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Enablers of Servitization in Supply Chain Management

A Case Study of a Multinational Manufacturing Firm

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ABSTRACT:

Industrial markets are becoming more competitive, and products are easier to replicate. Manufacturers are therefore looking beyond product sales for new sources of value. Servitization, the shift from product-led to service-oriented business models, has emerged as the most widely discussed response, but the promise has not converted reliably into financial results. The literature calls this gap the servitization paradox and locates it at the intermediate stages of the transition, where investment in services is well underway but internal alignment has not caught up. The relevant question is therefore not whether to servitize, but whether the organizational foundations exist to make services pay off.

The supply chain occupies a central but under-examined position in this challenge. Most supply chain structures were built around efficiency and product flow rather than service logic. While servitization has been studied in depth at the firm level, the enablers within supply chain management specifically remain comparatively under-examined. This study addresses that gap by identifying the enablers of servitization in supply chain management and examining how they can support profitable growth. The theoretical framework draws on the RCOV model (Demil & Lecocq, 2010), which describes a business model through four interacting dimensions: Resources, Competencies, Organization, and Value proposition. The empirical study is based on a qualitative single-case design with semi-structured interviews of senior managers across multiple functions of a multinational manufacturing firm.

The findings identify six key enablers mapped onto the four RCOV dimensions: digital infrastructure and data integration; service-oriented skills and commercial competencies; leadership commitment and change management capacity; cross-functional collaboration and organizational integration; external collaboration with customers and partners; and a clearly defined internal service value proposition. Their contribution to profitable growth depends on developing together. Progress on any one without corresponding development across the rest tends to stall. The study contributes to the literature by shifting analytical focus from what servitization promises to what makes it work in practice, and by extending RCOV with a sequencing logic not previously articulated in the supply chain context. For practitioners, the findings offer concrete guidance on where organizational attention is most needed if the supply chain is to move from a cost function into a driver of profitable service-based growth.

KEYWORDS: Servitization paradox; Supply Chain Management; Servitization; Service-Dominant Logic; Product Service Systems and Manufacturing.

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ABSTRAKTI:

Teollisuusmarkkinoiden kilpailu kiristyy ja tuotteiden kopioiminen helpottuu. Valmistavat yritykset etsivät siksi yhä useammin uusia arvonluonnin lähteitä pelkän tuotemyynnin lisäksi. Palveluvaltaistuminen, eli siirtyä tuotelähtöisistä palvelukeskeisiin liiketoimintamalleihin, on noussut tämän haasteen keskeisimmäksi vastaukseksi. Sen lupaus ei kuitenkaan ole muuttunut luotettavasti taloudelliseksi tuloksiksi. Kirjallisuus kutsuu tätä kuilua palveluvaltaistumisen paradoksiksi ja sijoittaa sen siirtymän välivaiheisiin, joissa palveluinvestoinnit ovat käynnissä mutta sisäinen yhteensovittaminen on kesken. Olennainen kysymys ei siten ole, kannattaako palveluvaltaistua, vaan onko organisaatiossa perustat, joiden varassa palvelut tuottavat tulosta.

Toimitusketju on tässä haasteessa keskeisessä mutta vähän tutkitussa asemassa. Useimmat toimitusketjurakenteet on rakennettu tehokkuuden ja tuotevirtojen, ei palvelulogiikan, ympärille. Vaikka palveluvaltaistumista on tutkittu laajasti yritystasolla, sen mahdollistavat tekijät nimenomaan toimitusketjun johtamisessa ovat jääneet vähälle huomiolle. Tämä tutkimus tunnistaa palveluvaltaistumisen keskeiset mahdollistavat tekijät toimitusketjun johtamisessa ja tarkastelee, miten ne tukevat kannattavaa kasvua. Teoreettinen viitekehys nojaa Demil ja Lecocq (2010) RCOV-malliin, joka jäsentää liiketoimintamallin neljän vuorovaikutuksessa olevan ulottuvuuden kautta: resurssit, kyvykkyydet, organisaatio ja arvolupaus. Empiirisesti tutkimus perustuu laadulliseen yhden tapauksen tutkimukseen ja puolistrukturoituihin haastatteluihin, jotka tehtiin monikansallisen valmistavan yrityksen ylemmän johdon kanssa.

Tulokset tunnistavat kuusi keskeistä mahdollistavaa tekijää, jotka asettuvat RCOV-mallin neljään ulottuvuuteen: digitaalinen infrastruktuuri ja tiedon integraatio; palvelukeskeiset taidot ja kaupalliset kyvykkyydet; johdon sitoutuminen ja muutosjohtamisen kapasiteetti; toimintojen välinen yhteistyö ja organisaation sisäinen integraatio; ulkoinen yhteistyö asiakkaiden ja kumppaneiden kanssa; sekä selkeästi määritelty sisäinen palvelun arvolupaus. Niiden vaikutus kannattavaan kasvuun riippuu siitä, miten ne kehittyvät yhdessä. Yhden tekijän edistäminen ilman vastaavaa kehitystä muilla osa-alueilla johtaa tavallisesti pysähtymiseen. Tutkimus täydentää aiempaa kirjallisuutta siirtämällä huomion palveluvaltaistumisen lupauksesta siihen, mikä tekee siitä käytännössä toimivaa, ja laajentamalla RCOV-mallia toimitusketjun kontekstissa vaiheittaisuuden logiikalla, jota aiempi kirjallisuus ei ole jäsentänyt. Käytännön toimijoille tulokset tarjoavat konkreettisen suuntaviivan siihen, mihin organisatorista huomiota on syytä kohdistaa, jotta toimitusketju voi siirtyä kustannustoiminnosta kannattavan palvelupohjaisen kasvun ajuriksi.

AVAINSANAT: Servitization paradox; Supply Chain Management; Servitization; Service-Dominant Logic; Product Service Systems and Manufacturing.

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Table 1. Abbreviations

SCM	Supply Chain Management
RCOV	Resources, Competencies, Organisation, and Value proposition
SDL	Service-Dominant Logic
GDL	Goods-Dominant Logic
PSS	Product-Service System
VMI	Vendor-Managed Inventory

CRM	Customer Relationship Management
OTC	Order-to-Cash
AI	Artificial Intelligence
IT	Information Technology

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Emilia Aleksandra Saxén, 2026

1 Introduction

This chapter introduces the topic of the study and establishes the foundations on which the rest of the thesis is built. It situates servitization within the context of supply chain management and explains why the integration of service logic into supply chain practice has become an increasingly pressing concern for manufacturing firms. The discussion opens with the background of the study and the research gap that motivates it, before turning to the research question and sub-objectives that guide the empirical work. The scope of the study is then delimited, the central concepts are defined, and the structure of the remaining chapters is set out so that the reader can follow the argument as it develops through the thesis.

1.1 Background of the study

Manufacturing firms in industrial markets are operating under conditions that the traditional product-led business model was never designed for (Baines et al., 2020, p. 1). Markets that once rewarded scale, technical superiority and efficient production have become more competitive, more transparent and, in many segments, harder to differentiate on product attributes alone (Vandermerwe & Erixon, 2023, p. 480; Bustinza et al., 2015, p. 1). Customers increasingly expect not only equipment but the outcomes that equipment enables, availability, performance, predictability and, in some cases, full operational responsibility (Rabetino et al., 2017, p. 7; Story et al., 2017, p. 7). For manufacturers, this shift in expectations has narrowed the space in which product sales alone can sustain margin growth and has redirected attention toward services as a source of differentiation and recurring revenue (Raddats et al., 2019, p. 215).

The response suggested by Vandermerwe & Rada (1988) that has come to dominate both the academic literature and managerial practice is servitization: the development of integrated product-service offerings designed to deliver value over the full lifecycle rather than at the point of sale (Visnjic Kastalli & Van Looy, 2013, p. 169; Kowalkowski et

al., 2017, p. 4). Across industries, servitization has been positioned as the most credible route out of price-based competition and into more defensible commercial territory (Bustinza et al., 2015, p. 1). The argument is straightforward in principle: services are harder to replicate than products, they build closer customer relationships, and they generate revenue streams that continue long after the equipment has been delivered (Vandermerwe & Erixon, 2023, p. 479).

What has proved harder is converting that strategic intent into financial performance (Brax et al., 2021, p. 518). A growing body of empirical work has documented that firms which invest in services do not reliably see the returns the model implies, and many encounter periods of declining profitability even as service revenue grows (Brax et al., 2021, p. 518). This gap between expectation and outcome, the servitization paradox, has emerged as one of the central problems in the field (Visnjic Kastalli & Van Looy, 2013, p. 169; Brax et al., 2021, p. 518). The paradox is now widely understood not as evidence that servitization fails as a strategy, but as a signal that the internal conditions required to make service offerings commercially viable are more demanding than the strategic case suggests (Brax et al., 2021, p. 536).

Among the internal conditions that matter, the supply chain has received notably less attention than other functions (Kamal et al., 2020, p. 12; Johnson & Mena, 2008, p. 4). Johnson & Mena argue further that (2008) “Effective servitization requires: the co-ordination of manufacturing systems, maintenance systems, spare parts supply systems, logistics systems, and so on” (Johnson & Mena, 2008, p. 4), coordination that sits at the heart of supply chain management. Since SCM is one of the main functions directly connected to revenue generation in a manufacturing firm, its role in servitization is central (Johnson & Mena, 2008, p. 4). The supply chain is therefore where the gap between service ambition and operational reality is most visible, and where the enablers of servitization are most directly at stake. Yet it has received notably less attention in servitization research than the firm level, a gap the next section examines.

1.2 Research gap

Despite the growing volume of work on servitization, the field remains relatively underdeveloped in one important respect (Randall et al., 2014, p. 114). Most existing research has concentrated on what servitization aims to deliver in terms of strategic rationale, performance outcomes and organizational change at the firm level (Randall et al., 2014, p. 114). Far less work has examined the internal conditions that determine whether the transition succeeds at all (Rabetino et al., 2017, p. 31). Therefore, the enabling conditions that make servitization possible are in the center of the research gap.

Within this broader gap, the supply chain occupies a particularly significant but underexamined position (Rabetino et al., 2017, p. 21). Service-based business models require continuous customer interaction, real-time information flows and value creation across the full product lifecycle, which are capabilities that most supply chains were not originally designed to deliver (Randall et al., 2014, p. 114). Specifying the supply chain as the unit of analysis therefore provides a tighter operational lens than firm-level studies, since it focuses the inquiry on the routines, relationships and processes through which servitization either succeeds or stalls (Enz & Lambert, 2022, p. 28).

Within manufacturing firms specifically, the servitization question takes on a particular character. Manufacturers built their supply chains around product flow, efficiency, and cost control, which makes the shift toward service-based value creation more demanding than for firms already service-oriented (Baines et al., 2017, p. 256). The capabilities and routines that made the product-led model successful are not those required to deliver services at scale, and the gap between them is where the servitization paradox is most acutely felt (Brax et al., 2021, p. 518). Studying servitization in this context therefore captures the transition where it is hardest and where the enabling conditions matter most.

Together, three layers of the gap motivate this study. Servitization has been studied extensively at the firm level, but its enabling conditions less closely. Within those conditions, the supply chain remains under-examined and within SCM research, enablers tend to be analyzed individually rather than as an interdependent set that develops over time. This study addresses these gaps by identifying the enablers of servitization in supply chain management of a multinational manufacturing firm and examining how they can support profitable growth.

1.3 Research question and objectives of the study

As firms transition toward service-oriented business models, supply chain management is expected to support not only product delivery but also customer value creation. Most supply chain structures, however, were built around efficiency and product flow, not service logic (Baines et al., 2017, p. 256). This study focuses on identifying the enablers of servitization in supply chain management, and on understanding how they can support profitable growth.

Accordingly, the main research question of this thesis is: **What are the enablers of servitization in supply chain management of a multinational manufacturing firm, and how can they support profitable growth?**

To address the main research question, the following sub-objectives are defined in Table 2 below:

Table 2. Sub-objectives

Sub-objective 1.	To review the literature on servitization and supply chain management and identify the enabling conditions that make the transition to service-based operations possible.
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Sub-objective 2.	To identify the enablers of servitization in the supply chain of a multinational manufacturing firm.
Sub-objective 3.	To examine how these enablers can support profitable growth.

1.4 Delimitations of the study

This study is delimited in four ways. First, the scope is restricted to **supply chain management within manufacturing firms**, rather than servitization at the firm level or in service industries. Supply chain management is where service commitments to customers are operationalized, which makes it the function in which the enablers of servitization are most directly tested. Second, the analytical focus is on the **enablers of servitization** identified in the literature, not on outcomes such as customer satisfaction or financial performance metrics. Third, the empirical setting is a **single multinational manufacturing firm**, which bounds the findings to that context rather than generalizing them across the sector. Fourth, the study follows a **qualitative approach** based on semi-structured interviews, with the aim of developing a deeper understanding of how the enablers are interpreted in practice rather than producing statistical generalization.

