentation criteria get a different load and interpretation when interpreting them from a service logic perspective. The basis of this is that the focus shifts to value in use, process elements and the co-creation of value. The micro segmentation criteria identify how (potential) customers operate and how services therefore could be organized to create maximum value in use. During this research, segmentation criteria created from a service logic perspective will be used. The segmentation results therefore will differ from when the segmentation criteria from Shapiro & Bonoma (1984) are applied. To define the impact of the service logic criteria, field research will be conducted.

2.4 SERVITIZATION

If customer target groups are identified, service strategies can be formulated for these target groups. In order to formulate service strategies the different service types have to be understood. Therefore, in this paragraph the third sub-question: “What are the different servitization strategies in terms of types?” will be answered. This will be done by looking into different types of services.

Servitization is the process of change in which manufacturing companies adopt service-oriented approaches or improve their existing services to fulfil customers' requirements, gain a competitive edge, and enhance overall business performance(Ren & Gregory, 2007).

2.4.1 Industrial product-service business models

According to Parida et al. (2014) in the field of industrial product-services are four different service types, named: Add-on services, Maintenance and product support services, R&D-oriented services and Functional and operational services. These business models are based on Tukker’s (2004) earlier research which stated that there were three different types of industrial product-service models: product-oriented, use-oriented, and result-oriented. Parida et al. (2014) created the four industrial product-service business models based on his analysis of the seventeen industrial product-services identified by (Antioco et al., 2008). The four industrial product-services according to Parida et al. (2014) are shown in figure six.

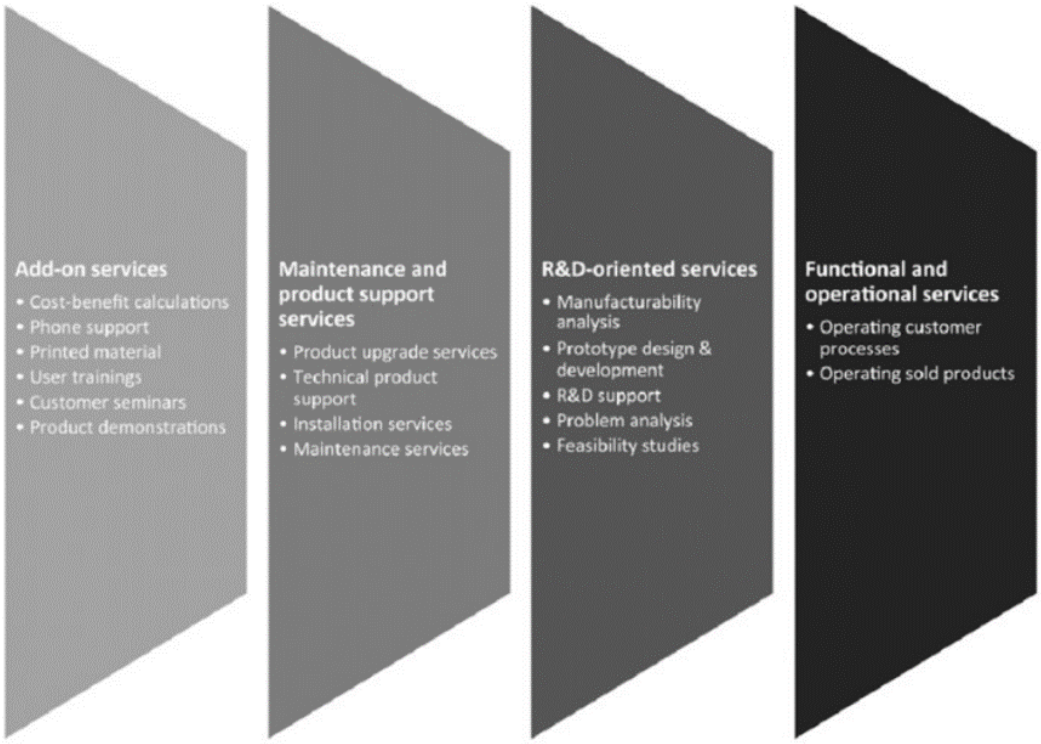

Figure 6 Industrial product-service business models (Parida et al., 2014)

The add-on customer services business model

The add-on customer services business model is designed to educate customers about the company’s products. These types of offerings are usually intended to add marketing value and enhance the usability of products (Parida et al., 2014).

The maintenance and product support services business model

The maintenance and product support services business model includes maintenance, technical support, and installation services. These services are intended to minimise the total cost of ownership and expand the products lifetime. This model’s focus is to increase product sales, bundling

this with the product maintenance service is intended to make the product more attractive (Parida et al., 2014).

The R&D oriented services business model

The R&D oriented services business model includes advanced industrial product-related services. Such as R&D support or conducting a problem analysis in order to identify potential improvements to products. These services can be contracted separately from products or can be embedded into the product customization process as part of an integrated solution (Parida et al., 2014).

The functional and operational services business model

The functional and operational services business model includes services such as operating products who are sold to the customer or operating the customer processes. The aim of this business model is rather to sell a capability or result to the customer than a product. The service provider is in this case responsible for the availability of the desired output. Therefore, this business model is highly service based and carries a high level of risk and responsibility. The extreme end of this business model is a contract in which the provider has the freedom to deliver the result upon an agreed price (Parida et al., 2014). An example of this is the Rolls-Royce's Power by the hour program, where only must be paid for the hours the engines are used. Maintenance and services were only provided to ensure the specified hours of availability (Cohen, 2007).

2.5 THEORETICAL FRAMEWORK

In this paragraph, the fourth sub-question: "How can the relationships between types of servitization offerings and decisive segmentation criteria be theorized?" will be answered. This will be done by combining the described theory in this chapter and forming it into a theoretical framework.

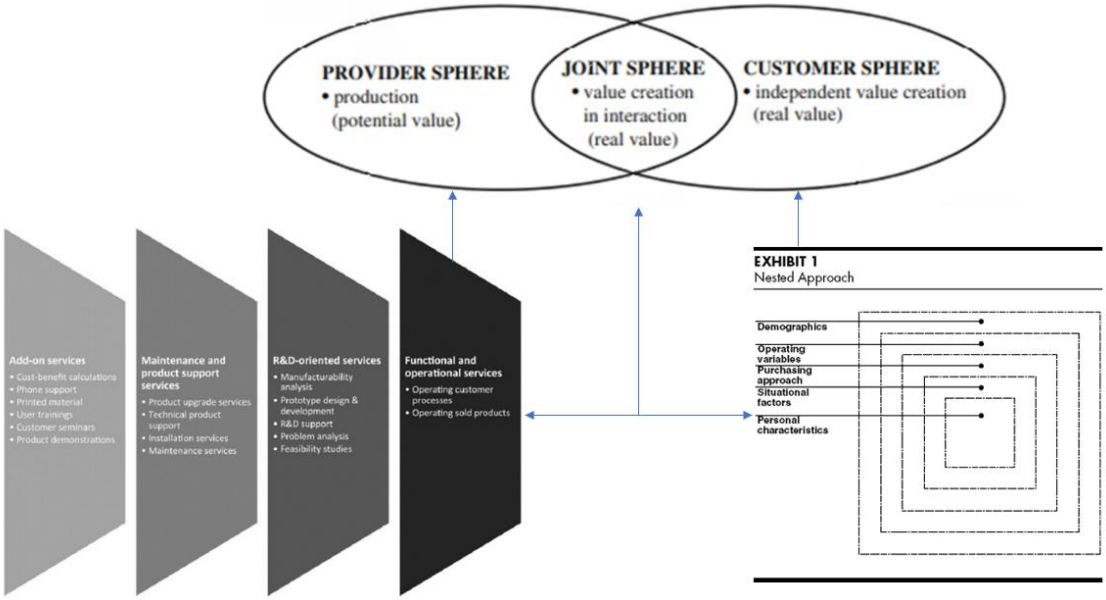

Figure 7 Micro segmentation and service strategies framework theories

Figure seven shows which theories are applied in the Micro segmentation and service strategies framework. After a target group is identified, a service strategy can be developed based on that target group. Service logic micro segmentation criteria are the characteristics that are used to group customers into different target groups. By micro segmenting, a clear understanding of customer groups is generated from a service logic perspective. When applying segmentation criteria from a service logic perspective, service characteristics of these segments become clear. By applying the voice of customer methodology will be identified what the specific understanding of the requirements and expectations of target segments are. Which indicates what and how service strategies should be provided to these target groups, as is understood how they operate and what their preferences are. When understanding this for every target group, the target groups can be served in the right way, with the services they value. The service strategy is delivered by the provider. Before the service is delivered, the service is considered as potential value. In the joint sphere, value is created by interaction between the customer and service supplier. The way this is preferred by the customer is identified via the micro segmentation criteria and is therefore the same for every target group. The independent value creation is done by the customer and indicates the value that is perceived by the customer, without the interaction as indicated in the joint sphere. The micro segmentation and service strategies framework can be seen in figure eight.

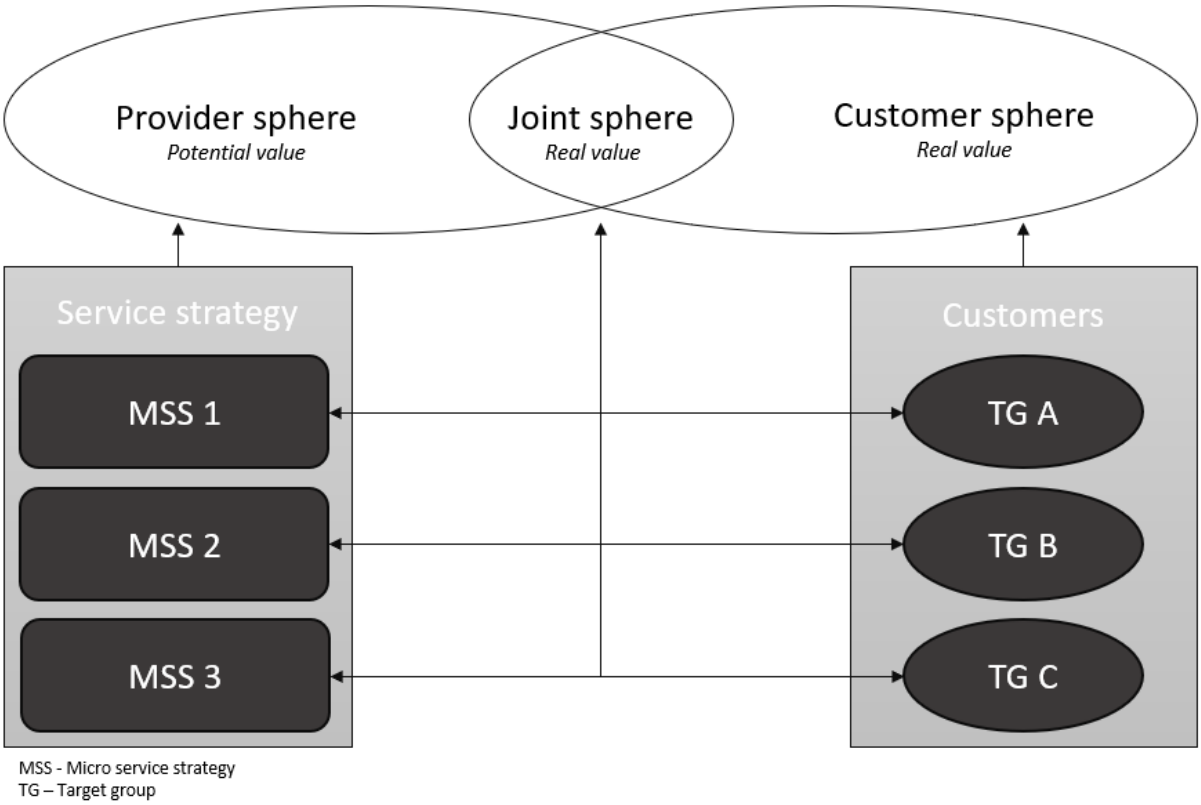

Figure 8 Service strategies and micro segmentation framework

As shown in figure eight, to create a service strategy target groups with similar service needs within the customer group must be identified. The customers are shown on the right side of figure eight. By identifying target groups, a better understanding of the different needs in the customer group will be gained, and customers can be served accordingly. Important to understand is that segmenting should be done from a service logic perspective when aiming to identify service needs for a target group. When segmenting the market from a product logic for instance, target groups will be identified based on product logic criteria. This does not mean that customers within this target group have the same service needs. That is why it is important to segment from a service logic perspective. By creating these target groups on micro segmentation criteria with a service logic approach, the way of receiving services can be better addressed. By applying the voice of customer methodology an understanding of the target group's preferences a specific understanding of the requirements and expectations can be identified. On which a service strategy can be developed for every individual target group. Which in this research is called the Micro service strategy (Mss). The service strategy is indicated on the left side of figure eight. As can be seen, all target groups are aligned with an individual micro service strategy, especially designed to address their requirements and expectations to create maximum customer value.

3. METHOD

In order to answer the fifth sub-question, and eventually the main research question, a division of multiple practical sub-questions is made. Which is described in subparagraph 3.2. The information for the practical side of this research will be gathered at LBM, which will be introduced at paragraph 3.1. In paragraph 3.3 will be explained how the data will be gathered.

3.1 CASE STUDY

This research is carried out on behalf of a battery manufacturer in the Netherlands. During this research, the company will be called: "LBM". LBM is a global player and sells batteries in different industries. During this research, the focus will only be on the marine market. Therefore, this is a suitable company for investigating the impact of micro segmentation criteria on the service strategy of suppliers. At this point in time, LBM has not fully developed their service strategy and is at the beginning of their servitization activities. This research has strategic importance to the general problem of creating servitization strategies.

This research is done in order to advise LBM with formulating and improving their service strategy for the marine market. By conducting this research, customers from different countries will be investigated. The focus during this research is on the marine market. Other markets where LBM is active in are not considered. During this research, there is no clear hypothesis or definition to the research question. Therefore, this research can be characterised as a qualitative, exploratory, and multiple case study(Baškarada, 2014).

3.2 PRACTICAL RESEARCH QUESTIONS

In this research, field research will be conducted at LBM in the form of a case study. For this field research, four practical research questions are developed. This paragraph will introduce the practical research questions that will be answered in chapter four, and will eventually answer the fifth sub-question: "How can decisive segmentation criteria and servitization strategies in terms of types be matched in practice?"

How can the different service types be interpreted for the marine market?

To get a better understanding of services that LBM could provide in the marine market a translation from the industrial product-service business models will be made. This will help to formulate interview questions and understand the marine market in a better way. Which is needed to answer the following practical sub-questions. The translation will be made with input from a brainstorm session. Which later can be extended with input from the Electric & Hybrid Marine Expo and interviews.

What target groups can be defined based on service logic micro segmentation criteria?

After the customer interviews are completed, target groups can be identified based on this data. This will be done using the service logic micro segmentation criteria as described in chapter 2.5. These criteria will define target groups which reflects these segments preferences in terms of services. This is important to know, when developing a service strategy. As described in the theoretical framework, it is important to understand the different target groups in order to formulate a proper service strategy. Therefore, this will be investigated before focusing on services.

How are the different services valued among the identified target groups?

During the customer interviews will be identified how much customers value the defined services. By understanding how customers value the different services, this can be combined and understood for the different target groups. By answering this practical sub-question will become clear how valuable the different services are for every target group.

What advice can be provided regarding service strategies based on the identified target groups?

