LUND UNIVERSITY

LTH

FACULTY OF ENGINEERING

Servitization in the Construction Equipment Industry: What it takes to become a world leading service provider

MIOM05 Degree Project in Production Management

Advanced Level (A)

Axel Strömbäck & Henrik Wexell

Degree Project in Production Management

Supervisor: Bertil Nilsson
Examiner: Johan Marklund
Lund University, Faculty of Engineering
Ole Römers väg 1, Box 118
SE-221 00 Lund, Sweden
Pm.lth.se

Preface

Firstly, we would like to express our gratitude to Bertil Nilsson for being supportive and motivating us during tougher periods, and changing our mindset from “This thesis can be good” to “This thesis will be good”. Secondly, we would like to thank our supervisor at Volvo CE, David Carlson, for giving us the support needed to undertake and complete this work.

Thank you!

Axel Strömbäck & Henrik Wexell
June 2024, Lund

Abstract

Manufacturing companies increasingly adopt the strategy of adding services to their product offerings to differentiate themselves and overcome product commoditization. The bundling of products and services in complex product-service systems has the potential of high value creation and superior customer experiences. However, this shift requires business model innovation and acquisition of capabilities and resources that manufacturing firms traditionally lack.

The objective of this thesis is to analyze what an OEM within the construction equipment industry must offer to become a world leading service provider.

The data for this thesis has been collected through a combination of methods. Firstly, a literature review was conducted to establish an academic platform for the study. Then, a desktop study was performed to explore the existing service offerings of relevant firms. Finally, interviews were conducted with customers in the construction equipment industry, employees from firms in industries with a higher level of servitization, and employees at Volvo CE.

Based on the results from this study, becoming a leading service provider in the construction equipment industry requires managing and developing customer relationships, developing an independent service organization with the right skill sets, and offering services closely aligned to core competencies.

Key words: Servitization, construction equipment, business model, value proposition, value delivery, value capturing, service marketing, EaaS.

List of Abbreviations

OEM - Original Equipment Manufacturer

CE - Construction Equipment

B2B - Business to Business

B2C - Business to Consumer

EaaS - Equipment as a Service

PSS - Product Service System

IPSS - Industrial Production Service System

KAM - Key Account Manager

IoT - Internet of Things

IA - Intelligent Automation

AI - Artificial Intelligence

List of figures

Figures and tables without any reference are all developed by the author.

List of tables

Table of Contents

1. Introduction

Chapter 1 introduces the context and scope of the study. Firstly, a background of the firm's environment is outlined. Then the problem statement, delimitations, the study purpose, objective and research questions are covered. Lastly, the thesis disposition is presented.

1.1. Background

Manufacturers are experiencing intense market competition and commoditization of their product offerings, driving the search for new ways to differentiate. Embracing digitalization, and adding value to products through services, firms can find opportunities for competitive positioning and value creation. Augmenting the product offering with services aims not only at increasing the competitive success of the provider, but also enhancing customer experience and strengthening provider-customer relationships.

1.1.1. Market Context

The construction equipment industry lags behind other similar industries when it comes to digitalization and servitization. Initiatives observed years ago in industries like the trucking industry and the automotive industry are just now starting to take form in the construction equipment industry. This poses opportunities and challenges for the incumbent companies. On the one hand, the companies can draw insights from companies and markets that have already undergone the transformation. On the other hand, the changes in the market induces uncertainties, and opportunities for outside firms.

Simultaneously, trends are influencing the development of the construction equipment market. Volvo CE have identified four megatrends that will shape the future of the market. These include: electromobility, autonomy, digitalization and connectivity, and sustainability as a must-have. The conclusions drawn by Volvo CE from these trends are an increased

importance of ecosystem solutions, more customizable end-to-end solutions, and an increased importance of large customers. Overall, the companies in the construction equipment industry will need to develop a closer relation to the customer in order to deliver comprehensive solutions.

The technological development in the construction equipment market has reached maturity. For a premium segment company like Volvo CE, this entails challenges in delivering a differentiated offer to justify premium pricing of their products. Instead, companies in these types of markets are focusing on services to differentiate their offering and capture recurring revenue streams.

The market is exposed to economic trends. The construction equipment products are very expensive and require substantial and long term investments from the customers. In economic downturns, the decrease in revenue is significant for the incumbent companies.

Network participants

The construction equipment market is heterogenous, with customers varying in size and type of business. The segments have different needs, especially when it comes to the services. For example, an individual operator has no need for solutions optimizing interaction between machines, whereas this need is substantial for the other two customer segments. The construction site manager needs to manage interactions between parties with machines from a wide range of brands and suppliers.

The customer wants and needs are in transformation. What previously has been considered a differentiating offering will possibly become a qualifier in the developing landscape of the construction equipment industry. To secure a market leading position, it is key for any construction equipment company to learn and understand what will constitute a differentiated offering. This requires the suppliers to understand the customers and develop closer relations, especially within the premium segment.

The dealers have a strong position in the construction equipment market network. Traditionally, all sales in the construction equipment industry goes through the dealer network. Their responsibilities extend beyond the sale of

the machines and services as they also perform service related work. As a result, they have a substantial impact on the experience of the customer. This network structure also limits the OEM's knowledge of the market and their relationship to end-customers. But, the relationship between the OEM, the dealer and the customer is in transformation. The ambition for Volvo to deliver a wider offering includes providing a global and common brand experience according to current and future customer expectations. Volvo is doing this to complement and enhance the joint dealer and OEM offer, not to compete with dealer capabilities.

Competition

The market is relatively concentrated which can be explained by the high barriers to entry, and the mature market situation. The main OEMs in the premium segment of the market are Caterpillar, Komatsu and Volvo CE, all of whom have global presence. Caterpillar and Volvo CE are specifically targeting a premium segment of the market, whereas Komatsu has a broader range of products. All of the mentioned OEMs have started a transition to a service-based offering, and have all made approximately the same progression.

As the OEMs are transitioning to a service based software offering, competition from third party software companies is a new threat. These companies have no manufacturing capabilities, but have development and technological capabilities that the OEMs historically have lacked. However these third-party companies lack the deep knowledge of the machines and how to capture and interpret the data that they put out.

Internal challenges

Throughout Volvo CE's service department many initiatives are driven to expand the number and quality of services and how these are consumed. However there is a lack of a unified vision of how these services should be further developed. The consequence of this is that the service offering does not create a comprehensive solution to end-customers. Furthermore, Volvo CE also has a tradition of developing new products in-house. This has led to some services not reaching the market demands on quality and functionality due to a lack of expertise.

1.2. Problem Statement

Volvo Construction Equipment is embarking on a transformative journey, redefining how they serve their customers. Beyond traditional equipment sales, they are moving into offering tailored solutions for their customers. Their strategy and targets are clear, they want to take the lead in this journey and offer world-leading services that create superior customer value. However, this transition comes with challenges, including new competitors and different ways of doing business in the industry, and the capabilities for being service-driven are not those traditionally possessed by manufacturing companies. There is a risk that the investments to transition do not lead to the desired outcome. To mitigate this risk, Volvo CE must consider several strategic and tactical decisions and develop a deep understanding of the value mechanisms in the industry.

1.3. Delimitations

Even though the problem statement involves a full-scale business transformation on a global level, delimitations are made to make this study feasible based on our conditions and constraints. The first major delimitation is the focus on larger customers in the construction equipment industry. While the majority of the machines are owned by smaller firms, Volvo CE has identified that larger customers will play an increasingly important role in reaching strategic service goals. The second major delimitation is the national focus, excluding customers and companies in countries other than Sweden. The delimitation was made due to accessibility for contacting and the possibility to build on already existing strong relationships. The third major delimitation was focusing on high-level managers for the interviews. This decision was made due to high-level managers often being part of decision making when buying services and machines, as well as often having a comprehensive and forward looking strategic view on their operations. The fourth major delimitation involved focusing the leading industry group on manufacturing firms with similarities to Volvo CE. This delimitation was made because of the industry's impact on customer and firm behavior.

1.4. Purpose of Study

This thesis aims to complete the existing theory and Volvo CE's knowledge by applying relevant theory to empirical findings from the case study, to generate insights and recommendations. Although servitization is a widely researched field, the dynamic and ever-changing nature of the market continuously creates new environments and areas for application of relevant theory.

1.5. Objectives and Research Questions

The objective of this thesis is to analyze what value Volvo CE's service offering must deliver to reach their strategic goal of becoming a world leading service provider within the construction equipment industry. Based on the presented objective, two research questions are formulated:

RQ1: What values and solutions does a world leading service provider within the construction equipment industry offer?

RQ2: How does business model innovation relate to product-service system development in traditional manufacturing firms aiming for servitization?

1.6. Thesis Disposition

Chapter 1: Introduction
Covers the context and scope of the study. Firstly, a background of the firm's environment is outlined. Then the problem statement, delimitations, the study purpose, objective and research questions are covered. Lastly, the thesis disposition is presented.

Chapter 2: Methodology
Covers the methodology of the study. First, the research objective is presented. Then the methods used in the study are described, followed by an explanation of the case companies and roles. Lastly, the research quality is commented on.

Chapter 3: Theoretical background
Covers the existing literature and theoretical frameworks related to servitization for manufacturing firms. The theoretical background introduces theories needed to achieve the purpose of the study, such as business model innovation, service marketing and value creation theories. Finally, relevant trends are presented.

Chapter 4: Empirics
Covers the empirical results of the desktop study and the interviews with the customers, Volvo CE and leading industries. Lastly, tables summarizing the results from the interviews are presented.

Chapter 5: Analysis:
Covers the analysis of the functional analysis of the desktop study, and the qualitative analysis of the conducted interviews. Further, a comparison of the results between the three studied groups is presented.

Chapter 6: Conclusions:
Chapter 6 covers the insights that are generated from the theoretical platform and the findings from the empirical studies. Lastly answers to the research questions are provided. By providing insights and answers to the research questions, the overarching research objective is achieved.

Chapter 7: Discussions:
Covers the discussion of the quality and reliability of the research. The effects of the delimitations made are discussed and how an alternative method would affect the results. Lastly, a critical review of the thesis' contribution to the academy and suggestions of further research is presented.

2. Methodology

Chapter 2 covers theory and outlines the methodology of the study. First, the research objective is presented. Then the methods used in the study are described, followed by an explanation of the case companies and roles. Lastly, the research quality is commented on.

2.1. Research objective

This study adopts an exploratory methodology aimed at generating knowledge and understanding of a topic through the empirical investigation of real-life situations. The goal is to generate ideas and insights that contribute to a deeper comprehension of the topic in question. (Runeson & Höst, 2009, p. 135)

2.2. Methods

This study follows a case study approach to explore and understand a complex phenomenon, providing deep insights from the cases studied. Research on real-life phenomena often involves a balance between the level of control and degree of realism. The complexity and the non-deterministic nature of real-world phenomena make it difficult to understand and control the actual issue. Using a too controlled approach to solving real-world phenomena would diminish the degree of realism. Case studies are conducted in a real-life context and are therefore by definition contributing to a high degree of realism, but often with a lack of control. Therefore case studies may be used for explanatory studies. For a case study, both qualitative and quantitative data can be collected. Qualitative data ensures a richer and deeper understanding of the issue in focus, which is why this study will employ qualitative methods. (Runeson & Höst, 2009, pp. 135-136)

Qualitative data is collected through a desktop survey and interviews with selected case companies. Conclusions are drawn by analyzing the collected data in a qualitative comparison. (Lekvall & Wahlbin 2007, p. 215)

2.2.1. Overview

The research is conducted in four stages illustrated in Figure 1.

1. The initial stage involves conducting a literature review of relevant studies within the field of servitization. The aim of this literature study is to understand business model implications of servitization, identify frameworks for analyzing a service offering and explore trends impacting the servitization of manufacturing companies.

2. The second stage includes a desktop study, partially focused on understanding the current position of Volvo CE and its main competitors. This desktop study also includes information gathering from companies in leading industries to determine the wanted position for Volvo CE as a leading service provider.

3. The third stage involves interviewing customers, employees at Volvo CE, and companies in leading industries to further understand and confirm the wanted position by assessing the value customers expect and desire from a service provider.

4. Finally, the fourth stage involves a triangulation of the data collected from customers, Volvo CE and leading industries to qualitatively determine the wanted position. A qualitative comparison between the as-is position of Volvo CE and the wanted position is made as well.

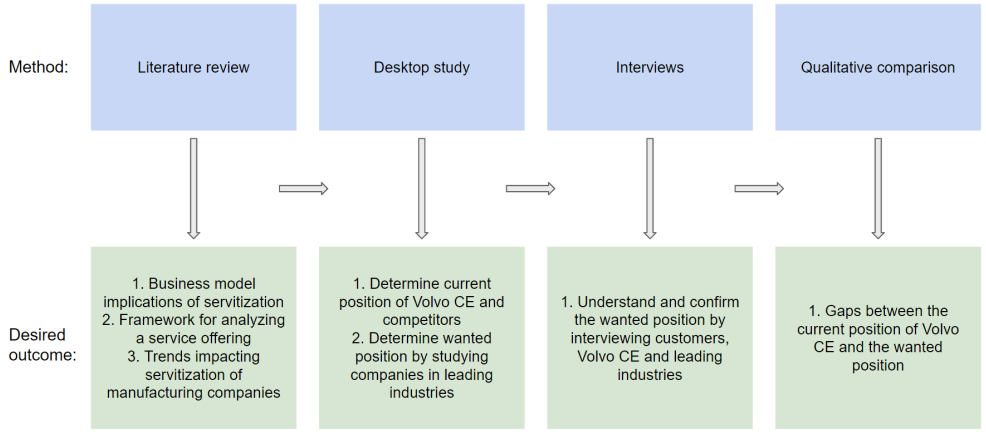

Figure 1: Overview of the research process

2.2.2. Motivation of Case Companies and Roles

Volvo CE

As the commissioner of this study, Volvo CE is included to gain an understanding of its offering and the views of the employees of the firm. The roles that were involved in the study were three key account managers. As Volvo CE sells all equipment through dealerships, they traditionally don't have any customer contact. The key account managers are Volvo CE's representatives to large customers who may purchase from several dealerships. As these roles work in close collaboration with customers, they have a good understanding of the customer's view on the offering.

While not employed by Volvo CE, an employee of Swecon, Volvo CE's dealer in Sweden, was interviewed. This person held the role of Head of Services and Complementary Products and was chosen to gain a deeper understanding of customer demands and the dealer's opinion on the service offering. Continuing in this thesis, unless explicitly distinguished, the Volvo CE service organization also refers to the dealers, as they are an integral part of the organization.

Construction equipment industry competitors
From the construction equipment industry, Volvo CE's two main competitors were chosen to be studied in the desktop study to compare the functional service offering between the three companies.

Customers
In this study, the three largest construction companies in Sweden, PEAB, NCC and Skanska were interviewed for their opinions on Volvo CE's service offering. Additionally, Bellman Group, a large subcontractor, active in Sweden was also interviewed. The roles interviewed from these companies were Machine Manager, Head of Machines and Technical Director, one held the role of Lead Buyer.

The customers differed in the nature of their business and the number of machines they owned. NCC owned no machines at all while the PEAB machine manager was responsible for a fleet of 3000 machines. Skanska Industrial Solutions worked in their own quarries and Bellman Group is in the subcontracting industry.

Companies in leading industries
Leading industries are defined by a majority of the incumbent firms offering services that are more advanced than those in the construction equipment industry. The industries consist of heavy manufacturing industries that have similar characteristics to the construction equipment industry. The leading industries that are studied in this report are the mining, truck and manufacturing industries. Within these industries, companies that are deemed to have a highly competitive service offering and which service revenues account for a larger portion of the company's total revenue are chosen.

From the mining industry, Sandvik Rock Processing and Sandvik Mining and Rock Technology were chosen. Additionally, Epiroc was initially studied, but was left out due to not being available for an interview. From Sandvik two employees who worked in service development were interviewed, to gain an understanding of what factors constituted their success in servitization.

From the trucks industry, Volvo Trucks was chosen and from the manufacturing industry, ABB Robotics was chosen. From Volvo Trucks, a Service Offer Director was interviewed. The representative from ABB held the role of Digital Lead. Interviewing roles who had a thorough understanding of the leading industries service offering helped understand and confirm factors of the wanted position for Volvo CE.

2.2.3. Desktop Study

For the desktop study, the service offering from case companies from both the construction equipment industry and leading industries were studied. The study was done through mapping the services offered on each company's website. The companies and their industry studied in the desktop study are presented in Table 1.

Table 1: Companies included in the desktop study

Company	**Industry**
Volvo CE	Construction Equipment
Komatsu	Construction Equipment
Caterpillar	Construction Equipment
Sandvik Rock Processing	Mining and Infrastructure
Sandvik Mining and Rock Technology	Mining and Quarry
Volvo Trucks	Truck
ABB Robotics	Manufacturing

2.2.4. Interviews

Interviews were held with representatives from Volvo CE, companies in leading industries and customers of the construction equipment industry, displayed in Table 2. The interviews were held in a semi-structured style, covering previously defined areas of interest but allowing improvisation

when new areas of interest were discovered. The interview guide which the interviews are structured around is available in *Appendix 1*.

Table 2: Interview objects with their companies, roles and date

Company	**Role**	**Date**
Swecon	Head of Services and Complementary Products	2024-03-27
Volvo CE	Key Account Manager France	2024-03-19
Volvo CE	Key Account Manager Sweden	2024-04-16
Sandvik Rock Processing	Performance and Innovation Excellence Director	2024-03-22
Sandvik Mining and Rock Technology	Vice President Service Operations	2024-04-29
Volvo Trucks	Service Offer Director	2024-04-17
ABB Robotics	Digital Lead	2024-03-04
Skanska Civil	Head of Machines for Road and Construction	2024-04-22
Skanska Industrial Solutions	Technical Director and Interim Machine Director	2024-05-17
NCC	Lead Buyer	2024-04-16
PEAB	Machine Manager	2024-05-14
Bellman Group	Machine Manager	2024-05-10

2.2.5. Triangulation

For the case study, three different types of data sources are used in order to limit the effects of interpretation from a single source and to allow for triangulation analysis of the results. Using different types of data sources, and taking their individual viewpoints in account, conclusions can be made by studying the differences between sources. In addition to data triangulation, multiple data collection methods and theories are applied for methodological and theory triangulation. (Runeson & Höst, 2009)

2.3. Research Quality

The quality of the research can be evaluated through the three quality criteria: replicability, reliability and validity. These three aspects have been actively worked on in order to maintain the highest possible research quality based on existing conditions. The replicability of the study is increased by clearly presenting the methodology and providing interview guides which were used in the interviews. By recording the interviews and validating the result through data triangulation, the aspect of reliability is enhanced. Validity is increased by discussing the used models and results with both the academic supervisor and the supervisor in Volvo CE.

When performing an exploratory study with a case study methodology, the width of the cases studied affect the result. In this research, factors such as the size, industry, and geographical and cultural context of the companies studied should be considered. (Lekvall & Wahlbin, 2007)

3. Theoretical Background

Chapter 3 covers the existing literature and theoretical frameworks related to servitization for manufacturing firms. The theoretical background introduces theories needed to achieve the purpose of the study, such as business model innovation, service marketing and value creation theories. Finally, relevant trends are presented.

3.1. Servitization

Servitization, first coined in 1988, was initially described as a package of customer focussed combinations of goods and services to add value to core product offerings. (Vandermerwe & Rada, 1988). Later researchers introduced the concept of combined services and products as a product-service system, defining servitization as “moving from selling products and basic services to selling product-service systems.” (Rabetino et al., 2018) Since then, servitization has been a widely used strategy for manufacturing firms, aimed at delivering greater value by integrating services with their traditional product offerings, also generating new opportunities for value creation outside the core manufacturing segments. Furthermore, the servitization transformation has been accelerated by digitalization. Advancing and converging technologies such as AI, telematics, and robotics create new service business opportunities for manufacturing firms and have the ability to transform individual companies and entire industries. (Simonsson & Agarwal, 2021)

3.2. Business Model Innovation

Servitization for manufacturing firms can involve different strategies, but finding the path to a successfully servitized offering is challenging and does not follow a one-size-fits-all model. Additionally, the abilities and competencies required to offer services and products in a unified system are not those traditionally possessed by manufacturing firms. Transitioning successfully towards a service-centric offering can mean innovating all three aspects of the business model: *value proposition, value delivery* and *value*

capturing illustrated in Figure 2. Value proposition involves what value the bundled services and products offer to the customer. Value delivery involves how the organization and resources are structured to deliver that value, and value capturing concerns how the offered value is captured and returned to the company. Strategies to innovate the three aspects of the business model can be pursued simultaneously. Changes in one of the aspects can affect the others. How value proposition, value delivery, and value capture relates to servitization will be further elaborated in this chapter.