Although servitization in supply chain management naturally involves suppliers, customers, and network partners, this study does not examine how those actors experience the transition. The analysis stays within the perspective of the focal firm, and external collaboration is treated as part of the firm's internal coordination challenge rather than as something studied from multiple positions in the network. This boundary follows from the design of the study, since the empirical material was collected entirely from informants inside the organization.

The single-case design supports a focused analysis of how the identified enablers operate within a specific organizational setting, allowing deeper insight into internal processes than a multi-case study would permit within the scope of a master's thesis. The interview participants are located in two geographical regions, which keeps the study

manageable while capturing perspectives from different operational environments within the same organization.

1.5 Definitions of key terms

Before turning to the literature, it is worth setting out the central concepts on which this study builds on. Supply chain management and manufacturing situate the operational context, while servitization, service-dominant logic and the servitization paradox provide the vocabulary through which the shift toward service-based models is later analyzed.

Servitization paradox:

The servitization paradox refers to the gap between the expected and actual financial returns from investing in services (Visnjic Kastalli & Van Looy, 2013, p. 169). While many firms adopt service-based strategies in pursuit of growth, they do not always achieve the anticipated performance improvements (Visnjic Kastalli & Van Looy, 2013, p. 169). The paradox is not a question of whether services are a good idea, but whether the right organizational foundations exist to make them pay off (Visnjic Kastalli & Van Looy, 2013, p. 169).

Supply Chain Management:

Supply Chain Management (SCM) can be understood as the coordination and of activities that transfer products, information, and financial resources through a delivery network (Johnson & Mena, 2008, p. 5). These activities include the procurement of raw materials for the delivery of finished products or services to customers (Johnson & Mena, 2008, p. 5). The main objective of SCM is to ensure that supply chain operations are efficient, reliable, and capable of creating value for both customers and organizations (Ellinger, 2000, p. 85). In practice, supply chain includes a wide range of interrelated processes, such as demand planning, purchasing, production scheduling, inventory, warehousing, transportation, and overall logistics coordination (Johnson & Mena, 2008, p. 5).

Servitization:

Servitization describes the process of manufacturing companies moving away from purely product-based business models towards integrated product and service combinations (Neely et al., 2011, p. 3). In this approach, services become an important part of how companies create value for their customers (Kowalkowski et al., 2017, p. 4). Instead of relying solely on the sale of physical products, they are increasingly complementing them with broader system solutions that support customers throughout the product lifecycle (Kowalkowski et al., 2017, p. 4).

Service Dominant Logic:

Service-dominant logic (SDL) is a theoretical perspective in which services, rather than products, are seen as the basis for economic exchange (Vargo & Lusch, 2017, p. 46). Vargo and Lusch (2017) also mentioned that a service is defined as the application of knowledge and skills for the benefit of others. From this perspective, value is not built into products, but is created through interaction and collaboration between companies, customers, and other stakeholders (Vargo & Lusch, 2017, p. 46).

Manufacturing:

Manufacturing refers to an industrial process in which raw materials, components, or intermediate products are transformed into finished products using machinery, labor, and production systems (Logistiikan maailma, 2026). Manufacturing companies typically design, produce, and distribute physical products that are later delivered to customers or integrated into larger supply chain management (Logistiikan maailma, 2026). In addition to production activities, manufacturing companies often also handle procurement, logistics, and quality control to ensure efficient and reliable operations (Logistiikan maailma, 2026).

1.6 Structure of the study

This thesis is organized into five chapters. The first chapter introduces the topic and establishes the foundation for the study. It outlines the background to the research, frames the practical and academic relevance of servitization in supply chain management, and articulates the research question and sub-objectives that guide the investigation. Key concepts are defined, the scope of the work is set, and the research gap motivating the study is identified.

The second chapter develops the theoretical basis of the thesis. It begins by reviewing the conceptual foundations of supply chain management and tracing how the function has evolved from a cost-focused, efficiency-driven discipline into a strategic capability. The discussion then turns to servitization itself, examining how manufacturing firms have moved toward service-oriented business models, and what existing research identifies as the conditions that support or constrain that transition. The chapter closes by introducing the RCOV framework as the analytical lens through which the empirical material is later interpreted.

The third chapter presents the methodological foundations of the research. It explains the qualitative single-case approach adopted for the study, describes the case company and the rationale for its selection, and details the semi-structured interview process through which the empirical data were gathered. The chapter also discusses how the interviews were analyzed and what measures were taken to ensure the credibility and trustworthiness of the findings.

The fourth chapter reports the empirical findings. It is organized around four aggregate dimensions that emerged inductively from the data: the operational foundation for servitization, organizational enablers, digital and commercial enablers, and strategic market orientation and value capture. The chapter also examines the barriers that constrain the transition and discusses the implications of the findings for profitable growth.

The final chapter brings the theoretical framework and the empirical findings together. It positions the results in relation to the existing literature, draws out the theoretical and managerial implications of the study, and proposes directions for future research that extend the contribution beyond the case company.

2 Theoretical background

2.1 Conceptual foundations of supply chain management

This chapter presents the conceptual foundations of supply chain management and outlines their development over time. It begins by describing traditional supply chain management, which focus on efficiency and the coordination of product flows. It then examines how supply chain management has evolved into more strategic and network-oriented systems. These developments highlight the increasing importance of organizational and relational enablers.

2.1.1 Traditional supply chain management

Traditional Supply Chain Management (SCM) can be understood as an approach in which the flow of materials, products, and information is managed through a series of relatively independent functional activities within the firm (Deshmukh & Vasudevan, 2014, p. 24). Rather than being treated as an integrated system, processes such as procurement, production, and distribution have historically been organized and optimized separately (Christopher, 2005, p. 13). Each function focused on its own performance objectives (Christopher, 2005, p. 13). As noted by Christopher (2005), earlier SCM approaches often managed the flow of goods “as a series of independent activities” rather than as a coordinated whole (Christopher, 2005, p. 13).

In practice, this meant that decision-making was often localized within individual departments, with limited communication creating functional silos. (Christopher, 2005, p. 19). Christopher (2005) describes this situation as such: “The presence of *‘functional silos’* inhibits the free flow of information leading to ‘second guessing’ and a general lack of communication.” (Christopher, 2005, p. 19). This limitation is reflected in the traditional supply chain structure shown in Figure 1., where goods flow from suppliers to customers

and information flows in the opposite direction (Deshmukh & Vasudevan, 2014, p. 25). Functional silos can disrupt this information flow, limiting communication across the chain. (Deshmukh & Vasudevan, 2014, p. 25) While this structure allowed firms to improve efficiency within specific functions, it also created barriers to coordination across the broader supply chain (Christopher, 2005, p. 19).

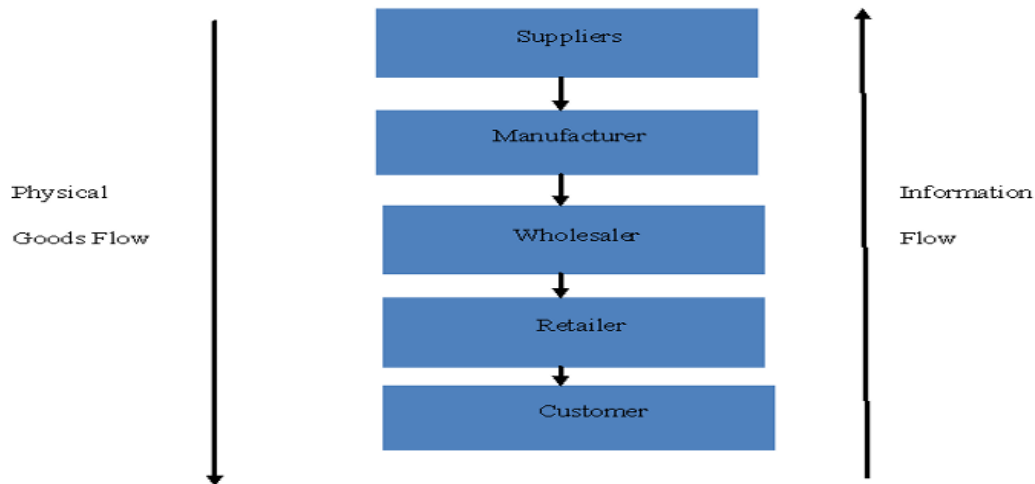


Figure 1. Traditional supply chain structure (Deshmukh & Vasudevan, 2014, p. 25)

In this context, traditional supply chain management has mainly focused on improving efficiency and reducing costs within individual functions (Christopher & Peck, 2004, p. 1). However, coordination across departments has often been limited, and interactions with suppliers and customers have remained more transactional than collaborative (Christopher, 2005, p. 122). Over time, these limitations have become more visible, especially in terms of flexibility, collaboration, and responsiveness (Christopher, 2005, p. 122).

2.1.2 Evolution of supply chain management

Supply chain management has undergone substantial transformation since its early conceptualization (Christopher, 2005, p. 4). For much of its early history, it operated as an executional function focused on moving goods between locations as cheaply and reliably

as possible, with an emphasis on cost control and the coordination of product flows in relatively stable business environments (Lambert & Cooper, 2000, p. 66). Supply chains were typically designed around what the producer could manufacture rather than around what the customer ultimately wanted (Christopher, 2005, p. 15). The discipline emerged gradually, with the term entering the literature in the 1980s and gaining widespread use only from the 1990s onward (Liu, 2011, p. 17). As Table 3 illustrates, an efficiency-first orientation shaped the field throughout this early period.

As markets grew more competitive and unpredictable from the 1990s onward, internal optimization was no longer enough, and firms had to design operations around customer needs rather than production convenience (Christopher, 2005, p. 28). The character of supply chain relationships changed in parallel. Where earlier exchanges had been largely short-term and transactional, firms increasingly recognized the value of working more closely with their partners (Lambert & Cooper, 2000, p. 65). Mature supply chain management came to depend on coordinating processes across organizational boundaries rather than optimizing each function in isolation, which required cross-functional teams and a shared sense of purpose across firms (Mentzer et al., 2001, p. 9; Enz & Lambert, 2022, p. 12).

The most far-reaching change has been the shift from firm-level to network-level competition, where firms no longer compete in isolation but as participants in interconnected chains (Christopher, 2005, p. 17; Enz & Lambert, 2022, p. 26). The expansion of global outsourcing and increasingly complex supplier networks during the 2000s reinforced this view, while also exposing firms to new categories of risk (Christopher & Peck, 2004, p. 1).

Since the 2010s, the discipline has shifted further toward service-oriented and digitally enabled supply chain management, where supply chains are expected to support service-based offerings, lifecycle management, and value co-creation between provider and customer (Vargo & Lusch, 2017, p. 46; Baines et al., 2020, pp. 1). Digital integration is

central to this shift, since service-based models depend on data and connectivity in ways that earlier configurations did not. Together, these developments mark a shift from supply chain management as a support function to a strategic capability, placing it at the center of broader changes such as servitization (Spring & Araujo, 2013, p. 59).

Table 3. Timeline of supply chain management evolution

Time Period	Key Characteristics	Developments	Sources
Pre- 1990s	Efficiency and cost control.	Emphasis on cost control, coordination of product flows	Christopher (2005)
1990s – Early 2000s	External integration and strategic role.	Globalization, supplier partnerships, information sharing, cross-organizational coordination.	Lambert & Cooper (2000); Mentzer et al. (2001)
2000s – Early 2010s	Complexity and global networks.	Outsourcing, offshoring, interconnected supply networks, increased risk exposure.	Christopher (2005); Christopher & Peck (2004)
Since 2010s	Service-oriented and digitally enabled SCM.	Lifecycle focus, product-service systems, customer value co-creation.	Vargo & Lusch (2017); Baines et al. (2020)

2.2 Conceptual foundations of servitization

This section introduces the concept of servitization and its theoretical foundations. It explains how firms move from product-based offerings toward integrated product-service solutions and why this shift has become important in modern industries. In addition, the section outlines key challenges associated with servitization and introduces relevant frameworks, such as Service-Dominant Logic, Advanced Services, Product-Service Systems and the Servitization Paradox, which help to better understand how value is created in a servitized context.

2.2.1 Conceptualization of servitization

Visnjic Kastalli and Van Looy (2013) note that the concept of servitization was first introduced by Vandermerwe and Rada (1988), who described it as a shift from selling products to offering integrated product-service solutions (Visnjic Kastalli & Van Looy, 2013, p. 169; Kowalkowski et al., 2017, p. 4). Since then, the concept has gained increasing attention, especially in manufacturing, where companies are looking for ways to differentiate themselves and create more stable revenue streams (Raddats et al., 2019, p. 207).