Once the customer segments and their belonging service strategies have been identified. The overall advice on service strategy for LBM will be determined. This strategy will be based on the different segments and their belonging service needs as described in the third practical sub-question.

After the third sub-question has clarified what the segments and associated service needs are, a focus group will be held. The service strategies will be translated into practical implementations for LBM.

3.3 DATA COLLECTION METHODS

In order to answer the research question "How can Servitization strategy be developed based on micro level segmentation criteria examined from the customer's perspective?" qualitative, exploratory research will be conducted, with the aim towards generalisation(Baškarada, 2014). Data collection was done in two different ways, customer interviews and focus groups. Each method is discussed in detail below.

3.3.1 Focus group brainstorm session services

To get a better understanding of the possible services that could be provided, a brainstorming session was held. Participants of this session were: service manager, business development manager, business developer, project manager, and a sales manager. This session was held to get input for the translation of the Industrial product-service business model to the marine branch. The translation was useful in creating interview questions and gaining a better understanding of the market. The results can be found in table eight.

3.3.2 Customer interviews

In order to gain insight into the customers and their preferences in terms of service, semi-structured interviews are held. The reason why semi-structured interviews are chosen is that it gives the ability to make use of a predetermined thematic protocol. The predetermined interview protocol can be found in table four. But to determine the order of questions during the interview and allows asking follow-up questions(Baškarada, 2014). Because of this, it gives the ability to gain deeper insights. In order to get the right participants during this research, the purposeful sampling method was used. By applying this method, participants with certain traits or qualities could be chosen. This gives maximum variation within the group of participants and makes sure all different types and levels of customers will be interviewed(Baškarada, 2014). LBM has different type of customers within the marine market: end users, distributors, system integrators and original equipment manufacturers. By selecting customers within these types is made sure all sort of customers is included. Another reason for selecting customers from each type is that some levels do not contain many customers. If customers would not be selected, the situation might occur that one type is not interviewed at all. This sampling method makes sure that a wide spectrum of customers will be included in this research. The intention was to take interviews until saturation is reached, so a full understanding of the participant's perspective is reached(Saunders et al., 2018). Unfortunately, this was not possible as LBM could only provide a limited list of customers where could be reached out to. For this research LBM gave permission to reach out to eighteen customers within the marine market. After emailing twice and eventually calling the customers, eight customers were willing to participate. During this research was aimed for saturation, which was not reached with eight interviews. Therefore, also six potential customers were invited to participate in this research. Unfortunately, none of them were willing to participate.

Most of the interviews lasted about an hour, with some reaching up to one hour and twenty minutes. This time is without the introduction of myself and the introduction of the research goals. An overview of the interviews is given in table five. The transcription of the interviews will be coded in an inductive manner with some pre-determined categories. The reason for this is that the answers can be categorized according to segmentation criteria and service strategies.

Interview protocol
1. Introduction Roy Heilersig and Research goals
2. Confirm whether recording the session is okay
3. Introduction interviewee
4. Introduction company where the interviewee is active at
5. Questions relating to customer job
6. Questions relating to pains
7. Questions relating to gains
8. Questions relating to services
9. Review if there is anything the interviewee would like to add

Table 4 Interview protocol

Interviewee	Duration (min)	Company location
1.	60	Accra, Ghana
2.	54	Zagreb, Croatia
3.	67	Helsinki, Finland
4.	59	Black river, Mauritius
5.	62	The Netherlands
6.	58	Viareggio, Italy
7.	79	Gdansk, Poland
8.	85	Remseck, Germany

Table 5 Overview of sampled interviews and data collection

3.3.3 Focus group service strategy

To answer the fourth practical research question, a focus group is held. The service manager, sales manager, project manager, business development manager, two regional sales managers and a business developer will be present in this focus group. They will be able to make a contribution to the translation into practice through their market expertise and knowledge of LBM. The reason why this focus group is held is to validate the findings of this research and to determine how these findings can be put to practice.

3.4 TRUSTWORTHINESS

During this research, a qualitative research method is used. The quality of qualitative research cannot be judged based on one method. The quality should be judged from multiple perspectives such as credibility, dependability, ethics, and confirmability(Guba, 1981). Which differs from quantitative research, as can be seen in table six.

Aspect	Scientific term (Quantitative)	Naturalistic term (Qualitative)
Truth value	Internal validity	Credibility
Applicability	External validity or generalizability	Transferability
Consistency	Reliability	Dependability
Neutrality	Objectivity	Confirmability

Table 6 Aspect of Trustworthiness (Quantitative vs. Qualitative)(Chowdhury, 2015)

Quality criterion	***Possible provision made by the researcher***
Credibility	Adoption of appropriate, well recognized research methods; Development of early familiarity with culture of participating establishments; Random sampling of individuals serving as informants; Triangulation via use of different methods, different types of informants and different sites; Tactics to help ensure honesty in informants; Iterative questioning in data collection dialogues; Negative case analysis; Debriefing sessions between researcher and superiors; Peer scrutiny of project; Use of "reflective commentary"; Description of background, qualifications and experience of the researcher; Member checks of data collected and interpretations/theories formed; Thick description of phenomenon under scrutiny; and Examination of previous research to frame findings;
Transferability	Provision of background data to establish context of study and detailed description of phenomenon in question to allow comparisons to be made.
Dependability	Employment of "overlapping methods"; and In-depth methodological description to allow study to be repeated.
Confirmability	Triangulation to reduce effect of investigator bias; Admission of researcher's beliefs and assumptions; Recognition of shortcomings in study's methods and their potential effects; In-depth methodological description to allow integrity of research results to be scrutinized; and Use of diagrams to demonstrate "audit trail".

Table 7 Four different perspective of qualitative research

In order to do trustworthy qualitative research, these four different perspectives should be taken into account(Guba, 1981). Possible provisions that can be made during the research per perspective can be found in table seven.

3.4.1 Credibility

Truth value, in naturalistic term credibility, means that the credibility of a qualitative study becomes evident when it offers precise depictions or interpretations of human experiences that individuals who have undergone similar experiences can readily identify with(Guba, 1981). To increase credibility within this research, the interviews will be recorded and transcribed. In this manner, the data is described in the most accurate way and can objectively be interpreted.

3.4.2 Transferability

In order to determine for other researchers if the findings in this research are applicable (transferable) for other settings, contexts, or with other people, enough descriptive data should be provided to allow comparison. With this descriptive data, other researchers can determine whether this research is applicable to their situation and allows comparison. When enough descriptive data is provided to make a comparison, transferability is addressed(Guba, 1981).

To ensure transferability a detailed description of the case study is given, the research method is clearly described, interviews are recorded, transcribed, and coded. This research was especially done on behalf of LBM. This means that insights can be used for LBM and companies who can relate to certain aspects of this research. This can be verified through comparison of the data.

3.4.3 Dependability

The term 'consistency' in a study is also known as 'stability,' indicating that the study's results remain the same or stable when the research is repeated(Chowdhury, 2015). To increase consistency of this research the methodological steps are detailed described in chapter 3.2 and 3.3. The results can be found in chapter four and are described in each step of the process so that another researcher can understand and replicate the research. In this way other researchers can reproduce this study by following the procedures and validate these findings. Results of the interviews can be found in chapter four and the appendixes.

3.4.4 Confirmability

Confirmability implies the absence of bias in a study. Which suggests that conducting the research again or having another researcher do so should yield comparable solutions and outcomes(Guba, 1981). As mentioned in 3.4.3 this research can be repeated by other researchers by following the method as described in chapter 3.2, and 3.3. To prevent biases during this research a researcher from the university and an expert from practice are involved in this research. They have been involved since the start of this research. Triangulation is also included by applying theoretical literature, which is verified by experts in the practical field. In the case of the different types of services, the theory and opinion of experts are also tested on customers from the marine market.

Customer interviews

The validity of the interview data is maximized by interviewing as many customers as possible with the aim for saturation. Due to limited customers who could be interviewed, saturation might not be reached. If saturation has not been reached, some information could be missing, and wrong conclusions could have been made. A potential bias occurred in the way of sampling. The purposeful sampling method could not be applied in the way it should. This had to do with the fact that there were a limited number of (potential) customers who could be reached out to. This could mean that a not representative group of (potential) customers is interviewed. This will lead to biased results. Not all participants in the interviews spoke English very well. This resulted in a language barrier during the interview. Which may have led to a misunderstanding in the questions and another interpretation of the questions. This could have the consequence that the questions have been answered in another way(Chenail, 2011). Another potential bias is the influence of the interviewer. The interviews conducted are held with one interviewer and one interviewee, therefore the interviewee could be influenced by the interviewer. This could be done by how the question is formulated or the interviewee not feeling comfortable by giving certain answers. This could result in biased answers(Chenail, 2011).

Focus groups

During the focus group, the interviewer plays a substantial smaller role than in the customer interviews. Therefore, the chance of having a bias because of the interviewer influencing the interviewee is smaller. Although there is still some potential bias because of the interviewee and the group dynamics. Participants could be inclined to give a desired answer instead of maybe telling the truth because of group dynamics(O. Nyumba et al., 2018).

4. FINDINGS

In this chapter, the findings of this research will be discussed. The first practical sub-question will be answered in section 4.1. The product-service business model will be translated to a marine industry perspective. This translation will give a more suiting definition to the different types of services for the marine market. This is needed for the customer interviews. Then the second practical sub-question will be answered in 4.2. This section will provide an overview of the different target groups and how these are identified. In section 4.3 the third practical sub-question will be answered. Which consists of explaining per target group how much they value the identified services from section 4.1. The last practical sub-question will be answered in section 4.4. In this part will be explained how these findings can be implemented in practice.

4.1 SERVICE TYPES IN THE MARINE INDUSTRY

To answer the first practical sub-question: "How can the different service types be interpreted for the marine market?" the four different types of services defined by Parida et al. (2014), which are described in chapter 2.3.1, will be translated to a marine industry perspective. The translation of this model is made based on a brainstorming session with experts from the industry who work at LBM. This model can be found in table eight.

Add on services	Maintenance and product support services	R&D oriented services	Functional and operational services
Knowledge base	AE refurbishing issues	AE advising for systems	BAAS/EAAS
Online training platform/academy	AE integration checks	Custom designs	Operate batteries via cloud
On-site training	Software updates	Partnering R&D support	
Online/phone support	Remote support		
Recycling options	Condition based maintenance		
Marketing support	Cloud monitoring Advising, diagnostics (Life cycle management)		

Table 8 Marine product-service business models

Table eight gives a practical version of the industrial product-service business model for the marine market. The Marine product-service business model was used during the preparation of interview questions and to gain a better understanding of the market. During a visit to the Electric & Hybrid marine expo Amsterdam, a sales employee from a competitor of LBM explained about their forum:

"Next to our customer service department, we also have a forum, in which customers can find information about cases other customers have done. They also can ask questions which can be answered by other customers who might provide other solutions than we do."

This type of service is added after the fair visit to the add on services. No other suggestions were made during the interviews. A brief description of what is meant by the different forms of services based on the brainstorming session with LBM employees is given below. In addition, will be explained to which extent LBM provides these services.

4.1.1 Add on services

Knowledge base

The knowledge base is an online location with all sorts of information regarding batteries in the case of LBM. Examples for this are instructions and information on how to install, use, maintain, design systems, third-party accessories, and uninstall batteries. This can be in the form of blogs, information sheets, manuals but also in instructional videos. At this moment LBM provides this service, however the provided information is limited.

Online training platform/academy

The online academy is as the name already says an online course that can be followed by customers to get more knowledge on batteries. The purpose of this is to educate customers about installing, use, uninstalling, and how the batteries can be used/organized in a system. In the current situation, LBM does not provide this kind of service.

On-site training

On-site training is meant with that physical trainings are given about batteries on a certain location. This training is organized to educate customers on how to work with LBM batteries. This can be at the factory of LBM or at another location like the shop of a distributor. During the brainstorm session, a participant stated:

"This type of trainings did we do often at our factory, these were well visited by customers and really appreciated."

A service employee stated:

"It is true that we are not doing this now, but we will pick it up again in the future."

Online/phone support

Online/phone support is meant with simpler communicational support. Mainly questions about the product, warranty, shipment, and other simple topics. Important to note is that this are not the technical detailed questions on how to use the battery in a system for instance. LBM provides this service in the current situation.

Recycling options

Batteries get at a certain point at the end of their lifetime, this is when the capacity is not good enough anymore for the task that they are used for. In order to unburden the customer, LBM could offer a way to recycle the batteries. A participant of the brainstorm session stated:

"Batteries could be used for a second life purpose and otherwise recycled in a proper way."

Which is good for the environment, but also solves a problem for the customer. LBM has a partner who recycles batteries for them, however they don't provide a second life option for the batteries.

Marketing support

Marketing support refers to supporting customers with their marketing activities. This can be done in several ways, for instance by supplying them with information or provide materials. Examples of marketing materials are dummies, information sheets, videos, or flyers. LBM provides marketing support in the current situation.

Forum

A forum is meant with a medium where ideas and views on a particular issue can be exchanged between customers. If a customer has an issue which he cannot figure out himself, he can post this issue at the forum. Other users can help this customer by providing tips and sharing their own experiences. This could help customers solve issues, get familiar with other solutions, discuss different solutions with each other, and provide tips. This is done not only by posting their questions, but also by reading old cases. LBM does not have such a service as a forum in the current situation.

4.1.2 Maintenance and product support services

Application Engineer refurbishing issues

LBM has multiple application engineers, who can be seen as service engineers. When customers have a problem, they can be sent to a certain location to investigate what the issue is and solve this issue. LBM does provide this service.

Application engineer integration checks

If a customer has integrated a system an application engineer can be sent to check whether the installations are done correctly. By making use of this service customers know for sure whether they installed the batteries correctly. LBM does provide this service in the current situation.

Software updates

Software updates are meant with the continuous improvement of battery software, which is available to LBM battery owners. LBM provides their customers with software updates in the current situation.

Remote support

With the remote support service employees of LBM can give support from distance. The idea is that LBM can log in to the system via the cloud and see from a distance how the batteries are performing. By having this possibility, they can provide better service from distance as service employees have more information available. This will give the opportunity on some occasions to solve the problem from a distance or know before entering the location what is wrong. In the current situation LBM provide some sort of this service. However, to get this service, customers need to have a monitoring kit. If this kit is available, it should be plugged in, LBM employees then can see from distance what is happening on board. The data available via the monitoring kit is limited. This monitoring kit is available to a select group of customers.

Cloud monitoring

Cloud monitoring refers to having the ability to monitor batteries via the cloud. This service provides customers with live access to data from the battery system. In this way they can monitor the performance of their battery system.

Just like remote support, this is also somehow available to customers via the monitoring kit. This monitoring kit is only available to a select group of customers. LBM has one project where they do have this live data available for themselves and the customers. This is done without a monitoring kit. As stated by a service employee:

"We have a kind of cloud monitoring with one customer. They use Global Guide. We can log in to that system and view the batteries."

Advising trough monitoring

Based on the available data via the cloud, LBM could possibly advise customers on how to use their batteries in a better way to maximize battery lifetime. According to experts from LBM, lithium batteries are very sensitive and therefore easily damaged. By sending warnings and tips, the battery lifetime could be increased. LBM does not and cannot provide this service at this moment.

Condition based maintenance

Within the marine market, maintenance is provided to battery systems. This is mostly done periodically. With live data from the battery system, this could be provided based on the conditions of the batteries. This may reduce or provide maintenance at the right moment when needed. LBM does not provide this service at this moment and does not have the resources to do so.