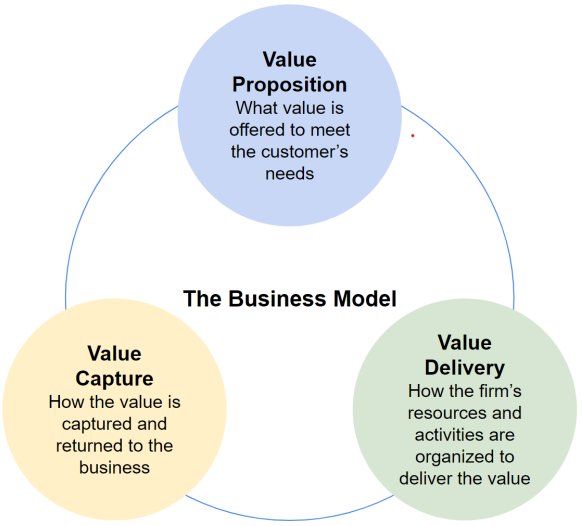

Figure 2: The business model

3.2.1. Value Proposition

The value proposition "describes the benefits customers can expect from your products and services". (Osterwalder et al., 2014, p.6) In a servitization context, the value proposition can be viewed as the offering of bundled services and products that constitutes the product-service system. To be successful, firms must understand the customer's perspective and how to create customer value with its service offering. Innovating the value proposition in a servitization context entails increasing the emphasis on services in the product-service bundle illustrated in Figure 3. Questions that arise for the firms can be: *What are the needs and pain points of the customer? What service offering can fulfill these needs? How can services be bundled into attractive customer offerings to maximize customer value?*

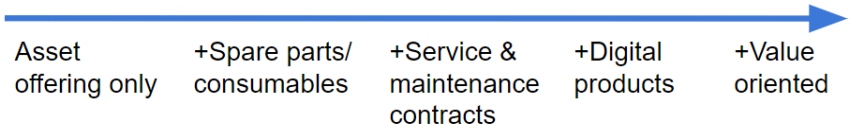

Figure 3: Gradual increase of services in the value proposition (Deloitte, 2021)

The two theories: elements of value and value-in-use and value-in-exchange will be used to understand the mechanisms of value proposition.

Elements of Value

What the customer values in the value proposition can be understood by examining elements of value. The theory aims to be a tool for understanding the needs and wants of the customers and use those insights to craft successful value propositions. However, the concept of value is complex and difficult to define, and the characteristics of what customers value differs in a B2B context compared to a B2C context. A pyramid consisting of 40 elements of value is proposed to illustrate the values that can be offered through a value proposition in a B2B market context, presented in Figure 4. (Almquist et al., 2018)

The value elements can be categorized as *table stakes, functional values, ease of doing business, individual values,* and *inspirational values,* ranging from objective to subjective. The categories can be described as (Almquist et al., 2018):

- Table stakes are prerequisites for doing business and objective in nature. The elements are not a basis for differentiation and include for example complying with regulations and meeting ethical standards.
- Functional values are also objective and refer to the customer's economic or product performance needs. These values have traditionally been a priority for B2B businesses and are still the main focus for many firms.

- Ease of doing business value: Both objective and subjective sets of elements are included in this category. These focus on making it easier for the customer to do their business.
- Individual value: This category includes additional subjective elements on a personal level, which can involve highly emotional values.
- Inspirational value: These elements are high level and linked to the purpose of the customer.

As manufacturing industries are gradually commoditized, customers increasingly prioritize subjective elements in providers' offerings and objective elements are becoming table stakes. Understanding the full range of rational and emotional customer priorities driving purchases in an industry is critical to avoid being stuck with a commoditized product or service. By identifying and improving performance in the value elements that are important for the customers, firms can gain competitive advantage without extensive product or service modifications. Moreover, analyzing the performance in the value elements can guide companies in prioritizing efforts when resources are scarce. This customer-oriented perspective contrasts an internally focused operational approach. When B2B companies conduct a full value element analysis they often uncover a gap between self-assessments and customer perceptions. (Almquist et al., 2018)

Almquist et al. (2018) presents a case showing how the tool can be used to analyze customer preferences and how that can lead to crafting successful value propositions. The case focuses on the OEM John Deere, which operates in the agricultural market. The firm has long excelled at the objective elements; *expertise*, *configurability* and *reputational assurance* through the quality of its products. Using the tool on their customers, the firm could identify a commercial potential of expanding to include the value elements productivity and information by investing in remote diagnostics and an app which provides soil condition and weather data.

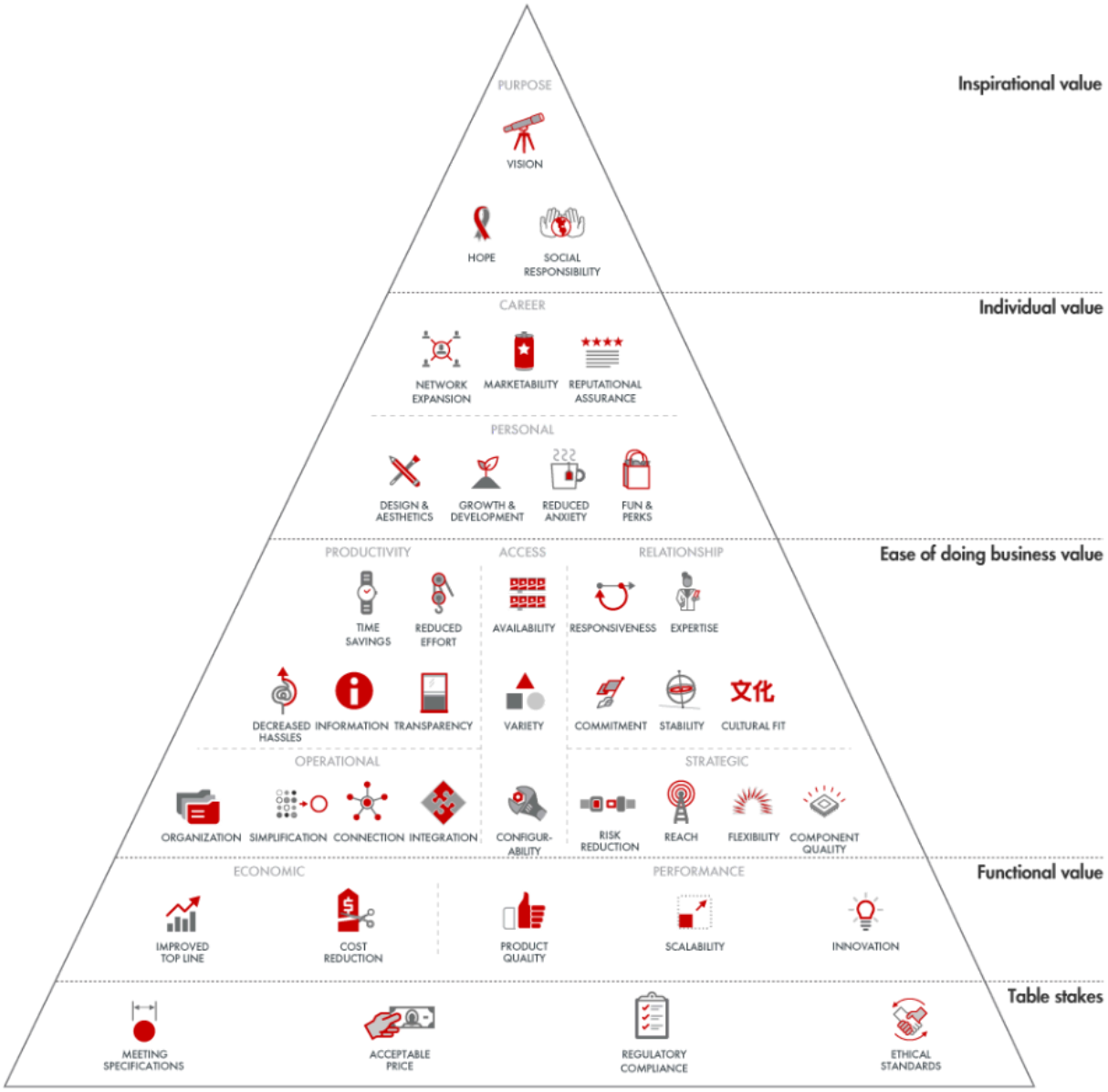

Figure 4 - The pyramid of B2B value elements (Almquist et al., 2018)

Value-in-Exchange and Value-in-Use

The value offered in value propositions can be categorized in two main ways: value-in-exchange and value-in-use. (Kowalkowski, 2011)

Value-in-exchange is the transactional value of the offer, and refers to the negotiated evaluation of the product or service. This value is objective and based on measurable quality standards. Value-in-exchange is a limited form of value compared to value-in-use which refers to the customer's subjective experience of the value created during the interaction with the provider or the consumption of a product or service. This value depends on how effectively the product or service meets the customer's needs and desired outcomes and focuses on the co-creation of value between the provider and the customer.

In industries where the focus traditionally has been on selling products, a goods-dominant logic is often present. The traditional goods-dominant view puts the emphasis on the transactional value-in-exchange, and therefore risks missing opportunities for higher levels of value creation. A service-dominant logic, on the other hand, balances value-in-exchange and value-in-use based on several key aspects, creating greater opportunities for crafting superior value propositions.

However, for firms operating in a goods-dominant environment, creating value propositions that puts emphasis on long-term value-in-use can be challenging. The value-in-use is simply not considered by the evaluators. Additionally, when customers are short-sighted and reluctant to engage in future value co-creation opportunities with the provider, focusing on immediate value-in-exchange might be more effective than value-in-use. A service-focused company acting in this environment may need to adapt its marketing strategy, adjusting how it formulates value propositions and designs its offering, recognizing the customer's preference of value-in-exchange.

Kowalkowski proposes four principles when crafting a value proposition to facilitate an understanding of the relative focus on value-in-use and

value-in-exchange, and identifies managerial implications of the principles. The principles and managerial implications are presented in Table 3.

Table 3: Principles for crafting value propositions and their managerial implications (Kowalkoski, 2011)

Principle	**Implications**
"Principle 1: Value propositions with an emphasis on value-in-use are more likely to address the needs of multiple evaluators than those with an emphasis on value-in-exchange"	Identify the evaluators in the buying center and their role as user, payer, buyer, and so on. Maintain information about the political landscape in the customer's organization generally and buying center specifically, to understand customer priorities. Engage in communication and dialogue, particularly with key evaluators
"Principle 2: The relative emphasis on value-in-use and value-in-exchange will normally change over time during the sales process"	Recognise dynamic procurement patterns and the extent of changes in "objectification" of value-in-exchange during different stages in the sales process. Diagnose the steps in the sales process that are aimed at the particular customer and type of offering, and identify the evaluators that are involved in each. Be alert and ready to respond quickly
"Principle 3: The discrepancy between value-in-exchange and value-in-use is lower for offerings in which value-in-exchange manifests itself as continuous financial feedback linked to value creation for customers than for other types of offerings"	Though the potential value of performance-based agreements can be easier to communicate than traditional offerings, operational and financial risks are transferred to the provider, so the benefits and risks for both actors must be kept in mind when crafting a value proposition. Because new offerings are likely to demand specialised new competences, a proper alignment should be achieved between a value proposition and the resources available
"Principle 4: The closer the relationship between customer and provider, the more the emphasis of the value proposition can be placed on value-in-use"	Segment customers based on the closeness of the relationship; review the value emphasis in current offerings, and determine the potential for shifting it towards value-in-use emphasis, thereby increasing customers' inclination to engage in the relationship. Embed systematic listening skills in the sales process and develop the ability to adapt to customers. Identify the extent to which a customer is willing to adapt its processes and routines to the provider

3.2.2. Value Capture

Transitioning towards a more service-oriented business model can entail a change in the *value capturing* mechanisms. A shift from one-time transactional sales of physical assets, to recurring revenue streams, can increase the total earnings for a manufacturer. Additionally, the OEMs' customers are increasingly demanding greater flexibility and want to move away from fixed long-term contracts. Customers paying for usage would have more cost control and stable cash flow through the business cycles as the expenditure is proportional to revenue streams. The questions that might arise for the firms can be: *How do we capture as much value from the value proposition as possible? How do my customers wish to pay for the value created?* (Deloitte, 2021)

The different value capturing models can be positioned on a scale representing a gradual transfer of risk and responsibility towards the provider, as illustrated in Figure 5. At one end of the scale is the transactional one-time sale of products, moving up the scale, the provider can offer its proposition through a subscription based model, where the revenue streams are time-dependent. Beyond this, the company can base the business model on usage, pay-per-use models. One recurring example in the literature is Rolls Royce's power-by-the hour model, where the customers pay for the hours the airline engine is running. At the other end of the spectrum we have the outcome based models, based on the actual output of the offering, for example it can be based on KPIs in the customer's operations. (Deloitte, 2021)

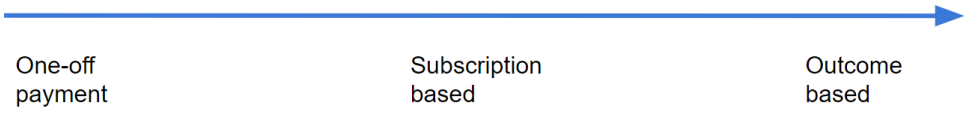

Figure 5: Gradual transfer of risk in value capturing (Deloitte, 2021)

Risk Perspective on Value

Through this absorption of risk, potential for value creation arises, as well as an increased potential for competitive advantage (Harvard Business Review Analytic Services, 2022, p. 4). Maintaining the machine and ensuring optimal condition is closely aligned with the core competencies of the provider, who can easily get access to machine data and has significant knowledge about the machines, this can be executed more efficiently, resulting in cost efficiency in the system. Furthermore, integrating more of the customer's operations in the offering intensifies the relationship between the provider and the customer, opening opportunities for enhanced customer loyalty. (Reim et al., 2024 p. 941)

This change also creates incentives for the provider to prolong the lifetime of the asset and to keep it in optimal condition, since they bear the financial risk of keeping it functional. This has clear environmental benefits. The outcome-based model offers the highest potential for the provider to create value and gain competitive advantage. However, absorbing risk alone does not guarantee success; it only increases the potential. Success is achieved when paired with a strong *value proposition* and *value delivery*.

3.2.3. Value Delivery

In a servitization context, *value delivery* refers to how the resources and activities are organized in order to deliver the proposed value through services. To successfully capitalize on identified service opportunities, firms must deliver a focused and concise service offering that can be clearly communicated and is well aligned with the company's capabilities and limitations. Comparing two firms that identified the same 10 billion dollar service opportunity in their market, one growing the service business with 26 percent annually and the other growing 2,5 percent annually, shed light on the importance of a clear service offering. The successful firm focused on a small service offering based on its capabilities, opportunities and limitations, and recognized the need of core service providers with specialized expertise. In contrast the failing firm offered a wide range of services and built the capabilities in house. (Benjamin et al., 2019). The strategy of more services is not asserted as a solution for the weaknesses of

pure-product firms. (Kowalkowski et al., 2017) Questions that might arise for a firm can be: *How do we structure the organization to deliver the services? Do we develop capabilities internally or externally? How do we interact with the customer? Do we have a clear service offering?*

Service Marketing Model

Connected to the delivery of product and services is the ability to market efficiently. The external marketing relation between the company and the customer has traditionally been in focus for the marketing of goods, and often modeled with the 4Ps (product, price, promotion, and place). However, the marketing of services adds complexity, and two more dimensions, internal marketing and interactive marketing, is therefore suggested as illustrated in Figure 6. Internal marketing involves viewing the service employees as internal customers aligning them with the company and providing them with appropriate training, support and motivation to serve external customers. This also includes convincing them about the value the service offers. Interactive marketing concerns how the customer perceives the quality of the interaction with the provider, and the importance of making good impressions. In contrast to selling products, the quality of the service marketing depends on the service deliverer and his or her ability to perform the service. (Kotler & Armstrong, 2017; Parasuraman & Grewal, 2000)

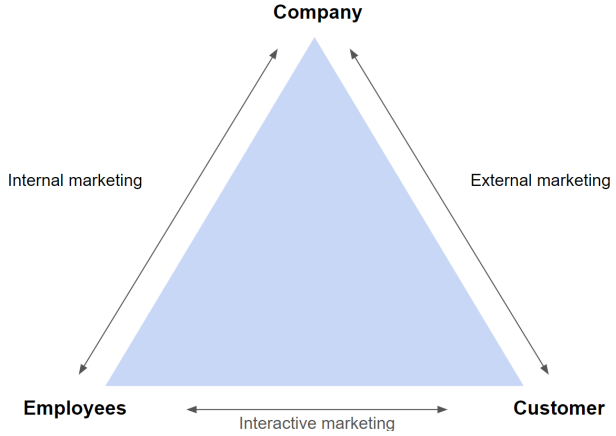

Figure 6: Service marketing model (Kotler & Armstrong, 2017)

3.2.4. Equipment-as-a-Service

Equipment-as-a-service, or EaaS, is a concept connecting the two business model aspects of value capturing and value proposition. To provide EaaS successfully the provider must succeed in providing an attractive value proposition and capturing that value. Hence, pure EaaS requires an outcome based business model and a complete value oriented service offering as illustrated in Figure 7. (Deloitte, 2021)

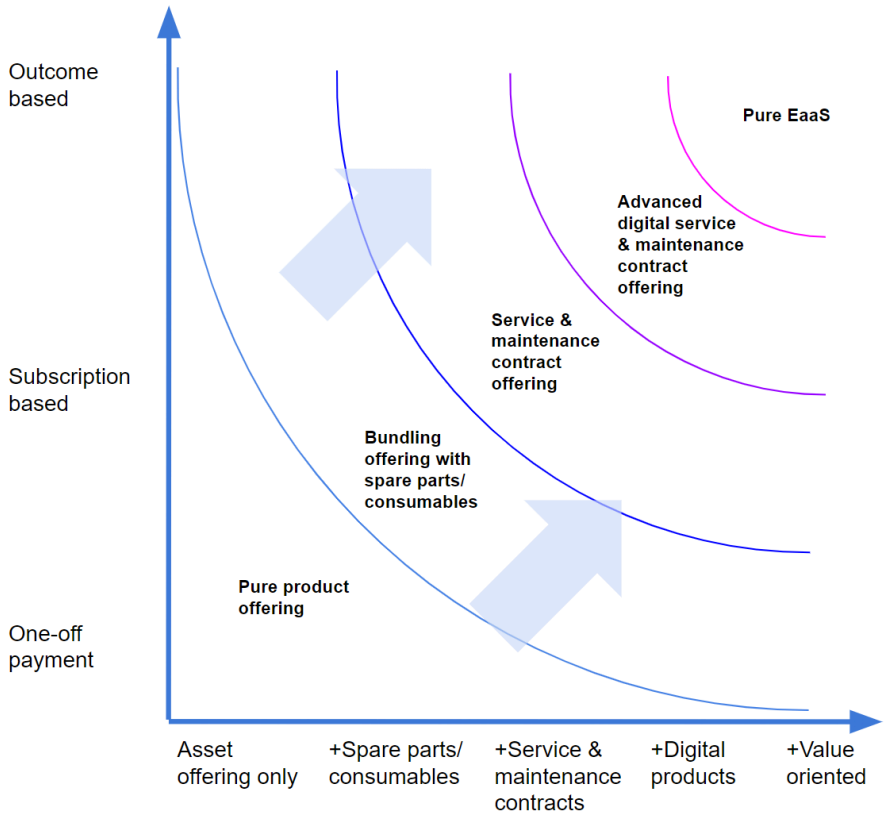

Figure 7: EaaS as a combination of value capturing and value proposition (Deloitte, 2021)

3.3. Service Paradox

Manufacturing companies adding services to their offering, and transitioning from a product-centric orientation to a service-centric orientation, often fall short of meeting the expected financial success.

Despite substantial investments, increased costs, and an expanded service offering, the corresponding revenue streams are not generated as expected. This discrepancy is called the service paradox (Gebauer et al., 2005). Instead of transitioning along the first line in Figure 8 generating revenues of over 35 percent, some manufacturing firms end up in the service paradox, transitioning along the second line. Manufacturing firms often have strong engineering capabilities with deep knowledge in innovating and developing new technologies, but often lack distinctive service capabilities. The reason for companies ending up in the service paradox can be connected to the inability to establish a market oriented and explicit service development process, not focusing on crafting successful value propositions meeting customer needs, and being unable to create relationships and manage interactions with customers. (Friedli et al., 2021 p. 11)

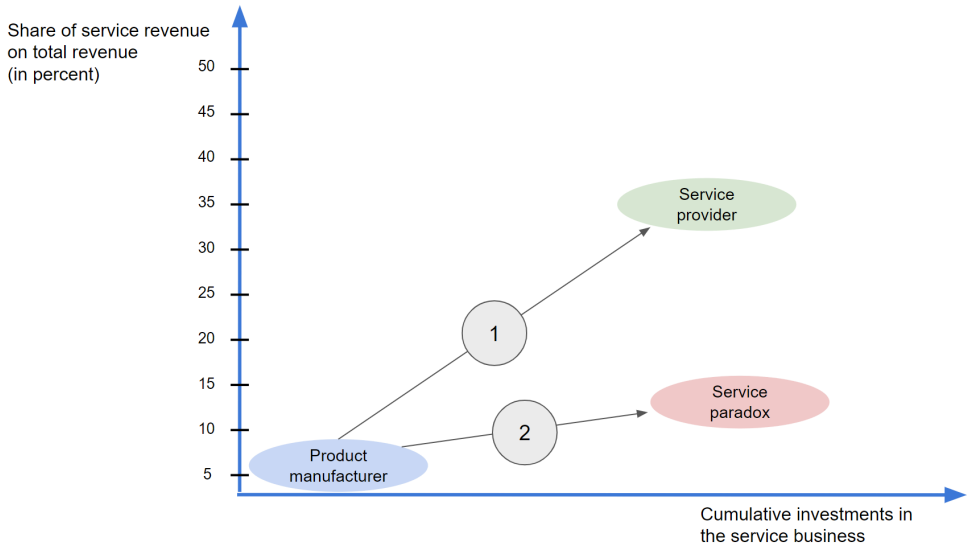

Figure 8: Illustration of the Service paradox (Gebauer et al., 2005)

3.4. PSS

A Product-Service System (PSS) can be defined as a system consisting of products (often defined as tangible products (Yip, et al., 2012)) and intangible services designed to fulfill a customer's needs. (Tukker, 2004). While there are many classifications of PSS-types and how they deliver value to customers, most PSS-types involve a scale ranging from pure product to pure service. In a paper on PSS-types Tukker (2004) proposes

three main categories of PSS. These categories are product-oriented, use-oriented and result-oriented services. In accordance with previous literature, the reliance on the product as the value-driver in Tukker's three categories decreases as services go from product-oriented to result-oriented.