At its core, servitization means that manufacturers move from being product providers to solution providers (Neely et al., 2011, p. 3; Rabetino et al., 2017, p. 1). Instead of only selling equipment, they offer additional services such as maintenance, monitoring, training, or performance-based agreements (Ardolino et al., 2018, p. 2120). In some cases, customers no longer pay for ownership but for the outcome the product delivers (Tukker, 2004, p. 249). This reflects a broader shift in value creation, from exchange to use and co-creation (Vargo & Lusch, 2017, p. 46). Companies often start with basic after-sales services like repairs and spare parts, then move toward more advanced services such as contracts and remote monitoring (Baines et al., 2020, p. 5). The most advanced stage involves outcome-based business models, where customers pay for results like uptime or productivity (Baines et al., 2020, p. 5). Although these business models increase the provider's responsibility, they also strengthen long-term customer relationships (Visnjic Kastalli & Van Looy, 2013, p. 170).

The authors Neely et al. (2011) summarize servitization in Figure 2. (Neely et al., 2011, p. 3). The move toward services can be understood through five key developments: (i) a transition from focusing on products to offering integrated solutions, (ii) outputs to outcomes, (iii) transactions to relationships, (iv) suppliers to network partners, and (v) elements to eco systems (Neely et al., 2011, p. 2). By combining products with services, companies can create more value for their customers and develop more stable and

competitive business models (Neely et al., 2011, p. 3). While the transition requires effort and carries certain risks, it also offers significant opportunities for those that are able to adapt successfully (Johnson & Mena, 2008, p. 4).

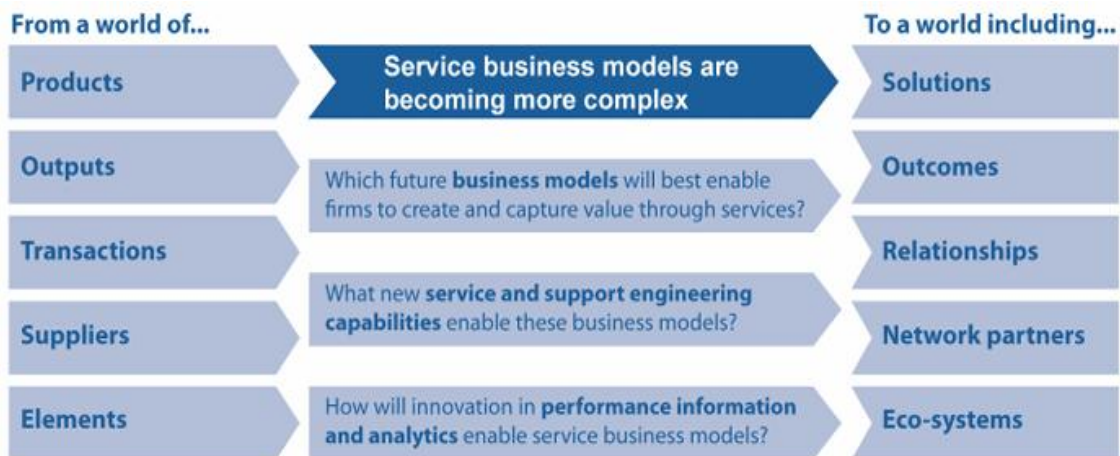


Figure 2. Describing the shift to services (Neely et al., 2011, p. 3)

2.2.2 Core concepts of servitization

Understanding servitization requires more than a single theoretical lens. Several complementary concepts together explain how the shift from product-led to service-oriented business models is theorized, structured, and constrained. Four are particularly relevant to this study: Service-Dominant Logic, Advanced Services, Product-Service Systems, and the Servitization Paradox. Together, they establish why servitization is a multidimensional transition rather than a single strategic move, and they set up the analytical ground on which the supply chain-level enablers identified in the empirical part of this study can be interpreted.

2.2.2.1 Service-dominant logic

Service-Dominant Logic (SDL) emphasizes that value is not embedded in products alone but is created through interaction between the provider and the customer (Vargo &

Lusch, 2017, p. 46). Service-dominant logic has become an influential framework for understanding how value is created and delivered in modern business environments (Vargo & Lusch, 2017, p. 46).

Service-dominant logic was introduced by Vargo and Lusch (2017) as a response to the limitations of traditional Goods-Dominant Logic (GDL) (Vargo & Lusch, 2017, p. 46). In goods-dominant logic, value is created during production and exchanged through the sale of tangible products (Vargo & Lusch, 2017, p. 47). In contrast, SDL argues that service, understood as the application of skills and knowledge for the benefit of another actor, is the fundamental basis of all economic exchange (Vargo & Lusch, 2017, p. 47). Grönroos (2015) also mentions that from this perspective, products are not the primary source of value but rather tools that enable service provision (Grönroos, 2015, p. 9).

2.2.2.2 Advanced services

Another key element of servitization is advanced services. Advanced services represent the most developed form of servitization (Baines et al., 2020, p. 5). Bigdeli et al. (2018) describe that services can be categorized into "'base services' (e.g. spare parts, warranty, etc.) and 'intermediate services' (e.g. condition monitoring, maintenance, repair, overhaul and remanufacturing)" (Bigdeli et al., 2018, p. 4). According to Bigdeli et al. (2018), the concept of advanced services is also referred to in the literature as capability contracts, performance-based contracts, or outcome-based contracts (Bigdeli et al., 2018, p. 4). What separates them from the lower tiers is that base and intermediate offerings are largely fixed and product-centered, whereas advanced services are dynamic and continue to evolve alongside the customer's operations (Story et al., 2017, p. 5).

In general, advanced services involve integrated offerings where value is linked to product usage or performance (Story et al., 2017, p. 4). These are often delivered through long-term contracts that include performance-based incentives and shared risks (Story et al., 2017, p. 4). The transition toward advanced services typically follows stages from

initial exploration to full integration, where services become a key source of competitive advantage (Story et al., 2017, p. 4). Because of this complexity, advanced services are rarely delivered by a single manufacturer (Story et al., 2017, p. 4). They tend to require a network of actors combining their capabilities, which makes the shift consequential for how the supply chain is organized and how value is captured across it (Story et al., 2017, p. 6).

2.2.2.3 Product-service systems (PSS)

From a practical perspective, servitization is often implemented through Product-Service Systems (PSS) (Morelli, 2006, p. 1496). These systems integrate products and services into combined offerings that deliver value to customers. (Chowdhury et al., 2018, p. 26). Product–Service Systems provide a more structured way to understand servitization at the offering level (Morelli, 2006, p. 1496).

Tukker (2004) identifies three main types of Products–Service Systems (PSS), illustrated in Table 4. In a product-oriented PSS, firms sell a physical product but complement it with services such as maintenance, remote monitoring, and lifecycle support, while ownership remains with the customer (Tukker, 2004, p. 248). As shown in Table 4, Caterpillar Inc. follows this model by offering heavy machinery alongside maintenance contracts and digital monitoring (Caterpillar Inc., 2026). A use-oriented PSS shifts the focus from ownership to usage, where customers pay to use the product rather than buy it (Tukker, 2004, p. 248). For example, Michelin (see Table 4.) applies a “Tires-as-a-Service” model, charging per kilometer while managing tire performance (Nadim, 2016). This creates recurring revenue and increases provider responsibility (Nadim, 2016). The most advanced form, result-oriented PSS, focuses on outcomes rather than products, transferring greater performance risk to the provider (Tukker, 2004, p. 249). Rolls-Royce Holdings (see Table 4.) demonstrates this through its “Power-by-the-Hour” model, where airlines pay per flight hour and engine availability is guaranteed (Smith, 2013).

Table 4. Types of PSSs (Tukker, 2004, p. 248)

Firm	Type of PSS	Description	Supporting sources
Rolls-Royce Holdings	Result-oriented	“Power-by-the-Hour” Airlines pay per flight hour; Rolls-Royce guarantees engine availability and performance.	Smith, D. J. (2013). Power-by-the-hour: the role of technology in reshaping business strategy at Rolls-Royce.
Michelin	Use-oriented	“Tires-as-a-Service” Customers pay per kilometer driven; Michelin manages tire performance.	Michelin: Tires-as-a-Service - Technology and Operations Management
Caterpillar Inc.	Product-oriented	Machinery sold with maintenance, remote monitoring, and lifecycle services	Cat Connect Equipment Management Solutions NMC Cat

2.2.2.4 Servitization paradox

Although servitization has clear strategic appeal, the link between service investment and firm performance is more complicated than early studies implied (Brax et al., 2021, p. 518). This complication is often referred to as the servitization paradox, which describes how firms that put resources into developing service offerings do not always see the financial returns they expected (Lyu et al., 2023, p. 849). The literature distinguishes between two versions of this paradox (Lyu et al., 2023, p. 849). In the financial version, the revenues generated from new services are not enough to cover the additional costs of providing them (Brax et al., 2021, p. 518). In the organizational version, firms keep adding services to their portfolio but do not change the underlying capabilities, structures, or ways of thinking that would allow those services to actually work commercially (Brax et al., 2021, p. 518).

The empirical evidence on how servitization affects performance is also mixed (Lyu et al., 2023, p. 849). Visnjic Kastalli and Van Looy (2013), as cited in Brax et al. (2021), found an S-shaped pattern (See Figure 3.) in which performance initially improves, then declines,

and then improves again once the service business reaches a certain scale (Brax et al., 2021, p. 536). Lyu et al. (2023), describe a saddle-shaped curve for Chinese manufacturing firms, where performance goes up, comes back down, and then rises again as servitization develops further (Lyu et al. 2023, p. 851). Other research has found no clear effect at all that service innovation did not significantly improve the profitability of German manufacturers (Lyu et al., 2023, p. 851). Brax et al. (2021) suggest that these inconsistencies are not really contradictions but rather reflect different configurations of how firms servitize (Brax et al. 2021, p. 537). According to them, the paradox is most visible at intermediate levels of servitization, where firms have started investing but have not yet aligned the rest of the organization (Brax et al., 2021, p. 536).

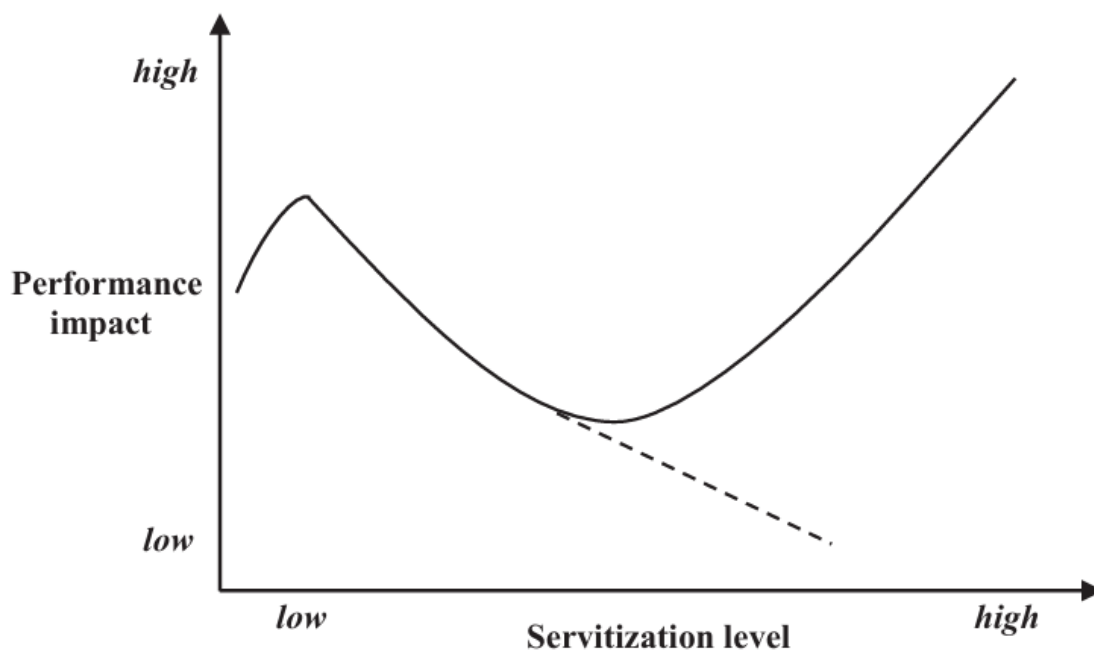


Figure 3. Theory of the servitization performance relationship (Brax et al. 2021, p. 537)

The paradox, then, is less about servitization itself than about how it is carried out (Brax et al., 2021, p. 539). Generating financial returns requires firms to redirect resources, redesign internal structures, and update the routines and values that guide everyday work (Lyu et al., 2023, p. 850). Recent research extends this by emphasizing dynamic

capabilities, particularly the ability to sense environmental changes, integrate resources, and reconfigure them in response to market shifts (Lyu et al., 2023, p. 850).