4.1.3 R&D oriented services

Application engineers advising for systems

Application engineers can help customers on how to design and integrate battery systems. They can provide customers with the technical details on how systems could be designed and with what third-party accessories the batteries work well. LBM does advice for systems at the moment.

Custom designs

The custom design service is intended to provide the opportunity to get custom-made batteries. This could be to specific technological specifications, or private label batteries. Some customers get private label batteries or batteries with special technological specifications, this service is only available to a small number of customers.

Partnering in R&D support

This service means to be active in each other's R&D activities, to share information with each other, and provide feedback on what should be done better and how things could be improved. This is also limited available for a small number of customers. An example of this is a special battery that is developed in collaboration with a customer.

4.1.4 Functional and operational services

BAAS/EAAS

Battery as a service or energy as a service refers to the concept of product as a service. In which the customer does not buy the product anymore but pays for the use of the product or energy. In this way the customer does not have to invest heavily in buying the batteries anymore but pays a periodic fee. This service is not available at LBM in the current situation.

Operate batteries via cloud

This service gives the ability to customers and LBM to remotely adjust settings on the batteries. In this way the batteries can be operated remotely, and problems might be solved via this way. LBM could fully operate the batteries for the customer. LBM does not operate batteries for customers at this moment.

4.1.5 Services provided by LBM in the current situation

In section 4.1 a description is given of what services are identified during the brainstorming session, a visit to a fair, and during the customer interviews. Also is discussed what services are provided by LBM in the current situation. An overview of this is given in table nine.

Services	Provided in the current situation?
Add on services	
Knowledge base	Yes
Forum	No
Online academy	No
On-site training	No
Marketing support	Yes
Recycling options	Yes
Online/phone support	Yes
Maintenance and product support services	
AE refurbishing issues	Yes
AE integration checks	Yes
Software updates	Yes
Remote support	Sort of
Cloud monitoring	Sort of
Advising trough monitoring	No
Condition based maintenance	No
R&D oriented services	
AE advising for systems	Yes
Custom designs	For a select group of customers
Partnering in R&D support	For a select group of customers
Functional and operational services	
BAAS	No
Operate batteries via cloud	No

Table 9 Provided services by LBM

4.2 CUSTOMER TARGET GROUPS

In this chapter, the second practical sub-question: ”What target groups can be defined based on service logic micro segmentation criteria?” will be answered. This is done by creating customer segments based on the service logic segmentation criteria as described in chapter 2.5.

4.2.1 Operating variables

Competences and skills

Understanding the skills and competences can help in communication with customers. By understanding how good in LBM’s case their customers’ knowledge of batteries is, the easier they will communicate about aspects of the batteries or systems. If a customer has very good knowledge of batteries and battery systems, communication about batteries will go smoothly, which is valuable to both parties. When a customer has little knowledge of batteries, LBM can add up to that and teach them about batteries. LBM fills in this case their customers’ needs, which is very valuable to customers. During customer interviews, customers got asked to rank their knowledge of batteries on a scale from one to ten and to explain why they ranked themselves in that way.

Ranking	5	6,5	7	8	9	9,5
Customer	**7**	4	3	1	8	5
Customer			6	2		

Table 10 Customer knowledge on batteries

In table ten can be found how the eight interviewed customers ranked their knowledge on a scale from one to ten. In which ten means very good knowledge on batteries and battery systems, and one means no knowledge on batteries and battery systems. In their motivation why they ranked themselves like this, different answers were given. Interviewee one for instance states:

“I'm not a chemical engineer, so I don't know the exact specifics of the chemistry within the battery cells, but in terms of how they work from an electrical perspective, I have a good understanding. So, I would give myself an eight.”

Although for every system he needs, he must consult LBM. Interviewee eight stated the following:

“I would give myself a nine because I have worked over twenty-five years with batteries. We developed a battery management system and also a battery counting system for SSC calculation systems. Therefore, we have a lot of time of research regarding batteries. Now we know a lot about how they behave and how to deal with them. Because of all this knowledge we know how to design and implement large systems and almost never need help.”

Based on these insights was concluded that ranking did not give a good reflection on how good the customers’ knowledge of batteries is. This is logical because these scores do not relate to one another. The two interviewees rated themselves one point apart in battery knowledge, although in practice there was a big difference in actual knowledge.

All customers explained that they know how batteries work (except for the chemical part). The main difference between these customers is on what occasions they need technical support. Three different types of technical support were identified based on the interviews. Starting with the type of technical support from interviewee three, who always need technical support when needing a system:

“When we have a case, we will always have to consult LBM about what would be the best solution because there are always different ways to do all the things you know.”

As stated by interviewee three, these customers need to consult for every system they need what the best solution is. Another group of customers only needs to consult LBM when a new system needs to be developed. The last group can design new systems themselves, and rarely needs technical support, as cited above.

Always needs support with all systems	Needs support with new systems	Rarely technical support is needed
1	2	8
3	4	
	5	
	6	
	7	

Table 11 Technical support for designing systems

In table eleven the division of occasions for technical support can be found. This division does not give a clear overview of the actual knowledge of batteries, as one customer works with more complex systems than another customer does. But it does give an overview of how good their knowledge is in the type of systems they work with. Understanding these differences between customers makes organizations able to segment them and know which customer needs what type of support in terms of technical communication and help.

Currently used services

To segment a market, identifying currently used services can be helpful. This will help to identify which (potential) customers can be served or might cannot be served. Also will become clear what has to be organised in order to provide services to certain customers groups. During this research only customers from LBM were interviewed, all currently used services around batteries discussed were provided by LBM. Segmenting them based on used services identifies their needs in terms of service. Within the currently used services, were no large differences between the interviewed customers. The only difference is the use of application engineers on location for support. Interviewee eight explained that he for instance did not make use of application engineers on location:

“We select the components and give advice for systems on how to install. We are working with a lot of dealers and installers and if the installers are not able to deal with the problem themselves, we advise them on how to do this. Occasionally we go there ourselves, but we never ask someone from LBM to go there. “

Interviewee two states:

“Annual service is important to us. So, the batteries must be checked every year. So that's the service we need from LBM.”

The difference between these two interviewees is clear, which can be used to make an insightful division between the customers. The larger group has no support on location from application engineers, as can be seen in table twelve. This difference is important as this requires a different service approach and type of organization.

AE physical support (maintenance/installation/issue)	
No	Yes
1	2
3	6
4	7
5	
8	

Table 12 AE support on location

4.2.2 Relationship approach

Focus of the relationship

The focus of the relationship is important when building a relationship with customers. If a customer for instance is focused on the long-term, they will expect a different approach and other efforts than someone who is only short-term oriented. If a customer is short-term oriented, organizations would for instance have to put less time into discussing the future together.

Short-term	Long-term
1	2
	3
	4
	5
	6
	7
	8

Table 13 Focus of the relationship

In table thirteen, the focus of interviewed customers can be found. As can be seen the only customer who is not long-term oriented is customer one, who explained the following of the desired relationship:

"When I have a question, I just need to get this answered, further I need nothing."

This means all interviewed customers except from customer one would like to focus on the long-term together, which affects the relationship and efforts that should be invested in these relationships.

Interaction frequency

The preferred interaction frequency shows how often a customer would like to get in touch with LBM. By understanding this as a service provider organizations can take this into account, and deal with customers in their preferred way.

During the interviews became clear that most customers could not provide a clear answer with the preferred interaction frequency. Although no clear answers could be provided on this question something else became clear on their preferred interaction frequency. This had especially to do with how many issues customers have, how much advice they need, and if they want to talk about additional things besides issues and advice. An interesting quote came from interviewee six:

"The relationship between me and LBM is like a customer. I don't want to be a customer of LBM. I want to work in a team. I would like to have frequent interaction and get fast responses when needed, but also the type of relationship in which you share more on a weekly basis. For instance, what projects are going on, what you are working on, what are the developments in products for instance."

Here is stated that in addition to the really needed contact about issues and advice additional contact is desired about projects and developments. Where contrary to this interviewee one states:

"When I have a question, I just need to get this answered, further I need nothing. "

As mentioned earlier. These two are contrary to each other and give an understanding of the differences between the customers. Based on the interviews two different categories are identified: 1. A group of customers who only want to have contact when they need advice or have an issue. 2. A group of customers who would like to have parallel to their issues and needed advice to have frequent interaction and discuss progress of projects, talk about their business, and future strategies. Customers who are in the second group explained they would like to have "frequent" interaction to keep up with this. In table fourteen the division of the interviewees can be found.

Only when an issue occurs, or advice is needed	Frequent interaction (Also to discuss projects, business & strategies)
3	2
1	4
8	5
	6
	7

Table 14 Interaction frequency

Type of interaction

Customers can have different preferences when it comes to interaction with their suppliers. This preference can range from a more personal type of interaction to non-personal interaction. When understanding the preferences of customers communication can be adjusted to this. Based on the interviews two groups have been identified. All interviewed customers prefer personal interaction, except when it comes to ordering batteries. When providing service and if customers have questions or issues, they all would like to have personal interaction. Some customers also prefer this when they order batteries, while others prefer to do this non-personal. Interviewee eight explains his preferred order process:

"We just place an order and don't need further advice. So, in that case we don't want much personal contact then."

Which is referred to as placing an order without discussing this with an employee of LBM. In table fifteen the division of customers can be found.

Non personal & personal interaction	Personal interaction
3	1
4	2
5	6
8	7

Table 15 Type of interaction

Role in co-creation process

Understanding customers' desired role in the co-creation process will help to generate more value. When giving people who want to be active in the co-creation process the opportunity to do so, they will feel appreciated and listened to. This generates value itself, but next to that organizations can learn and profit from their effort as well. But organizations must give the customers the opportunity to do so. Contrary to that organizations should understand, and respect, the fact that other customers might not want to be actively involved in this. If organizations keep pushing them to do so, value destruction might occur as they find you annoying and might get the feeling their time is being wasted.

During the interviews became clear that customers had other intentions in the co-creation process. Interviewee four explained he would like to set up a dealer and service network together:

"I would like to work more together in setting up a dealer and service network in the southern region of Africa. We speak the language and can help with the technical support and training of the local guys because of the language and the ability to be on-site in a very short period of time. All these countries are within four hours flight from us. If you could help with providing the batteries and setting up the facilities, we could do the rest."

Interviewee five also wants to be active in the co-creation process but in another way:

"I would actually like to have some kind of different relationship with LBM in which we have easier contact with, for example, a software developer so that you can more easily report errors instead of to the salesperson, so to speak."

Interviewee eight explains that he wants to be involved occasionally:

"A few years ago, we also were in touch with LBM sometimes. We suggested several things to optimize the system. These tips were not considered in my idea, so we stopped giving these tips. However, if I get the feeling, they do get considered in would like to give some tips in the future."

Types of co-creation that were mentioned most during the interviews from the customer side are: Technical tips for improving the product, advise on how to better adapt to the marine market, product features advise, and providing plans on how to grow together.

The division between the interviewed customers is not made based on these types of co-creation forms the customer is active in. The reason for this is that not every type is discussed with every customer, which would not give a clear overview. What stood out is that some customers are very active in the co-creation process and actively provide ideas/plans/tips and willing to be involved in product development activities. While other customers explained that they do this occasionally or not at all, as can be seen in table sixteen.

Passive	Medium	Active
1	2	5
	3	4
	8	7
		6

Table 16 Role in co-creation process

4.2.3 Situational factors and personal characteristics

Situational factors and personal characteristics are also described in the service logic micro segmentation criteria. Just like in the segmentation criteria described by Shapiro & Bonoma (1984) situational factors and personal characteristics are the inner layers. To be able to create segments based on these criteria, specific information is needed, which is not easily accessible. During this research, one interview per client was possible with limited time ranging from 54 to 85 minutes. This was not enough time to get to know the customer enough to segment with these criteria. Future research could be done to get a better understanding of the customer and make use of these micro segmentation criteria.

4.2.4 Target groups

In chapter 4.2 micro segmentation criteria are applied to the interviewed customers. These micro segmentation criteria make it able to create different micro segments. The division of these micro segments is visible in table seventeen.

Customer segments	Micro segmentation criteria	
1 2 3 4 5 6 7 8		
1 3 2 4 5 6 7 8	Technical support for designing systems	
1 3 2 6 7 4 5 8	AE support on location	Operating variables
1 3 2 6 7 4 5 8	Focus of the relationship	Relationship approach
1 3 2 6 7 4 5 8	Interaction frequency	
1 3 2 6 7 4 5 8	Type of interaction	
1 3 2 6 7 4 5 8	Role in co-creation process	

Table 17 Customer segmenting overview

Table seventeen provides an overview of the segmentation process of the target groups. In the top row the customer segment consists of one group. When going down one row, the technical support for designing systems segmentation criteria is applied. In the left column can be seen the group splits up into three different groups. Every row further down another segmentation criteria is applied. The applied segmentation criteria can be found in the second column. The effects of the segmentation criteria can be found in the left column, and in more detail a description can be found in 4.2. On the right side of the table is indicated what type of segmentation criteria is used in that part of the table.

Target group	Target group A	Target group B	Target group C	Target group D	Target group E	Target group F
Customers	1	3	2	6 7	4 5	8

Table 18 Target groups

In table eighteen an overview is given of the results of the segmentation criteria. Which results in six different target groups, which can be found in table seventeen.

4.3 VALUED SERVICES PER TARGET GROUP

In this section will be shown how the identified target groups from section 4.2 value the different services as discussed in section 4.1. Eventually, per segment will be explained which services are most important and how these services should be provided. By investigating this, practical sub-question three: "How are the different services valued among the identified target groups?" will be answered. For certain interviewees, some services are not relevant and will not become relevant in the future. Therefore, some services are not rated by them. This mostly accounts for the R&D oriented type services where some interviewees could only rate one service. This does not give a clear overview of how valuable this type of service is to them in contrast to other interviewees/target groups. Therefore, an overview of which types of services are most valuable per target group will not be given. The missing data is indicated as score zero in the graphs below. Not all missing data is because the service is not relevant, some interviewees said they could not answer it because they did not know how to answer or just did not give an answer.

4.3.1 Target group A – "Knowledge Seekers"

Figure nine shows how valuable target group A finds the different services identified in 4.1. Target group A consists of one interviewee, namely interviewee one. The quotes per service can be found in appendix two.

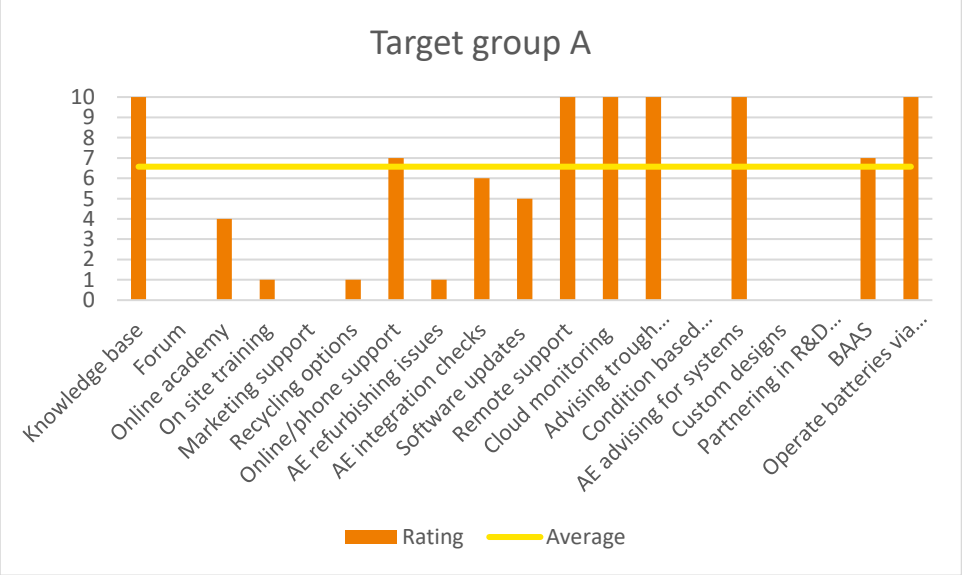

Figure 9 Target group A valued services

Target group A values a knowledge base, remote support, cloud monitoring, advising tough monitoring, AE advising for systems, and operating batteries via the cloud most. The knowledge base is found most important according to interviewee one, as he keeps referring to how much time would be saved if all information would be online in the knowledge base. An example of this is when interviewee one was asked about online/phone support:

"Yeah, I probably put phone support around a seven, maybe some something like that because I think having the information to hand and being able to troubleshoot it yourself or through the application first is probably more essential. Yeah, I'd say what's essential is having the information available without needing to call."