Types of PSS

While most previous PSS-theory has had a focus on its environmental benefits, Neely takes a commercial perspective on PSS. Building on previous research and Tukker's three different types of PSS, Neely adds two new categories, integration-oriented and service-oriented PSS. (Neely, 2008)

Integration oriented

Integration-oriented PSS involves a company going downstream and adding services through vertical integration. In an integration-oriented PSS the ownership of the product is transferred to the customer but the supplier moves into new business areas, like financial, transportation or consulting services.

Product oriented

Product-oriented PSS involves services directly related to the product like maintenance, support or installation services. In product-oriented PSS the ownership of the product is transferred to the customer and services that are integral to the product are provided.

Service oriented

Service-oriented PSS involves services that are incorporated into the product like health monitoring or vehicle health management services. In service-oriented PSS ownership of the product is transferred to the customer with the services added as an essential part of the offering.

Use oriented

In use-oriented PSS the focus is shifted towards the service which is delivered through the product. The ownership of the product now often stays with the provider and is made available to customers through different non-ownership solutions like leasing or renting.

Result oriented
Result-oriented PSS replaces the individually owned product with a service, like pay-per-service. In result-oriented PSS the provider and customer agree on a result where there is no predetermined product involved.

IPSS
Industrial product-service systems, or IPSS, are PSS in an industrial setting. They are characterized by only applying to Business-to-Business situations where the product and service are integrated through the planning, development and use. By offering services throughout the life-cycle of a product, the supplier is linked to the customer which results in advantages for all stakeholders. Utilizing the suppliers' expertise in their equipment and outsourcing non-core tasks allows the customer to concentrate on core activities, resulting in enhanced uptime and productivity. For the supplier, benefits come from an extended relationship with the customer throughout the product life-cycle and increased revenue from additional service sales. (Meier, et al., 2010)

Smart PSS
Due to the advancement in information and communication technologies like IoT, traditional PSS is evolving into an area called Smart PSS. In Smart PSS, connected products are integrated with digital services to deliver a comprehensive solution to customers. Building on advancing technologies, remote-first service options are growing in popularity, reducing the resources needed to perform on-site diagnostics or services. The technology-enabled trend has also seen increased customer satisfaction from quicker resolution of issues. (Chowdhury et. al, 2018; Brink et al., 2022)

3.5. Order Qualifiers and Order Winners

The criteria and aspects that are important to customers when purchasing services can be categorized into order winners and order qualifiers. Understanding and effectively providing both order winners and qualifiers is a strategic key to making a service offering competitive in the market (Hill & Hill, 2018). An order qualifier creates the opportunity to compete in the market, and failing to deliver these will make the customer reject the

company's offer. Order winners on the other hand, are the criteria that enable winning orders against competitors who also are meeting the requirements to compete in the market. Order winners in other words, serve as the basis for competition, while order qualifiers are solely about meeting requirements. However, both order qualifiers and winners are essential to be successful in the market. Analyzing order winners and order qualifiers can be useful when reviewing performance and finding improvements to meet the wanted position of the company.

3.6. Kano's Model

Understanding the customer's valuation of individual aspects in the proposition is essential to understand what part of the offering constitutes qualifiers and order winners. Kano's model of customer satisfaction provides a framework to identify how the customer's view on different qualities relate to their satisfaction and expectations. These three qualities are 'must-be' qualities, attractive qualities and one-dimensional qualities. (Matzler & Hinterhuber, 1998)

'Must-be' qualities
The 'must-be' qualities are necessities that the customer expects. Failure to meet these results in significant dissatisfaction of the customer. However, meeting these qualities does not enhance the customers satisfaction as they are considered standard expectations. The 'must-be' qualities are therefore closely related to the order qualifiers the supplier must meet.

Attractive qualities
Attractive qualities are features that exceed the customers expectations and significantly increase their satisfaction. Although not meeting these qualities does not cause dissatisfaction, they play a crucial role in differentiating the service or product and form a basis for competitive advantage. This aligns with the view of order-winners as a basis for competition.

One-dimensional qualities
The one-dimensional qualities are directly related to customer satisfaction. These qualities are explicit needs that the customers identify and request to

be solved. The better these needs are met, the more satisfied the customer is, and not meeting them result in dissatisfaction. One-dimensional qualities can therefore contribute to both order qualifying and winning aspects.

3.7. Trends

Industry 4.0 has been defined as a “new industrial maturity stage based on the connectivity provided by the Industrial Internet of Things (IIoT) and the use of several digital technologies such as cloud computing, big data and artificial intelligence” (Benitez et al., 2020). New advanced digital technologies play a crucial role in facilitating the shift towards a service-based business model in industrial companies. Three Industry 4.0 technologies have been highlighted due to their disruptive impact on servitization in B2B markets. These technologies are IoT, Intelligent automation and digital platforms. (Kowalkowski et al. 2024)

IoT allows for capture and transmission of data from physical products through sensors. Therefore IoT has been identified as a key enabler for OEMs to implement their service transformation strategy. The technology plays a foundational role in enabling development of digital and advanced services, which builds upon the necessary data collected from IoT technologies. (Ardolino et al. 2017)

Intelligent automation (IA) and artificial intelligence (AI) are technologies affecting almost every industry, including B2B firms. In a service context, IA includes automation technologies that operate, optimize and expand the service processes. Intelligent automation does not only allow firms to innovate their current service offering into smart, automated systems, it also opens to delivering automation services and autonomous machines. However, it is not believed that the companies providing the services will produce the technology required in-house. Instead, the technology will be acquired from global suppliers with the R&D capabilities needed to deliver high-quality and cost-effective solutions. (Wirtz et al., 2018)

Digital platforms is the third technology Kowalkowski et al. (2024) identifies as a signature technology for service innovation. The digital

platform ties together multiple actors to interact which unlocks new possibilities for companies to create value in a network. The nature of how digital platforms tie companies together can be divided into two distinct types, business and technology platforms (Rangaswamy et al., 2020). In business platforms the providing company facilitates a market and seeks to match buyers with sellers of services and, in technology platforms, the platform company itself provides the service offering. Companies striving to become platforms often fail with about three percent of strategies succeeding, this failure rate is even higher in B2B firms where companies are more hesitant to share information and become dependent on another company.

4. Empirical results

Chapter 4 covers the empirical results of the desktop study and the interviews with the customers, Volvo CE and leading industries. Lastly, tables summarizing the results from the interviews are presented.

4.1. Overview

In this chapter the findings of the empirical case study are presented, which can be divided into two parts. The first part includes results from the research of the current situation of the market and the position of the research objectives within the industry. The second part presents findings of the value-based analysis which was conducted through interviews, and illustrates both the view of the leading companies in highly servitized industries, but also the view of the customers in the construction industry.

4.2. Desktop Study Results

The service offering of each company is studied in a desktop survey. The case studies serve the purpose of mapping the functional aspects of offering, i.e, what services are available for purchase from each company.

Volvo CE
Volvo CE's service offering spans over six overarching categories including *Uptime Services*, *Safety*, *Fuel efficiency*, *Productivity*, *New life*, and *Financial*.

The *Uptime Services* include services to minimize machine downtime and maintain the customers' machines in optimum condition. These services can be purchased individually or bundled together in *Volvo Service Contracts*, depending on how the local dealer chooses to sell the services. The service contracts are available in three tiers, all of which include machine monitoring, preventive maintenance, and service planning. The main difference between the tiers is the inclusion of repairs. The lowest tier includes no repairs. The second level includes repairs for some components

of the machines. For the highest level of service contract, repairs for the complete machine is included. The prices for the parts are agreed upon in the contract, ensuring cost control for the customer.

The *Safety* category includes services for preventing machine theft and enhancing worksite safety. The worksite safety services include a speed limiter and a camera-enabled visibility solution to facilitate rotations and movements in confined working areas.

Fuel efficiency includes services for cutting fuel consumption improving the profitability and carbon footprint of the customer. Additionally, utilization reports, site simulations and operator training is available to improve productivity and minimize misuse of the machines leading to lower fuel consumption and longer machine lifetime.

The *Productivity* category of services includes tools designed to enhance the efficiency of customer operations. Some of the solutions target machines, aiming to increase the efficiency and productivity of utilization. Additionally, productivity services include services for fleets and sites, offering optimization of processes and improvements in project management.

New life solutions offer rebuild and remanufacturing services to revitalize machines and extend the life span.

The *Financial* category of services includes insurances, as well as on- and off-balance financing solutions. Thus, the customer has the option to finance the machine through a payment plan or lease it for a monthly fee, with the possibility of including insurance and a customer service agreement in a full solution.

Komatsu

The Komatsu service offering is divided into the two overarching categories: *services and support* and *smart construction*. The first category is connected to the health, utilization and optimization of the physical

machines. The latter is software focused, and includes solutions with the advanced technologies for smarter construction operations.

The *services and support* category includes a wide range of service offerings. The financing solutions provide customers opportunities to lease or set up payment plans for purchases of machines and components, offering flexibility through custom-tailored financing to align with customer objectives. Additionally, Komatsu offers maintenance and repair, warranty and component exchange programs to ensure optimal health of the machines. Equipment monitoring and analysis services offer opportunities to maximize productivity and performance by utilizing health data. Fleet and site optimization services ensuring that customers have an appropriate number and types of machines in their fleet for their needs are also available in the offering.

The *smart construction* category of services embrace new technology and innovation in the offering, which focuses on data, reporting and remote capabilities. The service offering includes a wide range of fleet and site solutions.

These include services for jobsite mapping, which can be generated either from drone mapping or with Komatsu's 3D map generation service, which converts 2D plans into advanced 3D maps. Additionally, solutions for jobsite activity, production tracking, and measuring of stockpile quantity are offered. The fleet solution is brand agnostic and includes functionalities for optimization and production tracking based on collected data. Komatsu also offers solutions for remote working, enabling off-site personnel to connect to the machines, send files, view what the operator is seeing, and offer support. Additionally, forecasting and insights for real versus budgeted costs are provided. This service can collect and compile information from different fleets and sites. The *smart construction* category also includes services targeting the machines, offering the possibility to upgrade old machines with sufficient technology to leverage 3D data and load data. Furthermore, Komatsu offers machine automation to facilitate the operator's work, improve quality and increase efficiency.

Caterpillar
Caterpillar (CAT) offers services in the areas *Finance, Technology, Safety, Maintenance* and *Training*. CAT's financial services include different financing solutions like leasing the machines, payment solutions while owning the machine and also CAT credit card, usable for CAT parts and services. *Financial* services also include warranty options which protect customers from unexpected repair costs. Through the CAT Customer Value Agreement bundle, CAT ensures the availability and delivery of parts, monitoring of machine hours, and a preventative maintenance plan.

CAT's *Technology services* include productivity services for machine operators to bigger fleets. For individual operators, CAT offers services which aim to increase productivity and make life easier. This can for example be CAT Payload which helps truck drivers and loaders know how much is loaded in the truck. CAT *Technology* also includes a remote control service, allowing operators to use machines from miles away. Additionally, *Technology* services include vehicle monitoring services that track utilization and health of machines.

Within *Safety* services, CAT offers multiple consulting and training services to help supervisors run a safe site. *Safety* services also offer sensors and cameras mounted on equipment to inform operators of people around their machine.

CAT's *Maintenance* services are divided into self-service resources, dealer services and fleet maintenance solutions. Self-services solutions include CAT parts, maintenance manuals and kits as well as two different mobile applications which allows customers to order CAT parts and access manuals. The dealer services offer rebuild and upgrades of machines, fluid analysis services and repair services. CAT's fleet maintenance solutions provide information management services that provide the customer machine insights based on the data generated from their machines.

Lastly, CAT offers *training* services aimed towards operators, technicians and jobsite safety. Operator training is offered both through web-based learning and simulators, or at a CAT learning center.

Epiroc

Epiroc offers services under the two areas *Digital Solutions* and *Parts and Services*. *Digital Solutions* includes services that support the customers operations on the site, in the control room and in the boardroom. Connected asset management is provided through a telematics solution that connects data from all installed machines. The data can then be utilized through solutions like safety services to monitor people in areas, productivity services to count cycle time or calculate ventilation needs. Connected assets also include network monitoring services for sites. Epiroc offers *digital solutions* for safety and sustainability like a planning and scheduling tool that allows for ESG factors being included in the process. The digital safety tools include the previously mentioned event manager as well as a real-time tracking tool and evacuation support system.

Epiroc provides digital planning and scheduling tools with both backend planning tools and mobile frontend reporting tools to track the progress. For tunneling, Epiroc provides a brand agnostic solution that tracks the progress of the work. Under operational performance, services are provided to optimize the construction or mining operations. Here Epiroc provides services that tracks the work during the shift, navigation tools tracking and maps and productivity analytics. The analytics gives insights into machine utilization, cycle times and material tracking and it is possible to integrate the data into other platforms. Lastly, Epiroc offers enterprise solutions that connect the customer's technical systems to their business systems.

Under *Parts and Services*, Epiroc provides different services to ensure the uptime and productivity of their machines. Fluid management solutions ensure that customers use the correct fluids and grease. The remanufacturing program gives used machines a longer lifespan by repairing components and replacing wear parts. Epiroc can also deliver repair kits, replacement parts and preventive maintenance kits to customers who want to perform the maintenance themselves. They also provide wear parts like rock drills and rotation units.

Epiroc provides service agreements and audits to ensure the uptime of machines. This is done both through scheduled maintenance plans or

machine audits to check the health of machines. Custom engineered solutions are also offered to replace or configure equipment according to customer needs.

ABB Robotics
ABB's service offering consists of the two areas *Software and Digital*, and *Service and Training*. In the *Software and Digital* area there are services that enable simulation and modeling of the customers' robot solutions through digital twins and ABB's robot programming software RobotStudio. There are also services that aim to optimize the use of the robots through dedicated software tools, helping customers increase robot productivity. Lastly, there are services that optimize the factory's performance through monitoring and analyzing data and performance indicators such as cycle times and energy consumption. The data forms the base needed for condition-based maintenance, which ABB also offers. The last step of services looks to optimize production with data from more devices than robots in the production facility.

Service and training include services for monitoring, maintenance, and online or teacher-led training, While the services are possible to combine in custom packages, they are also sold through a three leveled modular service agreement. The service agreement three steps include technical support during work hours, preventive maintenance and condition-based maintenance at the first level, and 24/7 support, monitoring and diagnostics services, preventive maintenance and flat fees for spare parts and labor at the third and highest level. ABB also offers spare parts and consumables, training services, remanufacturing and upgrading services, and buy back services.

Volvo Trucks
Volvo Trucks' service offering is divided into the 5 five subcategories *Parts & accessories, Vehicle service, fleet management, driver support* and *financial products.*

The *Parts & accessories* category covers the purchase of new and remanufactured Volvo parts and accessories, online and in Volvo Trucks stores.

The *Vehicle service* category includes the service contracts, service planning, roadside assistance and traditional service. The service contract comes in 5 levels, where the highest level includes all repairs and preventive maintenance, as well as real time monitoring of the vehicle. The real time monitoring enables Volvo Trucks to remotely monitor and analyze data to predict when breakdown or malfunction will occur. In the case of an alert, the dealer is contacted and they are responsible for taking action to prevent the breakdown. Service can be scheduled based on the actual vehicle usage because of advanced telematics and diagnostics tools.

The *fleet management* category is based on the Volvo Connect portal which gives access to the digital services offered by Volvo Trucks. In the portal, the customer can explore services within the categories *Uptime, Fuel & Energy Efficiency, Compliance and Data, Safety & Security, Asset management, and Transport Operations.*

The fourth category, *driver support*, focuses on deriving all the benefits from the truck and how the driver can become more productive and drive more efficiently, sustainably, and safely.

The *financial product category* includes tailored financial solutions, insurance and rental solutions.

Sandvik Rock Processing

Sandvik Rock Processing's service offering is divided into *digital solutions* and *lifecycle services*. The digital solutions include SAM, a platform for bringing data, activities and people together. The platform is designed for those responsible for running daily operations, giving instant access to information needed to keep equipment running, available and productive. However, maintenance managers, plant managers, purchasers and quarry owners can all benefit from this platform as it offers holistic and complete overview over sites and gives insights from the production. The SAM

platform is divided into five areas which are fleet overview, inspections, team tools, E-commerce, and administration tools. Sandvik Rock Processing offers two subscription levels for the SAM platform, and the first level includes all five areas previously mentioned. What sets the higher subscription level apart is the telematics, used for tracking alarms, utilization, load cycles, calibrations and other parameters. Additionally, the higher subscription level opens possibilities for remote support, enabling Sandvik service technicians and experts to analyze actual, realt-time data for troubleshooting or finding improvements. The *digital solution* also includes the service My Fleet which aims to optimize operations for mobile crushers and screens, and helps to get information on how the equipment is being utilized which facilitates production forecasting.

The second category of services, *lifetime services,* include services to improve uptime and availability, either face-to-face or remotely, to provide proactive support. Sandvik Rock Processing offers service contracts that include maintenance scheduling, parts, equipment inspections and technical training.

Sandvik Mining and Rock Technology

Sandvik Mining and Rock Technology offers services in two areas, *Technology* and *Services*. Under *Technology* Sandvik offers digital services like their customer portal, MySandvik. In the customer portal, customers can access several services like insight and productivity reports, where Sandvik analyzes machine health and usage. There is also a service for remote monitoring of the machine, allowing the customer to predict breakdowns before they happen. Further, Sandvik offers automation services, providing both compatible machines and monitoring and control software.

Under *Services*, Sandvik offers more traditional services like service agreements, supplying maintenance and technical support to the customer. They also offer rebuild services and component repairs. Sandvik offers financial services in three levels, through OwnIt, Sandvik offers a payment plan for customers. GainIt offers a similar payment plan but where ownership transitions at the end of the payment plan, and RunIt is a

non-ownership solution. Sandvik also offers financial services such as leasing or rental equipment, but also the option to purchase used equipment.

4.2.1. Functional Framework

A framework was developed to create a comprehensible mapping of the functional capabilities of each case company's service offering. The framework is based on Neely's classification of PSS types. Within each of Neely's five PSS types, another layer of detail is added that includes service categories based on the services identified during the desktop survey of each case company. On many occasions, the same types of services were offered by different companies under different names or areas. In those cases, the categories are summarized by the authors to be fitted into their respective group of services. The service categories are designed to be specific to the construction equipment industry and exhaustive. The results are summarized in Table 4.

From studying the functions in the service offering of each case companies, a categorization of five areas of value creation were identified. These areas are Productivity, Uptime, EaaS and Financial, Sustainability and Safety.

Table 4: Functional framework mapping each companies' offering.
**Volvo Trucks has only performed pilot projects in EaaS.*

PSS Type	Service type	Volvo	CAT	Komatsu	ABB	Volvo Trucks	Sandvik Crushing	Sandvik Mining	Epiroc
Integration oriented	Financial Services	X	X	X		X	X	X	
	Fleet Management Services	X	X	X	X	X	X	X	X
	Site Management Services	X	X	X	X				X
Product oriented	Reactive Maintenance	X	X	X	X	X	X	X	X
	Proactive Maintenance	X	X	X	X	X	X	X	X
	Preventive Maintenance	X	X	X	X	X	X	X	X
	Upgrade Services	X	X	X	X		X		X
	Training Services	X	X	X	X	X	X	X	X
Service oriented	Health Monitoring	X	X	X	X	X	X	X	X
	Usage Monitoring	X	X	X	X	X	X	X	X
	Remote Access Services		X		X			X	
Use oriented	Leasing Services	X	X	X	X	X	X	X	X
Result oriented	EaaS	X				X*			

4.3. Interviews with Customers

This section covers the results from the interviews with the customers, Skanska Civil, Skanska Industrial Solutions, NCC, Bellman Group and PEAB. The answers are summarized based on the five identified areas for value creation within the service offering when applicable.

4.3.1. Skanska Civil - Head of Machines Road and Construction

Productivity
Today, Skanska uses productivity services associated with the telematics system in the machines. Primarily, weighing systems are used for loading in several machines, but the quality of the service is not satisfactory and has not reached its full potential. External third parties which are specialized on weighing systems are far ahead in terms of usability and software quality. However, OEMs have the capabilities to catch up, and Skanska sees clear advantages with having fewer systems and consolidating the productivity services to fewer providers.