For firms in the early stages of servitization, this has a fairly clear implication. Getting the internal side of things right seems to matter more than simply offering more services (Brax et al., 2021, p. 539). Building capabilities, aligning the organization, and clearly defining the value proposition are conditions that need to be in place first. Without these changes, service investment is unlikely to produce the results firms are hoping for (Brax et al., 2021, p. 539). This is exactly the gap that the present study tries to address, by looking at these internal enabling conditions specifically within the context of supply chain management.

2.3 Motivations and enablers of servitization in SCM

To understand service transformation in supply chain management, it is important to examine both the motivations behind the shift and the conditions that enable or hinder it in practice. While companies are increasingly motivated to adopt service-based models, successful implementation depends on several organizational and operational prerequisites (Johnson & Mena, 2008, p. 4). The following sections address the key motivations of servitization in SCM, the enablers supporting the transition, and their performance impact.

2.3.1 Motivations to servitize

The reasons firms choose to servitize have been examined extensively, and the literature converges on a relatively consistent set of motivations (Kamal et al., 2020, p. 17). The original argument mentioned by Vandermerwe & Erixon (2023) and set out by Vandermerwe and Rada (1988), framed servitization as a response to product commoditization, at a time when competitive positioning was understood largely in terms of incremental

improvements to the core product (Vandermerwe & Erixon, 2023, p. 479). Globalization changed that, since a position based on the product alone proved easy for rivals to copy and many firms found their pricing power steadily worn down (Johnson & Mena, 2008, p. 4). Servitization emerged as the alternative route, one in which firms competed not by refining what they sold but by surrounding the product with services that customers came to value in their own (Bustinza et al., 2015, p. 3).

Combined product-service offers have become a recognized way for manufacturers to set themselves apart and to insulate established businesses from low-cost competition (Lightfoot et al., 2013, p. 1). The motivation is therefore both forward-looking and protective, since service activity is tied to firm-specific capabilities and customer relationships that rivals find slow to build, which is what gives servitization its staying power (Kamal et al., 2020, p. 17). Kamal et al. (2020) organize these rationales along strategic, financial, marketing and environmental dimensions, which together account for why manufacturers pursue service-based strategies (Kamal et al., 2020, p. 17).

That these arguments have translated into action at scale is visible in Figure 4, which draws on Neely et al. (2011) analysis of the OSIRIS database and compares the share of manufacturing firms classified as servitized in 2007 and 2011 (Neely et al., 2011, p. 5). By 2011 more than forty percent of manufacturers in countries such as the United States, Finland, Singapore and the Netherlands offered services, with the global average sitting at roughly thirty percent (Neely et al., 2011, p. 5; Neely, 2009, pp. 22). Servitization has therefore moved well beyond the early adopter stage and now describes a standard repertoire across much of the manufacturing world rather than an experimental practice limited to a few high-profile firms (Neely et al., 2011, p. 5).

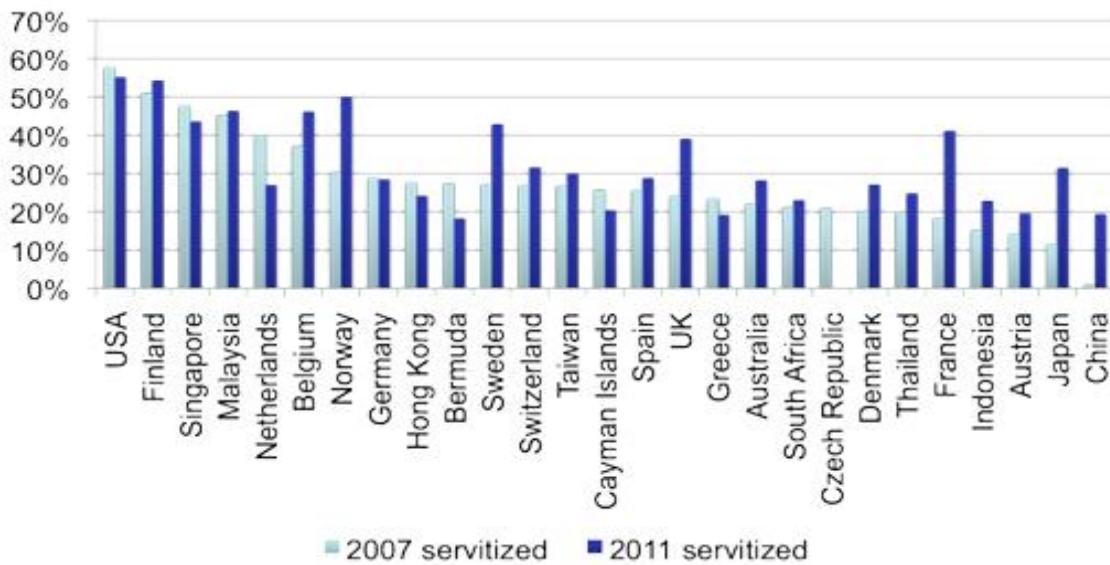


Figure 4. Servitization of manufacturing by country (Neely et al., 2011, p. 7)

The financial case for servitization has been examined particularly closely. Visnjic Kastalli and Van Looy (2013) show in a longitudinal study of Atlas Copco that growing the service business does not eat into product sales but instead pulls them up alongside it, so that products and services end up reinforcing each other's growth (Visnjic Kastalli & Van Looy, 2013, p. 169). The same study reports that this reinforcing effect strengthens as the service mix tilts toward hands-on, technician-delivered work that brings the provider into frequent contact with the customer (Visnjic Kastalli & Van Looy, 2013, p. 169). The argument also holds in the capital markets, since investors tend to value service-oriented businesses more highly than pure manufacturers, which lifts the share price of listed firms that have successfully servitized (Vandermerwe & Erixon, 2023, p. 480).

While early work already linked servitization to supply chain coordination, recent research has made that connection increasingly explicit (Johnson & Mena, 2008, p. 4; Greymyr et al., 2026, p. 61). Baines et al. (2020) describe the servitization journey as a progression through four organizational maturity stages, namely Exploration, Engagement, Expansion and Exploitation, shaped by five forces that include customer pull and technology push alongside organizational readiness, organizational commitment and value network positioning (Baines et al., 2020, p. 1). Both forces bear directly on the supply

chain, since customer pull demands responsiveness and technology push requires the integration needed to deliver new services reliably (Spring & Araujo, 2013, p. 60). Gremyr et al. (2026) add that the chain itself evolves with the journey, being restructured and shifting from transactional to long-term relationships as the firm moves from products to product- and then customer-supporting services (Gremyr et al., 2026, p. 62).

Therefore, servitization is driven by several pressures at once rather than any single one (Kamal et al., 2020, p. 17), and Figure 4 shows that manufacturers in many economies have already responded, though to very different extents (Neely et al., 2011, p. 5; Neely, 2009, pp. 22). Where the product itself no longer differentiates, the question becomes not whether to servitize but how to manage the transition (Vandermerwe & Erixon, 2023, p. 479). This study addresses that question through supply chain management, the function in which strategic intent must be turned into the capabilities and relationships that deliver service-based value (Gremyr et al., 2026, p. 62).

2.3.2 Enablers of servitization in SCM

Understanding how servitization moves from strategic intent to operational reality requires looking beyond motivation: motivation explains the why, but enablers determine whether the conditions are in place for service-oriented thinking to take hold in supply chain operations (Adrodegari et al., 2017, p. 4; Raddats et al., 2019, p. 207). These conditions shape how well organizations coordinate activities, deliver on service commitments, and sustain value creation over time (Rabetino et al., 2017, p. 11). The challenge for manufacturing firms is rarely that a single condition is missing, but that several must develop together in a mutually reinforcing way (Neely, 2009, p. 32).

This study draws on the RCOV framework (Figure 5), developed by Demil and Lecocq, as a sensitizing device used to structure the inquiry rather than to test hypotheses (Plé et al., 2010, p. 230). RCOV describes a business model through four interacting components, Resources, Competencies, Organization, and Value proposition, that evolve dynamically

as the firm operates (Plé et al., 2010, p. 230). Its emphasis on interdependence is central, since the four dimensions continuously place demands on one another (Plé et al., 2010, p. 230). A change in the value proposition, for instance, creates pressure on the organizational structure and on the capabilities required to support it (Adrodegari et al., 2017, p. 6; Raddats et al., 2019, p. 207). This dynamic logic maps onto the servitization context, where firms gradually reconfigure how value is created and delivered across the supply chain (Gremyr et al., 2026, p. 62). The framework therefore structures the starting point of the analysis rather than its conclusions, leaving what the dimensions contain in practice, and how they interact in a specific context, for the data to answer (Demil & Lecocq, 2010, p. 230).

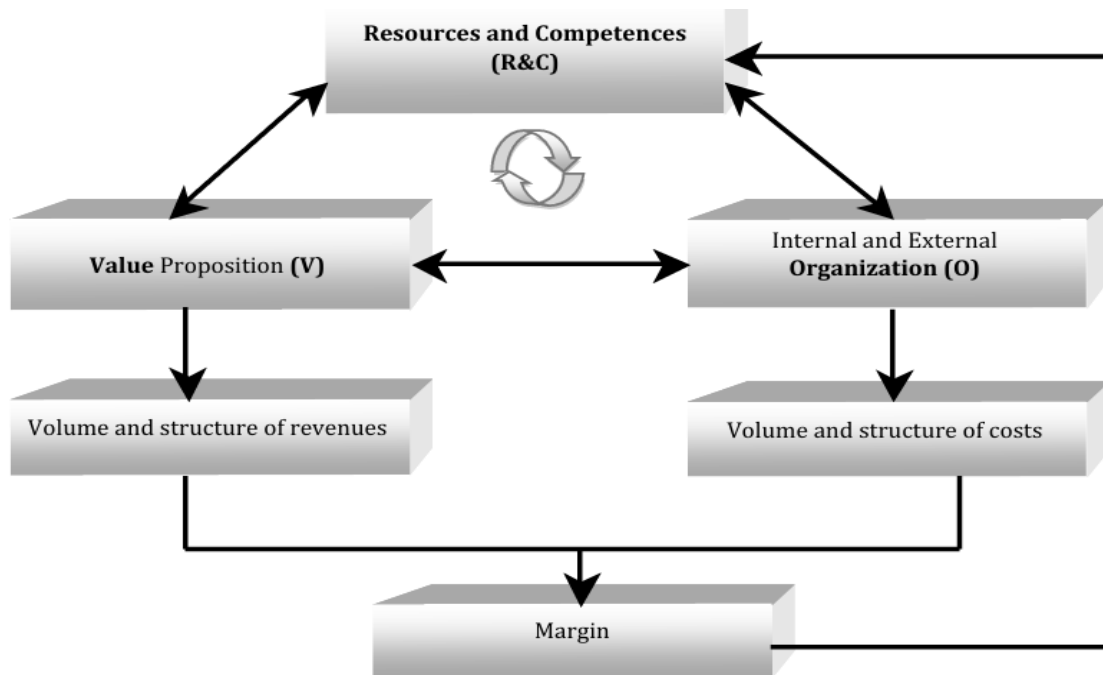


Figure 5. RCOV Framework of Demil & Lecocq 2010 (Plé et al., 2010, p. 230)

2.3.2.1 Resources: digital tools and data infrastructure

At the most foundational level, servitization requires material and informational resources that make service-based operations possible (Adrodegari et al., 2017, p. 32). In the supply chain context these are primarily technological, since digitalization and

information integration sit at the heart of most service-based models (Adrodegari et al., 2017, p. 32; Ardolino et al., 2018, p. 2116). Offerings such as predictive maintenance, remote monitoring, and outcome-based contracts depend on data that is accurate, accessible, and continuously updated, which requires information systems capable of sharing data across functions and toward customers and partners (Ardolino et al., 2018, p. 2120). Without this foundation, firms cannot respond proactively to customer needs or provide credible evidence of the outcomes that advanced services promise, leaving them operationally blind precisely when service delivery demands visibility (Baines et al., 2020, p. 27).

The role of digital resources extends well beyond keeping existing operations running (Coreynen et al., 2017, p. 42). As firms gain access to detailed data on how products perform in real-world conditions, installed-base information becomes a source of insight rather than only a record of past transactions, opening service possibilities that were not previously feasible (Coreynen et al., 2017, p. 42). Technologies that monitor product usage and transmit performance data back to the provider increase visibility into customer operations and support better decision-making for both provider and customer (Rabetino et al., 2017, p. 22). This is what makes outcome-based models viable: arrangements such as Rolls-Royce's Power-by-the-Hour, where airlines pay per flight hour rather than buying engines outright, depend entirely on the provider's ability to monitor and guarantee performance in real time (Kohtamäki et al., 2020, p. 5). In RCOV terms, these technological assets form the Resource dimension of the transition, the enabling infrastructure on which the other dimensions depend (Plé et al., 2010, p. 230).