As mentioned in 4.2.5 target group A always needs an application engineer for designing their system, which also is indicated in the value for the services (AE advising for systems, valued 10). But interviewee one prefers to have the information available online:

"Yeah. Again, that's it's ten. But if the information is available beforehand, that's more useful and faster than an application engineer."

Although the preference of personal communication speed is more valued over the type of communication. Target group A also values remote support, cloud monitoring, advising trough monitoring, and operating batteries via cloud very much. The reason for this is that these services would give great insights and save time. Based on the gained insights, target group A is given the name "Knowledge Seekers".

4.3.2 Target group B – "Long-Term Learners"

Figure ten shows how valuable target group B finds the defined services in 4.1. Target group B consists of one interviewee, namely interviewee three. The explanation for every rating that is given can be found in appendix three.

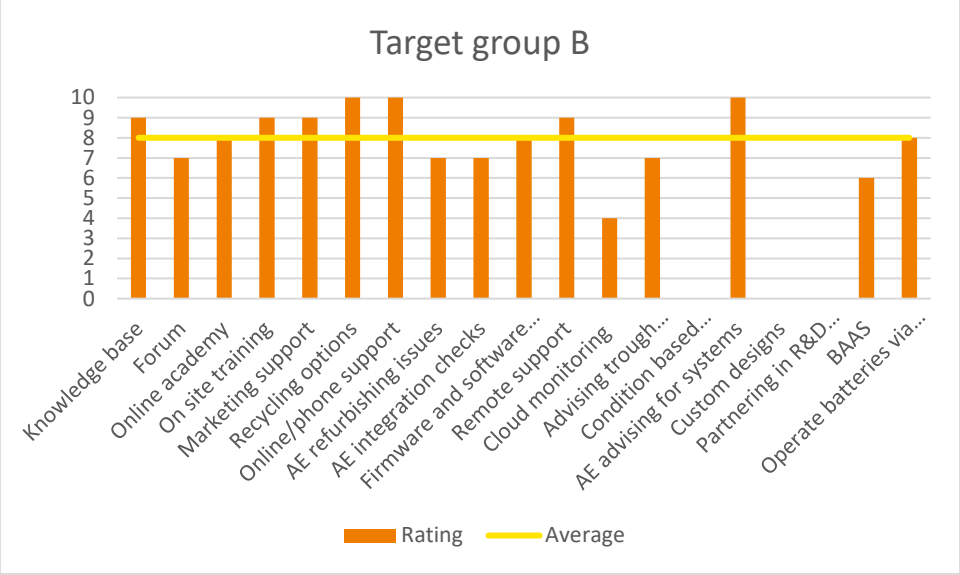

Figure 10 Target group B valued services

Target group B values knowledge base, online academy, on-site training, marketing support, recycling option, online/phone support, remote support, and application engineer advising for systems most. According to interviewee three the knowledge base would be helpful because it would save time if information and proven concepts were online. Then he would not have to figure out these things himself. The online academy would be interesting as well, but only for some topics. As interviewee three states:

"There will be no way that you can replace the factory training with online training, so to say because it's always different when you are working with the real product. But I think for some topics. I would say that this would be a very good idea."

Therefore, on-site training or factory training is found to be more valuable than the online academy. Marketing support is also found to be very valuable by this target group. The most important aspects of the marketing support are the data sheets and case studies. Recycling options are also very important to this target group. Interviewee three states about this:

"If you have a like a government or community who buys this, recycling is a demand. So, we must be able to provide them a recycling program."

By providing this service organizations can unburden the customers of this target group with the recycling program they have to provide. Another well valued service is the online/phone support

service, this is because technical help is very important to this target group. Remote support is also valued well by this segment. Although customers of this target group do not demand it at this moment. Interesting is that cloud monitoring is seen as not valuable at all by this target group. Stated by interviewee three:

"Customers might get a notification that something is wrong. The system integrator (Me) will have to figure out what is wrong. This will cost a lot of time, and in the end something might not even be wrong. Who is going to pay for that time?"

Target group B is afraid that this will cause extra unnecessary time and work for them. The same accounts for the advising through monitoring service. They are afraid it will not bring many benefits in contrast to the expected extra time and work it will bring. As explained in 4.2.6 this target group's knowledge of batteries is not that good as they always must consult LBM for systems. This is also reflected in the way how valuable they find application engineers advising them for systems. Operating batteries via the cloud is found valuable as well, although should be noted that target group B finds it very important that this should only be possible when the client requests it. After that this option is used it should be switched off. These insight led to the name "Long-Term Learners".

4.3.3 Target group C – "Tech-Care Seekers"

Figure eleven shows how valuable the identified services in 4.1 are considered by target group C. Target group C consist of one interviewee, interviewee two. Per rated service an explanation is given, which can be found in appendix four.

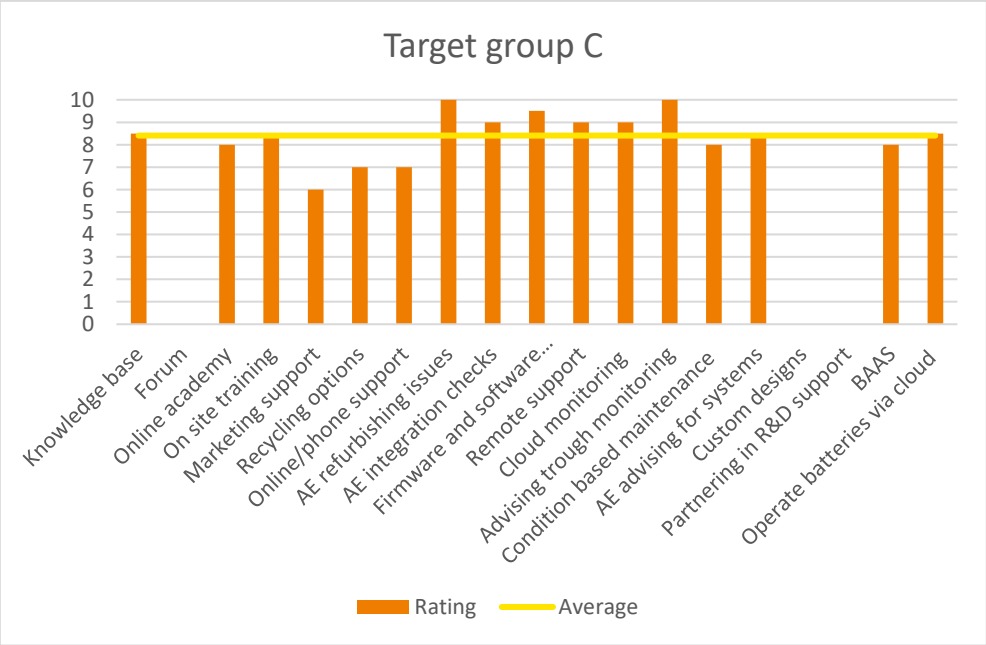

Figure 11 Target group C valued services

Target group C finds the knowledge base valuable because they can find answers faster online than via phone support according to interviewee two. This will save them time, which is considered valuable. The online academy is also considered valuable by target group C but should consist of short informational video tutorials. Which could also be provided in the knowledge base. The onsite training is also valued well. Interviewee two states:

"Because when you all by yourself install some something that is very specific, you need some kind of certainty that you are on the on the right pattern that you are doing something good that you will not make bad connections and then blow like fire on something you just need. Be more

confidential by yourself that you're doing a good job, that you are making two little wires that should be joined."

Therefore, they value this type of service very much. So, they get a better understanding of how to work with and install batteries in a proper manner. Application engineers who come to fix an issue or check whether everything is installed properly are also valued very much. Interviewee two states:

"We don't have to know everything about everything because we have a battery that is, you know, like a doctor for your heart. Doctor for your stomach, doctor for your kidneys. So, I believe doctor LBM is doctor for batteries. So, I wouldn't let my heart be operated by a general doctor."

Remote support, cloud monitoring, and remote support is also valued, as this would save time according to interviewee two. What should be noted is that they already have cloud monitoring. They have more general information with their current solution, and sometimes cannot fix the issue with this data. The advising through monitoring service is given the maximum rating in terms of value. The reason this rating is given is that this service is expected to prevent problems and therefore save time. Another interesting opinion was given on the condition-based maintenance service. Interviewee two states:

"You go to doctor when you have some pain, but if they told us we could go for an annual check, we would do that. So, I believe it's very useful that once a year, someone comes to the vessels and checks the batteries to see if everything is all right. Because there are many little wires that you can't see or predict from the distance. But when you see it when you touch it, I think it's useful. So, I believe once a year it would be great if someone from LBM comes to the field and touches it and sees the batteries."

Therefore, can be concluded that this is found very valuable, but it should not replace the annual check. Based on the insights gained for this target group the name "Tech-Care Seekers" is given.

4.3.4 Target group D – "Engaged Collaborators"

Target group D consists of two interviewees, namely interviewee six and seven. Before looking into how target group D rates all the defined services in 4.1, a division is made to compare the different interviewees within target group D. The reason for this is to examine whether they have the same service needs. Appendix five gives an overview of the quotes per interviewee per service.

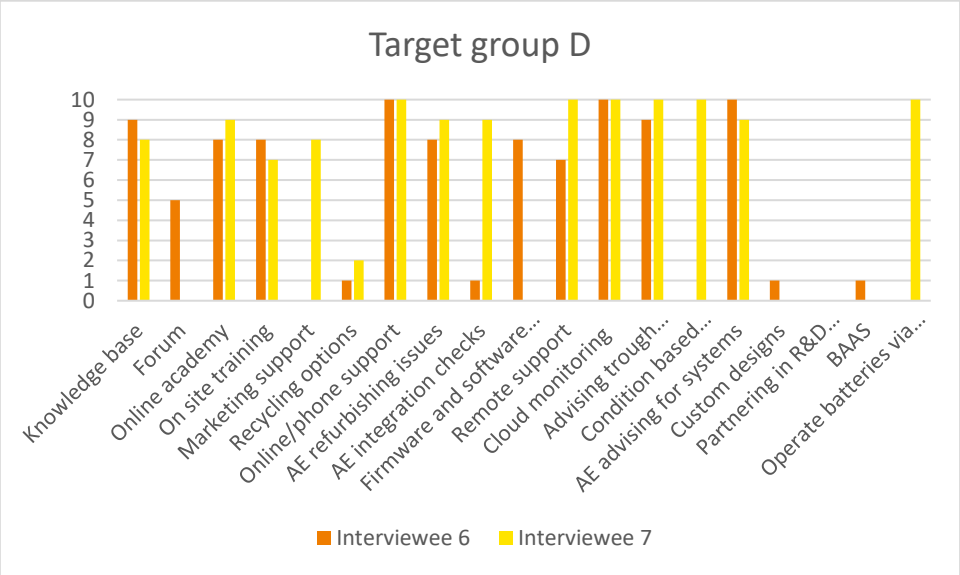

Figure 12 Target group D internal comparison

Figure twelve shows the differences in rating between interviewees belonging to target group D. All rated services are maximally separated by one point on the scale. Except for application engineer integration checks and remote support. The difference between application engineer integration checks is eight points on the scale. The difference between both is that after interviewee six has installed the batteries, on some occasions other specialists work on the system. They also check whether the installation is done correctly. For interviewee seven this is not the case, and they value it very much if the integration check is done, especially for large new installations. Remote support differs by three points on the scale. Both interviewees find this service valuable, although there is a difference in the given score. Interviewee seven stated that this is the most efficient way of providing service. Where interviewee six states that this could clarify what is happening in the system. The combined scores of target group D can be found in figure thirteen.

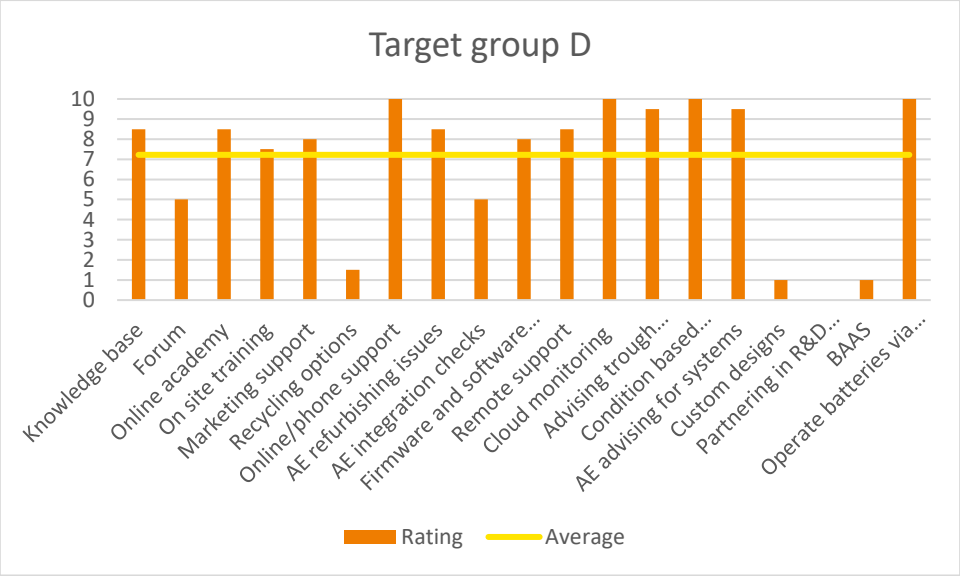

Figure 13 Target group D valued services

The knowledge base is valued by target group D. Interviewee six states:

"It's very fundamental to know exactly what to be done, what can be done by each type of battery."

Interviewee seven indicates that it is very handy to have all types of information about the batteries. Therefore, this service is considered very valuable. This target segment finds the online academy also very valuable, especially because they think learning and extending their knowledge is essential. Another thing what makes this service valuable is that it is easily accessible, as it is online and 24/7 available. On-site training is valued high as well. Although there are some cons, as stated by interviewee six:

"It's a bit more difficult to arrange for us at your main factory, but not impossible. Yes, could be important to see to, to touch, to work and face to face."

Interviewee seven states:

"I had a training at the factory, and it was nice to see factory, to see production to meet people. Presentations were also very, very interesting, but there was an almost no hands-on training."

Therefore, it is important to this target group that there should be hands-on training. Marketing support is also considered important for this target group. Phone support is found very

important by this target group. Especially with someone who knows about the market and products, as stated by interviewee six:

” I consider my market very special in terms of technical needs and technical request. Can't speak with somebody that has a big knowledge of a camper but nothing on the yacht. Could also be three different technicians. Important thing is this three-specialist share between each other the information of the product and projects.”