Skanska raises issues with their complex sites when building roads and ports. In contrast to quarries, their production and events at the sites are very hard to predict and improve with traditional productivity services. After using a service to track production, Skanska concluded that it was too complicated and required significant resources. More specifically, the machine operators are practically inclined, and do not respond well to an increased administrative burden. Although the machine operator does not oppose new technologies and innovations, they must be convinced that the services contribute to the ease of doing business. Skanska suggests that an increased level of automation in digital services is crucial to reduce errors caused by humans and to make the workflows less reliant on operators being sufficiently educated. Additionally, the automated process must sufficiently facilitate workflows to justify their use over analog alternatives. Skanska concludes that an industry leader within services must automate to make business easier and make the systems less dependent on human behavior to eliminate uncertainties in the input data, and focus on user-friendliness.

Skanska emphasizes the importance of brand agnosticism. Their industry is very dependent on subcontractors with a variety of brands in their fleets. Since Skanska cannot ensure the brand of the subcontractor's machines, the services on a fleet and site level must be brand agnostic. Skanska suggests that Volvo CE should develop these services with the mindset that the customer does not have any Volvo CE machines.

With the development of productivity services, Skanska perceives that Volvo CE is entering their operational domain and attempting to solve problems they have been handling themselves for a long time. According to Skanska, the OEMs underestimate the complexity in the construction industry. Services that are considered to be right on are often not applicable in every situation, and are therefore not wanted in the production. Skanska emphasizes that Volvo CE employees selling the services lack a background in construction, are unfamiliar with the diverse needs and requirements of different construction sites, and lack experience of how a road or port sites are operated in practice.

Furthermore, Skanska suggests closer collaboration between OEMs and their customers in service development. Instead of Volvo CE developing services based on their perceptions of how the customer sites work and on trials in their test-environment, the development should involve the customers and their real environments. This enables both parties to learn from each other, and allows the OEM to capture the complexity and situational differences in site operations.

The larger road and port sites resemble quarries in that certain tasks are performed monotonously for extended periods. However, these sites constitute only a small part of all construction projects in Sweden today. Most machine operators do not know their assignments and work locations six months from now. This adds complexity to developing productivity services.

Uptime
At Skanska, the machine operators mostly drive their respective machines and specialize in their specific type. They are highly engaged in the performance of the machines and play a significant role in maintaining them in optimal condition. As a result, warning indicators are not overlooked, and the service needs of the machines are mostly addressed directly. Volvo CE's monitoring of the machines might therefore not be as valuable for Skanska as it is for companies outside the Nordic countries, where the operators are not as engaged with the machines.

One type of service that Skanska would value is guidance for operators on how to use the machine optimally to minimize wear and tear and maximize uptime. Skanska is interested in the potential of AI in combination with telematics to assist operators in using the machines effectively. To offer this type of service, Skanska would require both digital services and education from Volvo CE and Swecon personnel.

Financial and EaaS
For Skanska, EaaS is not very interesting, although they acknowledge that they have not received a proposal from any OEM specifying what it might entail. Skanska raises concerns with the pricing of risk, and questions the responsibilities when one operator is not handling the machines in the correct manner.

Safety
Safety is an important focus for Skanska, collaborating with OEMs and third-party actors to enhance site security. Skanska procures 360-cameras from third-party actors equipped with algorithms capable of recognizing human figures on site and alerting machine operators. Skanska strongly believes in the future of similar systems, and highlights that they will develop to be more advanced year by year.

Sustainability
Sustainability data, particularly carbon dioxide emissions, is very important for Skanska, and today it is calculated and compiled manually. Skanska

emphasizes difficulties regarding data capturing from subcontractors and requests an automated system for this.

Other
The machine manager is very positive about the future of the services in the construction industry, and believes that they will play a more important part going forward. However, the machine operators might not have the same overall perspective on services for a more productive site. On the other hand, Skanska believes that the operators can be persuaded with user friendliness.

Skanska underscores the difficulties of navigating the service offering of Volvo, and points out that the offering is generally unclear. Services overlap and it is difficult to understand what the services contribute with.

4.3.2. Skanska - Technical Director and Interim Machine Director

Productivity
Skanska uses several of Volvo CE's productivity services. However, while all OEMs develop digital tools for their machines, Skanska desires more education for machine operators on how to use these digital tools efficiently. This motivates operators, who are traditionally reluctant to change their working methods, to incorporate digital tools.

Additionally, Skanska requests a system for monitoring and evaluating both machines and operators across different sites. They want a system that displays productivity and usage metrics to identify areas for improvement or incorrect machine use. However, site managers have been resistant to this, as they oppose having their work monitored.

Skanska has purchased site consultations from Volvo, which involve analyzing the machines used and performing site inspections. Although the consultants have shown high expertise, the service has lacked impact due to projects ending prematurely and insufficient follow up. The consultants are too expensive to stay on-site for extended periods, and there is a lack of

digital services to enable ongoing support. To improve site consultations, Skanska believes Volvo CE must offer continued support.

Uptime

The uptime services provided by Volvo CE to Skanska have not been well received. Skanska is dissatisfied with both the quality of service and the relational issues involving Swecon. The quality of service from Swecon and Volvo CE has been lacking, partly due to a lack of responsibility. Disputes over who is responsible for repairs have led to confusing communication, as the three parties engage in separate dialogues. Given the high prices Volvo CE charges for genuine replacement parts and services, Skanska expects the service to be excellent.

Skanska also desires improvements in transparency regarding warranty cases. When Volvo CE attributes machine issues to operator misuse, Skanska wants a more transparent approach in providing data to substantiate these claims.

Financial and EaaS

Skanska is not interested in EaaS contracts, stating that they have the funds to purchase machines and do not want to pay higher prices for Volvo CE to assume the risk. Additionally, Skanska values its autonomy and prefers not to depend heavily on any single machine provider. They are concerned that EaaS would lock them into using one provider's systems, making it difficult to switch if competitors offer superior options.

However, Skanska would be interested in Volvo CE providing full productivity solutions, offering the necessary machine capacity for specific jobs. The key to making this offer attractive is for Volvo CE to take full responsibility for the task, rather than just a limited share. Skanska suggests that Volvo CE should only provide quotes for projects where they can supply all the required machines, as Volvo CE cannot guarantee the output of sites with mixed machinery. The primary motivation for this arrangement, besides eliminating all risk for Skanska, is to allow them to focus on their primary activities and reduce the number of subcontractors needed for a project.

Other
In general, Skanska desires a closer relationship with OEMs, including comprehensive education for operators, site managers, and machine managers. All these roles are involved in purchasing decisions for machines and services. Currently, only machine managers receive education on the service offerings, but this information should be disseminated more broadly throughout the organization. To maximize the impact on their purchasing decisions from Volvo, Skanska believes that site managers should be more involved in the service offerings, as they have financial responsibility and typically maintain a close connection with machine operators.

4.3.3. NCC - Lead Buyer

Productivity
NCC has seen some productivity improvements from using Volvo CE's services like Efficient Loadout, the benefits from this service has come from accessing more data to make better decisions when filling trucks and dumpers. They have also used a service designed to measure cycle times, which helps streamline production and manage subcontractor relationships. This service has been helpful for both optimizing the production but also solving trust issues in areas where there previously have occurred malpractices from subcontractors.

In terms of planning work sites or managing production, NCC relies on its internal competencies. Recently, they were introduced to the project management system Task Manager where NCC decided against purchasing this from Volvo CE since NCC already possesses a comprehensive system for this purpose and sees no need to adopt another. Another reason for not purchasing this system is the lack of integrability into their current planning programs. This has been appreciated in the Efficient Load Out case where the system is compatible with the BEAst standard, allowing for easy integration into their existing systems.

Within productivity services, NCC are satisfied with the current amount and level of services that they are purchasing from Volvo CE at the moment.

Since they do not own any machines they also find the level of contact to Volvo CE to be at a suitable level.

Uptime
Within uptime, NCC leaves the responsibility to subcontractors when working like usual or Volvo CE in case they agree on an EaaS-contract. Since NCC does not own or rent any machines themselves they do not have a need for uptime services.

Financial and EaaS
NCC is currently in talks with Volvo CE to acquire machine hours through an EaaS-contract. NCC's primary motivation for choosing this method is due to the machines being new electric machines. The newness and rate of technology evolution in this area is so high that NCC feels that it is safer to go directly to the OEM than through subcontractors. Only the supplier in this case is willing to take the ownership risk of the machines.

However, NCC believes that this business model will not persist when electric machines have become more established and the rate of development slows down. Then NCC will instead acquire these machines through subcontractors. Volvo CE's offering is missing on meeting two important values, NCC does not want to have their own operators and the contract periods are too long for most of their projects. This boils down to Volvo CE's offering not being compatible with NCC's model for creating value, which is not through owning machines but to acquiring construction performance when they need it.

Safety
While NCC does not purchase any safety services themselves, they put high demands on subcontractors to meet. The list of requirements include demands that every machine on site need to be equipped with rear view cameras, a service that Volvo CE can provide the machine owners.

Sustainability
For NCC, the most important aspect of sustainability services is the ownership and rights to use the data that machines on their construction

sites produce. Here they request a service that connects them to their subcontractors to access their emission data or directly from Volvo CE.

Other
In some cases, different roles like the sustainability department and project manager, use the same systems to monitor different datasets. This means that services that aim to serve both of these departments need to be designed to fit both of their needs or be customizable with different views.

4.3.4. Bellman Group - Machine Manager

General
The head of machines from Bellman Group is not familiar with Volvo CE's complete service offering. Starting up new services is not perceived as a problem, but systems are often too complex. Bellman group prioritizes using the most necessary functions to ensure customer satisfaction. There is a suggestion to focus on making the systems and services easy to use and automating processes instead of doing manual work.

Productivity
Even though there is a resistance towards Volvo CE telling Bellman Group's site managers how they should run their production, there is a strong desire for OEM support in capacity planning. Site studies for active quarries are less wanted due to existing understanding of how they work and how they can be optimized. However, for specific time-limited projects like new highways, there is a demand for a complete package including capacity planning, machines delivered to the site, and OEM-provided fueling and servicing. By renting the machines this way, Bellman Group avoids tying up capital and can get the right combinations of machines for maximal utilization. They also value Volvo CE's expertise in load optimization, providing fuel efficiency and reduced wear. Bellman Group is positive towards a trial period of services, and is open to pay for services if they are improving productivity.

A brand agnostic solution for data management is requested by Bellman Group. If an OEM opens up their systems for machines from other suppliers, it would make the operations easier. Bellman Group does not buy

third-party productivity solutions and prefers to have as few suppliers as possible to reduce the number of actors involved in their operations.

Uptime

Machine uptime is Bellman Group's top priority, making aftermarket services and repairs crucial. However, the service and repairs provided by Volvo CE and Swecon is unsatisfactory today, due to a lack of competence from the service personnel as well as extensive lead times. Additionally, Bellman Group has experienced a responsibility gap between Volvo CE and Swecon affecting customer experience. In some cases, this problem has led to Bellman Group choosing other OEMs when purchasing new machines. The Bellman representative questions Swecon's role in the network as it adds complexity, and suggests Volvo CE to take larger responsibility in the service delivery. However, Bellman Group has had better experiences when both Volvo CE and Swecon are involved, suggesting that joint collaboration has previously led to issues being resolved more quickly.

Machine operators today have different capabilities compared to 25 years ago, and the machines are much more complex. Today, the software knowledge needed to operate the machines efficiently is higher. On the other hand, today's machine operators do not generally possess the know-how to fix basic issues on the machines, like changing oil. Volvo CE can contribute with their knowledge of the machines.

Bellman Group has several machines connected to Volvo CE's remote monitoring service, but is experiencing difficulties in receiving and using the information from the system effectively. Firstly the alarm is often sent to the wrong person. The alarms should be sent directly to the machine as operators may change machines frequently. Secondly, there is uncertainty regarding who is responsible to act between the customer, Volvo CE and Swecon, when an alarm goes off.

EaaS

The service contracts today are not meeting expectations. Service technicians often come out several days late and machines are not replaced in a short enough time for ongoing projects. There is also a lack of support

from the dealer with getting rental machines and new parts. Instead, Bellman Group finds a guaranteed uptime more interesting, where Volvo CE is responsible for replacing machines when there is a breakdown.

Bellman Group operates with a base fleet of machines which does not meet their full capacity demand, requiring more machines at times. One collaboration with a rental company is highlighted. The company has placed fueled and ready-to-use machines in the proximity of Bellman Group's operations. When additional capacity is needed, Bellman Group can easily and quickly collect a machine from this location. Bellman Group is interested in a similar concept from Volvo CE, where they can quickly access fueled and serviced machines when needed.

Sustainability
Sustainability data is important for Bellman Group, and they request a brand agnostic system for collecting the data from all of their machines. Additionally, Bellman Group believes that Volvo CE could provide more support and expertise in regards of which oils are compatible with their machines, with the purpose of having more sustainable options to choose from.

4.3.5. PEAB - Machine Manager

Productivity
Within productivity services, PEAB is interested in the optimization and planning expertise that Volvo CE can offer. Volvo CE's deep understanding of their machines' construction and capabilities makes them ideal for recommending the right machine for specific jobs or projects. Their expertise extends to determining optimal machine combinations, such as selecting the appropriate bucket size for a particular hauler or situation. PEAB believes Volvo CE can help improve productivity and reduce costs through effective production optimization.

PEAB extracts data from machines to view it through their own systems. Currently, data collection is not seamless, and PEAB desires easier access to telematics data from the Volvo CE machines. Despite the availability of data on Volvo CE platforms like Volvo Connect, PEAB resists using the OEM's

systems. They want a unified system to monitor all brands and types of machines they operate. Furthermore, even if Volvo CE developed a brand-agnostic system, PEAB insists on owning the system and data to avoid integrating all machine data into a single OEM's platform.

PEAB also uses machine-oriented productivity services like Load and Dig Assist for some machines. However, they have installed third-party systems when requested by machine operators. PEAB has no strong preference for who develops these services, as long as the data is easily accessible, but they slightly favor OEMs to minimize hassle.

Uptime

The most crucial service PEAB requests to improve uptime is access to more data and error messages for predictive maintenance. Like in productivity, PEAB prefers using their own system but wants more detailed data to prevent breakdowns. Currently, machines connected to Volvo CE's Active Care generate reports or alerts from Volvo CE about machine events. However, PEAB also wants to monitor this data themselves to manage their fleet more efficiently and schedule maintenance proactively. Overall, the PEAB representative is satisfied with the machine service provided by Volvo CE and Swecon, which is essential for PEAB.

Financial and EaaS

PEAB sees a need to rent machines from Volvo CE in two scenarios. One is for smaller jobs with low productivity demands, where renting a used machine is more cost-effective than investing in a new one that would have limited use. The other scenario is for battery-operated electric machines. In this case PEAB has three reasons for choosing renting over purchasing. A limited number of projects which subsidizes electric machines makes owning them impractical, as they wouldn't be used fully. Additionally, electric machines are very expensive and constitute a significant investment compared to traditional combustion engine machines. Moreover, rapid technological development and uncertainty about the dominant design make investing in electric technology risky. Hence, PEAB prefers to share this risk with OEMs and rent as needed per project.

PEAB is also discussing EaaS contracts with Volvo CE. While they see the benefits of Volvo CE taking full responsibility for uptime and replacing broken machines, they are concerned that Volvo CE might charge too much for assuming this risk.

Safety
To improve safety, PEAB wants Volvo CE to develop a service that monitors the area around machines, warning the operator if a person or object comes close. Since this service is safety-related, PEAB believes it should be developed solely by the OEM. Due to past reliability issues with integrating third-party systems into machines in unrelated areas, they think this task is best suited for the manufacturer.

Sustainability
PEAB wants Volvo CE to provide more detailed sustainability data and make it more accessible outside Volvo CE's system. Regarding Eco Operator Training, the PEAB representative suggested it should be included at the start-up of new machines, ensuring PEAB learns how to maximize environmental and productivity benefits from modern equipment.

Other
PEAB's understanding of Volvo CE's service offering could be improved. They have noticed that key account managers from Volvo CE sometimes lack knowledge of the offering themselves. In some cases, PEAB has had to ask their sales representative about services which they have heard from elsewhere.

4.4. Interviews with Volvo CE

This section covers the results from the interviews with Swecon and Volvo CE representatives. The answers are summarized based on the five identified areas for value creation within the service offering when applicable.

4.4.1. Swecon - Head of Services and Complementary Products

Productivity

From Swecons perspective, digital productivity services are not standalone, instead they are a tool that is offered in conjunction with consultancy services. Customers need assistance in overcoming the barriers associated with setting up digital services and becoming more data-driven. The customer will not, by themselves, find digital services on a website and start using them. The idea that the customer will start and end digital services like a Netflix subscription is a utopia. No customer has been able to set up and run the services without the help of the dealer. For this reason, the dealer, in collaboration with the OEM, must be able to deliver the know-how, establish targets with the customer, and follow up on the progress to ensure the customer derives maximum value from the digital services. Even though Volvo CE offers correct values, the customers usually do not fully understand them. That is why Swecon is hiring service consultants. There is also a continuous need for consultant services for the customer, like making changes on the site, following-up on the productivity improvements etc.

Swecon highlights that they have not received sufficient guidance from Volvo CE on how the rollout of services should proceed. Instead, they have figured out what they need to do along the way. Education of the dealer on the service concepts, necessary knowledge, and resources would be needed for a smoother development of this type of services. The primary reason this development is not going as wanted and intended is not the quality of the services or customer needs, rather the lack of organizational resources to help the customer. The centralized global Volvo CE team is not enough to cover this need and to make it scalable.

Swecon emphasizes the importance of understanding the individual need and site of the customer. The supplier, in this case Swecon and Volvo CE, must visit the customer site to understand the customer’s needs and what it values. Additionally, Swecon highlights the flexibility to adjust pricing based on what value it can create for the customer. While one service might provide significant value to one customer, it may not create the same level

of value for another but still be beneficial. Instead, Swecon suggests that consultants conduct site studies to identify customer needs and recommend different service packages for the operations. These packages would be offered and priced as a complete offering, including cost of implementation, education, setting up machines, tailored to the customer's needs.

While digital services for site mapping and enhancing driver behavior alone offer limited customer value. Instead Swecon creates a higher level of customer value when conducting site simulations and providing recommendations for correct machines, bucket sizes, and site structures, tracked through digital services. The digital services will not suggest moving the site entrance to improve efficiency. Even though it has not been explicitly requested, If you offer consultancy services that include building a digital copy of the customer site, connecting all machines, and measuring productivity with suggested improvements, customers will be interested.

The targeting of large contractors, who use subcontractors for machines and personnel, with digital services for sites can be improved. Volvo CE has productivity solutions for this need, where the customer managing the site can connect machines and get overview of task handling, but there has been a lack of resources for this to gain momentum.

Uptime

Swecon emphasizes the high level of penetration of service agreements and their learning progress with the maintenance solution ActiveCare which has predictive reports and alert systems. However, the alert system has shortcomings. Some alerts, like oil change, are too basic to mandate an alert through the chain of communication between Volvo CE, the dealer and the customer. Other machine problems are too significant for the customer to await a signal, and are usually addressed before the chain has reacted. However, in countries where drivers are less observant and engaged in machine health, this can be more useful. Nonetheless, Swecon points out that they are at the beginning stages and the system needs to be improved through feedback. One ideal scenario for a predictive system would be to provide information on how the lifetime of a specific part is reduced when the machine continues to be driven in a certain way.

Financial and EaaS

Swecon raises issues with guaranteeing an uptime through EaaS, as the definition of 95 percent uptime varies. In the Volvo CE presentations, 95 percent uptime is defined as between 7:00-16:00 with planned stops included, but this does not suit all customer needs. EaaS is very specific for each customer and needs to be tailored. While some large listed companies consider EaaS to be interesting in order to get around IFRS 16, this represents only a small portion of the customers. In general, customers are reluctant to make an agreement where Volvo CE guarantees an outcome for the production. They simply would not trust Volvo CE to guarantee an outcome of their operations. Even though Volvo CE and Swecon have the best understanding of the machines, the customer has the deepest knowledge of their own operations. Despite Volvo CE's capabilities to offer this concept, trust remains insufficient. Moreover, customers question why they would pay more for something they are satisfied with today. While some customers may seek to transfer risk, increasing profitability this way proves challenging. For companies currently renting machines from Swecon, they know their costs and may be reluctant to pay for an unfamiliar concept. It is unclear what the additional value would be for the higher cost.

In the Nordic countries, few construction companies employ their own machine operators. Instead, they subcontract their production capabilities for specific projects through a "Production as a Service" model. These subcontracting companies, which represent a large portion of the customers who own their machines, are not interested in EaaS. In countries outside the Nordic countries, the ownership structure is different and there it makes more sense.

Other

Swecon admits that it might be confusing for the customer to understand who to communicate with between Volvo CE and Swecon. For some functions, like selling used machines, service and repair agreements and booking services, Volvo CE is not involved in the communication. Swecon points out that the relationship between the dealer, Volvo CE and the customer could be more clearly defined, both making it easier for the

customer but also the dealer. Swecon has a strong relationship with the customers and have worked closely with most of them for over 20 years.