2.3.2.2 Competencies: skills, capabilities, and role of leadership

The right technological infrastructure is necessary but far from sufficient (Adrodegari et al., 2017, p. 32). A firm can invest heavily in digital systems and still fail to convert those investments into effective service delivery if its people lack the skills, orientation, and leadership to act on them (Rabetino et al., 2017, p. 22). This gap between resource

availability and resource use is what the Competencies dimension captures: the organizational ability to deploy what the firm has toward meaningful service outcomes (Plé et al., 2010, p. 230).

The transition demands new technical skills around data use and service operations, but also a deeper shift in how employees understand their work and their relationship with customers (Adrodegari et al., 2017, p. 32). Supply chain employees need capabilities in service delivery, customer interaction, and the practical interpretation of performance data, areas product-focused organizations have rarely prioritized (Rabetino et al., 2017, p. 22). This commitment extends beyond senior leadership to those directly involved in delivery, so capability development cannot remain confined to particular roles or levels (Baines et al., 2020, p. 28).

Leadership shapes the conditions under which these competencies develop, since moving toward service requires employees to work in ways that challenge established product-focused routines (Adrodegari et al., 2017, p. 32). Baines et al. (2020) identify organizational commitment as one of the internal forces acting across all stages of the servitization journey, and its absence, more than any technical shortfall, is what tends to stall progression (Baines et al., 2020, p. 8). Rabetino et al. (2017) show this empirically through practices such as recruiting service-oriented personnel, value-based training for service teams, and bonus structures tied to service outcomes, all of which depend on active managerial sponsorship (Rabetino et al., 2017, p. 22). Where such commitment is present, capability development becomes possible in the everyday work of the supply chain rather than only at the level of declared strategy (Baines et al., 2020, p. 8).

2.3.2.3 Organization: collaboration and structural arrangements

Even where resources and competencies are present, servitization struggles to take hold if the structures and collaborative arrangements needed to coordinate them are poorly developed (Adrodegari et al., 2017, p. 34). This is the dimension where supply chain

management is most directly implicated, and where many firms encounter their most persistent difficulties (Christopher & Peck, 2004, p. 19).

Cross-functional integration is central, since service-based offerings draw simultaneously on operations, sales, engineering, customer service, and supply chain management rather than sitting within a single function as product delivery often does (Mukhtar et al., 2023, p. 2326). When these functions remain disconnected, service delivery fragments and the customer experience suffers (Mentzer et al., 2001, p. 7). Mentzer et al. (2001) identify integrated behavior, mutual information sharing, and process integration as core SCM activities, and these are precisely what servitization places under additional pressure (Mentzer et al., 2001, p. 8). Christopher and Peck (2004) add that functional silos inhibit the free flow of information, and that service-based operations cannot achieve the visibility they require until those silos are replaced by cross-functional process teams (Christopher & Peck, 2004, p. 19). Empirically, case firms have responded by establishing service-supply chain processes, building service centers close to customers, and creating cross-functional workshops to close gaps between commercial and operational thinking (Rabetino et al., 2017, p. 22).

Collaboration extends this logic beyond the firm's own boundaries (Saccani et al., 2014, p. 235). In servitized supply chains, value is increasingly created across networks rather than within single organizations, so effective service delivery depends on coordinated effort among suppliers, partners, and customers (Spring & Araujo, 2013, p. 63). Christopher and Peck (2004) describe collaborative working as a precondition for managing the inter-firm dependencies that arise once relationships move beyond arm's-length transactions (Christopher & Peck, 2004, p. 17). Gremyr et al. (2026) show that as firms shift from product sales to customer-facing services, the supply chain must be reconfigured around sustained relationships rather than transactional exchanges (Gremyr et al., 2026, p. 62). Practices such as shared information flows and joint decision-making add the flexibility needed to handle the complexity service operations introduce (Mentzer et al.,

2001, p. 8). Together, these internal and inter-organizational arrangements constitute the Organization dimension of RCOV (Plé et al., 2010, p. 230).

2.3.2.4 Value proposition: strategic orientation and service definition

The fourth dimension captures the most visible aspect of servitization: the shift in what firms offer customers and in how they understand the purpose of the supply chain itself (Plé et al., 2010, p. 230). This is a strategic reorientation that runs deeper than simply adding services to an existing product portfolio (Adrodegari et al., 2017, p. 32).

The most fundamental change is the move from value-in-exchange to value co-creation (Vargo & Lusch, 2017, p. 48). In product-focused supply chains, value is understood as embedded in the product and transferred to the customer at the point of sale; drawing on service-dominant logic, Vargo and Lusch (2017) argue instead that value is co-created through ongoing interaction between provider and customer (Vargo & Lusch, 2017, p. 48). Grönroos (2008) develops this by positioning value as something that emerges through use rather than production, so the customer becomes an active participant rather than a passive recipient (Grönroos, 2008, p. 299). For supply chains, this requires a closer, more continuous connection to customer activities, with greater interaction, information sharing, and joint problem-solving over time (Grönroos, 2008, p. 300). The supply chain is therefore no longer a delivery mechanism alone but an active contributor to how customers realize value (Vargo et al., 2016, p. 4).

Defining clear value propositions and measurable service levels gives this reorientation organizational coherence (Prasetyanti & Simatupang, 2015, p. 152). When firms share an internal understanding of what is being delivered and how performance will be assessed, coordination across functions and partners becomes more consistent (Prasetyanti & Simatupang, 2015, p. 152). This matters particularly in service contexts, where the customer experience is shaped by contributions from multiple functions rather than a single production process (Adrodegari et al., 2017, p. 34). Without it, different parts of

the organization work from different assumptions about what the firm is delivering, producing inconsistencies that undermine both performance and customer trust (Prasetyanti & Simatupang, 2015, p. 152).

A lifecycle perspective completes this shift (Rabetino et al., 2017, p. 12). Servitization extends the supply chain's role well beyond the moment of delivery, requiring firms to manage ongoing service relationships across the full life of a product (Rabetino et al., 2017, p. 12). Rather than optimizing individual transactions, the supply chain must be designed to sustain the long-term engagement on which service-based revenue and outcome-based contracts depend (Visnjic Kastalli & Van Looy, 2013, p. 170). Without this orientation, the supply chain's logic remains transactional, and the deeper value co-creation that advanced services require is difficult to sustain (Vargo et al., 2016, p. 4).

2.3.3 Contribution to profitable growth

Servitization is ultimately pursued for profitable growth: more stable revenue, stronger customer relationships, and a competitive position that is harder to replicate. These outcomes are not automatic (Kamal et al., 2020, p. 17). The servitization paradox introduced in section 2.2.2.4 explains why: investment in services produces returns only once the enabling conditions inside the firm have developed far enough to absorb it (Kohtamäki et al., 2020, p. 7). The relationship between servitization and profitability is therefore a function of internal readiness rather than service portfolio size (Bustinza et al., 2015, p. 4).

When the four RCOV dimensions develop together, the financial case becomes considerably stronger (Demil & Lecocq, 2010, p. 230). Service revenues tend to be more predictable than product sales, and advanced services generate recurring income through long-term contracts (Neely et al., 2011, p. 10). Randall et al. (2014) show this most directly through performance-based logistics, where outcome-based contracts convert the recurring cost of repair into long-term revenue and create a structure in which supplier

profitability is highest when the system does not fail (Randall et al., 2014, p. 115). Deep customer relationships add a commercial stickiness that product quality alone cannot sustain, since services are more labor-dependent and harder to imitate (Kamal et al., 2020, p. 17).

The mechanism through which these conditions produce profitable growth is visible in the RCOV feedback loop in Figure 5: the value proposition shapes the volume and structure of revenues, organizational arrangements shape the volume and structure of costs, and the resulting margin feeds back into the resources and competencies available in the next cycle (Demil & Lecocq, 2010, p. 230). Each dimension contributes in a specific way (Plé et al., 2010, p. 230). Digital resources enable outcome-based pricing models that would not otherwise be viable (Adrodegari et al., 2017, p. 32). Strong competencies sustain the customer relationships that justify premium service levels (Rabetino et al., 2017, p. 22). Organizational integration reduces the delivery costs that erode service margins (Mentzer et al., 2001, p. 8). And a clearly articulated value proposition is what allows the supply chain to be repositioned from a cost function into a source of revenue (Bustinza et al., 2015, p. 4).

2.4 Theoretical framework

The preceding sections introduced RCOV as the analytical lens for examining the enablers of servitization in supply chain management and outlined what each of its four dimensions contains. This section consolidates that discussion into the framework used to structure the empirical analysis. Figure 6 presents the four dimensions and the outcome they collectively support, with the middle row left open for the empirical contributions identified in Chapter 4.

Resources are operationalized here as the digital infrastructure, data integration, and connectivity that make service-based supply chain operations possible. Competencies cover the skills, service orientation, and leadership and change management capacity

through which those resources are actually used. Organization captures the cross-functional collaboration, internal coordination, and external partnership networks that coordinate service delivery across the supply chain. Value proposition reflects the strategic reorientation from product transfer to outcome-based business, lifecycle thinking, and value co-creation. The four dimensions are interdependent, and profitable growth is treated as the outcome they can support when they develop together.

The framework is used as a sensitizing structure rather than a hypothesis-testing model, in line with the abductive approach described in Chapter 3. Its purpose is to organize what the empirical material is examined for, not to determine what it will say. What each dimension contains in the case context, and how the dimensions interact in practice, are left open for the empirical analysis to answer.

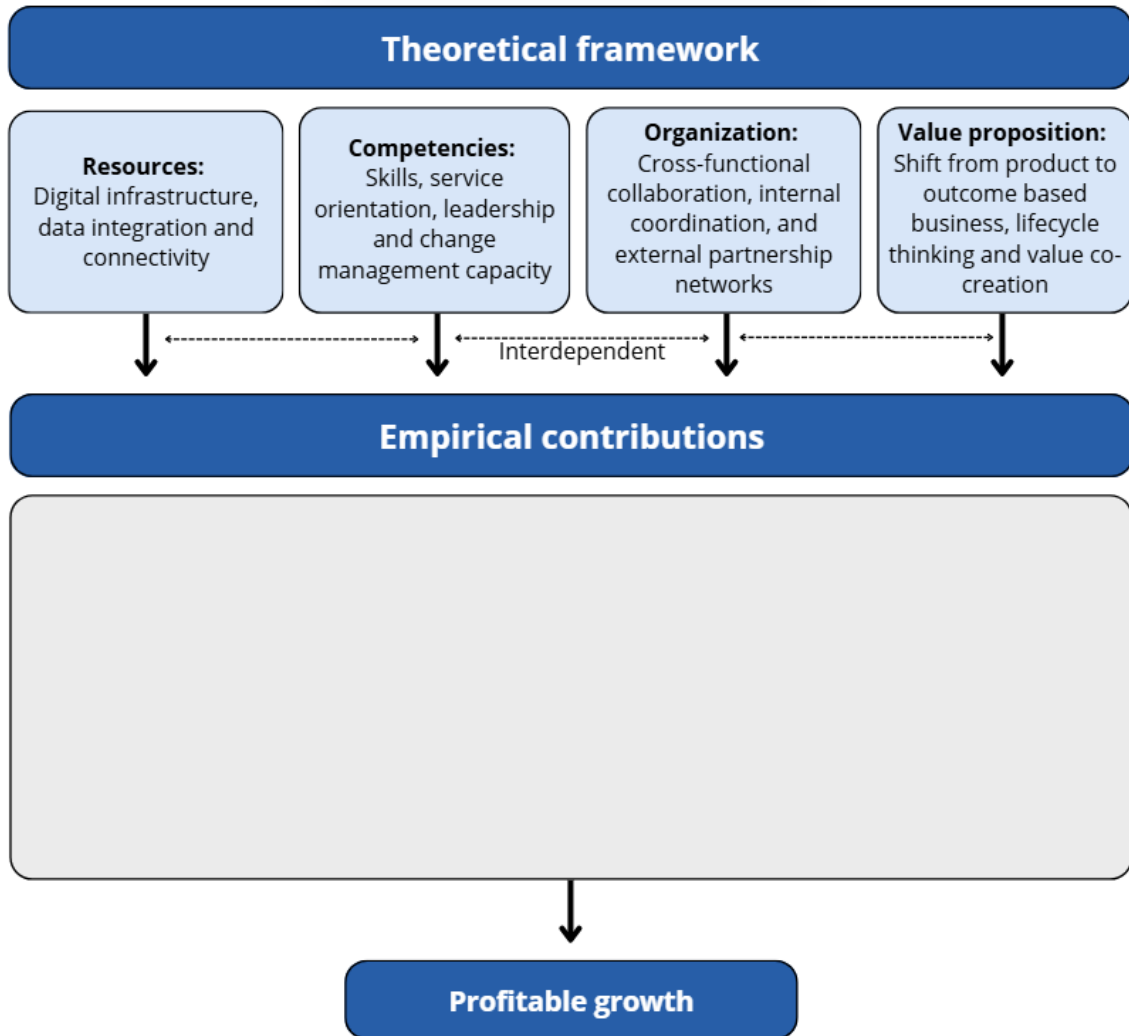


Figure 6. Theoretical framework

3 Methodology

This chapter describes how the empirical part of the study was conducted and explains the reasoning behind the methodological choices that shaped it. Methodology is treated here not as a procedural checklist but as a set of considered decisions about how best to answer the research question, and each section therefore sets out both what was done and why it was appropriate given the nature of the problem under study.