Application engineers refurbishing an issue is also very valuable to this target group. Interviewee six states:

“It's important to know that in case we can't. They go immediately on board. It's important to know that LBM can help me. To save my customer but also LBM customer.”

Cloud monitoring could be very helpful for maintaining warranty and safety issues according to interviewee seven. Next to these benefits it will be much easier to give fast support to the customers. According to interviewee seven advising trough monitoring will be very helpful in communicating with their customers. By using this they can better understand their batteries. Application engineers advising for systems is valued very much, although only advice is needed when designing a new system. Operating batteries via the cloud is also valued very much. Interviewee seven states:

“You know I have service background and every solution that you are sitting in office and have access to your stuff, and you see what is happening there is good. And pay for that because you know my, let's say go to rule is that if you have service action and you go on-site and fix problem, ok you are making money and everybody's happy. But if you go outside and you don't have one screw and work key and you cannot do job and you go a second time. That is a waste.”

Based in these insights, this target group is given the following name: “Engaged Collaborators”

4.3.5 Target group E – “Proactive Innovators”

Target group E consist of two different interviewees, namely interviewee four and five. Just like in 4.3.4 first a comparison will be made between these interviewees. After that will be looked at the average score per service. Appendix six gives an overview of the quotes given by both interviewees per service.

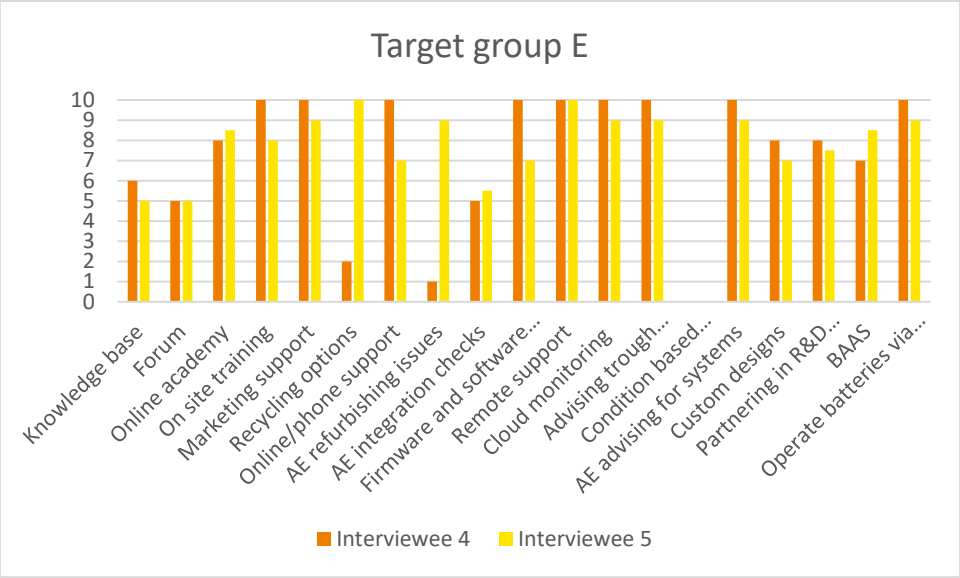

Figure 14 Target group E internal comparison

Figure fourteen shows how the different services are valued by the interviewees belonging to target group E. As can be seen most services are valued quite similarly. However, there are two services with quite some difference in the rating from the two interviewees. The first one is the recycling options. Interviewee four states:

"We've got 35 recyclers on this island, even for lithium batteries. Now that that exists here, but. I think it's a question that's still very low on the radar from owners. Owners really are just looking at price, reliability, safety, and reliability. But then number one and then and then definitely price this comes into the equation. There are a few extra points that they pay attention to, but they don't make decisions based on this. I can't see that happening on recycling."

Interviewee five gives more value to this service and states:

"It is not that everyone asks about it, but there are a few who do ask about it. So, I think it would certainly be interesting to see how it can be set up. It does not necessarily have to be set up within the next few years, but it is already being looked at."

Interviewee four does not see their sales being influenced by this aspect, whereas interviewee five already gets some questions about it and values this more. Another service which is valued totally differently by the two interviewees is the help of an application engineer when having an issue on-site. Interviewee four states:

"We wouldn't engage in a supply, installation, or anything unless we are fully competent in what we're doing. What I'm trying to say with that we would when we do sell, we do little design, we do calculations, we do integration, we check the sizes. I can't see us getting to a point where it says where we can't install it because it's not working. That would all be able to solve over the telephone."

Basically, they expect themselves not to get into a situation which they cannot solve over the phone and therefore don't see this service as valuable. Interviewee five states:

"If we cannot solve it ourselves, I would find it valuable if an application engineer could come."

Although, he has some questions regarding the location of the ships and the time of arrival of the application engineers. Three other services that are valued differently are on-site training, online phone support and software updates. The difference in the rating of these services is maximum three points on scale.

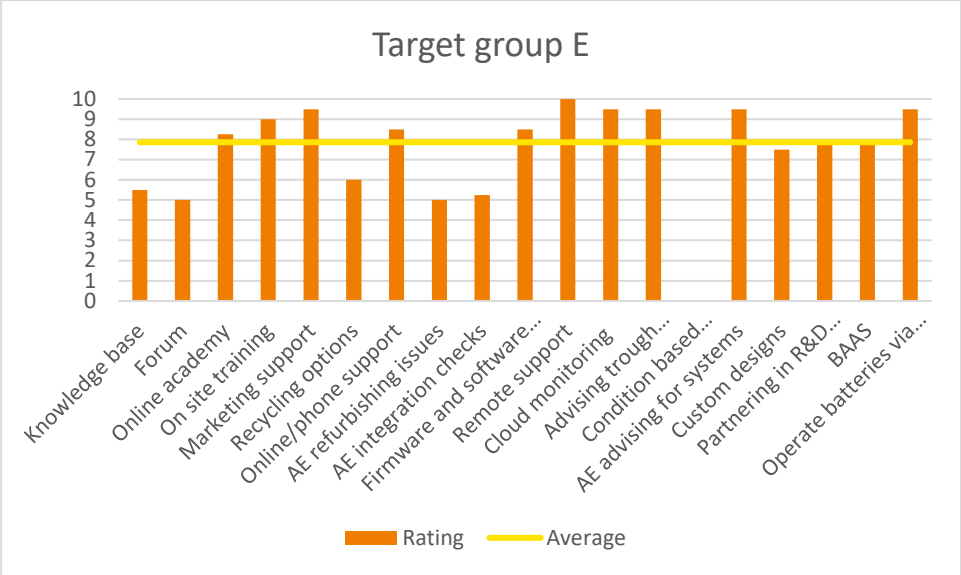

Figure 15 Target group E valued services

Figure fifteen shows the combined score of target group E. The online academy is one of the most valued services of this target group. Both interviewees gave almost the same explanation for this rating. Interviewee five states:

"I don't think it is valuable for us in terms of knowledge. We also want to collaborate with parties that can build into our system. We also want to train them, but for example if they were to do the battery part through the course, that would be very valuable."

Interviewee four gives almost the same explanation, but instead of external parties they want to train their youngsters with it:

"They don't possess enough knowledge when they come from school, they still need to learn a lot."

This would be a proper way to learn according to interviewee four. On-site training is also valued very much by target group E. Interviewee five explains that this could be valuable to them:

"My technical brother also has some experience with it, so he knows it in principle, but suppose we would just do that. For example, if we employ more people, we would also like to send them to that training."

The same accounts for interviewee four:

"Most of these yacht installers we've got fixed prices from all their subcontractors. The subcontractor is fully qualified with LBM battery, and we do on-site training for him that would be nice."

Just like the online academy, the interviewees do not get the value out of training themselves. The value comes from training other people like subcontractors or new employees. Marketing support

is also valued well by this target group. Interviewee four focusses more on the materials, where interviewee five is busier with promoting each other online. Online phone support is another service valued by this target group. Interviewee four states:

"We're getting that from an LBM employee and it's very important to us."

Interviewee five has some doubts about his preferences in the content of this service:

"I'm a bit in doubt. On the one hand you have. It might also be nice to have one contact person in advance, because he or she knows exactly where it will be used. Knows you, knows your product. For us it may also be a bit product specific, so it is nice for us to really have a fixed point of contact. But if we really start selling in bulk, it would be useful to be able to call quickly if something is wrong. Maybe a little less relevant for us."

Here the personal communication aspect comes back, they would like to have their own contact person who knows about them and their business. Remote support and cloud monitoring is also valued very much in this target group. The target group is interested in this service and thinks this will bring value for their customers. Both interviewees work already with this type of data and would like to start working with this data from LBM. Advising through monitoring is new for both interviewees but both think it will be valuable for them. Application engineers advising customers on how to build their systems is valued very much by both interviewees. Interviewee five states:

"It is very valuable for us if we can ask questions. Although this is mainly the case with new systems. Yes, and the new systems there are also limited, so now we actually have just about all the options."

The same accounts for interviewee four, who also does not need support often. But still find this service very valuable. Operating batteries via the cloud is valued very much as well by this target group, especially because this could save time. Interviewee five states that he would like to integrate this function into their own system. Based on the gained insight on this target group, the following name is given: "Proactive Innovators".

4.3.6 Target group F – "DIY Experts"

In figure sixteen is shown how the identified services of 4.1 are valued by target group F. Target group F consists of one interviewee, interviewee eight. Per service an explanation is given why the interviewed customer thinks he values the service in that way, these explanations can be found in appendix seven.

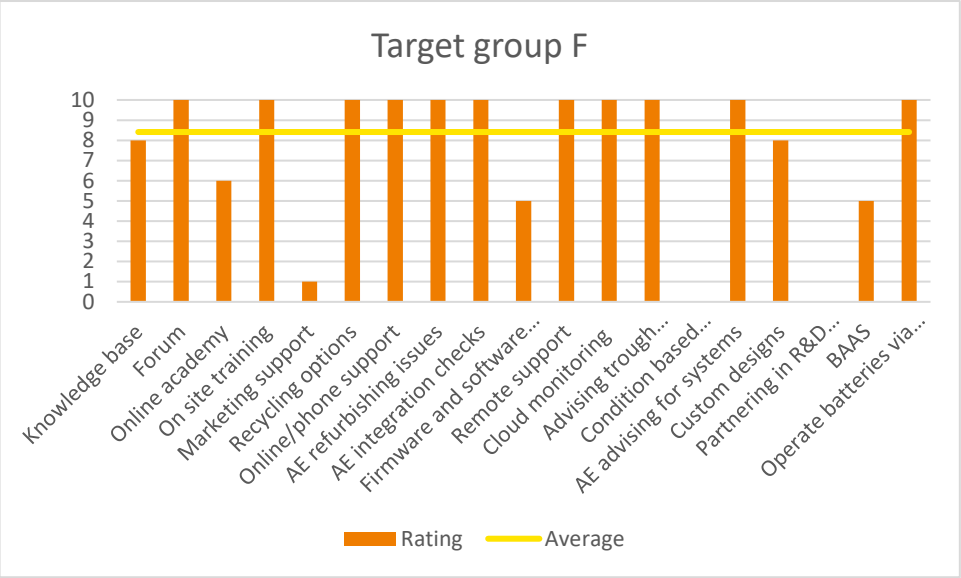

Figure 16 Target group F valued services

Target group F values a forum, on-site training, recycling options, online/phone support, application engineer refurbishing an issue/checking an installation, remote support, cloud monitoring, advising trough monitoring, application engineer advising for systems, and operating batteries via the cloud most. These services are all rated as ten out of ten on how valuable they would be to them. The forum is considered valuable as a marketing tool as stated by interviewee eight:

"That's kind of marketing in my opinion. Also, customers are already using this product and are happy with that. I think that's the best reputation you can get for your product if people tell other people, it's a good product and you can use it. I think that the forum is maybe more valuable because it's presales."

Good to note is that interviewee eight only sees this as a marketing tool, he won't use the forum as a source of knowledge himself. He also sees the knowledge base as a source of information for his customers and not for himself as he already possesses the knowledge. Interviewee eight does like the onsite trainings:

"I like practical training because you learn to know people and can exchange information. You are really forced to concentrate during these training courses. It's just different than online. In the invitation I will check the topic whether this is interesting for me or not. If not, I won't come."

The recycling option is also valued at 10/10. Interviewee eight states:

"In Germany you are forced to take the batteries back at the end of their lifetime as a seller. So, this service would be very valuable for us."

By providing a recycling service LBM could unburden them with this. When customers from target group F have questions, they would like to be helped in a quick manner, as this question could delay their work. Therefore, they value online/phone support very much. Application engineers who fix their issues or check integrations of customers are valued at ten out of ten as well. Although is mentioned by interviewee eight that this is not logical when looking from an economical perspective. Remote support and cloud monitoring is also given maximum score. The reason interviewee eight gives for this is:

“That's great. That's a that's also a ten for me because that's the best support. You don't have to ask for information from the customer describing anything and she describes it in wrong words, or maybe in the language you are not really understanding very well. By looking in to the battery yourselves you can fix the problem quicker as you have access to the right data. But it's a question how you how deep you are involved in in your system. If you are not deeply involved, it won't help. If you are deeply involved, it will help.”

Advising through monitoring is also valued because it is important according to interviewee eight to warn customers about abusing their batteries. Target group F has a proper knowledge of batteries and rarely needs technical advice. Although they rarely need advice, they rate this service also ten out of ten. Operating batteries via the cloud is also very valuable to interviewee ten and to his customers. Especially when LBM for himself or for his customers can solve the issue from distance. Custom designs are rated eight out of ten but has an interesting comment on it. Interviewee eight stated:

“Private label batteries are interesting for us because we see more and more people are asking for complete systems. We are mixing a lot of things. They could trust a system even if it's not supplied or produced by only one company. People like to see systems which are branded all in the same name.”

With private label batteries, they could brand the system under the same name. The name “DIY Experts” is given to this target group based on the gained insights.

4.4 TARGET GROUP DESCRIPTION

In this part of the research, a description will be given of the different target groups. For every target group will be defined what their specifications are based on chapter 4.2, and what their preferences are in terms of services based on chapter 4.3.

4.4.1 Target group A – "Knowledge Seekers"

Target group A does not have the knowledge to design systems, this must always be done for them. Micro segment A does not make use of application engineer support on location. Personal interaction is always preferred, even when ordering batteries. Although personal interaction is preferred, the focus of the relationship is short-term and not much effort is placed on the relationship. Customers of this segment are passive in the co-creation process and only want interaction when they have an issue or need advice regarding the batteries or the system. In terms of services, information via the knowledge base is most important to this target group, as this would save time and therefore have no need for an application engineer advising them on a system according to interviewee one. Another aspect that is very important for target group A are the insights gained from cloud monitoring and the saved time when having an issue via remote support. If their issues cannot be fixed in a quick way via the knowledge base, personal interaction is preferred. LBM should for this target segment focus on the knowledge base, remote support, cloud monitoring, advising trough monitoring, application engineer advising for systems, and operating batteries via the cloud.