Today, there is no connection between Swecon's MySwecon and Volvo CE's digital services, even though Swecon has used some features from Volvo Connect. Swecon emphasizes that it would be easier to scale the digital services if Volvo CE's services could be integrated into their portal. Swecon also points out that the digital services are not order winners, and that they have never missed out on a deal because of a lack in service offering. Additionally, Swecon means that the ease of doing business is the most important group of values for digital services.

4.4.2.Volvo CE - Key Account Manager Sweden

Productivity
The productivity services which Volvo CE offers must be developed in several areas according to the two account managers. In some cases, who is responsible for delivering the service is unclear and the customer sees many different interfaces of Volvo CE. An example of this is the service Efficient Loadout which both Volvo CE and the Volvo CE-owned company Global Loadout both deliver. Another example is Volvo CE and its dealers separately developing customer portals which deliver similar value to customers.

A productivity service where they see many requests from customers is telematics data through the OEMP API. Customers often use third party productivity solutions instead of using Volvo CE's services and Volvo CE is left to provide the data. The KAMs believe that third-party suppliers of productivity services deliver a higher value than Volvo CE currently can. Another reason for customers choosing them over Volvo CE is switching costs and established relationships. Volvo CE is far from the first company to deliver this, meaning that the software would need to be much better than competitors to motivate a switch.

Uptime
The sale of uptime services depends on the maturity of the dealers. In the case of ActiveCare and proactive maintenance services, Volvo CE and the

dealers see a clear benefit of working together but have problems convincing key roles at the customer of the value. While the dealer provides the close contact and support to the customer, Volvo CE contributes their specialized knowledge of the machines and the algorithms.

While production developers have a positive view of predictive monitoring it is the site manager who is responsible for site results and weights price versus outcome.Another area of improvement is the dealer's knowledge of services. Since they are the ones meeting customers, education within the organization is key.

Financial and EaaS

Both account managers are either selling or discussing EaaS contracts with major customers. However, the value delivered by this business model varies significantly from customer to customer. For instance, one customer highly values the transfer of responsibility for uptime and the reduced need to focus on the machines provided by Volvo CE. Their primary operations rely on crushing machines, and by purchasing an EaaS contract, they can concentrate fully on this critical area. The guaranteed uptime offered by the EaaS model enhances their focus and peace of mind.

In another EaaS case, while peace of mind from guaranteed uptime was also a benefit, the primary focus was on financial advantages. Specifically, the goal was to move the machines off the balance sheet, thus improving the company's financial figures.

Safety

Services which improve the safety of a worksite are often easy to sell. Customers highly value safety and look for solutions to improve it such as cameras around machines or people detection sensors. However, customers often demand that the service is easy to implement and works for all machines, both older versions, competitors or subcontractors working on a site. Complicated installations and hardware or services that only work on a small part of the machines on a site are not practical.

Sustainability
The Eco Operator service has been received positively. This is both due to the high impact on productivity and sustainability that the operators have and that customers find it easy to understand the value it provides. Volvo CE's dealers' expertise on how machines should be operated gives customers higher productivity, lower emissions and reduced wear.

Customers have requested a system for accessing emission data from their subcontractors. The main value that Volvo CE can deliver to their customers is the access to data which allows them to track their sustainability work more precisely.

Other
The scattered and extensive list of services result in difficulties in marketing and selling the services. The two KAMs think that there are too many services, with each service solving only one small problem. This leads to the customers not understanding the value in purchasing them. The fragmented and complex offering also leads to the technical knowledge required to understand them is very high. When discussing services with a customer they have had to bring out several specialists to explain the benefits of each service. To solve this they believe that the dealers must increase their expertise in services to be able to understand and sell them more efficiently, or that Volvo CE should sell services directly to customers.

4.4.3.Volvo CE - Key Account Manager France

Productivity
Despite some technical and quality issues, the productivity services aimed at the machines are progressing well, and it is these services that the customers are mostly interested in. The remaining productivity services, intended to enhance site productivity, have not yet gained wanted traction. The main resistance from larger customers is their reluctance to be taught how to do their job. To surpass this resistance, Volvo CE tries to sell the services as another eye to the customers vision, their calculations and their analyses.

Additionally, the KAM identifies the current pricing strategy as another hindrance to deploying more services. By charging the customers for the

services at the time of purchasing a new machine, there is a risk that customers perceive it as unnecessary and avoid buying it. Instead, the pricing strategy should include a free site study with recommendations, and the customer should be charged for percentages of the improved earnings. This is not the pricing strategy of Volvo CE today.

The KAM also emphasizes the importance of building trust and convincing the customer that they have nothing to lose by letting Volvo CE find solutions and improve the production processes.

Uptime

Volvo CE is improving its capabilities and aims to prevent breakdowns of the machines. For predictive uptime solutions, the pricing strategy is crucial. Providing a free trial period for customers to experience the digital services often results in continued payment after the trial period. If one breakdown is avoided through predictive data, customers are likely to pay the monthly fee because the cost of breakdown is higher than the service. Volvo Trucks, who the KAM believes have come further in this area, included three years for their predictive service. Additionally, this approach forces the salesperson to explain the services and how it works.

To assist salespeople in explaining how the services work, more data and statistics showcasing the value of the service, should be provided. Volvo Trucks started its predictive service with a select group of strategic customers, offering it for free and collecting data for future sales processes.

EaaS

The value customers desire in the EaaS offering varies, making it crucial to customize marketing based on their specific application areas. For example, some companies highly appreciate not needing to find and hire mechanics for their machines. They were relieved to learn that Volvo CE takes care of maintenance and guarantees uptime. Other customers prioritize removing machines from their balance sheets, getting around the IFRS16, and finding EaaS appealing for that reason. Additionally, the KAM notes that some industries, such as the waste industry, view machines as part of production

rather than a strategic asset. They lack skilled equipment managers and equipment strategy and value Volvo CE managing their fleet through EaaS.

Companies that consider their machines as strategic assets do not want the OEM to interfere with their strategy. These companies market themselves as having the best machines and equipment managers, and are not interested in the EaaS concept.

Sustainability
Digital solutions facilitating sustainability work is important for winning deals, especially for decision makers higher within the customer organization. For example, a CPO in a large French construction company judged the OEM solely based on how they helped with achieving sustainability and CO2 emissions goals, since he knew that the procurement team would handle getting the best price possible.

The KAM also highlights the importance of influencing decision makers within the customer's customer organization to affect the market. For instance, in France, the OEM should target the city of Paris to inform them about electric machines, aiming to incorporate them as a requirement in contracts. Otherwise, the construction company is not inclined to pay for the expensive electric machines.

Safety
The safety services are very important for customers, and the premium brands have a mature and similar offer. The safety aspects are often a must for the customer and the expectations are high, but no OEM has introduced an innovation that has significantly impacted the market in the past four to five years.

Other
One of the most crucial areas for Volvo CE to develop is an organization with highly skilled personnel, capable of selling and implementing advanced services for the customer. When delivering services, it is important to understand customer needs and communicate in their language. Currently, only a few individuals have this capability, making them a

valuable asset for Volvo CE. However, they are based in Sweden, and do not speak the local languages of the sites abroad. Therefore, Volvo CE should prioritize training the dealers on conducting these studies and building organizations for these tasks. Additionally, it is important for the dealers to be aligned, ensuring that large customers receive the necessary support for their operations in all of their locations.

Volvo CE generates many good ideas and launches great products, but at a pace that sometimes is too rapid. This leads to the salespeople struggling to understand the concept of the services, which in turn affects the sales of these services. It is crucial to spread the information within the organization first. For Volvo Trucks, priorities were clearer and more focused, with uptime being the main priority.

4.5. Interviews with Leading Industries

This section covers the results from the interviews with the leading industries, Sandvik Rock Processing, Sandvik Mining and Rock Technology, Volvo Trucks, and ABB Robotics. The answers are summarized based on the five identified areas for value creation within the service offering when applicable.

4.5.1. Sandvik Rock Processing - Performance and Innovation Excellence Director

Productivity
Sandvik have no intentions of moving to provide full site productivity solutions, instead they aim to provide expertise within their areas with systems that easily integrate with providers of full site solutions. While other companies have more competencies in process controls for sites, Sandvik has the best knowledge on how to run their own machines in an optimal way. Therefore, their focus is not expanding their services vertically but instead delivering expert knowledge and dedicated systems that can be plugged into the site management system.

Uptime
Sandvik provides a platform which allows customers to monitor all their Sandvik machines from the same interface. This platform helps customers with error messages and support when machines break down. As Sandvik's customers often operate in remote places, they have found great value in helping the customer help themselves remotely. While promoting quicker turnaround times and higher efficiency it also makes the customer's maintenance personnel more competent. An important factor for this to succeed for Sandvik has been making the customer feel like Sandvik is always there for them with fast answers and help, even if they are not physically present.

Making the customer's life or job easier is mentioned many times from Sandvik as one of their core values that they provide their customers. Through, the previously mentioned, digital instructions or through simplified business models like e-commerce or purchasing solutions integrated into ERP-systems. By moving away from complex systems to easy, one-click, solutions they make interacting with Sandvik easier and allows for them to focus on other tasks.

Financial and EaaS
To provide EaaS efficiently, Sandvik needs to have a qualified service and logistics network. The mining business unit of Sandvik who has succeeded in selling EaaS contracts, has won contracts, by being able to deliver a complete solution to a complex problem. The key factor has been to take responsibility for an entire system, including automating many of the processes within the mine, since no other actor or the customer would take on that responsibility. It is easier to motivate an EaaS solution when the company is providing the entire solution and not just a machine in a system.

Other
Sandvik emphasizes the importance of reaching and marketing towards multiple different roles within the customers organization. While the design of machines has not needed to take many different roles into consideration, new digital services have many more touching points inside the customer organization. For this they have developed a customer journey which aims

to track how the competence evolves in different roles throughout the relationship with the customer. From Sandviks experience, a more educated and knowledgeable customer buys more services and especially more advanced services. The relationship becomes important for Sandvik as it drives the opportunity to sell more advanced services.

Taking the relational aspects in consideration, Sandvik develops value propositions customized to each role as a part of their customer journey. An example of this is finding ways for maintenance personnel to easily get instructions to repair machines. For other employees, it can be to convince them that Sandviks services will automate a part of their job, allowing them to work on other things. By meeting the needs of multiple different roles within the customer organization, the connection to Sandvik is strengthened on multiple levels.

4.5.2. Sandvik Mining and Rock Technology - Vice President Service Operations

Productivity
When evaluating the value productivity services creates, Sandvik emphasizes the importance of considering the services in collaboration and not in isolation. This means that services should be assessed together, as neglecting proper machine servicing, for example, can lead to unreliable data from digital services. To improve the value digital services create, you have to move customers up the maturity ladder, encouraging them to adopt more proactive approaches and utilize predictive services. However, customers need to reach a certain level of maturity to fully realize these benefits.

Uptime
MySandvik serves as a customer portal for Sandvik, enhancing communication and facilitating the connection of information to machines or sites. It enables users to access the latest information consistently, manage orders and track them to improve uptime. Integration of purchasing solutions into customers' systems makes processes more efficient, eliminating the need for manual information exchange. Additionally,

MySandvik centralizes information, allowing users to find all relevant data in one place and creating a unified view of machines.

Sandvik has lately taken steps to move into an expert role, focusing more on supporting the customer with experts in the field, rather than having a direct role in servicing the equipment. This movement is driven by identifying their expertise as the value they can provide their customers. Sandvik says that they don't add value in changing filters or doing preventive maintenance which anyone, as long as you are trained, can do. Sandvik adds value by providing training and assisting the customer, letting them know what they need to fix proactively. By shifting focus away from selling service per hour, they are focusing on selling a solution. Sandvik believes that customers are more likely to continue buying this solution because they know that an expert will come and solve a problem quickly than to pay for a technician changing filters.

Financial and EaaS

Sandvik sells machine contracts with pricing based on utilization. This is done to reach markets where utilization is low and Sandviks want to increase their market share. One reason for filling this gap in the market is to build up the customer's organization. Another area where Sandvik sees a future for EaaS is with battery electric machines. In this case it is also to avoid high investment costs and reach customers who would not want to take that risk themselves.

Other

Sandvik segments their customers to gain deeper insights into their demand, focusing on what services they can and will use, something which is largely affected by the customer's maturity level.

Their approach involves dedicated account managers who work to understand each customer's business, needs, limitations, and maturity level. This strategy also includes identifying key influencers within the customer organization, finding decision makers, and understanding their network connections. Actively assisting customers to move along the maturity journey, Sandvik gradually introduces solutions tailored to build

competence within their business. They prioritize nurturing relationships with more mature customers who invest in digital services, as these relationships tend to be more profitable and collaborative.

Furthermore, Sandvik is streamlining its product offering. Recognizing the challenge from a broad and complex range of services, they are shifting towards a problem centric approach where services are developed based on customer problems instead. This includes removing marketing language and instead focusing on identifying the specific problems customers face and then providing targeted solutions. This simplification process also targets internal processes within Sandvik's organization as well.

4.5.3. Volvo Trucks - Service Offer Director

Productivity
The productivity services are not generating substantial revenue streams as of today for Volvo Trucks. Instead, the aim of these services is to increase customer loyalty and satisfaction by creating a full solution for the customer. The services are focused on optimal route planning and fleet management with the overarching goal of facilitating the work of transportation planning. For larger customers with many trucks in the fleet, the fleet manager uses these systems to keep track and plan the operations.

In productivity services, competitors include third-party software developers. These services generally do not require deep knowledge of the trucks, which is why non-OEMs are able to compete effectively. However, using the Volvo Trucks system has advantages for the customers. The customer does not need a new system to manage for every service supplier, and the system can be accessed through the display in the truck.

Uptime
The uptime services offered by Volvo Trucks include service contracts and remote monitoring. The idea of the remote monitoring is to proactively sell service and repairs, rather than waiting on the customer to make the call, while also preventing roadside breakdowns to contribute to customer peace of mind. The alerts that are triggered by the algorithms are sent from Volvo Trucks to the dealers, who then take action. Alerts can both be non-urgent,

and lead to the scheduling of a service in a couple of weeks, but also urgent where the dealer takes swift actions to prevent breakdown. The customer reception of this service is connected to the relationship and trust between the partners.

The service visits are based on usage, to capture accelerated wear and tear, but also avoid unnecessary service visits. For these uptime services, it is harder for third-party players to compete. Volvo Trucks has the advantage of extensive machine and component knowledge, which allows for superior algorithms. New services such as wheel monitoring are included in Volvo Connect, to consolidate the services in one place.

EaaS
Volvo Trucks has started a few pilot projects on EaaS to learn and how to make it profitable. However, with a few close customers, the relationship is very similar to the EaaS business model already. These customers have required Volvo Trucks to take extensive responsibility in the condition and usage of the trucks. For example, driving data from trucks and drivers is monitored, and for drivers not using the trucks optimally, Volvo Trucks ensures they receive the right training. Nevertheless, Volvo Trucks does not have financial responsibility for the trucks for these customers. This structure of responsibility creates a close relationship with the customer and Volvo Trucks secure revenues from training and repairs. This structure is in an early phase, and no uptime or productivity is guaranteed.

Sustainability
Driver data is also tracked for sustainability purposes. Drivers with high energy consumption are recommended for relevant training to lower their emissions. The fuel consumption and emission data can also be used for CO2 emission reports.

Other
Volvo Connect is Volvo Trucks' customer portal where customers can access free and paid digital services, responding to the customer's wants of a consolidated system for the services. This portal can be customized for different roles in the customers organization in order to enhance

user-friendliness. Up until now, Volvo Trucks has mainly focused on its own ecosystem of services, but are gradually increasing the engagement in partnerships with third-party developers. Volvo Trucks admits that there are other companies developing some functions better than they are able to do. Therefore they are starting to think of partnership as leadership in the industry and are looking for win-win opportunities with other companies. For example, the logistics company DHL has their own application for their transportation tasks, and for the customer to experience a full solution, the application must be accessible through the systems in the truck. Additionally, Volvo Trucks is working on improving the brand agnostic aspect of their services. They address the reality of the customers owning several different brands, and are trying to make it easier to consolidate the services and the data from these trucks as well into the Volvo Trucks systems.

The ease of finding and understanding the Volvo Trucks service offering is something the company must further focus on. As more and more services are developed and added, the list of services presented to the customer grows. This can result in customers finding the offering difficult to interpret and makes work for the salespersons harder. Instead, Volvo Trucks sees possibilities in creating customized packages based on the customers need and type. Furthermore, the dealers play a vital part in selling the services to the customers. Some dealers, especially in the Nordic countries have developed a separate sales organization for the services as this is identified as important to make the customers understand the value of the services.

4.5.4. ABB Robotics - Digital Lead

Uptime

ABB aims to transition towards offering services on a more customized schedule, replacing oil and other components as needed rather than on a fixed schedule. This approach offers environmental benefits by reducing the frequency of replacements and enhances productivity by ensuring replacements occur precisely when necessary, in collaboration with the customer. The primary goal is to maintain uptime and minimize the need for spare part replacements due to both production downtime and the expense of the parts themselves.

ABB has developed a digital service that collects and analyzes data from robots, comparing it against a large database of other robots to assess their health. Data can be collected remotely if the robot is connected, otherwise, on-site visits are needed to access the data. The key benefits for customers include reduced downtime, fewer breakdowns, which lowers the demand for costly replacement parts, and the flexibility of a customizable maintenance schedule. Currently, approximately 15 to 20 percent of customers have connected robots eligible for this service.

One of the appreciated benefits of having a connected robot is the remote access it provides for diagnostics and expertise from ABB. When customers request support, ABB forms a project group to diagnose alarms and identify necessary adjustments in production to prevent future issues. This highlights that the value of data collection comes from ABB providing specialized expertise to find improvements. However, customers who lack the capacity and expertise to interpret alarms and events may not fully gain the benefits of connected machines. Additionally, customers are generally opposed to having another system to work in and want to limit the number of systems used.

Financial and EaaS
ABB does not provide machines through EaaS-contracts, primarily because most customers prefer to own their machines. While smaller customers sometimes choose alternative financial solutions such as payment plans or leasing, most customers prefer to own and directly manage their equipment. ABB believes this preference is due to customers' valuing reliability in their operations. Mature customers often possess the necessary competence and processes to independently manage their systems, not requiring much involvement from ABB.

4.6. Summary of results

In this section, the results are summarized into tables based on the same categories as presented in section 4.2 - 4.4. Table 5 and 6 summarizes the

results from customers, table 7 summarizes the results from Volvo CE and dealers, and table 8 and 9 summarizes the results from leading industries.

4.6.1. Customers

Table 5: Summary of results from customer interviews

Company & Role	Value Proposition	Value Capturing	Value Delivery	EaaS
Skanska Civil - Head of Machines for roads and construction	The quality of the weighing systems offered by Volvo is not good enough. However, the advantage of having fewer providers speaks in favor of Volvo improving such services. Services such as Efficient Loadout are too complex, and require too much administration from the machine operators. Volvo must deliver automated services, preventing human errors, with a strong focus on making operations easier to compete with analogue ways of working. Must convince practical operators with user friendly interfaces. Requests services to be brand agnostic. Volvo underestimates the complexity and lacks expertise in the construction industry, and services are often not applicable for every customer situation. Remote monitoring service does not provide any value since the machine operator is highly engaged in the health of his or her machine. Requests service to improve driver behavior to reduce wear and tear of machines. Interested in how AI can assist the driver. Requests automated system for accessing emissions data from subcontractors.		Requests collaborations in service development to learn from each other and create services that are wanted. Find it difficult to navigate the service offering. Services overlap and there are difficulties in understanding the value benefit of each service.	Not interested, but have not been approached with an offer. Raises issues with risk, high costs and responsibility with faulty driver behavior.
Skanska Industrial Solutions- Technical director and interim machine director	Request training on how to get the most out of machines and services since it motivates operators to use them and enhances productivity. Requests system for monitoring machines and comparing productivity and uptime between sites to identify improvements. Requests ongoing support and expertise connected to site studies and consultancy services. Request transparency and data to understand why breakdowns occur and who is liable. Request closer relationships and education for operators, site managers and machine managers. Request higher quality in maintenance services.		Target more roles than just machine managers with the service offering and education. Experience issues regarding communication and responsibility gaps with Swecon and Volvo.	Not interested in EaaS for core activities. Do not want to pay a higher price for Volvo to take the risk. Additionally, they are concerned with lock-in effects. For specific non-core activities, they are interested in full productivity solutions to reduce risk and to focus on primary activities.