The discussion opens with the underlying research approach, situating the study philosophically and explaining the reasoning that guided the use of qualitative methods, and then introduces the case organization in which the empirical work was carried out. Attention then turns to the research design, the sampling logic, the conduct of the interviews and the analytical procedure applied to the resulting material. The chapter closes by addressing the quality and trustworthiness of the data, together with the role that artificial intelligence played in supporting the research process.

3.1 Research approach

The methodological choices in this study reflect the nature of the research problem. Examining how service-oriented thinking becomes embedded in supply chain management requires methods that can capture complexity, managerial perspectives, and context-specific conditions. To structure these methodological choices, the study follows the framework of the research onion proposed by Saunders et al. (2023) (see Figure 7.) (Saunders et al., 2023, p. 131).

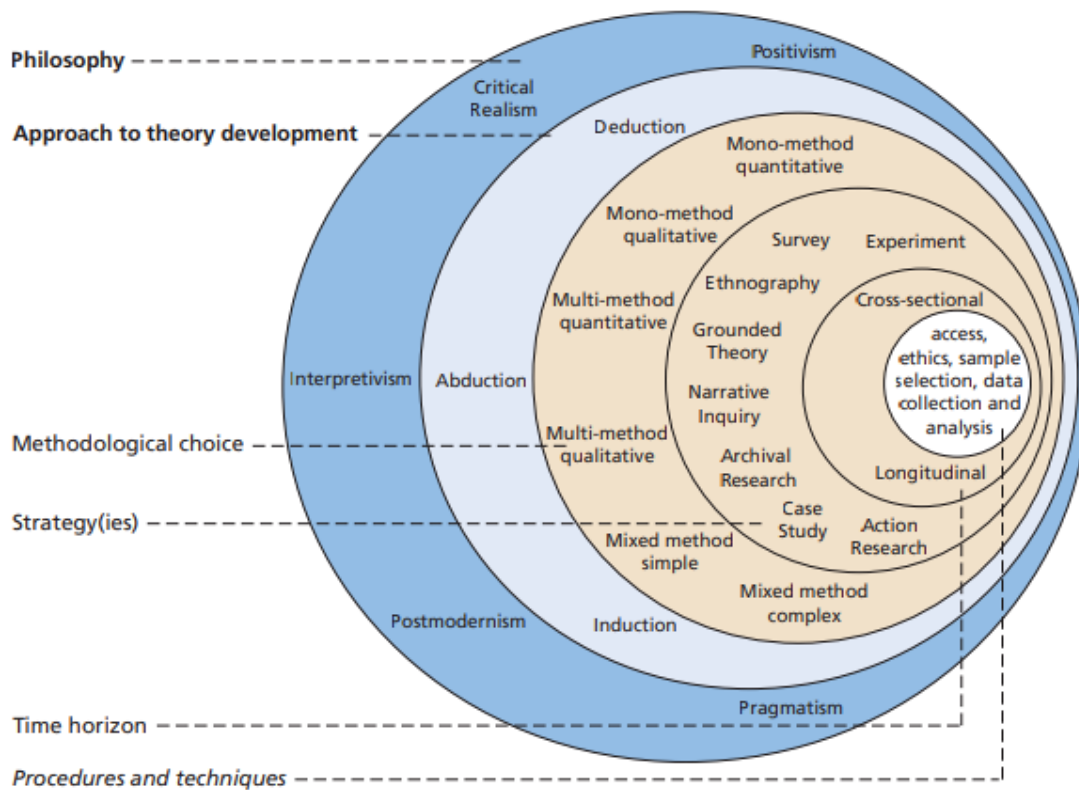


Figure 7. Research onion (Saunders et al., 2023, p. 131)

At the philosophical level, this study is grounded in interpretivism. This perspective views organizational realities as socially constructed through human interaction and experience rather than as purely objective phenomena (Saunders et al., 2023, p. 150). In business research, interpretivism is commonly applied when the aim is to understand how individuals make sense of organizational practices, changes, and strategic decisions (Saunders et al., 2023, p. 150). In the context of this thesis, it is particularly appropriate because the research examines how managers understand the growing role of services within supply chain management. Interpretivism is also usually connected to qualitative methods of research which in this study are interviews. (Saunders et al., 2023, p. 146). That further justifies the research philosophy.

The study follows an abductive approach to research. Abductive reasoning moves iteratively between empirical observations and theory (Saunders et al., 2023, p. 155). It is not simply built from data, nor does it test predetermined hypotheses (Saunders et al., 2023,

p. 155). Instead, it develops the most plausible explanation by moving back and forth between what is observed and what theory suggests. (Saunders et al., 2023, p. 155) The abductive approach is appropriate for this research because the study aims to build a deeper understanding of how organizations address the challenges of servitization in supply chain management. Interview data from managers are interpreted alongside existing theoretical discussions.

In this study, the RCOV framework served as an initial sensitizing framework. It was not used to confirm hypotheses. Rather it gives you a set of analytical categories to look through when examining the literature data. The four empirical dimensions that emerged from the data were not predetermined by the framework. They developed through iterative engagement between the theoretical concepts and the interview data.

3.2 Case company introduction

The case company is a multinational manufacturing enterprise operating across multiple geographical regions in a competitive and technologically driven industrial market. Due to confidentiality reasons, the organization and its employees remain anonymous throughout this study. Identifying details about specific products, customers, and markets have been omitted or generalized. The firm operates in an industry where the shift from selling products to delivering services is increasingly significant, driven by customer demand for outcomes rather than equipment alone. Within this environment, the company has begun integrating service elements into its supply chain operations, which makes it a relevant and timely context for examining how servitization unfolds in practice rather than only in theory.

While the firm is not at the most advanced stage of servitization, it has taken meaningful steps in that direction, with service offerings expanding alongside its traditional product business and supply chain processes adapting to support them. This intermediate position is what makes the company a particularly suitable setting for this research: the

transition is recent enough that the underlying changes, tensions, and enabling conditions remain visible to those involved, rather than being obscured by years of routinization. To capture these dynamics, the study draws on semi-structured interviews with managers across different functions, gathering perspectives from individuals with direct experience in supply chain management and service development (see Table 5).

3.3 Research design and method

This study uses a qualitative single-case study design, focusing on managerial perspectives. Qualitative research is appropriate when the goal is to gain a deeper understanding of complex organizational processes and the perspectives of the people involved in them (Cassell, 2019, p. 15), and a single-case design was chosen because it allows for a more thorough examination of how servitization enablers operate within a specific organizational setting than would be possible across multiple cases within the scope of a master's thesis. Case study research is well suited to this context. It enables the study of complex phenomena in real-life settings, particularly when the aim is to understand processes, practices, and managerial perspectives in depth (Eriksson & Kovalainen, 2016, p. 15).

The empirical data were collected through semi-structured interviews with managers working across different functions of the organization. Semi-structured interviews provide a clear structure while still allowing flexibility during the conversation, making it possible to ask follow-up questions and explore topics that emerge naturally during the discussion (Karatsareas, 2022, p. 100). Because the study relies entirely on interview data, the research design can be described as a mono-method qualitative study (Saunders et al., 2023, p. 131). The time horizon is primarily cross-sectional, as the interviews were conducted within a defined period, though many participants reflected on developments spanning several years, giving the study some longitudinal depth as well (Saunders et al., 2023, p. 131). Rather than seeking statistical generalization, the study aims for analytical generalization, using findings from one organizational context to develop

and refine theoretical understanding of how enablers function in supply chain management.

3.4 Data collection and analysis

This section sets out how the empirical material was gathered and analyzed. It begins with the sampling logic and the rationale for a cross-functional rather than a purely supply-chain-focused sample, then turns to the choice of semi-structured interviews, the role of RCOV as a sensitizing lens, and the practical conduct of the interviews (Plé et al., 2010, p. 230). The section closes with the analytical approach, in which the Gioia methodology was used to move from participants' own language toward the second-order themes and aggregate dimensions (Gioia et al., 2012, p. 21).

3.4.1 Sampling

The participants in this study were selected using purposive sampling, meaning that interviewees were chosen based on their relevance to the research topic (Etikan et al., 2015, p. 2). The aim was to include managers with direct experience in supply chain management, commercial, or strategy functions, or whose roles involve cross-functional collaboration with SCM. An overview of the interview participants is presented in Table 5. The eight interviewees comprised six senior or executive vice presidents, one vice president, and two directors, distributed across two geographical regions (A & B). This combination captures how service-based supply chain practices are interpreted across different operational environments within the same organization, while keeping the scope focused enough for a single-case study.

Table 5. List of interviewees

Interviewee no.	Title	Duration	Date (2026)	Location	Region
Interviewee 1.	Senior Vice President, Head of Commercial	51min17s	8. April	Microsoft Teams	Region A
Interviewee 2.	Senior Vice President, SCM	57min46s	13. April	Microsoft Teams	Region A
Interviewee 3.	Executive Vice President, Strategy and Sustainability	32min13s	15. April	Microsoft Teams	Region A
Interviewee 4.	Senior Vice President, Com- mercial	44min58s	16. April	Microsoft Teams	Region B
Interviewee 5.	Director, Business Process Manage- ment	37min24s	20. April	Microsoft Teams	Region A
Interviewee 6.	Vice president, SCM	42min34s	21. April	Microsoft Teams	Region B
Interviewee 7.	Director, Key Account Man- ager	35min18s	23. April	Microsoft Teams	Region A
Interviewee 8.	Senior Vice President, Com- mercial	30min15s	7. May	Microsoft Teams	Region B

The cross-functional composition of the sample was a deliberate methodological choice rather than a convenience. Because service-based supply chain management depends

on coordination between operations, commercial, strategy, and account-facing functions, an inquiry confined to supply chain managers alone would have produced a partial view. Including participants from these adjacent functions allowed the study to capture how service-oriented practices are interpreted across the organization, and where the boundaries between functions either support or constrain the transition.

3.4.2 Data collection and semi-structured interview structure

The primary empirical material for this study consists of semi-structured interviews. Semi-structured interviews were selected as the main data collection method because they provide a balance between structure and flexibility (Karatsareas, 2022, p. 100). While the interview guide ensured that key themes related to the research topic were discussed, the format also allowed the researcher to ask follow-up questions and explore relevant topics in greater depth.

As mentioned above (see section 3.4.1), the interview participants were selected using purposive sampling (Etikan et al., 2015, p. 2). potential interviewees were identified based on their roles within the company and their involvement in functions related to supply chain management. These roles presented in Table 5. are closely connected to the research topic and therefore provide valuable perspectives.

Participants were sent a short email in advance introducing the research topic. This allowed them time to review the subject and consider their perspectives before the interview. The interviews were conducted remotely due to the geographical distribution of the participants. Microsoft Teams was used as the platform for the interviews. The interviews were conducted in English, the same language used in the thesis, which helped ensure accuracy of the data analysis. Each interview lasted approximately 30–60 minutes.

With the consent of the participants, the interviews were recorded to support the accuracy of the research process. Recording the discussions allowed the researcher to create

detailed transcripts and revisit the conversations during the analysis phase. This helped ensure that the interpretations were based on the participants' own words and viewpoints. All participants were informed about the purpose of the study and the confidential handling of the data. To protect anonymity, identifying details were removed from the transcripts and quotations used in the thesis. The interview material was used solely for academic purposes as part of this master's thesis.

While the RCOV framework informed the broader areas of inquiry, it served as a sensitizing lens rather than a prescriptive structure. The questions were kept open-ended to allow interviewees to introduce themes beyond the framework, which is consistent with abductive reasoning, where theory provides a starting orientation rather than a fixed set of categories.