4.4.2 Target group B – "Long-Term Learners"

Target group B does not make use of AE support on location and always needs to consult LBM when they want to design a system, just like micro segment A. The difference between these micro segments is that micro segment B has a long-term relationship focus. Micro segment B does not prefer to have personal contact when ordering batteries but does prefer personal interaction while having issues or when they need advice. This is also the only interaction they prefer. Micro segment B is not very active in the co-creation process, they do look for opportunities to grow together and rarely give some advice on which direction the market is going. Concluded can be that technical support and educational services are the most important service aspect for target group B. Service what should be focused on when targeting target group B are the knowledge base, on-site training, marketing support, recycling options, phone support, remote support, and application engineers advising for systems.

4.4.3 Target group C – "Tech-Care Seekers"

Target group C only needs help with designing systems when they must design a new system. Customers in this segment also make use of application engineers on their location. The focus of the relationship is long-term, and they like to discuss their projects, business activities and future strategies and developments of both LBM and their own companies. Personal interaction is valued by these types of customers. In the co-creation process they are medium-active. They provide feedback on the product when they are not happy about it. Target group C sees LBM as the expert in the field of batteries and therefore prefers to have their technical advice and maintenance services. Digitalization of the batteries via remote support, cloud monitoring, operating batteries, and advising trough monitoring is also valued very well. This is because they expect this to prevent issues and for the issues which it does not prevent, they will be solved in a faster way. Services which should be focused on when targeting target group C are the knowledge base, application engineers refurbishing issues, application engineer integration checks, software updates, remote support, cloud monitoring, advising trough monitoring, application engineers advising for systems and operating batteries via the cloud.

4.4.4 Target group D – "Engaged Collaborators"

Target group D only needs help with designing new systems and just like micro segment C makes use of application engineers on location. The intention of the focus of the relationship with LBM is long-term and prefer personal contact. Contact is not only desired when there is an issue or they need advice, customers in this segment also really value it when they can discuss projects, business,

and future plans. They also prefer that the person they have contact with at LBM knows about all of their projects, business and future plans. Providing feedback, looking for future opportunities and helping each other where possible is a standard for them and expect the same from LBM. These customers would love to be involved in product development activities. Services which should be focused on when addressing target group D are the knowledge base, the online academy, phone support, application engineers refurbishing issues, remote support, cloud monitoring, advising trough monitoring, condition-based maintenance, application engineers advising for systems, and operating batteries via the cloud.

4.4.5 Target group E – "Proactive Innovators"

Target group E needs help when they design a new system and does not make use of application engineers at their locations. The focus of the relationship of customers within this target group is long-term. This reflects in the efforts they put by discussing project, business, and future development and strategies next to their issues and needed advice. These personal interactions are not always preferred, when ordering batteries these customers prefer this in a non-personal way. Customers of segment E are active in the co-creation process by developing plans to grow together and providing tips for improvement of products and market direction. Services that should be focused on when serving this target group are the online academy, on-site training, marketing support, phone support, software updates, remote support, cloud monitoring, advising trough monitoring, application engineers advising for systems, and operating via the cloud.

4.4.6 Target group F – "DIY Experts"

Target group F does rarely need help when it comes to designing systems. They possess this knowledge themselves, and almost never need LBM for this. They also don't make use of application engineers on their locations. Their relationship focus with LBM is long-term and are medium active in the co-creation process by providing tips for product improvement. Customers in micro segment F prefer a mix of personal and non-personal interaction. They only would like to have contact when an issue occurs or need advice. Target group F values technical assistance when they get this, although this rarely occurs. When targeting target group F, the following services should be focused on a forum, on-site training, recycling options, phone support, application engineers refurbishing issues, application engineer integration checks, remote support, cloud monitoring, advising trough cloud, application engineers advising for systems and operating batteries via the cloud.

4.5 IMPLEMENTING THE SERVICE STRATEGY

In this part of the findings, the fourth practical sub-question: “What advice can be provided regarding service strategies based on the identified target groups?” will be answered. Section 4.2 revealed the different focus groups and how services should be provided to them. In part 4.3 is identified how much each service is valued by each target group. These previous chapters identified six typologies, which are explained in section 4.4. In this section, the practical implementation of these findings will be discussed.

To answer the fourth practical sub-question a focus group was held. During this focus group the findings were discussed, and the six identified typologies were explained. When the valued services per target group were presented, a regional sales manager stated:

“I think these quotes about the services are not surprising”.

The regional sales manager could identify with the quotes that were given by LBM customers on the services, explaining why they would be valuable or would not be valuable to them.

During this research only eight interviews have been conducted which is not enough to trust the outcomes, as is also stated by a business developer:

“To further verify these results, we need to do more interviews”

As is also concluded by the service manager:

“I think we need more data than this to choose a path”

Therefore, it can be concluded that follow-up research should be conducted to investigate whether these findings indeed are valid. This should be done before further advice based on these target groups can be provided. This research provides a basis for the follow-up research according to a business developer:

“Yeah, I I think the quotes from the interviews is a good basis indeed, but we need probably to follow-up with more ohm, yeah, more samples let's say like more more data.”

If these findings are validated with follow-up research, these services and target groups might be used to differentiate from competitors for certain LBM target groups according to the business development manager:

“We could put emphasis on the services if we feel we can differentiate there, because some competitors are not differentiating, they just follow the industry. We could investigate the market to see what of the identified services would really differentiate us from competitors and see how this is ranked in which groups because there is some variation within the groups.”

Overall, it can be concluded that this research provides a proper basis for doing follow-up research. Which should be done before further advice regarding servitization strategies based on the identified target groups can be given.

5. DISCUSSION

This research aims to explore servitization strategies from a customer perspective, which is conducted for lithium battery manufacturer (LBM) focusing on the marine industry. The research delves into the main question of how servitization strategies can be developed based on service logic micro level segmentation criteria examined from the customer perspective. To address the main research question, it is essential to evaluate the findings from the practical sub-questions of this study.

In this research, various services are identified per service type for the marine industry. These identified services help in the understanding of the landscape and indicate what LBM could offer in the marine industry. The identified services provide an understanding of the service possibilities and the marine market.

Based on service logic micro segmentation criteria, six target groups are identified within the customer group of LBM. These target groups are identified by applying service logic micro segmentation criteria. By analysing the customer interviews, it was determined how the segmentation criteria could be applied in the most meaningful manner. Facilitating a precise understanding of customer characteristics. This also facilitates a base of how these segmentation criteria could be applied in future research. The identified target groups are crucial for developing a tailored service strategy.

In this research is also identified how the different services are valued among the identified target groups. As shown in the service description section, no in-depth explanation was given for any service, and therefore also was not given during the interview. By leaving the precise details of the services open during the interviews, customers gave their own touch to the services. Which resulted in customers explaining how this service could be valuable to them. Providing ideas on how these services could be facilitated and which features the services should have to be valuable for the customer.

Combining the insight of the target groups results in the following typologies:

Target group A: This target group lacks knowledge of how to design a system and relies on LBM for this. Personal interaction is preferred, but has a short-term relationship focus. They are passive in the co-creation process and only want interaction when having an issue or when advice is needed. The most valuable services to this target group are the knowledge base, remote support, cloud monitoring, advising through monitoring, application engineer advising for systems, and operating batteries via the cloud.

Target Group B: Is quite similar to target group A but has a long-term relationship focus. They only prefer personal interaction during issues or advice and are not very active in the co-creation process. The most valuable services to this target group are the knowledge base, on-site training, marketing support, recycling options, phone support, remote support, and application engineers advising for systems.

Target Group C: Requires help from LBM when designing new systems, uses support on location, and has a long-term relationship focus. They value personal interaction and like to discuss their projects and future strategies. Target group C is medium-active in the co-creation process. The most valued services are the knowledge base, application engineers refurbishing issues, application engineer integration checks, software updates, remote support, cloud monitoring, advising through monitoring, application engineers advising for systems and operating batteries via the cloud.

Target Group D: Similar to Group C, but active in the co-creation process. They seek involvement in product development and expect a deep understanding of their projects from LBM. They prioritize the knowledge base, the online academy, phone support, application engineers refurbishing issues, remote support, cloud monitoring, advising through monitoring, condition-based maintenance, application engineers advising for systems, and operating batteries via the cloud.

Target Group E: Requires help with designing new systems, has a long-term relationship focus, and prefers a mix of personal and non personal interaction. They like to discuss their projects and business strategies. Target group E is active in the co-creation process. The most valued services are the online academy, on-site training, marketing support, phone support, software updates, remote

support, cloud monitoring, advising through monitoring, application engineers advising for systems, and operating via the cloud.

Target Group F: Rarely needs help with designing systems, has a long-term relationship focus, and prefers a mix of personal and non-personal interaction. They are moderately active in co-creation and value technical assistance when necessary. The most valued services are the forum, on-site training, recycling options, phone support, application engineers refurbishing issues, application engineer integration checks, remote support, cloud monitoring, advising through cloud, application engineers advising for systems and operating batteries via the cloud.

The advice that can be provided regarding service strategies based on the identified target groups is to conduct follow-up research with a larger sample. The identified target groups and valued services should be validated before targeting certain target groups and formulating service strategies according to these insights for the target groups. This research provides a proper basis for the follow-up research because an understanding is provided of how the customer target groups should be created. Also is explained why customers find certain services valuable.

The main research questions: “How can servitization strategies be developed based on service logic micro level segmentation criteria examined from the customer’s perspective?” will be answered based on the obtained insights from the sub-questions. Servitization strategies can be developed based on service logic micro level segmentation criteria, examined from the customers perspective, by identifying target groups based on service logic micro level segmentation criteria and then identifying which services are most valued by this target group. These tailor-made service strategies together form the organization's total service strategy. Customers who belong to a certain target group want to be communicated with in the same way, services are preferred to be provided in the same way, and the relationship must be maintained is the same way, because the target groups are defined based on these criteria. Based on this research, it cannot be concluded that based on the identified target groups can be predicted whether individuals classifying to these target groups value certain services. Although it might seem like it, to conclude this, quantitative follow-up research must be done to find out if this hypothesis is valid.

Servitization strategies can be developed effectively by understanding the specific needs and preferences of different target groups. Based on this research, it can be concluded that service logic micro level segmentation criteria can reveal how customers prefer to communicate, relationships should be maintained, and how services should be provided to maximize the perceived value of customers.

5.1 PRACTICAL IMPLICATIONS

In this section of the research, the practical implications of this will be provided.

Before advice can be provided on how decisive segmentation criteria and servitization strategies in terms of types should be matched by in practice, follow-up research with a larger sample should be conducted. This is to verify the outcomes, before actions can be taken based on these outcomes. This research does provide a proper basis for possible quantitative follow-up research, as the service logic segmentation criteria, service types and the relationship are clearly defined.

If the follow-up research is conducted should be determined which target groups are most important. A selection should be made which target groups will be served. Then a value proposition per target group should be defined, based on the valued services and how the services should be provided.

What can be advised at this point for LBM is to make use of quotes from customers about why they value or not value different services. This will help them to better understand their customers and could help them to improve their service offerings. This research can therefore be used in service development efforts. The quotes from customers on the relationship approach segmentation criteria should also be considered. This will enable LBM to gain a deeper insight into the diverse preferences customers have in their relationships.

Overall, it can be concluded that this research provides a proper basis for follow-up research. Which should be done before further advice regarding servitization strategies based on the identified target groups can be provided.

5.2 THEORETICAL IMPLICATIONS

In this section theoretical implications of the research will be discussed, also will be addressed to which research it contributes.

This research contributes to the theoretical understanding of servitization, especially in the context of battery manufacturers in the marine industry. This research explores the different types of servitization strategies and their applicability. Also is defined how organizations like LBM can change from traditional manufacturing to a more service-oriented approach. This research extends the current knowledge on servitization, and especially deepens the research of Ren & Gregory (2007) which is focused on manufacturing companies.

This study introduces the concept of micro segmentation criteria from a service logic perspective. This research offers a new framework for understanding customer needs and preferences in terms of services. This can be applied in the marine market but potentially also to other markets. It emphasizes the importance of using service-related criteria for segmentation. This study extends the current knowledge on service logic as it connects the current knowledge with segmentation criteria. This research also contributes to the industrial market segmentation research from Shapiro & Bonoma (1984), as their segmentation criteria are transformed from a product logic perspective to a service logic perspective.

This research offers a theoretical framework that describes the relationship between micro segmentation criteria and servitization strategies. This framework contributes to the development of more precise and effective service strategies by identifying target groups with similar needs and preferences and adjusting the service offerings to this. This research contributes to the research on servitization strategies and especially to the research of Ren & Gregory (2007) who focus on their research on manufacturing companies. It also contributes to the research segmentation criteria but in particular to the research of Shapiro & Bonoma (1984) as their segmentation criteria are used as a starting point and approached from a service logic perspective.

Concluded can be that this research advances our understanding of servitization, especially in the marine battery manufacturing sector. This research also introduces micro segmentation criteria from a service logic perspective. This study also offers a theoretical framework explaining the relation between micro segmentation criteria and servitization strategies, facilitating the development of tailored service strategies.

5.3 RESEARCH LIMITATIONS AND FUTURE RESEARCH OPPORTUNITIES

In this section the limitations of this research will be explained, also directions for future research will be provided.

This research is focused on one company only, LBM. The generalization of the finding from this single case study to the broader battery industry or other industries may not be entirely accurate.

This research primarily relies on qualitative exploratory research methods. Future research could benefit from a quantitative approach with more participants to provide a more comprehensive and statistically valid analysis. The foundation for the quantitative approach is provided in this research, which makes it possible to conduct quantitative follow-up research.

This research focuses on the marine battery industry. Caution should be in generalizing these findings to other industries, as service preferences and segmentation criteria may differ significantly. Future research could determine whether these findings could be generalized to other industries.

During this research only eight interviews have been conducted. Therefore, saturation may not have been reached, and some information could be missing. In future research extra interviews could be done to see whether information was missing. Therefore, a direction for future research is to

investigate whether all target groups and valuable services for the marine industry have been identified.

During this research six different target groups are identified. Two of these target groups consist of multiple customers, who seem to value almost all services in the same manner. Therefore, a direction for future research is to investigate whether all customers in a target group value services in the same manner. If this is the case, segmentation criteria could predict the valued services by members of certain target groups. This is very valuable to know, and therefore a clear direction for future research. The hypothesis could be: H1 “Service logic micro level segmentation criteria can predict what services are valued by customers within the marine market.”

The interviews conducted during this research only lasted about an hour, which was not enough time to get to know the customers well enough to apply the situational factor micro segmentation criteria. Future research could create a better understanding of customers so that these micro segmentation criteria can also be applied.

Another direction for future research is a more in-depth analysis of the different services that can be offered for the marine market. In this research the identified services that could be offered for the marine market have a short explanation. A more in-depth analysis could give a better understanding of these services and explain how they could be organized and how customers could benefit from them. Also, could be identified what providers of these services must organize to be able to provide these services. This follow-up research would give a better understanding of the services themselves, but also what it would take to facilitate them.

No precise in-depth service description was given during the interviews. This resulted in customers explaining how these services could be valuable to them, and which features would be necessary to be valuable. This could have led to another interpretation of the services between the customers, which could have biased the results.

The findings of the interviews might have been biased by a language barrier. Not all interview participants spoke English very well. This might have resulted in customers not understanding the question clearly or not being able to express their opinions very well. This might have resulted in biased findings.

During the customer interviews, the customers were asked to rate the different services on a scale from one to ten and elaborate on the reasons behind their perceived value or lack thereof. These quantifications of value are hard to compare between different interviewees. Therefore, one should be careful when interpreting these findings.

Target groups can consist of multiple customers, who do not necessary need to sell the same type of products or offer the same type of services. Based on the findings of this research cannot be concluded whether customers who sell the same products and services belong to the same target group. This could be an interesting direction for future research.