Table 6: Summary of results from customer interviews continued

Company & Role	Value Proposition	Value Capturing	Value Delivery	EaaS
NCC - Lead Buyer	Appreciate productivity measurements from Efficient Loadout, but have trouble convincing project managers to purchase it. Data for decision support is valued NCC relies on internal competencies for planning work on sites. Does not wish to purchase this service from Volvo Data integration to internal systems is highlighted, including subcontractor sustainability data. Requests customizable service interface depending on user application.		Satisfied with the relationship with Volvo today, but they do not have a good understanding of what services Volvo offers.	Interested in EaaS for electrical machines, but does not prefer this solution in the long run. Does not want to retain a fleet of machines and own operators. Want to subcontract production.
Bellman Group - Machine Manager	Systems are too complex, and only the most necessary functions for customer satisfaction are used. Requests capacity planning support. Value expertise in load optimization, fuel efficiency and reduced wear. Want brand agnostic solution for data management from Volvo. Prefer as few suppliers as possible. Want more expertise and faster support from service providers. Interested in a full package solution with site study, capacity planning, delivery and maintenance of fueled and serviced machines. The remote monitoring system sends alarms to the wrong person and who is responsible for acting on information is unclear. Should be sent to the machine directly.	Positive towards free trial periods for digital services, and then pay for those enhancing productivity.	Not familiar with the complete service offering. Responsibility gap between Volvo and Swecon. Questions the role of Swecon, and suggests Volvo to take more responsibility for the network. Suggests closer collaboration with Volvo.	Interested in guaranteed uptime, where Volvo is responsible for replacing machines when there is breakdown. Interested in solutions where fueled-up and serviced machines can be collected in a location close to sites, when there is need.
PEAB- Machine Manager	Requests support regarding optimization and capacity planning from experts at Volvo. With the aim to reduce cost and improve productivity. Requests smoother data access and integration to their own systems from machines. Prefers to have third-party systems for consolidating the data. Requests uptime data access for error messages and preventive maintenance to be integrated in their own system. Want to monitor this data themselves. Requests safety service warning if humans are nearby machines. Requests more detailed and easy to access sustainability data.	Sees a need to rent inexpensive reused machines when the usage is limited but needed. Sees a need to rent electrical machines due to rapid technology development.	Request key account managers to have more extensive knowledge about the service offering.	Sees benefits with Volvo ensuring uptime and replacing broken machines, but raises concern about high costs for Volvo taking the risk.

4.6.2. Volvo CE and Dealers

Table 7: Summary of results from Volvo CE and Dealers

Company & Role	Value Proposition	Value Capturing	Value Delivery	EaaS
Swecon - Head of services and complementary products	Highlights ease of doing business as the most important value for customers when purchasing digital services. Digital services alone provide limited customer value. Higher level of customer value is created through consultation services. Consultants should perform site studies to identify customer needs and recommend service packages. Requests predictive systems informing customers how machine lifetime is affected by driver behavior.	Price setting should be flexible based on the value it creates in each customer case. Swecon suggests packaging services and pricing based on the complete offering.	OEMs and dealers must support customers starting digital services. Lack of organizational resources for selling digital services and supporting the customer with setup is the reason for slow service rollout. Requests guidance, education, and support from OEM to develop the organizational resources. Customers are confused by the relationship with Volvo and Swecon. Roles should be defined more clearly. Digital services would be easier to scale if they could be integrated into the MySwecon portal.	Raises issues with guaranteeing uptime and the definition of 95% uptime. Customers do not trust Volvo guaranteeing uptime for critical operations. EaaS must be tailored for the customers needs which vary significantly. Customers question paying more for an unfamiliar concept, when they are satisfied with today's offering of service contracts. Questions profitability from transferring risk to Volvo and Swecon. In Nordic countries, construction companies traditionally use subcontractors for machines, which are not interested in EaaS.
Volvo CE - KAM Sweden	Many customers request telematics services, but choose third party solutions for consolidating data. Third party providers often deliver a higher quality system. Safety service for detecting people around machines is requested. Safety services must be easy to implement and compatible with many different machine generations and brands. Eco Operator Training has been received positively due to high impact and customers understand the value it provides. Customer requests a service for accessing subcontractor emission data.		Customers experience uncertainties regarding roles of delivering services, and see different interfaces for the same solution. Advantages of Volvo and dealer working together delivering predictive maintenance, but experience problems convincing the customer. The service offering is scattered and extensive, making it difficult to market and sell services. Requests increased dealer education due to high technical knowledge requirements. Alternatively Volvo should take responsibility and sell the services directly to customers.	Customers request different values in the EaaS offering. Customers value the reduced need to worry about uptime and maintenance, while others value financial advantages.
Volvo CE - KAM France	Customers are mostly interested in services aimed at machines. Productivity services aimed towards sites struggle due to customers not wanting to be told how to perform their jobs. Importance of influencing decision makers within the customer's customer organization to affect them.	Upfront payment hinders more customers adopting services. The pricing strategy should include a free study or trial period to entice customers to use the service. Suggests that customers should be charged a percentage of improved earnings.	Requests organization with skilled personnel capable of selling and implementing services, speaking the local language and having customer knowledge. Requests the central service team to guide and train dealers to build organizational capabilities. Requests a clearer and more focused service offering which is taught inside the organization first.	Request customizable EaaS offering and marketing strategy since customer needs vary. Some customers value Volvo taking care of maintenance and uptime. Others value removing machines from the balance sheet. Customers not viewing their machines as strategic assets are more interested in EaaS. Customers with skilled equipment managers and machine strategy are not as interested.

4.6.3. Leading Industries

Table 8 - Summary of results from Leading Industries interviews

Company	Value Proposition	Value Capturing	Value Delivery	EaaS
Sandvik Rock Processing- Performanc e and Innovation Excellence Director	Sandvik aims to provide expertise through digital services which easily integrate in customers site management systems. They have no intention of providing full site solutions. Sandvik has seen success in helping customers help themselves remotely. Improving customer turnaround times and creating strong relational values. Supporting customer technicians remotely increases availability for the machines and utilizes Sandvik's resources more efficiently. Strong focus on making the customer's job easier through digital services. Sandvik emphasizes reaching many different roles within the customer organization. That will strengthen the connection between the customer Sandvik.	Focusing on customer development will lead to more opportunities to sell advanced services.	Sandvik's customer journey tracks how competencies evolve in different roles throughout relationships. A more educated and knowledgeable customer will buy more advanced services.	Qualified service and logistics network is needed to offer EaaS. Easier to motivate customers to purchase EaaS for a complete system compared to machines.
Sandvik Mining and Rock Technology - Vice President Service Operations	Sandvik works actively with moving customers up their maturity ladder, as more mature customers are susceptible for a more advanced and profitable service offering. Sandvik's customer platform centralizes all machine and order data in one place, creating a unified view for the customer. Formulate custom value propositions based on the customer business, problems and maturity level. Sandvik identifies key influencers in the customer organization.	Offers contracts based on utilization.	Challenges with having a complex range of services are identified, and services are developed with a focus on targeting customer problems instead. Moving to becoming an expert organization, educating customers technicians instead of servicing machines for them.	EaaS opportunities for electrical machines, since customers want to avoid high investment costs and risk.

Table 9 - Summary of results from Leading Industries interviews continued

Company	Value Proposition	Value Capturing	Value Delivery	EaaS
Volvo Trucks - Service Offer Director	Services aim to increase customer loyalty, satisfaction and relationships. The success of preventive maintenance services correlates to the relationship and trust between Volvo and the customer. When delivering preventive monitoring services, Volvo has the competitive advantage of extensive machine and component knowledge. Volvo's customer portal can be customized for different roles. Volvo emphasizes the importance of brand agnostic solutions, as many customers own different brands. Volvo sees the issue with a large and complex service offering and instead focuses on creating customized packages based on customer needs.	Customers want to own their machines.	Volvo has shifted the focus from developing its own ecosystem of services to include third-party actors. They consider partnership to be leadership. Some dealers in Nordic countries have developed their own organizations for selling and implementing services, highlighting the importance of customers understanding the offering.	Learning stages of how to make EaaS profitable. However, relationships with some customers are similar to the EaaS model, where Volvo Trucks take large responsibility in condition and usage of the trucks but without financial responsibility. These relationships are strong and ensure revenue streams from training and repairs.
ABB Robotics - Digital Lead	ABB remote health monitoring, improving uptime and reducing the number of breakdowns. For connected machines, ABB offers customizable maintenance schedules. Some customers lack knowledge needed to analyze data provided from systems. They also want to limit the number of systems used. ABB provides higher value by analyzing data, and providing specialized expertise to find improvements.		ABB forms dedicated project groups when customers need deeper data analysis and productivity improvement.	Customers prefer to directly own and manage their systems.

5. Analysis

Chapter 5 covers the analysis of the functional analysis of the desktop study, and the qualitative analysis of the conducted interviews. Further, a comparison of the results between the three studied groups is presented.

5.1. Functional Analysis

The results from the mapping of CE companies and leading industries services, together with data collected from the interviews, show that there is no significant functional difference in the services offered. Consequently, the success of manufacturing firms' servitization journey depends not solely on the functions offered. The strategy of ‘more services’ has previously been identified in literature as an insufficient solution for product firms. Instead, firms must take more extensive action and focus on innovating their complete business model when transitioning towards a more service-centric business. This finding has been supported from the results from the interviews, as more successful firms are less focused on developing new services and instead focus on how and to whom services are provided.

5.2. Qualitative Analysis

This section will cover the qualitative analysis of the empirical findings from interviews. The analysis is performed based on the business model categories of value proposition, value creation and value delivery, and EaaS.

5.2.1. Value Proposition

In this section, the results related to the value proposition are analyzed. The values that emerged from the interviews are presented for each of the three researched groups and compiled into the value pyramid.

Customers
The emphasized elements of value are presented and the results are summarized in Figure 9.

Simplification
Customers value services that make operations easier, and find some of Volvo CE's services too tedious or complex to use. The machine operators must be convinced that the solution will make their job easier, otherwise they will not use them. Additionally, services targeting fleet or site management are too complex. The customer's request user-friendly services, but also more extensive and recurring support to get the most out of the machines and services. Automation is also highlighted as an important aspect of making the customer's operations easier. Customers want to reduce manual work, but also minimize the human errors in the systems.

Integration
All customers highlight the importance of making integration of data to internal systems easier, using a brand agnostic data standard. Generally, large customers prefer their own or third-party solutions for consolidating machine data and tracking productivity. For these customers, easy integration of data to their internal systems is very important. Customers using subcontractors for operations request easy access to their productivity and sustainability data. Customers who do not possess these systems are open to purchasing them from Volvo CE, but still highlight the importance of brand agnosticism.

Customers highlight the advantages of Volvo CE's digital machine tools, noting that they prefer having fewer suppliers and a more seamless integration of digital equipment into the machine, emphasizing Volvo CE's strong knowledge of the machines.

Expertise
Volvo CE's expertise is highly valued, particularly in capacity planning. Customers are looking to leverage Volvo CE's extensive knowledge of the machines to effectively plan the capacity needed for their sites. They want to know what machines, what size of the buckets they should use and where the machines should be placed, to optimize production. Customers suggest Volvo CE taking a consultancy role and performing site studies with regular follow ups. However the width of consultancy services requested is limited

to the machines and capacity planning, as some customers express that they do not want Volvo CE to optimize productivity in other aspects, such as planning cycle times. One customer thinks that Volvo CE lacks expertise and knowledge about the construction industry to be able to give recommendations and take larger responsibilities in the construction sites.

The customers also request more education from the OEM to get the most out of the machines. Even though the education offered today is valued by the customers, they want more extensive and recurring training on the digital services. This, according to one customer, will motivate the machine operators to use the digital services to greater extent. Additionally, customers are requesting more training for decision makers, like production managers, who also interact with digital services and are responsible for the financial results. If education and information is only offered to a few select people in the organization it risks not reaching the right people in the organization.

Quality of service
Customers highlight that the quality of repair service provided does not meet satisfactory levels. They request shorter lead times and more support to find temporary solutions when their machine is broken.

Safety
All customers highly value safety on site and around machines. From Volvo CE, most customers request a safety service that can identify human motion around the machine.

Information
Customers value access to data, error messages and diagnostics from Volvo CE. By accessing more information about their usage of the machines, they can make more informed decisions to improve productivity, prevent breakdowns and report sustainability data.

Relationship
The relationship customers want with the OEMs varies significantly. Some customers, who do not own their machines, are satisfied with the current

level of relationship. Others want closer collaborations and wish to co-develop services to better address the complexity of construction sites. One customer prefers to handle most operations independently and does not want Volvo CE to take on larger responsibilities. Most customers want more education and follow up regarding services and capacity planning recommendations. Additionally, one customer identifies the need to strengthen the relationship with people with different roles within the customer organization. These diverse needs highlight the importance of a flexible approach when crafting value propositions.

Operational

The operational values are important to customers as they contribute to reducing the administrative workload. Customers highly value the aspects of the service offering that facilitates improved operational efficiency.

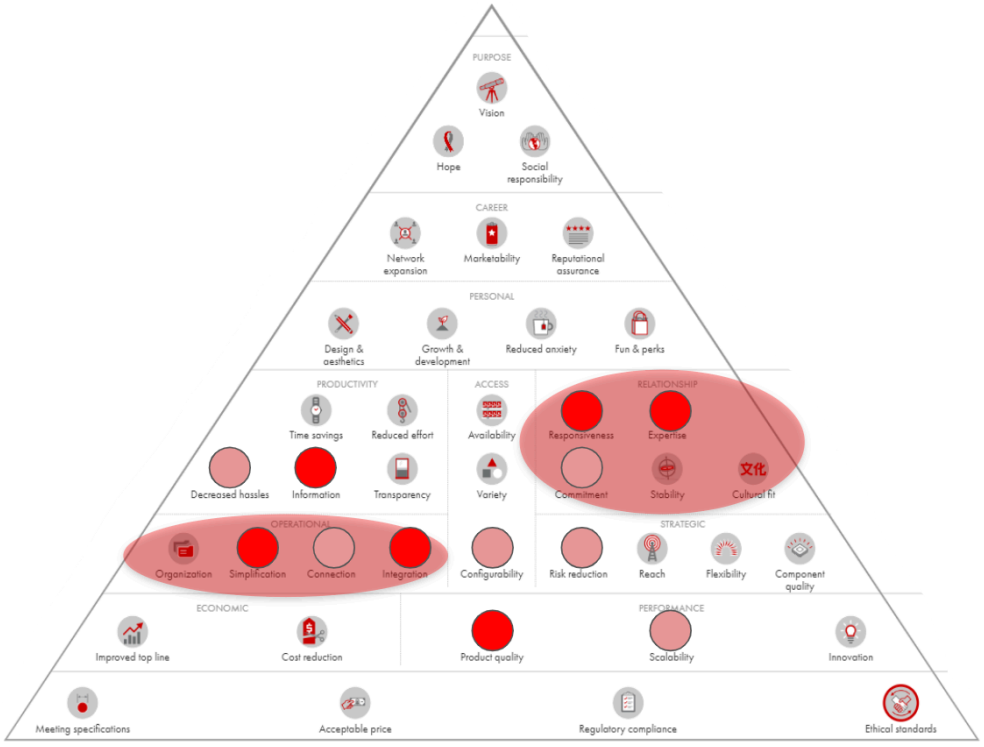

Figure 9: Summarization of results from interviews with customers in the value pyramid. The intensity of red indicates how strongly a value was emphasized. Darker shades means greater emphasis and lighter shades suggest less

Volvo CE
The emphasized elements of value are presented and the results are summarized in Figure 10.

Integration
Accessing machine data from Volvo CE telematics is very interesting for customers, but they prefer data consolidation for operations to be provided by a third-party actor. Additionally, customers request that subcontractor data be integrated into their systems.

Information
Predictive monitoring and how driver behavior affects the lifetime of specific parts is requested by the customer according to Swecon.

Safety
Safety services are highlighted as something that customers find important. However, services must be easy to implement and be compatible with older models as well as be brand agnostic. Volvo CE and their competitors in the construction equipment industry have a mature offering and meet customer demands.

Expertise
While digital services alone provide only limited value, functioning more as measurement instruments, site studies and consultancy services where packages of recommendations and services are offered can result in higher levels of value. However, customers find it difficult to understand the value of them and there is a resistance from customers towards being told how to manage their operations. Services aimed at machines are performing well since the value they provide is clear.

Operational
The operational benefits are important to Volvo CE's customers as they reduce administrative workloads. Customers highly value the aspects of the service offering that enhance organizational efficiency and simplify workflows, contributing to overall operational excellence.

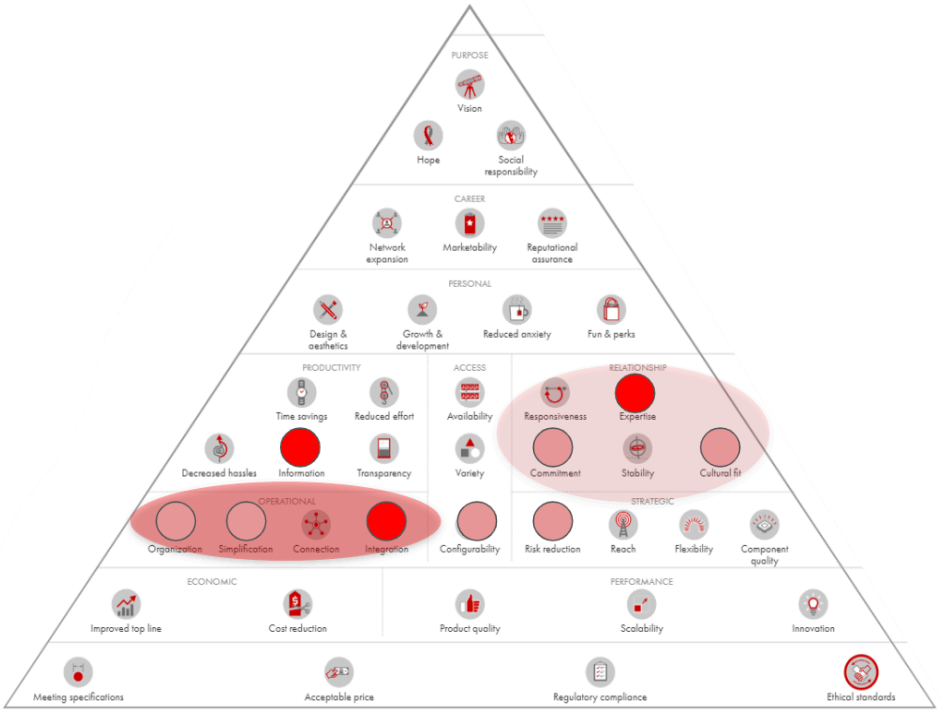

Figure 10: Summarization of results from interviews with Volvo CE in the value pyramid. The intensity of red indicates how strongly a value was emphasized. Darker shades means greater emphasis and lighter shades suggest less

Leading industries
The emphasized elements of value are presented and the results are summarized in Figure 11.

Integration
Integration of data is crucial for customers, both upstream and downstream. Upstream, leading industries ensure their systems are brand agnostic, recognizing that customers often use multiple brands of machines and do not want to manage many different systems. They also allow third-party applications to integrate seamlessly with their systems, eliminating the need for customers to install separate physical systems in their machines. Downstream, they ensure their systems and data are easily accessible and can be plugged into the customer's site management systems, reducing the number of systems customers need to monitor. Overall, they create value in data and not forcing their systems on customers.

Expertise
Leading industries focus on providing expertise directly related to their machines. Since they have the deepest understanding of their own equipment, they hold a competitive advantage over third-party system developers and competitors. This means focusing on machine related services and not moving far beyond this scope, avoiding the development of site management services, as other companies, specialized in process control, possess more experience and resources in that area. It also means shifting from selling hands-on maintenance and instead educating customer's technicians.

Responsiveness
The importance of ensuring the customer feels supported and attended to continuously, even in the absence of physical presence from the provider is highlighted. The leading industries focus on remote monitoring and support, to always help the customer as quickly as possible.

Growth & Development
By providing information and education, leading industries have seen success by developing their customers to help themselves, rather than

relying on hands-on support. An important value has been helping customers help themselves which has had benefits of improved turnaround times and more competent customers.

Actively developing customers and advancing them up the maturity ladder, where education is a key component, has enabled leading industries to offer more advanced services to customers who were previously not receptive to them. This process requires an active and flexible approach, handling unique relationships with each customer to understand their current capabilities and identify opportunities for improvement. By tailoring their support to each customer's needs, leading industries can enhance customer competence and readiness for more advanced and profitable solutions.

Organization
By tying digital services to specific machines or sites, leading industries help customers become more organized in their operations. Given that machine operators can change frequently, tying services to individual users can lead to information loss and unresolved issues. Establishing a robust system that connects services to machines, sites, or the customer's business system ensures continuity and organization, enhancing operational efficiency.

Simplification
Simplifying the customer's job is a core value in all leading industries' services. No service should make tasks more complex or add extra steps. Instead, they aim to reduce the workload, allowing customers to focus on core activities. By automating tasks and consolidating services into a single platform, multiple roles within the customer's organization can benefit from working with the supplier.

Information
Leading industries put making their customers more informed and knowledgeable as an important value in their value proposition. It allows customers to make more informed decisions, prevent breakdowns and make them susceptible to a more advanced service offering.

Relation
Relational values have been a key focus for leading industries when engaging with customers. They actively work on developing relationships at multiple levels, building the trust, loyalty, and satisfaction necessary for mutual growth and the sale of advanced services. In offering preventative maintenance services and remote support, they have observed that the strength of their relationship with customers directly influences how well these services are received. Therefore, strong relationships not only enable them to provide more valuable, advanced services but also enhance how well the services are received, which in turn strengthens the relationship further.

Leading industries ensure that relationship development occurs across multiple levels, not just with a few roles. By engaging with individuals beyond the purchasing department, including those working directly with the machinery or services provided, they form a closer connection to the customer. This approach requires a tailored value proposition that addresses the needs of various roles within the customer's organization.

Operational
Emphasizes reducing administrative burden so that customers can focus on their core business.