The interview guide was organized into four thematic sections, preceded by a short introduction to the study and background questions on the interviewee's role and its connection to supply chain management. The first section addressed current value creation, covering the case company's offering today and the supply chain's role in delivering it. The second section examined motivation, asking interviewees to describe the company's direction with respect to services and the forces shaping it. The third and most extensive section focused on the enablers of servitization, with questions on technology and data capabilities, service-relevant skills, leadership, the internal understanding of the service offering, cross-functional collaboration, and the supply chain's relationships with customers and external partners. The fourth section turned to future direction, identifying the areas of development considered most important for the supply chain in relation to services. A closing question invited any further topic the interviewee considered relevant. The full interview guide is presented in Appendix 1.

3.4.3 Data analysis

All eight interviews were recorded with participants' consent and transcribed using Microsoft Teams' transcription tool. Each transcript was reviewed against the original recording and anonymized to correct errors before analysis began. The data were analyzed using the Gioia methodology, which moves systematically from participants' own language toward broader theoretical constructions (Gioia et al., 2012, p. 21). Its strength in abductive research lies in preserving what interviewees actually said before layering interpretation on top. The full data structure is presented in Appendix 2.

First-order codes were derived directly from the transcripts, staying as close as possible to participants' own language and framings. No theoretical interpretation was imposed at this stage; the priority was to document what was said before drawing any conclusions from it. Second-order themes were then formed by grouping codes that shared an underlying logic or described the same organizational condition from different angles. This is where the researcher's interpretive voice entered. Themes reflect what the codes collectively reveal rather than what each one states individually. They were cross-referenced against the Theoretical Framework to identify where the findings aligned with established concepts and where new ones surfaced.

Aggregate dimensions were constructed by identifying higher-order patterns across the second-order themes. Four dimensions emerged from this process: Operational Foundation for Servitization, Organizational Enablers of Servitization, Digital and Commercial Enablers of Servitization, and Strategic Market Orientation and Value Capture. Coding decisions were documented throughout, and interpretations were verified against the original transcripts where needed. Direct quotations in the findings chapter keep the analysis grounded in participants' own words.

3.5 Data reliability and quality

In qualitative research, the quality of a study is often evaluated through the concept of trustworthiness, which focuses on whether the findings can be considered reliable and meaningful (Korstjens & Moser, 2018, p. 120). According to Korstjens & Moser (2018) instead of using traditional quantitative criteria, qualitative studies are typically assessed through four main dimensions: **credibility, transferability, dependability, and confirmability** (Korstjens & Moser, 2018, p. 120).

Credibility concerns whether the interpretations presented by the researcher are consistent with what participants expressed during the interviews (Eriksson & Kovalainen, 2016, p. 16). In this study, credibility was supported through careful preparation of the interviews, accurate transcription of the recorded discussions, and the use of direct quotations to illustrate key points in the findings. **Transferability** relates to whether the findings may be relevant in other contexts (Korstjens & Moser, 2018, p. 121). According to Korstjens & Moser (2018) qualitative studies do not aim to produce universal results, but rather to provide detailed insights that others can evaluate in relation to their own situations (Korstjens & Moser, 2018, p. 121). For this reason, the organizational context of the study, the roles of the participants, and the research procedures are described clearly so that readers can judge whether the results may also apply to other manufacturing enterprises. **Dependability** means that the steps taken during data collection and analysis should be clearly documented so that the research process can be understood and followed (Korstjens & Moser, 2018, p. 121). In this thesis, dependability was supported by explaining the sampling approach, interview procedures, and analytical steps used during the study. Finally, **confirmability** concerns the degree to which the findings are grounded in the interview data rather than influenced by the researcher's personal assumptions (Korstjens & Moser, 2018, p. 121). In this research, confirmability was strengthened by using a structured coding process and by linking interpretations directly to the interview material.

4 Research findings

This chapter presents the empirical findings of the study. The data were gathered through eight semi-structured interviews with senior managers and directors across supply chain, commercial, and product line functions in a multinational manufacturing enterprise. The analysis draws on the RCOV framework is used as an interpretive lens to situate these dimensions theoretically.

The chapter is structured in eight sections. It opens by establishing the current state of supply chain management and its relationship to service-based value creation, before examining the motivations that make servitization strategically urgent. The core of the chapter then addresses the six enabling conditions identified across the four aggregate dimensions, followed by a discussion of the challenges that constrain the transition and the implications for profitable growth.

4.1 Current state of supply chain management and service-based value creation

Before examining what enables servitization, it is necessary to establish where the case company is starting from. The conditions identified in subsequent sections are interpretable only against this baseline, what the function already does well, where structural limitations persist, and what the distance between the two implies for the servitization transition.

The picture that emerged across the interviews is consistent. On the metrics by which supply chain has historically been measured, delivery reliability, lead time management, logistics cost, the function performs well. On-time delivery rates were described as running near the top of the industry range, buffer capacity is maintained, and the logistics infrastructure to serve a large and geographically dispersed customer base is in place. One interviewee put it directly:

"We were able to improve our pricing power significantly because our customers were in a position where they needed our products desperately. Even large global (product) companies were asking us to support them because they saw that our capability to serve and manage the shipments around the globe was great." (Interviewee 2)

"I think what we are measuring of course is on time deliveries and in general I think this is very, very high numbers. So, we can even say that we are too high numbers. So, we are almost overserving our customers sometimes." (Interviewee 1)

This observation is more significant than it might initially appear. Overservice, delivering more than customers actually require or value, represents a misallocation of supply chain capacity. It also points to a deeper issue. The function has not yet developed a precise understanding of what different customer segments genuinely value. As a result, it defaults to high performance across the board rather than calibrated performance aligned to customer need and willingness to pay.

The more significant limitation, however, is not overservice on delivery metrics. It is the function's relationship to the broader commercial organization. Several interviewees (Interviewees 3, 5, and 6) described the supply chain as operating primarily in execution mode. It receives instructions from sales and planning and fulfils them. It does not actively contribute to how services are defined, sold, or developed. This creates a structural distance between the function that delivers value to customers and the conversations in which that value is articulated and priced.

"The biggest fundamental is still our disconnection from the business. The gap between supply chain, product line management, and planning creates a degree of isolation, we end up being seen as purely execution." (Interviewee 6)

Interviewee 3 pointed out the commercial consequence of this distance; the organization is delivering value it is not capturing:

"And because we lack that understanding, we are not fully monetizing it. I think there is more money to be extracted from our current supply chain operations than we are currently capturing." (Interviewee 3)

Interviewee 5 connected the same problem to the absence of a shared language between supply chain and commercial functions:

"We make a lot of assumptions that sales is having thoughtful conversations with customers about how they want to place orders, when they can receive goods, what their receiving hours are. It is more organic. Sales sells the product and then it is just assumed supply chain will figure out the rest." (Interviewee 5)

This execution-first positioning is not unique to the case company. The challenge is that servitization requires the supply chain to become an integrated part of service design rather than a residual of it, involved upstream, contributing to how offerings are configured, and accountable for outcomes beyond delivery (Gremyr et al., 2026, p. 72). From a service logic perspective, this shift reflects the move from value facilitation to value co-creation: the supplier can only influence value fulfillment when it is actively engaged in the customer's value-generating process.

Despite this, there is recognition within the organization that the supply chain already delivers activities that customers find genuinely valuable. Flexible order management, short-notice delivery adjustments, and logistics transparency are all things the function currently does. So is technical coordination with customers during product introduction. What is missing is an explicit service framing around these activities. There is no systematic pricing attached to them, and no commercial recognition of the value they create.

"I think it comes from competitive pressure and the desire for profitable growth, we want to make profitable growth and make sure it is a sustainable business case going forward." (Interviewee 5)

This points to the central tension the company faces: the supply chain function already has capabilities that could underpin a more service-oriented business model, but the organizational, commercial, and strategic architecture to translate those capabilities into

revenue has not yet been built. The following sections explore what enabling conditions would need to be in place to close that gap.

4.2 Operational foundation of servitization

The empirical analysis identified enabling conditions across four aggregate dimensions: the operational foundation for servitization, organizational enablers of servitization, digital and commercial enablers of servitization, and strategic market orientation and value capture. These dimensions emerged inductively from the data analysis. The RCOV framework, introduced in the theoretical chapter, is broadly consistent with these dimensions and applied here as an interpretive aid. The findings are kept close to the empirical material in this chapter, and theoretical connections are drawn out more explicitly in the discussion and conclusion.

The first aggregate dimension, operational foundation for servitization, captures the conditions that must exist before any service layer can be developed. Three themes emerged: competitive pressure making servitization a strategic necessity, supply reliability as the baseline on which service trust is built, and operational strength as a source of commercial leverage. In RCOV terms, this dimension corresponds to the Resources dimension, it describes the foundational market and operational conditions that determine whether an organization has the basis from which to servitize its supply chain.

4.2.1 Competitive pressure makes servitization strategically urgent

The primary driver of servitization in the case company is not internal ambition, it is external pressure. Margins on commodity products are shrinking, competitors are replicating products and undercutting on price, and growth through products alone is no longer commercially viable. The strategic logic was stated plainly by Interviewee 3:

"If you look at our size and capabilities as a company, competing on pure commodity (product)s does not make sense to us. We neither have the scale nor the cost structure to win there, and frankly it is not a particularly attractive business anyway." (Interviewee 3)

The response to this pressure is not product innovation, it is service differentiation. Services are structurally harder to replicate than products, which makes them a more durable source of competitive advantage. Interviewee 7 framed this directly:

"We are seeing more and more low-cost (product) providers entering the market, selling products at margins we cannot match. We need to find value from somewhere else, and services are the answer to that." (Interviewee 7)

The financial logic reinforces this. For a publicly listed firm, the motivation for servitization is not only commercial but also structural, service-oriented businesses attract higher earnings multiples, which translates into shareholder value independently of revenue growth:

"What drives all of this is shareholder value. There's a clear understanding that service-based organizations working in similar businesses tend to extract higher multiples, which means more value to shareholders. That's what's driving it at the top." (Interviewee 4)

Competitive pressure also operates at the pace of execution, not just strategy. Interviewee 5 connected the urgency to an internal mismatch between what the firm delivers and what customers actually value:

"I think it comes from competitive pressure and from the fact that customers value so many different things, and when the need is not met, we do not come across as customer-oriented." (Interviewee 5)

What the empirical findings make clear is that the competitive forces driving servitization are not abstract. They arrive through product commoditization and the entry of lower-cost producers, making product-based differentiation progressively harder to sustain.

Standing still on product strategy is not a neutral position, it is a concession of ground to competitors who are already moving.

4.2.2 Delivery must work before services can be sold

Reliable delivery is a prerequisite for service credibility, not a feature of it. Before any service layer can be developed or sold, the supply chain must demonstrate consistent operational performance, on-time delivery being the most visible indicator. A supplier that cannot meet basic delivery expectations lacks the relational foundation on which more advanced, operationally integrated service offerings depend. Interviewee 1 described reliability not just as an operational target but as the entry ticket to service-based relationships.

"I think what we are measuring of course is on time deliveries and in general I think this is very, very high numbers. So, we can even say that we are too high numbers. So, we are almost overserving our customers sometimes." (Interviewee 1)

The COVID-19 period provided a concrete illustration of how supply reliability translates into commercial leverage. When competitors failed to maintain service levels, the case company's continued performance enabled meaningful price increases and strengthened customer retention. Buffer stock, supply security measures, and consistent logistics execution are the operational mechanisms through which this reliability is built and maintained. Reliability, in this sense, extends beyond operational performance — it constitutes a commercial asset that becomes activated precisely when market conditions place supply continuity under pressure.

"We were able to improve our pricing power significantly because our customers were in a position where they needed our products desperately. Even large global (product) companies were asking us to support them because they saw that our capability to serve and manage the shipments around the globe was great. A capability to maintain the high service levels to our customers in an extremely

difficult environment, in a global arena, was something that is really a great story to share." (Interviewee 2)

4.2.3 Operational strength becomes market leverage

Operational strength, when visible and credible to customers, carries commercial weight beyond delivery performance. Yet resilience is currently treated primarily as a cost, an investment in buffer capacity and supply chain design justified by its protective function rather than its revenue potential. The interviews suggest this investment is not reflected in how services are priced or how the firm positions itself commercially.

"We were able to improve our pricing power significantly because our customers were in a position where they needed our products desperately." (Interviewee 2)

Disruptions are increasingly regular rather than exceptional, making resilience a recurring competitive differentiator. The core issue is that the firm already creates value it is not capturing. As Interviewee 2 observed:

"Cost management and efficiency is not a strategy, it is a must-have. That is how you play yourself time to grow, and that has opened up opportunities to create something more advanced." (Interviewee 2)

The value the supply chain creates through reliability is currently invisible in commercial terms. Making it explicit, through defined service agreements and measurable performance data, is what transforms operational strength into a revenue-generating asset.