Another interesting direction for future research could be to investigate if the perceived value of customers indeed grows if companies build their servitization strategies based on the identified theoretical framework of this research, compared to the situation before the theoretical framework is applied. The hypothesis for this research could be: H1 “Implementing servitization strategies based on the service strategy and micro segmentation framework leads to a statistically significant increase in customer-perceived value."

When looking at the segmentation process of this research, it seems like the following micro segmentation criteria are correlated: Focus of the relationship, interaction frequency, type of interaction. Future research could find out whether these segmentation criteria indeed are correlated.

Addressing these limitations and pursuing these research directions would contribute to a more comprehensive understanding of micro segmentation, servitization strategies and its implications for customer-centric servitization strategies across industries.

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APPENDIX 1: INTERVIEW GUIDE

Introduction Roy Heilersig & Research

Is it okay if I record this session?

Start recording and transcript in the right language!

Introduction

Could you please give an introduction of yourself?

Main questions

Could you give an introduction of the company you are active in?

What part of the marine market is the company active in?

Where is the company located?

How many employees has the company?

What does the company do exactly?

What are the company's primary goals and objectives?

What type of customers do you have, what market segment are they active in?

What do they use your products/services for?

Propulsion or household?

What role does LBM play in your process/product?

Propulsion or household?

How critical is LBM's role?

What services do you perceive from LBM?

Where are they used for & how do they benefit you?

How often do you perceive these services?

Knowledge on batteries on a scale of 1 - 10? How to use them?

How do you value the effectiveness or impact of the services provided?

Are you happy with these services?

What should be done better in the current situation?

How does your service process to the customer look like?

What role does LBM play in this?

What type of relationship do you want with your supplier?

In terms of relationship length, complexity, and interaction?

Intensity of the relationship?

Participation in improving products or services?

What are the biggest challenges, limitations, or difficulties you face in the marine environment?

&when it comes to using batteries?

How does battery performance impact your overall experience or operations in the marine industry?

Are there any specific pain points you associate with battery maintenance, durability, or reliability in the marine environment?

What specific benefits or advantages are you looking for when using batteries in your marine applications?

What features or characteristics do you appreciate in batteries that you believe contribute to your overall gains in the marine market?

How do LBM batteries enhance your experience or efficiency in marine operations?

Scales

On a scale from 1 – 10 how valuable are these services to you? & why?

Are they essential or just nice to have?

Knowledge base

Forum

Online training platform/academy

On-site training

Marketing support

Recycling options for batteries at the end of their lifetime

Online/phone support

Application Engineering refurbishing issues

Application engineering integration checks

Software updates

Remote support

Cloud monitoring (Have insight in batteries yourself)

Advising trough monitoring

Condition based maintenance (proactive)

Application engineering advising for systems

Custom designs

Partnering in R&D support

BAAS

Operate batteries via cloud (remote support)

Closing

Are there any other services you would like to perceive but I did not mention?

Is their maybe anything else you would like to add to this interview & research?

APPENDIX 2: TARGET GROUP A SERVICE VALUE

Service	Rating	Quote interviewee 1
Knowledge base	10	The knowledge base is essential and they're failing at. So yeah, I'd say that's the biggest area. That's the most important thing they need to work on.
Forum	0	
Online academy	4	I you know, I would say an academy is not essential. I would probably put it at like a four something like that, because I think the benefit of a really good battery is that it's just easy and that it's there and it works straight away with installing it as basic as possible. I think if you know somebody is led to believe that they need to attend an Academy to her to use a battery that is probably could have put people off.
On-site training	1	No nonessential, I'd say one.
Marketing support	0	
Recycling options	1	I don't think anybody really cares about recycling options is the truth. But no, I think that's probably something that the local government should do from the benefit. The benefit of that is obviously the, you know, it's taking care of the environment. That's very nice. But if you're in a different country and you have to ship that battery to Amsterdam, the carbon emissions from shipping that battery have probably just far outweighed recycling the battery. So, I actually say that's completely useless. So, I'd say one.
Online/phone support	7	Yeah, I probably put phone support around a 7, maybe something like that because I think having the information to hand and being able to troubleshoot it yourself or through the application first is probably more essential. Yeah, I'd say what's essential is having the information available without needing to call.
AE refurbishing issues	1	No. So, I just said that's complete nonsense, so I put that as one.
AE integration checks	6	A 6 because I think providing the information on how to do it properly up front would is more valuable than an application engineer doing an integration check.
Software updates	5	I don't know what that would do to the battery itself, and I suppose it depends on what the software update would do if it was essential to keep them working, then yeah, it will be a 10 obviously cause then they would break. If not, well, I think I think that would be on the software update and what it was actually doing to the battery. so I I'd say 5, just because I need more information for that.
Remote support	10	Yeah, 10 for remote monitoring. If something brakes down I don’t have to send it back to Netherlands when I’m in Asia for instance, that would be a real nightmare because this would cost a load of time.
Cloud monitoring	10	Yeah, I'd say I'd say that's a 10 as well. No, not just like from a user perspective, it's a 10 like without a doubt. But I think from a business perspective in terms of like a marketing

		strategy like that, that should be a 10 for LBM also. So, I can see how much my batteries use and what an issue might be.
Advising trough monitoring	10	Yeah, 10 if you could advise me on how to use.
Condition based maintenance	0	
AE advising for systems	10	Yeah. Again, that's it's 10. But if the information is available beforehand, that's more useful and faster than an application engineer.
Custom designs	0	
Partnering in R&D support	0	
BAAS	7	It sounds like a good idea. Yeah, it will be interesting to see how that would work and you can make me out of it. Yeah, it sounds like a good idea. I will give it a 7.
Operate batteries via cloud	10	

APPENDIX 3: TARGET GROUP B SERVICE VALUE

Service	**Rating**	**Quote** interviewee 3
Knowledge base	9	It's much easier if somebody has already done this investigation or let's say it's a proven concept which is tested that it works somewhere. And you don't have to figure it out by yourself, you know.
Forum	7	Knowledge base for the distributors that you can send questions to the for example, the Technical Support or the sales and the then the then this information would be gather it on this portal. This would be very good.
Online academy	8	There will be no way that you can replace the factory training with online training, so to say because it's always different when you are working with the real product. But I think in for some topics. I would this would be a very good idea.
On-site training	9	This training is usually the very best way of doing it. Training because then you have all the tools, products, and knowledge together.
Marketing support	9	We would need the Flyers and the banners and stuff like that. But for the normal client visits we never used the paper. sheets anymore. Nobody wants to receive the papers or the data sheets in paper. So that is not required, but of course the product information pictures. If you have some case studies which you can post on the Internet and in the Facebook.
Recycling options	10	If you have a like a government or community who buys this, the recycling is a demand. So, we have to be able to provide them a recycling programme.
Online/phone support	10	I think it's very important. You have to have it
AE refurbishing issues	7	So, but from my business what I'm doing it's not so fast because I usually can solve the problems with the support from the factory or on phone or something like that. So I would rate this as a seven.
AE integration checks	7	The same, in in the systems that we currently install, it's not that important because we can do this ourselves so.
Software updates	8	Yeah, that is, that is very important. So but that that's something that. We would do them or you will. Have the clients to do them by themselves.
Remote support	9	Yeah, for for me, I would rate this as a nine, but I know that the clients will not demand it, so. I think they don't think that it's necessary.
Cloud monitoring	4	But nobody uses this information, it's. It's completely useless. Because the problem is problem is with that one is that. When are you short period of time you will collect huge amount of data. Customers might get a notification that something is wrong. The system integrator (Me) will have to figure out what is wrong. This will cost a lot of time, and in the end something might not even be wrong. Who is going to pay for that time? If this is done the provided information should be very accurate and good.

		I'm just afraid that this will cost a lot of time and don't have much benefits.
Advising trough monitoring	7	I think you will just collect a lot of data and nothing good will be done with it. It could be good but I'm just afraid that this will cost a lot of unnecessary time and have not much benefits.
Condition based maintenance	.	
AE advising for systems	10	Yeah, I think this is very important. So, I rate this as a 10 because that in my opinion that is one of the main points what the factory should do, because the factory should be able to tell where & how we can use their batteries.
Custom designs	.	
Partnering in R&D support	.	
BAAS	6	I haven't had a single request or demand from any of my clients to have such a service. Ohh, I think in practically all theoretical it's a good idea. But. I don't think that they practically we could sell it to anybody and this is because of the for example if we put it in the boat for if we put it into the marine vessel. And we said the client that OK, here's 1010 batteries for you and we charge €1000 a month. So what kind of a contract do you do? What if the client, then after two years he sells the boat?
Operate batteries via cloud	8	But if it should be just the case for like troubleshooting or something like that. It's it that it's a quiet client has to request this service. And it's activated and then after the service is done, it's deactivated again by you.

APPENDIX 4: TARGET GROUP C SERVICE VALUE

Service	**Rating**	**Quote** interviewee 2
Knowledge base	8,5	My colleague was on the line with somebody, and he had some questions, but he didn't get answers fast enough. As I recall, I don't. So, if the information were in the knowledgebase, we would have had answers much faster.
Forum	0	
Online academy	8	I think it would be very useful. Some tutorial maybe, maybe some tutorial not long one, but maybe 10-15 minutes.
On-site training	8,5	Because when you all by yourself installing some something that is very specific specifics you need some kind of. Certainly, that you are on the on the right pattern that you are doing something good that you will not make bad connections and then blow like fire or something you just need. Be more confidential by yourself that you're doing a good job, that you are making two little wires that should be joined.
Marketing support	6	Yeah that would be good, maybe some text, flyers or video's. Yeah, generally information's about companies and the general information about batteries that kind of batteries that that we install in vessels.
Recycling options	7	We got a lot of questions about that. Every time we get the question we say we don't know we don't have a solution for that. Therefore this would be very helpful.
Online/phone support	7	We had some video calls in the weekends. And I think it's satisfying.
AE refurbishing issues	10	Very, very, very, very valuable, like 10 valuable.
AE integration checks	9	Because it, uh, it us look good. Ohh us like a company because we don't. We don't have to know everything about everything because we have a batteries that are, you know, like a doctor for your heart. Doctor for your stomach, doctor for your kidneys. So I believe the doctor LBM is doctor for batteries. So I wouldn't let my heart be operated by a general doctor.
Software updates	9,5	It would be very valuable like 9 or 10.
Remote support	9	Just opening the browsers on your computer and you can see all the status of all the batteries on all the vessels. It would be valuable, yeah. And then you can solve problem from distance. It would be great.
Cloud monitoring	9	We can already see this. it called fleets and we can see all the all of batteries but we can just see the start the state of charge and is the is everything OK? But some sometimes we can't solve the problems.

Advising trough monitoring	10	It would be great. Would be great. So it would be safe. Lots of problem and lots of lots of time. So if you just predict some eventually problem or something it would be great. Yeah. So I rated 10.
Condition based maintenance	8	You go to doctor when you have a some pain, but if they told us we could go for an annual check, we would do that. So, I believe it's very useful that once a year, someone comes to the vessels and checks the batteries if everything is all right. Because there are many little wires that you can't see or predict from the distance. But when you see it when you touch it I think it's useful. So, I believe once a year it would be great that someone from LBM come to the field and touch it and sees the batteries.
AE advising for systems	8,5	Yeah, it would be valuable. Yeah, like 8,5
Custom designs	0	
Partnering in R&D support	0	
BAAS	8	Yeah, it could be interesting. Yeah. So when the something wrong with the batteries, you're just change it. We don't have to buy another one. You have all the risks. I would need more times or more options pro and cons, but at this point I believe like an option so that we call LBM and ask we want batteries and you offer us solution A or solution B believe it would be something to think about yeah.
Operate batteries via cloud	8,5	Yeah, it would be. Yeah. Yeah, that would be valuable. Yeah.

APPENDIX 5: TARGET GROUP D SERVICE VALUE

Service	Rating	Quote interviewee 6
Knowledge base	*9*	It's very fundamental to know exactly what to be done, what can be done by each type of battery.
Forum	*5*	Five, I don't believe too much in this time in this.
Online academy	*8*	I think it's important that the training is fundamental. So, it's important for us. Um, this is also a chance to improve our preparation. And in an easy way via remote connection. And could also be a way to discover news or new information.
On-site training	*8*	8 Because it's a bit more difficult to arrange for us at your main factory, but not impossible. Yes, could be important to see to, to touch, to work and face to face.
Marketing support	*.*	
Recycling options	*1*	We are the only one in Italy register on a proper recycling circuit. So, we are ready to manage by ourselves without your help of LBM to recycling the batteries in a proper way.
Online/phone support	*10*	Yes, very important me is not to have an online support, but a person on the phone. I don't want to have a platform where to connect or speak with the different people, I want one technician who can answer all my questions. There is not only for us, but I think it's much more a vision of the worldwide market. So, LBM is a battery. A battery could be stalled in a yacht, in a bus, in house. In space shuttle in whatever, OK. Different kind of market. Different kind of technical solution, different kind of needed of the customer. I consider my market very special in term of technical needs and technical request. Can't speak with somebody that has big knowledge of a camper but nothing on the yacht. Could also be three different technicians. Important thing is this three specialist share between each other the information of the product and projects
AE refurbishing issues	*8*	It's important to know that in case we can't. They go immediately on board. It's important to know that LBM can help me. In order to save my customer but also LBM customer.
AE integration checks	*1*	The specialist that follow after us do the same, so I don't think its needed.
Software updates	*8*	I don't know how to answer because I'm not technician so my engineer could answer much better than me, but I think it's important. So, 8.
Remote support	*7*	It could be useful to understand what happened on the system.
Cloud monitoring	*10*	This is much easier to give fast support to the customer.
Advising trough monitoring	*9*	Don't know how important, is not happened on the market.
Condition based maintenance	*.*	

AE advising for systems	*10*	
Custom designs	*1*	
Partnering in R&D support	*.*	
BAAS	*1*	Not valuable, this is not for this market.
Operate batteries via cloud	*.*	

Service	Rating	Quote **interviewee 7**
Knowledge base	*8*	Honestly, I have to tell you that I'm using quite often your website. Because maybe there is not very much information, but it is very handy. Very useful. You know our partners have it with some wider access to information like software revisions, manuals, more advanced manuals, and this kind of things.
Forum	*.*	
Online academy	*9*	I would score it very hard if well done and I think that in the LBM case, let's say learning dedicated to high voltage people or let's say about charging about, let's say configuration. Especially that it is available 24 hours a day, seven days a week.
On-site training	*7*	I had a training at the factory, and it was nice to see factory to see production to meet people. Presentations were also very, very interesting, but there was a almost no hands on training.
Marketing support	*8*	We arranged the boxes. You know that dummy boxes? Yes, dummy batteries to see and it works. It works. We use it and show it in front of the customers. Honestly, I don't have information anymore like this. Okay. But if you, if we uh would be stricter with that and provided it. Materials marketing materials can be, let's say in in paper or in PDF, and I think it is sometimes I need some paper version, but I think I come on use PDF versions simply as attachment to quotation or just for presentation or something like that. It is nowadays it is even more useful than paper version. But for some meetings. Well, it's good to have a. Paper version so I don't think it is good idea to abandon it 100%.
Recycling options	*2*	At the moment we don't have problems like this because there are no batteries, but I think. I think the problem will be growing and growing. And it is very good to know what we can do with this so. At the moment it is really, negligible. But the problem will be growing, can't I think it is good to know what you can. The OR to change or to replace when they capacity dropped by let's say something like 20%. But it is still quite good battery and I have heard that the idea is to use let's say for both of all types or something like that. It is much easier to buy new battery if you return old one, yes. You pay higher price if you don't return old one. But we are talking about. The huge number of batteries for huge energy storage systems, and so I think it will be very, very big business in future if really we go this way.
Online/phone support	*10*	This service is really helpful

AE refurbishing issues	*9*	I have no experience with this, but I believe that any problems can be fixed faster by factory service. However, limited risk, because you know battery and high energy is all. We get experience from application engineers from LBM, I think that is good.
AE integration checks	*9*	Personally, this has really some value to me, especially when we are doing projects for the first time. It depends how it is going to be arranged, because you can imagine that we go to LBM for some training. We have good contact, and we can be well prepared and in that case that then by scoring will be lower but the generally I would score it very, very high even up to 9.
Software updates	*.*	
Remote support	*10*	It is, I think most efficient way of work and I had the chance to arrange some something like that and it really worked. And my colleague who was on side was happy with this and let's say within a couple of 10s of minutes we know where we are because we have an immediate expert.
Cloud monitoring	*10*	High capacity and energy storage system, I think the light warrant or something like that can be let's say maintained you if we get access online access to the system to see what is happening there. I don't think it is easy to have all the times 24 hours a day, seven days a week. But let's say at least during visit in ports. Should be. And should work form for reviewing what are faults, how it working, what are temperatures and quite a lot of factors to see what is happening there. Because it is it is. It is. Uh, you know, I see a lot of points standing for this solution. It is safety, it is warranty regulations and quite a lot of things.
Advising trough monitoring	*10*	Yeah, I think this, uh, my understanding is that it is very, very easy to correct it because it is just changing setup on the DC converter. Often yes. But you know, in some application it is difficult to follow charging pattern that LBM published on its website for instance because you know it is like in car you know you're accelerate or brake. So it is entered. Loud battery with high power and high power extract during breaking to the battery and you know there is not much room for different charging profiles or something like that but from time to time you are important. You are connected to grid and it is possible but it is also. I think it is a I would score it very, very high. I've even 10 because it is. It is a very important for talking with the customer.