Value proposition crafting
Leading industries have taken measures to shorten and simplify their service offerings. They recognized that customers struggle to keep track of all their services and are shifting towards fewer, more effective options. The approach to simplification varies. Some companies focus on identifying and addressing customer problems rather than developing increasingly advanced in-house digital services. By prioritizing customer needs, they ensure that each service solves a real customer problem rather than just being another feature.

Another method for streamlining the offering involves creating customized service packages based on customer needs. Instead of presenting a long list

of options, they bundle relevant services to help customers achieve their goals more efficiently.

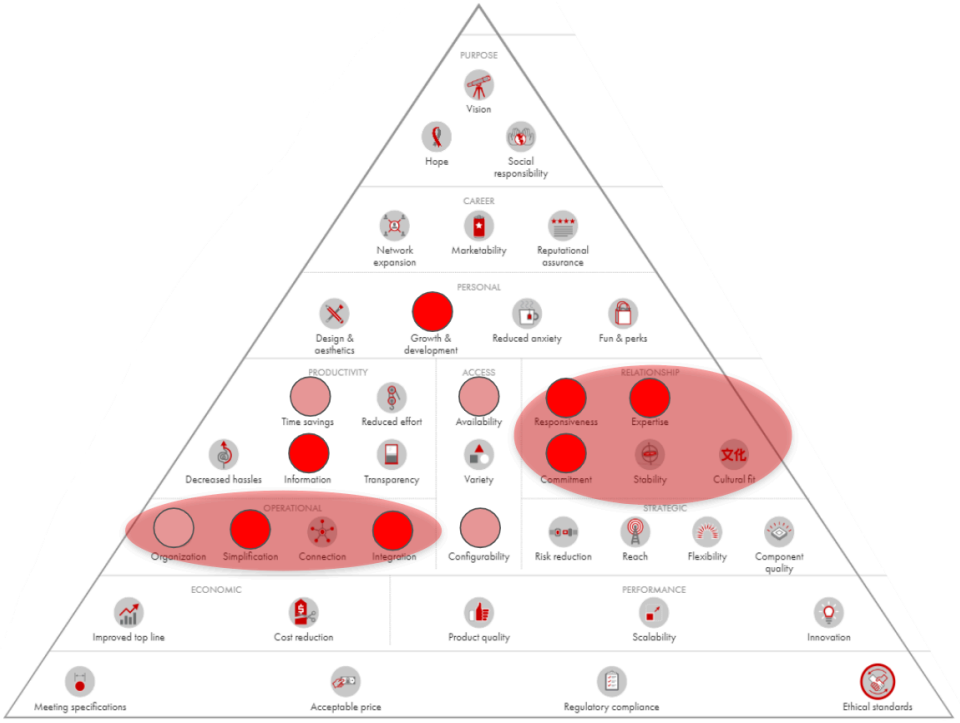

Figure 11: Summarization of results from interviews with leading industries in the value pyramid. The intensity of red indicates how strongly a value was emphasized. Darker shades means greater emphasis and lighter shades suggest less

5.2.2. Comparison of value proposition

Relational difference between Volvo CE and leading industries
When comparing the results from interviews with leading industries and Volvo CE, one overarching difference becomes evident. From Volvo CE, the results mainly focus on the services provided and what features and services that are requested by the customer. While relational values are highlighted, the focus is on how to help the customer to set up and start using the services. On the other hand, the leading industries focus less on service features and place much more emphasis on the relational aspects. Having a strategic plan for developing relationships, putting the customer at the center and moving customers up a maturity ladder characterizes the leading industries. By supporting the customer to become more mature, the demand for more advanced and high value services will increase, leading industries argue. By doing this, leading industries cover the growth and development value, which the Volvo CE representatives do not. Additionally, for leading industries the primary goal with the digital services is to increase customer loyalty and satisfaction, while ensuring financial feedback from services and repairs. While the Volvo CE representatives do not express the primary goal with the digital services, there seems to be a strong focus on making the services profitable.

As a step towards enhancing customer maturity, one leading industry focuses on helping the customer help themselves. Instead of seeing this as losing control over digital services and revenue opportunities, leading industries consider the long term value creation. By enabling customers to improve capabilities related to digital services, the customer experience is enhanced, and the provider does not have to allocate resources for customer support. More importantly, the provider-customer relationship is strengthened, and the increased customer capabilities lead to greater receptivity to more advanced services. The need to be able to help themselves has also been expressed by the customers.

Views on expertise

Both the Volvo CE representatives and customers highlight site studies and consultancy services as resulting in higher levels of value creation, and see the digital services as measurement instruments. While Volvo CE sees opportunities in delivering full site productivity solutions, with recommendations on how the operations should be managed, the customers do not want to be told how to run their operations. They are, however, interested in consultancy services related to machines and capacity planning. The expertise offered by leading industries is strongly related to the machines and not full site solutions. The customers are skeptical about Volvo CE's knowledge when it comes to how to manage construction sites. They express that Volvo CE underestimates the complexity in the construction sites, and that Volvo CE's services cannot cover all situations that may arise. Delivering services outside core competencies which are not satisfactory can damage the trust and relationship with the customer, but also offer opportunities for new revenue streams. One customer expresses the need of closer collaborations with the provider for both parties to learn how to co-create value in the most efficient way.

Similar values

Leading industries, Volvo CE, and customers all highlight the values of integration and simplification, which are related to operational aspects of value creation and can be found closer to the base of the pyramid. These values are objective in nature and offer limited value creation potential. The slightly more subjective productivity values are also highlighted, but not as extensively. The higher, more subjective, values are not explicitly wanted by the customers, pointing towards the industry being more focused on objective values that can be measured by value-in-exchange and having a goods-dominant view.

The productivity solutions targeting sites and fleets are not as well received as solutions directly linked to machines. The Volvo CE representatives' experience struggles with selling and convincing customers of the value from full solution productivity services and EaaS. Instead, as previously mentioned, the customers request services aimed at machines. These can be compared to product features rather than services that co-create value

through interaction with the provider. Additionally, the objective values of simplification, integration and organization are requested rather than subjective values as these are perceived as clearer and easier to understand the value of.

For Volvo CE this implies that some customers will not be open to invest heavily in closer collaborations and solutions which aim to co-create value. Instead of targeting these companies with subjective value as done today, tailoring the offering with flexibility is required. Here, the focus should be on helping the customer help themselves and enable the customer to develop capabilities, rather than trying to sell advanced full scale solutions. However, some customers are willing to strengthen relationships with Volvo CE as of today. For these customers, Volvo CE should focus on emphasizing value-in-use through more complex service offerings as they are receptive to these types of solutions, and it can lead to higher levels of value creation.

5.2.3. Value capturing

In this section, the results related to the value capturing mechanisms are analyzed. The findings are presented based on the three researched groups.

Customers
Generally, customers who own their own machine fleets are skeptical about paying for Volvo CE to take on ownership risks, as they consider the costs too high and do not trust Volvo CE to guarantee productivity outcomes. However, when it comes to electrical machines, customers are interested in renting or paying per machine hour, due to the rapid technological development. The subcontractor is interested in a pay-per-use model for projects lasting about two-three years. This preference allows them to concentrate on their core business of construction without worrying about uptime, servicing, and fueling.

Customers are generally open to a subscription model, as long as the services are actually contributing with value. They are also positive towards a free trial period to demonstrate the value of these services. However, one customer mentioned that some services are more like machine features and should be included in the purchase for the entire duration of machine

ownership. Another customer expressed a desire for transparency in the cost of the services and is skeptical about what costs are hidden in packages of services.

Volvo CE
The Volvo CE representatives raised concerns about the current subscription-based pricing strategy for services. They argued that the kickbacks from subscription fees do not compensate for the effort involved in helping customers set up the services. They also pointed out a lack of flexibility in the current model. Instead, they proposed a more outcome-focused value capture model, where the price of services should be based on the value created for each customer. For example, a service might be extremely valuable for one customer, saving them millions, but not as valuable for another. Therefore, services cannot be priced equally. Furthermore, they suggested that making money through consultancy services and selling packages of services to customers would be a more profitable strategy. Additionally, they proposed a pricing model based on a percentage of the customers' increased profitability. To further encourage adoption, they recommended offering free trial periods, as customers often avoid purchasing services at the time of the machine transaction.

Regarding machine ownership, Volvo CE representatives see challenges with increasing profitability by taking on that risk.

Leading industries
The leading industries have not made substantial progress in the sales of outcome based models either, indicating that the industry is not yet mature enough. This proves to be especially difficult for highly critical machines, whereas it is easier when the machines can be replaced easily. For critical machines, it is not the cost that hinders customers from adopting an outcome based model, but rather the need for control over the process. Offering outcome based models is much more reasonable when the entire process is managed comprehensively.

Regarding digital services, the leading industries do not aim to make money directly but to increase customer loyalty and satisfaction, thereby generating

revenue in other areas such as service and repair. Encouraging different roles within the customer’s organization to adapt to the firm's way of working will enable future opportunities for capturing value. Customers do not pay for the platforms themselves but may pay for additional services and consultancy, and the goal of the portal is to entice customers to buy these additional services.

5.2.4. Comparison of value capturing

In terms of value capturing mechanisms from digital services, customers are responding positively to the subscription model, but think that some features should be included in the purchase of the machine. They also emphasize the importance of demonstrating value before payment and approve of the concept of free trial periods. However, Volvo CE representatives question this value capturing model, as it does not create enough financial incentives to support the customer. Instead, an outcome based model for digital services, education, and consultancy services should be priced as a package based on the value that can be created, perhaps based on percentages of revenue increases. This approach is also approved by the customers. The leading industries have shifted their focus away from making money on individual services and emphasize creating customer loyalty and satisfaction with full solutions, using platforms to entice customers into buying additional services. Generally, all groups agree on the outcome-based model for selling packaged services.

Regarding ownership of the machine, industries are not yet mature enough to approve the outcome-based model, especially for critical machines. In cases where the provider can assume the risk of full processes, the concept is viewed more optimistically.

5.2.5. Value Delivery

In this section, the results related to the value delivery organization are analyzed. The findings are presented based on the three researched groups.

Customers
The customers have had varying experiences interacting with Volvo CE, but they all agreed on not being completely familiar with the service offering that Volvo CE provides and find it difficult to navigate. Some customers had issues understanding the benefits of each of the services and that different services overlap. One customer was of the opinion that not even their key account managers had enough knowledge of the service offering and that they had to research and propose certain services instead of them being promoted.

Several customers thought that the interface and interactions between themselves, Swecon, and Volvo CE, were lacking. When issues arose with service warranties, blame was perceived to be shifted around and no party assumed responsibility for the repair. The communication becomes especially convoluted when the three parties have separate conversations for solving the customer's issues. Another problem with the relation is that Volvo CE and Swecon provide different customer portals. They argue that both MySwecon and Volvo Connect serve very similar purposes, and having to interact with multiple systems makes the service offering even more complex.

However other customers were satisfied with the quality of service offered by Volvo CE and Swecon. Additionally, some customers wanted a closer relationship with Volvo CE and sought to collaborate in service development. They believed that Volvo CE could gain more experience from the construction industry and create services based on real customer problems. Another customer, who does not own any machines themselves, was satisfied with the level of their relationship to Volvo CE.

Volvo CE
Volvo CE and Swecon both see a need to develop a skilled service organization that is capable of selling and implementing services. Volvo CE's service offering is complex and often requires technical knowledge to market and implement which puts high demands on the sales organization. Today, there is a need to bring an expert from each service when meeting with the customer and selling the service offering, one account manager

says. They believe that the marketing can be improved through education, guidance and increased resources in the dealers' sales organization. Services need to be internally marketed and educated on before they can be offered to customers. The organizational needs are especially important for the digital services where there is a lack of experience and customers often need support, and for consultancy services. Internationally, there is an even bigger lack of competence and resources as many international customers want to speak to a salesperson in their own language.

Volvo CE has noticed that customers are confused on who delivers the service and argue that the roles need to be more clearly defined. The customers sometimes see different forms or interfaces for the same service. To work optimally, services should be accessible through one point of contact, and not be scattered over different systems or customer portals. However the opinion on who should be responsible for this varies between Swecon and Volvo CE.

Leading industries

Leading industries are focusing on developing a strong organization, dedicated to sell and implement services. They have acknowledged that services are in nature more abstract and require more expertise to sell. While they are working on developing their service organization and dealers, they are global companies with varying levels of maturity across countries and dealerships. Where the organization lacks the expertise or resources needed to sell and implement services like EaaS, they instead modify the service offering to fit what the local organization can support. Services like EaaS require a strong service organization and logistics network, and expertise in advanced services like optimization.

A firm in a leading industry has started to focus on helping customers help themselves, moving from doing practical work at the customer location to emphasizing remote support and adopting an educational approach, thereby assuming the role of the expert on their machines. Leading industries have also opened up their ecosystem to let third-party developers help them create value, emphasizing the network effects of co-creating value.

5.2.6. Comparison of Value Delivery

Uniform customer interface

Both customers and Volvo CE representatives mention organizational shortcomings in delivering value through services. The service offering must reflect the competence and capabilities of the value delivery organization. As customer and Volvo CE have identified, the service offering is complex but it becomes even more convoluted when the interface the customer engages with is not uniform. An example of this is dealers developing their own customer portal with similar functions as Volvo CE's Volvo Connect. The customer interface is a vital part of the external marketing and a leading service provider must help its customers navigate and understand the offering.

Service marketing

Comparing Volvo CE to leading industries, it is clear that the leading industries are much further developed and have a strategic approach to their internal and interactive marketing. The complexity of intangible services requires a much stronger service organization, which is achieved by dedicating resources to internal marketing. As one customer mentioned, even Volvo CE's salespeople did not have a complete understanding of the services they offer. Leading industries focus much more on selling and educating their sales network. An educated service organization is also a vital part in the implementation of services. As much of the value OEMs provide comes from their unique expertise of the machinery, a knowledgeable employee is key to delivering this value to the customer.

It is within the interaction between the OEM's service personnel and the customer that the interactive marketing occurs. The quality of the service that the customer experiences relies on this interaction. Leading industries in comparison to Volvo, put more emphasis on this and ensure that the personnel is knowledgeable to deliver.

5.2.7. Equipment-as-a-Service Offering

In this section, the results related to EaaS are analyzed. The values that emerged from the interviews are presented for each of the three researched groups. As EaaS means a significant change to all aspects of the business model, it is analyzed as a whole instead of under each individual area.

Customers

Customers owning their own fleet of machines sees taking the risk of ownership as part of their business model, and are concerned with paying more for using machines the same way they do today. Further, they are not trusting Volvo CE to guarantee productivity or output for their core activities and raise concerns with resolving liability disagreements and lock-in effects. Another area of concern were long contract periods. However, they are interested in how this will develop, and are intrigued by Volvo CE replacing broken machines directly and guaranteeing uptime if the price is attractive.

However, there were three cases where customers were more open to EaaS-services. For electrical machines, non-core activities and as a machine reserve. For electrical machines, customers valued the shared risk and investment costs between them and Volvo, but saw limited long term interest in the proposal, as they usually acquire the solutions from subcontractors together with the drivers. For non-core activities, customers saw a benefit in Volvo CE taking on responsibility, reducing the risk of a project. An important factor of the openness in this project was that it would only contain Volvo CE machines. Another customer, who was a subcontractor, requested a solution where they could easily collect served and fueled machines for projects, paying based on use. This would act as a machine reserve when extra capacity was needed or machine repairs were delayed.

Volvo CE

The Volvo CE representatives emphasize the importance of offering a customizable and tailored EaaS solution, along with a marketing strategy that addresses the diverse needs of their customers. These customers have varied reasons for opting for EaaS contracts. One of the two most common

reasons is concern about uptime as some customers struggle to find skilled service personnel and to develop an organization capable of maintaining machine uptime. These customers value Volvo CE taking on this responsibility. The other common reason is the desire to remove machines from their balance sheets.

Another group of customers interested in EaaS does not view the machines as strategic assets. These customers are either focused on another process or machine and lack a developed machine management organization dedicated to construction machines. They appreciate Volvo CE managing the fleet they use.

Volvo CE also recognized some issues customers saw in today's EaaS offering. Customers are questioning Volvo CE’s capability of delivering on machine uptime guarantees, something which the Volvo CE representative agreed with. Volvo CE also sees issues with motivating a higher cost for a new, unproven, ownership model, when customers are already satisfied with the solution today.

Leading industries
While none of the leading industries had a fully developed EaaS offering, they are exploring how to make the business model profitable. They are running pilot projects or have close, collaborative, relationships with customers which provide a similar value to the customer but without the complete financial model of EaaS. They have concluded that to offer EaaS, it requires a very qualified service and logistics network. They have also found that it is easier to motivate the model when taking on responsibility for a complete system, and not just a part of production. Another area where they see opportunities for EaaS is for battery electric machines, due to high investment costs and rapid technology development.

5.2.8. Comparison of Equipment-as-a-Service Offering

The value proposition put forward by Volvo, that EaaS reduces risk by guaranteeing uptime, increasing flexibility, and ensuring cost-effective use by only paying for what you use, has not been received as expected. Customers instead were concerned about Volvo CE’s ability to deliver on

promised uptime, reduced flexibility from being locked into a system, and hidden costs in contracts.

Despite these concerns, the views of Volvo CE representatives and customers on what works and what does not are often similar. Volvo CE recognizes the need to tailor the EaaS value proposition to meet each customer's individual needs. Currently, the EaaS case for electric machines is easier to motivate due to the rapid development of technology and high upfront cost. These factors are however temporary and are expected to diminish as the technology matures. EaaS may constitute an effective way of enabling the development of battery electric machines, but the reverse does not seem to be true.

Opinions when EaaS would be a suitable model differ between subjects. Two main cases have been categorized. The first was OEMs taking on full responsibility for a project, often supplying all the machines and services needed to perform the job. The main benefit for the purchaser was having a sole actor responsible for ensuring the outcome of the project. The second case involves the OEM supplying machines for a part of a project, in these cases, the machines supplied were often considered a part of non-core activities. This would allow the customer to focus on their core work.

Volvo CE representatives mostly see potential in the second area, where Volvo CE would provide machines and services to a customer who wanted to focus on more vital processes, like a crusher. Leading industries however expressed concerns about production liability risk when supplying a part of a value chain, as potential benefits do not compare to the potential liability costs. They see the most benefit in taking on a full project, having control of the entire value chain. While customers in general were hesitant to use EaaS, they identified two cases where it would be desirable, Volvo CE supplying a full solution for moving mass or providing a reserve fleet.

5.3. Summary Analysis

Customer Journey

To meet individual customer needs and create superior value, OEMs must offer the right services at the right time and to the right customer. This means understanding and tailoring the interaction with regards to the unique relationship between the OEM and the customer, the role within the customer organization and the degree of maturity within the customer's processes.

During the interviews, views of the construction equipment market as a lagging market, with firms slow to adapt and understand the value of the services, were expressed. In other words, the goods-dominant view of the construction equipment market was evident. This means that some companies will not be mature enough to understand the value-in-use for complex service offerings, and will respond better to an emphasis on value-in-exchange. On the other hand, some interviewed firms were mature enough and open to discuss value-in-use and complex service offerings.

Simultaneously, findings from the interviews and the theory points towards a non-linear relationship between the customer process maturity and potential for co-creation of value. In one case, a customer with highly mature processes might opt for a strictly transactional service maintenance services, preferring to perform more advanced in house, while a customer with less developed processes might purchase advanced services.

Determining what services a customer uses should therefore not solely be based on the perceived maturity of the customer, but also include the individual relationship between OEM and customer, i.e. the customer is choosing when and where to use the OEM.

To effectively and in a structured manner build customer relations, firms must develop a strategy covering organizational practices and resource management. This strategic plan is the customer journey and it covers how customer relationships should be developed and managed.

Proposed Theoretical Framework

When applying the theories of service marketing and service dominant-logic to the interview results, strong connections between the theories were observed. Consequently, a new theoretical model is proposed to integrate these two theories. This new model captures the service marketing capabilities needed for a manufacturing firm to market value-in-use through advanced services and is illustrated in Figure 12.

At the lowest level, basic services are in nature simple and create concrete value which can be measured by value-in-exchange. Because the value from these services is objective and often quantifiable, it is easy to explain and express, making it similar to selling goods and products. For these types of services, the value they offer can efficiently convey through the external marketing practices, traditionally used for selling goods and products.

At higher levels, the value offered in intermediate and advanced services is subjective in nature and co-created by the customer and the provider. The value is generated both through the customer and provider interaction and during the use of the service. Hence, the dynamic and difficult to formulate nature of value-in-use makes external marketing insufficient. Instead, the focus for efficiently marketing advanced services should be placed on interactive marketing, as each interaction with the customer provides a unique and subjective value. The quality of the interaction will affect the perceived value-in-use by the customer and the efficiency of the service marketing.

To ensure successful interactive marketing of advanced services and value-in-use, firms must develop a skilled and efficient organization equipped with the necessary resources to proficiently interact with customers and deliver value-in-use. This entails not only education and investments, but also mastering internal marketing. Firms must regard their marketing employees as internal customers, convincing them of the higher levels of value offered through value-in-use.

For Volvo CE, this encompasses expanding the view of marketing from external marketing to include internal and interactive marketing capabilities.