Condition based maintenance	*10*	
AE advising for systems	*9*	9 something like that but, but if the business is as it is at the moment from time to time and nobody is, let's say, dedicated to it, it is not very much valuable because I don't see any benefits from that.
Custom designs	*.*	
Partnering in R&D support	*.*	
BAAS	*.*	
Operate batteries via cloud	*10*	Every online access way and you know I have service background and every solution that you are sitting in office and have access to your stuff and you see what is happening there is really good. And pay for that because you know my, let's say go to rule is that if you have service action and you go on-site and fix problem, ok you are making money and everybody's happy. But if you go outside and you don't have one screw and work key and you cannot do job and you go a second time. That is a waste.

APPENDIX 6: TARGET GROUP E SERVICE VALUE

Service	Rating	Quote **interviewee 4**
Knowledge base	6	I think that, yeah, I think it's valuable would be ideal just to keep it for the actual installers itself so that they're registered. So, we don't have dug people going into it. But yeah, I think it's valuable.
Forum	5	It's. Nice to have, but it's not a have to have. Because we don't have that many installers and we've got direct link already with an employee and it would be more valuable for them that they don't have to engage. With too many installers, so I think it would be very valuable for them. But for us it doesn't change because they're there. Once we buy the product, they tell us every.
Online academy	8	I think that's very valuable for our youngsters that I would rate that eight out of 10. Mainly because it helps us to incentivize. The youngsters getting more certificates because they often come out of the basic training like an electrician or electromechanical, which is still very weak because they don't have a lot of experience and then they get more specialized certification afterwards. It just gives you just also the CV and make them stronger. And we'd like to have a, especially our young staff become very, you know, very competent.
On-site training	10	Yeah, I mean that would be very valuable I. Would put that a. 9 or a 10 no a 10. If we have large quantities installed, let's say by 1 manufacturer. So that's I've got to deal with guys from yachts, catamarans in Cape Town, and they want. They want to install this for their premium and w do some. On-site training for their technical the electrician. They subcontract everything. Most of these yacht installers we've got fixed prices from all their subcontractors. Subcontractor gets fully qualified with LBM battery and we do on-site training for him that would be. OK. But for the small stuff not necessary because. It can easily. Be done remotely.

Marketing support	10	That we want to have because we have gotten the information, we've asked. We've got the odd little stickers that came in the in the relay box and stuff. And these are things that the installers want to have with the Leaflet and stuff so that they can promote. Nothing fancy. Promotional stickers are good enough. And then the other thing would be a proper leaflet and that on the back gives all the types of installations and the benefits, and the front gives the technical specs. So, you have a bit of promotion and references and you've got technical.
Recycling options	2	We've got 35 recyclers, even for lithium batteries. Now that that exists here, but. I think it's a question that's still very low on the on the radar from owners. Owners really are just looking at price, reliabilities, and safety. But then number one and then and then definitely price this comes into the equation. Few extra points that they take attention to, but they don't make decisions on it yet. I can't see that happening. On recycling.
Online/phone support	10	We're getting that from an employee and it's very important to us so that I would rate also a 10.
AE refurbishing issues	1	That we haven't had yet. We would not. We wouldn't engage into a supply, installation, or anything unless we are fully competent in what we're doing. What I'm trying to say with that we would when we do sell we do little design, we do calculation, we do integration, we check the sizes. I can't see us getting to a point where it says where we can't install it because it's not working. That would all be able to solve over the telephone. There's nothing so complicated, but in the future we might be developing something very unique. We are currently busy with something. I'll explain to you afterwards if you don't. Just right now.
AE integration checks	5	We very confident of what we're doing and we can also send a video through and they can search us. We are on the other side of the world, these are the most expensive flights in the world.
Software updates	10	Yeah, so that. Yeah, that's yeah. With this we would like to get a proper notice of it. So that we know what is possible. OK, you've got serial number so and so and so and there's software upgrades so and so that's just come out and prompts us then we can go to sites and bring the laptop to download it. Bring the cables with connect and update it.
Remote support	10	Yeah, that's on most of the ones we install, we are able to do that. We just don't do that with LBM.

Cloud monitoring	10	We've never tried it with LBM. We definitely would like to get into the program, not to program anything on the thing but be able to see this. Condition of every cell because it's just. It's nice for the customer.
Advising trough monitoring	10	Yeah, I mean, that's something we we're very comfortable with as long as they are used for only that, not for anything else with the risks are so that there's some kind of intervention with the system can be shut down. We cannot afford anything like that with our customers where there's a glitch in the system and it starts interfering with something. So if it's a pure reporting system and a pure predictive. Type of analytics through. AI absolutely happy with it.
Condition based maintenance	.	
AE advising for systems	10	We need backup of we need it, that is very important.
Custom designs	8	Because I know where we're going with specific products we're taking to the market, then we definitely need it.
Partnering in R&D support	8	I mean that's exactly where I was referring to. Same type of things that we able to get that that direct communication and we can make sure that the. That if it if it's necessary to go custom we go customer, if it's not necessary to go customer, use something in a different way that we could, we wouldn't have thought of.
BAAS	7	I rate it as a 7 because it will be part of the sales thing. A few customers will say that's too expensive, but if I can rent it, yeah. I'll take it then
Operate batteries via cloud	10	Direct link purely because we are no control freaks or anything. It's just. Yeah, absolutely 10. That would be a 10 if we could do it that way, yeah. But only with the customers approval of course.

Service	Rating	Quote **interviewee 5**
Knowledge base	5	I am not the technician myself. Personally, I would say 5 in terms of placement and things like that, we all know that. And how you can read the batteries, things like that, but perhaps chargers are compatible with those kinds of things. Perhaps the integration with other components could be interesting.
Forum	5	It might be nice to see what others are doing, but the LBM and that I might also be able to expand your network in this way, so it might also be nice that you can get in touch with people who maybe encounter something and be able to get an assignment from it.
Online academy	8,5	I don't think the online academy is valuable for us in terms of knowledge. We also want to collaborate with parties that can build in our system. We also want to train them, but for example if they were to do the battery part through the course, that would be very valuable.
On-site training	8	My technical brother also has some experience with it, so he knows it in principle, but suppose we would just do that. For example, if we employ more people, we would also like to send them to that on-site training
Marketing support	9	Of course, we are also a start-up, a bit further along. It also has very different connections than we also have with the camper industry. Maybe you also have a boat, for example, so I certainly think we can get some brand awareness from that. I think maybe if we do that for them again, if they can get something out of it again, because anywhere. Show them what is possible, for example an LBM battery bank and then you can actually do it in the see practice.
Recycling options	10	It is not yet an issue, because batteries last 15, 20 years, but that is something that really needs to be considered. How can LBM do that in the future? Or maybe with batteries that will break in a few years? It is not that everyone asks about it, but there are a few who do ask about it. So I think it would certainly be interesting to see how it can be set up. It does not necessarily have to be set up within the next few years, but it is already being looked at.

Online/phone support	7	I'm a bit in doubt. On the one hand you have. It might also be nice to have one contact person in advance, because he or she knows exactly where it will be used. Knows you, knows your product. For us it may also be a bit product specific, so it is nice for us to really have a fixed point of contact. But if we really start selling in bulk, it would be useful to be able to call quickly if something is wrong. Maybe a little less relevant for us.
AE refurbishing issues	9	Then it must also be possible to respond quickly. So, I think that an application engineer, for example, is on location. The boat can soon also be in Turkey and Greece. I think that will also take quite a bit of time and money, so I might also look at whether I can provide the service remotely, for example, if it cannot be provided remotely. If we cannot solve it ourselves, I would find it valuable if an application engineer could come.
AE integration checks	5,5	I don't think this is really necessary if we get the trainings. Although it could be valuable for the risky projects, so that we can get a supervisor who can do the final check.
Software updates	7	Of course, there is always room for improvement in the system with software. Well, I think if you get a notification that you can download it and improve your system, I certainly think that it would be valuable.
Remote support	10	I just think that that is very interesting for you, also in the field of. Yes, how people look at you? It improves service quality and I also think it is an efficient way to simply provide the right service. And I think that it is especially important nowadays to have that efficiency.
Cloud monitoring	9	I think it is good that we can also see that platform, I think MG has that too, I thought, but I think it is also super interesting for us. Now of course we are doing that ourselves. I also think that it might be nice if we can make a connection there, because our system is of course also switched off from the generator to the electric motor. We also want to be able to read the information and maybe then it could be a team. If the system can also be integrated with, for example, other systems to be able to read things out, you will ultimately just have a program from which you could read the entire thing.

Advising trough monitoring	9	That could certainly be interesting and also what Victron does, for example. We often get the household bank batteries from there. For example, it also has an app to read everything with NSL Bluetooth. That is also interesting if, for example, you can just read that for people who simply sail with a diesel engine, but who do have a household bank, an example of LBM. That you can simply read that from there, so think indeed for people who only go to a household bank. so that separate app is interesting anyway and we might be interested if they could indeed make that connection.
Condition based maintenance	.	
AE advising for systems	9	It is very valuable for us if we can ask questions. Although this is mainly the case with new systems. Yes, and the new systems there are also limited, so now we actually have just about all the options.
Custom designs	7	I think that's a really nice thing to do too. Yes, we are busy now too. Indeed, with our own batteries they also come in our own colour scheme. I think that is also cool, also for the customer or for us, that you are simply seen as a total supplier and not just as an integral yes, someone who integrates it.
Partnering in R&D support	7,5	I think that this will make integration a lot better anyway. We start, we know your products even better. You then know the products of your customers even better, so you know better where the needs and areas for improvement lie. So I think that the integration can be a lot better. Yes, it will be better. Perhaps also the bit of capacity that we, for example, will perhaps have less access to, that with support from you it will run smoothly again.
BAAS	8,5	I think that could be interesting, so they also think because I quite. Yes, it turns out that the batteries are quite a high price. This would also allow you to spread the price, which could also make it interesting for customers to simply sail electrically, because they have lower initial investments.
Operate batteries via cloud	9	Ultimately, we want to be able to do this in principle from one system, because that just makes it a lot easier and clearer. But indeed, if they could make a link like that again, that would be great, so that's why I give it a nine

APPENDIX 7: TARGET GROUP F SERVICE VALUE

Service	**Rating**	**Quote** interviewee 8
Knowledge base	8	Depending on what's on, what information is supported there. If it's of course. Maybe not as soon as a help for us, but for the customers to prepare, but it's maybe a more and more thing to help our class or end customers. To get in touch with the products, then to support us, I think. Ohh for us it's not as important but I think for super it's important to. Gain more sales to enable the people to inform themselves they themselves, and maybe also. To solve some problems themselves, not to ask us for it.
Forum	10	That's kind of marketing in my opinion. Also, customers already using this product and are happy with that. I think that's the best reputation you can get for your product if people tell other people. It's a good product and you can use it. I think that the forum is maybe more valuable because it's pre stales.
Online academy	6	I think this is more interesting for end-users. This information is not new for me probably and for most system integrators, I think.
On-site training	10	I like practical trainings because you learn to know people and can exchange information. You are really forced to concentrate during these trainings. It's just different than online. In the invitation I will check the topic whether this is interesting for me or not. If not, I won't come.
Marketing support	1	Not interesting for us, we only need technical specifications. We have our own catalogue. The batteries are part of a system, therefore videos about the battery only are not interesting for us.
Recycling options	10	In Germany you are forced to take the batteries back at the end of their lifetime as a seller. So, this service would be very valuable for us.
Online/phone support	10	Quick help would be very valuable. Especially because this would delay our work less when we need support
AE refurbishing issues	10	That would be very good.
AE integration checks	10	That would be great, but my projects are too small for that
Software updates	5	If necessary, it is great. But when updating the software, we might also need to update the system. This requires extra work and sometimes the system does not function properly anymore. If the system is built older or mixed, then we he will mix the OR send. He can destroy an existing working solution against an updated solution where maybe somethings are not working anymore together and so. We are in the meantime a little bit more careful with updates.
Remote support	10	That's great. That's a that's also a ten for me because that's the best support. You don't have to ask for information's from the customer describing anything and she describes it in wrong words, or maybe in the language you are not really understanding very well. By looking in to the battery yourself

		you can fix the problem quicker as you have access to the right data.
Cloud monitoring	10	But it's a question how you how deep you are involved in in your system. If you are not deeply involved, it won't help. If you are deeply involved, it will help.
Advising trough monitoring	10	That's also a ten because that's very I think it's very important that we can warn the customer. To fight the battery is completely empty, for example, or maybe also if. Or said we or you will see that the lifetime will decreasing a lot. So, to inform the customer.
Condition based maintenance	0	
AE advising for systems	10	If I cannot figure things out myself, technical assistance is always very appreciated.
Custom designs	8	Private label battery is interesting for us because we see more and more people are asking for complete systems. Actually, we are mixing a lot of things, and this is. Ohh, we have also to speak a bit of a customer's always, that's. They could trust system even it's not supplied or produced by only one company. People like to read or say trust more, see systems which are branded all in the same name.
Partnering in R&D support	0	
BAAS	5	I think in Germany. People like to buy somethings and as a company. I think renting is more common. And not a good feeling in a way that night that a good feeling. I've no idea. I would say. I have no feeling for a perfect answer.
Operate batteries via cloud	10	If I can reach and say, OK, we see the problem and now we have to think about how to solve it, that's it's best. OK, wait 2 minutes. I will solve it directly. That is very valuable for me and my customers