It involves convincing their dealers and key account managers of the higher values created through advanced services, and providing guidance and education on how to deliver and co-create that value during customer interactions. Additionally, it requires Volvo CE to develop a strategy for customer interactions, avoiding the hassles of several user interfaces and presenting a clear service offering.

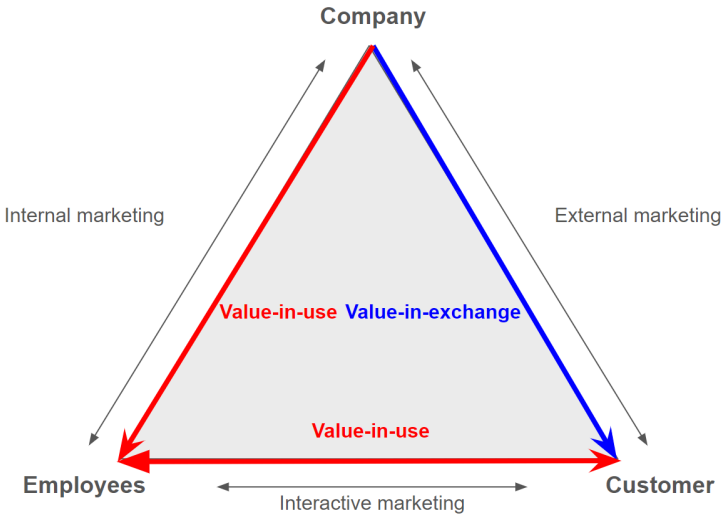

Figure 12: Proposed theoretical model connecting the theories of value-in-use and value-in-exchange with the service marketing model. Marketing value-in-use requires new channels for manufacturing firms

6. Conclusion

Chapter 6 covers the insights that are generated from the theoretical platform and the findings from the empirical studies. Lastly answers to the research questions are provided. By providing insights and answers to the research questions, the overarching research objective is achieved.

6.1. Insight 1 - Relations

Adopting a flexible approach to managing the customer relationships means developing customers and tailoring the value proposition based on the relationship and role.

Tailoring to the relationship
Managing customer relationships means adapting service offerings and commitment based on the customer participation and their willingness to collaborate actively. A unified and static offering to the customers will not lead to success, and is an inefficient way of allocating resources. Instead, for customers who are open to closer collaboration, focus should be placed on offering complete solutions with high-value services such as capacity planning and optimizing production. For customers hesitant to collaborate, the focus should be on delivering value-in-exchange services emphasizing integration and ease of doing business.

Tailoring to the role
Managing customer relationships based on the customer's role entails identifying the decision makers and tailoring the offering and value emphasis based on the customer preferences. Additionally, evaluators' preferences of value emphasis may change during a sales process, pointing to the need of understanding the political landscape of the customer organization and being flexible. This helps mitigate the risk of missing out on selling services due to one evaluator not understanding the value potential. Additionally, successfully satisfying different roles within the

customer organization will result in closer collaboration on multiple levels and an unwillingness from the customer to switch providers.

Developing customers
Manufacturers operate in a goods-dominant environment where customers traditionally focus on objective values-in-exchange. By concentrating on developing strong relationships, the OEM can overcome the value-in-exchange barriers, and start putting more emphasis on value-in-use in the dialogue with the customer. Moreover, developing the customer's digital capabilities and competencies further increase the receptiveness to more advanced services with greater potential for value creation. Therefore, developing a customer journey focusing on moving customers up the maturity ladder can be useful.

Instead of overwhelming the customer with a long list of services, the OEM should start by providing basic services and gradually build the customer competences. This approach will enable more sophisticated recommendations and services over time. However, the maturity level alone does not determine how much the customer is willing to collaborate. Instead, the provider should also consider other factors affecting the relationship. Engaging in continuous dialogue and communication with the customer can lead to opportunities for high value creation.

6.2. Insight 2 - Service Organization

Volvo CE should build an independent and skilled service organization which can assist customers and sell advanced services.

The lack of organizational support and assistance is one of the main hindrances for the implementation of digital services. Additionally, there is an opportunity for Volvo CE to deliver high value consultancy services aimed at the customer’s site, which requires organizational resources and expertise. Today, the organization is not sufficiently trained and educated, and the resources are not structured to create a seamless interaction with the customer.

A static company-customer marketing approach will not drive success in building relationships and selling advanced services. Instead, the focus should be on educating and persuading the service organization off the value that can be co-created with the customer. The service organization must be guided to create superior customer interactions by being supported with the right technology infrastructure and staffed by skilled employees with service and software knowledge. Additionally, instructing technicians on these interactions will lead to more sales opportunities and further build on the trust customers already have in these employees. Part of this involves offering strong incentives to the service organization, which can entail moving from a fixed subscription based pricing model towards a model based on the value created with the customer. This value based model better reflects the required support and resources, making interactions more worthwhile for the service organization.

6.3. Insight 3 - Expertise

Volvo CE should adopt two principles to enhance service offerings through leveraging core expertise.

Prioritize service offerings close to the core expertise
By leveraging its competitive advantage in unique machine knowledge, Volvo CE can deliver superior value and services that can't be replicated by third-party competitors or customers.

The service offering should be focused on Volvo CE's core competencies and align with customers demands. The intersection of these areas is where Volvo CE's unique knowledge of their machines can provide the highest value. For instance, expert services for capacity planning are heavily requested by customers. This includes advising which machine types, quantities and attachments are suitable for a specific project, or which fleet configurations are most compatible for optimizing production.

By prioritizing the services where Volvo CE has a distinct advantage, the use of the service organization resources is optimized. Focusing on the services Volvo CE excels at helps the organization market a more

comprehensible and clear offering which also facilitates the sale of services, and reduces the risk of non-core services tarnishing relationships with customers.

Volvo CE should prioritize services aligned with core competencies and reduce the emphasis on services that do not live up to customer expectations. For example, many customers prefer third-party services for consolidating data, as these often have a higher quality service. While Volvo CE can choose to develop and market this service, emphasis should today be put on services where Volvo CE has a competitive advantage.

Support customers in helping themselves
The Volvo CE service organization has capacity to create more value when offering their expertise as a first hand alternative to hands-on maintenance. As one leading industry company put it "We create value by selling our expertise and transferring knowledge, not by changing filters."

While practical hands-on services should be offered to those customers who need them, Volvo CE has a chance to create higher values by supporting customers in helping themselves. An example of this, which has been identified both in the desktop study and during interviews with leading industries, is remote-first support. Instead of sending a technician to site for problems that today require a visit, Volvo CE can provide the same service quicker and more cost efficiently remotely, relying on a supported customer helping themselves. Additionally, quick remote support can enhance the experience of commitment and presence even though Volvo is not physically present.

6.4. Answering Research Questions

RQ1: What values and solutions does a world leading service provider within the construction equipment industry offer?

What defines a world leading service provider within the construction equipment is not the number or technical complexity of services offered. Instead, a leading service provider delivers the right services, to the right

customer, at the right time. As identified in the analysis, there is no significant difference in the functions offered by the main competitors in the construction equipment industry, nor is there a group of services that distinguishes the leading industries.

Instead, a leading service provider delivers a tailored offering to its customers based on relationship and maturity level, and efficiently supports them to gain the full value of its services. With this said, some solutions are more requested from customers than others. Two values which were especially highlighted are the unique machine expertise OEMs possess and services which simplifies the customers operations. It is with these values in mind that OEMs should develop their value proposition to craft a service offering which customers consider to be a world leading offering.

RQ2: How does business model innovation relate to product-service system development in traditional manufacturing firms aiming for servitization?

Successfully transitioning towards being more service-centric in the product-service system involves innovation across all three dimensions of the business model, as changes in one dimension affects the others. To succeed in co-creating high value with the customers, firms must concentrate on crafting value propositions to the right customers and customer roles according to S-D logic, build a service organization with the right skill sets and resources to manage and develop customer relationships, and remain flexible in the approach to capturing value through value based pricing strategies.

7. Discussion

Chapter 7 covers the discussion of the quality and reliability of the research. The effects of the delimitations made are discussed and how an alternative method would affect the results. Lastly, a critical review of the thesis' contribution to the academy and suggestions of further research is presented.

7.1. Critical Review of Result

The quality of the study and its results is evaluated based on its replicability, reliability and validity. The criteria for defining a leading industry or selecting incumbent firms lack both reliability and replicability. One issue affecting the reliability of the research is the lack of a uniform definition of "services", when determining the revenue share of each case company's service offering. Additionally, the practice of selecting companies which are "deemed to have a highly competitive service offering" is not a replicable or reliable method.

Comparing results from the leading industries to the construction equipment industry may affect the validity of conclusions drawn. As the case companies are active in different industries, the aspects of what makes a servitization transformation successful in one industry, may not be applicable to another. To reduce the risk of industry differences affecting the validity of the result, aspects which have been clearly unique to a leading industry's nature have been disregarded.

7.2. Effect of Delimitations

The delimitations of the thesis are constraining the validity of the conclusions to a broader population. The decision to limit the customer base to larger customers was made because this group was previously identified as particularly important. However, the conclusions drawn from these results may not be applicable to smaller firms. While there were exceptions,

most interviews had a focus on the Swedish market. The results are therefore most relevant for companies active in Sweden.

No interviews were conducted with people who held operational roles such as site managers, technicians or machine operators. While the views of operational personnel were discussed in interviews, by not talking directly to these roles, the opinions are not deeply analyzed or confirmed.

7.3. Alternative Methodology

An alternative methodology could provide different insights into the construction equipment industry. Conducting a quantitative survey study would allow for the collection of opinions from a broader range of customers and companies in leading industries, as well as from various roles within those organizations. This approach could yield more comprehensive insights and have statistical significance to the conclusions, making them more applicable to a broader population.

However, Volvo CE already conducts regular quantitative surveys of their customers and dealers. As a result, a new quantitative study might not generate new information, or provide deeper understanding of the subject.

7.4. Contribution to Academy

This thesis contributes to expanding the existing academic knowledge of servitization, the dynamics of the construction equipment industry and the intersection between these two areas. By exploring the aspects of servitization in a construction equipment context, theory is tested and applied to new situations, strengthening its validity. Further, an extensive mapping of what values are important in the construction equipment industry is done.

The methodology of comparing firms within the construction equipment industry with those in industries with higher level of servitization, using the theoretical platform from this study, provides an effective benchmarking tool for understanding market context and firm positioning within a service context. This approach can be used repeatedly at regular intervals to capture market changes, and it can be applied in the construction equipment industry as well as other manufacturing industries with similar characteristics.

Furthermore, this study culminated in insights that can benefit firms undergoing servitization journeys, particularly in industries similar to the construction equipment industry. These insights provide guidance on how firms may innovate in all aspects of the business model successfully in a product-service context.

By analyzing two different theoretical frameworks, and validating the results with empirical findings, a new theoretical model was proposed to integrate the two theories. This model gives new insights into what service marketing capabilities firms need to market the value-in-use and value-in-exchange aspects of provided services.

7.5. Further Research

This exploratory study found new aspects of servitization strategy in the construction equipment industry. Further research could be done to determine the relative importance of both previous and newly discovered aspects of servitization. Additionally, the effects of delimitations could be further researched. As many OEMs in the construction equipment industry are active in different markets globally, it is of commercial interest if the findings can be extrapolated to other markets and customer types.

Furthermore, the theory of value-in-use and value-in-exchange is complex and requires further research to understand how it can be applied when comparing the service offerings of firms. By studying these value concepts

in industries with varying levels of servitization and characteristics, the theory can be tested and validated.

Looking forward, an effective and validated tool for service benchmarking with a clear focus on value should be developed, building upon the theoretical platform and findings developed in this study.

EaaS is in many aspects an undeveloped area for manufacturing firms, and there is a lack of robust theoretical platforms that can be applied. Furthermore, few practical examples of how business model innovation impacts when integrating EaaS. This area needs further research and collaborations between the academy and the industry.

Finally, the newly proposed theoretical framework, connecting the service marketing organization to value and service types, should be further researched and tested for validity.

References

Almquist, E., Cleghorn, J. Sherer, L., *What B2B buyers really care about.* Harvard Business Review March - April 2018, pp. 72–81 (2018). https://hbr.org/2018/03/the-b2b-elements-of-value [Accessed 2024-05-26]

Ardolino, M., Rapaccini, M., Saccani, N., Gaiardelli, P., Crespi, G., Ruggeri, C. *The role of digital technologies for the service transformation of industrial companies.* International Journal of Production Research Vol. 56, No. 6, (2018) https://doi.org/10.1080/00207543.2017.1324224 [Accessed 2024-05-26]

Benjamin, G., Lavandier, H., Muthiah, S. *The services solution for unlocking industry's next growth opportunity.* (2019) https://www.mckinsey.com/capabilities/operations/our-insights/the-services-solution-for-unlocking-industrys-next-growth-opportunity [Accessed 2024-05-26]

Benitez, G. B., Ayala, N. F., Frank, A. G. *Industry 4.0 innovation ecosystems: An evolutionary perspective on value cocreation.* International Journal of Production Economics Vol. 228, (2020) https://doi.org/10.1016/j.ijpe.2020.107735 [Accessed 2024-05-26]

Brink, H., Fonseca, A., Gilson, K., Guzman, N., Heriford, B., Muthiah, S. *Prepare now for the future of industrial services.* (2022) https://www.mckinsey.com/capabilities/operations/our-insights/prepare-now-for-the-future-of-industrial-services [Accessed 2024-05-26]

Chowdhury, S., Haftor, D., Pashkevich, N., *Smart product-service systems (Smart PSS) in industrial firms: a literature review.* Procedia CIRP Vol. 73, pp. 26–31, (2018) https://doi.org/10.1016/j.procir.2018.03.333 [Accessed 2024-05-26]

Deloitte *Equipment-as-a-Service From Capex to Opex –new business models for the machinery industry.* (2021)

https://www2.deloitte.com/content/dam/Deloitte/de/Documents/energy-resources/Deloitte_Equipment-as-a-Service.pdf [Accessed 2024-05-26]

Friedli, T., Osterreider, P., Classen, M. *Managing Industrial Services.* (2021) https://link.springer.com/content/pdf/10.1007/978-3-030-72728-4.pdf [Accessed 2024-05-26]

Gebauer, H., Fleish, E., Friedli, T. *Overcoming the service paradox in manufacturing companies.* European Management Journal Vol. 23, No 1, pp. 14–26, (2005) https://doi.org/10.1016/j.emj.2004.12.006 [Accessed 2024-05-26]

Harvard Business Review Analytic Services *Refining digital transformation through Asset Centricity*. (2022) https://hbr.org/resources/pdfs/comm/servicemax/RefiningDigitalTransformationthroughAssetCentricity.pdf [Accessed 2024-05-26]

Hill, A., Hill, A. *Operations strategy.* (2018)

Kotler, P., Armstrong, G. *Principles of marketing.* 17th Global Edition (2017)

Kowalkowski, C. *Dynamics of value propositions: insights from service‐dominant logic.* European Journal of Marketing Vol. 45 No. 1/2, pp. 277–294 (2011). https://doi.org/10.1108/03090561111095702 [Accessed 2024-05-26]

Kowalkowski, C., Ulaga, W. *Service strategy in action: a practical guide for growing your B2B service and solution.* (2017)

Kowalkowski, C., Wirtz, M., Ehret, M. *Digital service innovation in B2B markets.* Journal of Service Management Vol. 35, No. 2, pp. 280–305 (2024) https://doi.org/10.1108/JOSM-12-2022-0403 [Accessed 2024-05-26]

Lekvall, P., Wahlbin, C. *Information för marknadsföringsbeslut.* 4th edition. (2007)

Matzler, K., Hinterhuber, H. H. *How to make product development projects more successful by integrating Kano's model of customer satisfaction into quality function deployment*. Technovation Vol. 18, No 1, pp. 25–38, (1998) https://doi.org/10.1016/S0166-4972(97)00072-2 [Accessed 2024-05-26]

Meier, H., Roy, R., Seliger, G. *Industrial product-service systems–IPS*^{2}. CIRP Annals Vol. 59, No 2, pp. 607–627, (2010) https://doi.org/10.1016/j.cirp.2010.05.004 [Accessed 2024-05-26]

Neely, A. *Exploring the financial consequences of the servitization of manufacturing.* Operations Management Research Vol. 1, pp. 103–118, (2008) https://doi.org/10.1007/s12063-009-0015-5 [Accessed 2024-05-26]

Osterwalder, A., Pigneur, Y., Bernarda, G., Smith, A. *Value proposition design.* (2014)

Parasuraman, A., Grewal, D. *The impact of technology on the quality-value-loyalty chain: a research agenda.* Journal of the Academy of Marketing Science Vol. 28, pp. 168–174, (2000) https://doi.org/10.1177/0092070300281015 [Accessed 2024-05-26]

Rabetino, R., Harmsen, W., Kohtamäki, M., Sihvonen, Jukka., S*tructuring servitization-related research.* International Journal of Operations & Production Management Vol. 38 No. 2, pp. 350–371 (2018). https://doi.org/10.1108/IJOPM-03-2017-0175 [Accessed 2024-05-26]

Rangaswamy, A., Moch, N., Felten, C., Van Bruggen, G., Wieringa, J. E., & Wirtz, J. *The Role of Marketing in Digital Business Platforms.* Journal of Interactive Marketing Vol. 51, No. 1, (2022) https://doi.org/10.1016/j.intmar.2020.04.006 [Accessed 2024-05-26]

Reim, W., Lenka, S., Parida, V., Frishammar, J. *Value leakage in product-service system provision: A business model alignment perspective.*

IEEE Transactions on Engineering Management Vol. 71, pp. 940–951 (2024) https://doi.org/10.1109/TEM.2022.3144741 [Accessed 2024-05-26]

Runeson, P., Höst, M. *Guidelines for conducting and reporting case study research in software engineering.* Empirical Software Engineering 14, pp. 131–164 (2009). https://doi.org/10.1007/s10664-008-9102-8 [Accessed 2024-05-26]

Simonsson, J., Agarwal, G. *Perception of value delivered in digital servitization.* Industrial Marketing Management Vol. 99, pp. 167–174 (2021). https://doi.org/10.1016/j.indmarman.2021.10.011 [Accessed 2024-05-26]

Tukker, A. *Eight types of product-service system: eight ways to sustainability, experiences from Suspronet.* Business Strategy and the Environment Vol. 13, No 4, pp. 246–260, (2004). https://doi.org/10.1002/bse.414 [Accessed 2024-05-26]

Vandermerwe, J., Rada, J. Servitization of business: Adding value by adding services. European Management Journal Vol. 6 No 4, pp. 314–324. (1988). https://doi.org/10.1016/0263-2373(88)90033-3 [Accessed 2024-05-26]

Wirtz, J., Patterson, P.G., Kunz, W.H., Gruber, T., Lu, V.N., Paluch, S. and Martins, A. *Brave new world: service robots in the frontline*, Journal of Service Management Vol. 29 No. 5, pp. 907–931, (2018) https://doi.org/10.1108/JOSM-04-2018-0119 [Accessed 2024-05-26]

Yip, M. H., Phaal, R., Robert, D. R. *Characterizing product-service systems in the healthcare industry - an internal stakeholder perspective.* 2012 IEEE International Conference on Industrial Engineering and Engineering Management, pp. 1736–1740, (2012) https://doi.org/10.1109/IEEM.2012.6838044 [Accessed 2024-05-26]

Appendix 1 - Interview guide

Introduction:
Request permission to record the interview.

Explain the background and purpose of our thesis.

Purpose and structure of interview:
Present:

- The structure of the interview
    - The five identified areas of value creation
- The purpose of the interview
- What information we are hoping to get out of the interview
- Brief explanation of the 40 B2B elements of value.

General questions:

- What does it mean to be a leading service provider in the construction equipment industry in your opinion?
- Do you find it easy to navigate and understand Volvo CE's current service offering?
- In your organization, who is involved in the procurement of services related to machines?

Productivity:

- Within productivity services, are you interested in services aimed towards the machine, the fleet or the site?
    - In areas of interest, what value do you believe an OEM provides?
    - In areas of non-interest, why not and is there any other values an OEM could provide? Do you purchase these services from third-party providers?

- Are there any services, which Volvo CE does not offer today, that you wish to be developed?
    - What value would they provide?

Uptime:

- Within uptime services, are you interested in services aimed towards the machine, the fleet or the site?
    - In areas of interest, what value do you believe an OEM provides?
    - In areas of non-interest, why not and is there any other values an OEM could provide? Do you purchase these services from third-party providers?

- Are there any services, which Volvo CE does not offer today, that you wish to be developed?
    - What value would they provide?

EaaS and Financial:

- Do you employ Volvo CE's financial services?
    - Do you rent or lease any machines?
    - If yes, what value does this service create for your organization?
    - If no, why not and what value is the offering missing?

- Do you acquire any machines through EaaS-contracts?
    - If yes, what additional value does EaaS create for your organization?
    - If no, why not and what value is the offering missing?

Sustainability:

- Do you purchase any services from Volvo CE today that supports your sustainability work?
- What value do the sustainability services which you don't purchase today lack?
- What services do you wish an OEM would provide?

Safety:

- Do you purchase any services from Volvo CE today that supports your safety work?

- What value do the safety services which you don’t purchase today lack?
- What services do you wish an OEM would provide?