4.3 Organizational enablers of servitization

The second aggregate dimension captures the internal organizational conditions that determine whether a servitization strategy translates from intent into practice. Four themes emerged: the cultural readiness gap, the isolation of supply chain from

commercial functions, the need to match leadership direction with ground-level commitment, and the order-to-cash process as a service capacity lever. In RCOV terms, this dimension maps primarily to the Competencies and Organization dimensions, it addresses the human, cultural, and structural conditions that shape how the organization executes its service ambitions.

4.3.1 Organizational culture shapes how service strategy is executed

Organizational culture is a more significant barrier to servitization than structure or strategy. The strategic direction is broadly understood at senior levels, but behavior below that level has not yet shifted to reflect it. Interviewee 3 noted that the organization is not structurally rigid but organizationally slow, the issue is pace and habit, not intent:

"The company has been operating in a very stable way for a long time. It is not the most agile organization, to put it plainly. Change takes time and effort here, and this transition is not something that happens overnight." (Interviewee 3)

In a scientifically oriented organization, service thinking faces a specific cultural obstacle. Every change initiative must be empirically justified before it gains traction, which slows the kind of iterative, relational development that servitization depends on. This creates a structural drag that is distinct from open resistance, the organization is not hostile to change, it simply demands proof before moving:

"This is a very analytical, scientific organization. Everybody has to see the proof that 2 plus 2 really does equal 4. You can never just say something is true; people will always want you to prove it." (Interviewee 4)

The competitive environment, however, does not allow sequencing. Interviewee 4 noted that the organization struggles to adapt at the pace competition demands.

"We're not particularly agile or speedy when it comes to efficiently sharing information and adapting to it dynamically. A need emerges and it might take months,

quarters, or even years to fully respond. Meanwhile competition is sometimes doing it much faster." (Interviewee 4)

Service orientation is frequently misread at the operational level as unlimited accommodation rather than calibrated delivery. The consequence is practical: service boundaries become hard to establish, pricing service activities feels uncomfortable, and commercial conversations about scope rarely happen.

"For many people in the middle of the organization, it feels like being service-oriented means spoiling the customer, without noticing that you can make a really good impression by identifying what the customer values with less interaction or even less service." (Interviewee 5)

Middle management is the critical implementation gap. Strategic intent from leadership does not translate into changed behavior without active buy-in at the level where day-to-day decisions are made. Interviewee 4 framed the dependency clearly, organizational behavior reflects the values modeled by those closest to it, not those announced from the top. Reaching the full organization requires more than a clear direction. It requires repeated, targeted communication across the layers of the organization where execution actually happens:

"Organizations tend to look like their leaders. Leadership is essential to where we go and how we do it." (Interviewee 4)

4.3.2 Isolation between functions limits supply chain's strategic role

The most consistently described organizational barrier is the timing and quality of supply chain's involvement in commercial conversations. Supply chain typically finds out about new customer opportunities when a purchase order arrives, at the point of execution, not at the point of design. By then, the service commitment has already been made without operational input. This creates a structural distance between the function that

delivers value to customers and the conversations in which that value is defined and priced.

"Supply chain often does not get informed early enough about new customer opportunities or new ways of servicing a customer. A lot of times our first clue that something new is happening is when a purchase order arrives for a trial. That is too late." (Interviewee 6)

The gap runs in both directions. Sales does not understand what supply chain services cost or require operationally. Supply chain does not understand the commercial logic behind what sales promise. Interviewee 2 captured the structural nature of this tension:

"Sales makes the promises and provides PromiseWare to customers, what they say is their business, while operations is responsible for running the fulfillment part. So, there is a built-in conflict continuously there." (Interviewee 2)

This is a knowledge gap rather than a communication problem. The consequences are commercial: supply chain activities are committed to without operational input, and the cost of delivering them is absorbed silently. Interviewee 2 identified the core issue:

"We need to understand the value we provide, and we need to understand also the cost of that value, and we need to be capable of capturing the value." (Interviewee 2)

Interviewee 4 framed the same gap from the commercial side, arguing that the solution is not structural but relational, built on shared language and mutual accountability:

"Creating much closer connection between supply chain, our commercial organization, and ultimately our customers is what I would change. It sits somewhere between culture and collaboration, speaking the same language proactively, being genuinely empathetic, focused on being better rather than being right." (Interviewee 4)

Cross-functional understanding was identified as a capability gap that job rotation could help address. Interviewee 2 noted that supply chain people with commercial

backgrounds, and commercial people with operational experience, navigate the boundary between functions far more effectively:

"It helps quite a lot of people have been in different types of functions, selling, buying, running plants, operations. The understanding what supply chain management is and how to utilize it in the best way, these are the reasons why cross-functional understanding and learning would be extremely valuable." (Interviewee 2)

The pre-sales freight cost tool was cited as a concrete step in the right direction, giving sales access to logistics cost data before making customer commitments. It does not resolve the broader knowledge gap, but it establishes the principle that supply chain input belongs in commercial conversations before commitments are made, not after:

"We make a lot of assumptions that sales is having thoughtful conversations with customers about how they want to place orders, when they can receive goods, what their receiving hours are. It is more organic. Sales sells the product and then it is just assumed supply chain will figure out the rest." (Interviewee 6)

4.3.3 Leadership direction must be translated into day-to-day action

Having a clear strategic direction from the top of the organization is important, it is not sufficient on its own. Interviewee 5 described a clear strategic intent at the senior level that had not yet translated into changed priorities, measurement frameworks, or resource allocation in practice. The gap is not one of commitment, it is one of execution. Interviewee 1 was direct about what implementation actually requires:

"This is really something that needs to come top down. The targets and the visions need to be crystal clear for top management, and after that we need to communicate, communicate, and sell the values internally to make sure that everybody is on board. We always know that 90% of strategies fail because of implementation, it is not implemented well." (Interviewee 1)

Strategic intent reaches the organization through the mechanisms that reinforce it daily, and those mechanisms have not yet been fully aligned:

"We could be better at repeating things. If we agree on something, we do not repeat it enough over time. When you are trying to reach 200 to 300 people in customer service and 400 in sales, one information session is not enough." (Interviewee 5)

KPIs were identified as the most credible signal of what leadership actually values. What gets measured shapes what gets prioritized, if supply chain teams are evaluated exclusively on cost and delivery, the operational signal is that service development is peripheral, regardless of what the strategy says. Interviewee 7 pointed to a concrete structural reinforcement already in place on the commercial side:

"In our organization it is really important that one of the commercial organization's KPIs is to increase separately invoiced service sales. That is a concrete signal from leadership about where the priority lies." (Interviewee 7)

Without equivalent measurement on the supply chain side, the function receives a different signal, one that keeps it anchored in execution. When decisions are made without involving those responsible for implementing them, resistance follows. Underpinning both dynamics is a more fundamental gap; the organization does not yet have a clear picture of which supply chain services actually matter to customers or what they cost to deliver:

"We need to understand which services are truly important to customers and which are not. We also need to understand the resource dimension: how much time and effort does it actually take to deliver each service?" (Interviewee 7)

Supply chain sits at the point where strategy either becomes operational reality or dissolves back into execution routine. Until measurement, communication, and decision-making are aligned with the service direction, the gap between intent and behavior will persist. Interviewee 2 made the ownership of change explicit:

"Leadership supports, but you need to create the story of change yourself. They cannot tell us what we need to do." (Interviewee 2)

4.3.4 A simpler order process frees up capacity for service development

A complex order-to-cash process is a hidden constraint on service development. Every manual step absorbs time and attention that could otherwise support higher-value service activities. The current process was identified as a concrete obstacle:

"Improvements can be made to the order-to-cash process today. Maybe it is a bit too complicated right now. We have been retaining a major consultant company this year, and we are working on this order-to-cash process, with the understanding that now we have a chance to reinvent OTC without any limitations." (Interviewee 1)

Standardizing lead times is itself a form of service design. When a customer knows exactly when to expect delivery and that expectation is consistently met, the logistics relationship becomes a service rather than a transaction. Interviewee 2 articulated the capacity logic:

"At the end of the day, you need to be able to get rid of less value-adding transactions, which frees up and liberates some of your resources to do more valuable things." (Interviewee 2)

Interviewee 5 connected standardization directly to service capacity, arguing that defined models are what allow supply chain to move from reactive order handling to proactive service delivery:

"Right now, we have quite a lot of email orders and not much automated order intake, so there is a lot of human interaction in between. If we had clear models in place, we could make much more sense of customer segmentation and service delivery, you could prioritize, you could make decisions more easily without always having to ask." (Interviewee 5)

Digitizing order intake, standardizing lead times, and reducing manual touchpoints are therefore not back-office improvements, they are structural preconditions for the service orientation the organization is trying to build.

4.4 Digital and commercial enablers of servitization

The third aggregate dimension captures the conditions needed to build and deliver services in practice. The digital infrastructure makes service operations possible, the commercial architecture that makes them sellable, and the proof-of-concept models that demonstrate what service-led supply chain looks like when it works. In RCOV terms, this dimension bridges Resources and Value proposition, digital infrastructure provides the resource foundation, while standardization, productization, and defined service offerings are what turn that infrastructure into a market offer

4.4.1 Digital capabilities require process clarity to deliver value

The unified enterprise resource planning environment is the integration backbone of the case company's supply chain operations. It creates a single shared data layer across products, customers, suppliers, and transactions, enabling coherent reporting across geographies and simplifying the integration of acquired businesses. Planning tools and CRM systems are also in place. The platform is a genuine asset, the constraint is not the technology itself, but the absence of defined processes for it to fully support:

"One big enabler is this kind of platform thinking that we made a long time ago. It was a decision to build the concept of one IT. One SAP. This means that there is only one data for the products, for customers, for suppliers, all the transactions. And this is what is important, because that makes those transactional reporting understandable." (Interviewee 2)

Investing in technology before defining the underlying process encodes existing confusion into the system rather than resolving it. A platform built on an undefined service model becomes harder to change, not easier, because it formalizes arrangements that have not yet been agreed. The enabling logic runs from process clarity to technology, not the other way around. Automation and AI face the same constraint, both were described

as being treated as large-scale initiatives rather than incremental steps, which slows the removal of manual processes and limits service development capacity:

"We are doing a lot of manual work and manual checks, and for some reason we are not trusting enough that we can reduce those steps. AI and automation do not always need to be big initiatives. They can be small steps." (Interviewee 5)

4.4.2 Services must be defined before they can be sold

Several interviewees, namely Interviewees 2, 5, 6, and 8, indicated that no standard service definition exists across the organization today. In their accounts, different business units, geographies, and customer relationships have developed their own informal service arrangements, with expectations set by habit rather than agreement. This inconsistency creates internal confusion about what supply chain services include and makes systematic performance measurement difficult. It also limits the development of differentiated service tiers, because differentiation requires a baseline to differentiate from:

"Honestly, I do not think there is a clear service offering internally. It is more implied, sell the product and then just do whatever the customer wants, just get it done. There is no clear standard service offered across all business units." (Interviewee 6)

Interviewee 8 made a similar point from a senior commercial perspective. Without a clearly articulated service portfolio, employees fall back on physical delivery as the implicit definition of what supply chain provides, rather than referring to a defined set of services:

"There is, to some degree [a shared understanding]. There has been a lot of emphasis on monitoring and control on the customer-facing side [...] When I think about our service offering, the default position is how we physically service customers and how our online data helps service them." (Interviewee 8)

The operational consequence of this gap is visible in the day-to-day complexity of the supply chain. Because no defined standard exists, each customer relationship has

developed its own bespoke logistics arrangements, and the organization has grown around managing this variety rather than structuring it. Some of the resulting complexity is inherent in serving a global customer base with genuinely different needs, but much of it is accumulated through the absence of standardization:

"Our supply chain processes work in the same way, but we have very manual processes. Part of that is because we are serving our end customers around the globe. We have over 12,000 customers who we try to serve, and often they are very different from each other." (Interviewee 2)

This complexity absorbs capacity. Manual processes require human attention for routine transactions, which limits the time available for service development, customer collaboration, and performance analysis. The challenge is to distinguish necessary customization, which customers value and pay for, from accumulated customization, which is simply the residue of historical decisions that were never made deliberately:

"I think we could do a lot if we got better at identifying where our flexibility is actually creating that complexity." (Interviewee 5)

Standardization is therefore not about making everything uniform, it is about establishing a common baseline against which variation can be deliberately managed. Interviewee 5 was explicit that the organization is attempting to differentiate before it has standardized, which produces the opposite of the intended result:

"Standardization before differentiation, and I think you may have heard this from others as well. We are trying to do the differentiation without first standardizing. Even if we could not agree right away on a full-service level model, steps towards that would definitely help support profitable growth." (Interviewee 5)

The commercial consequence of this gap is equally direct. A service catalogue exists in principle, but salespeople cannot explain what it contains. If the person selling a product cannot describe what the supply chain delivers alongside it, the customer has no basis on which to value or pay for it. Productization, packaging individual supply chain

capabilities into defined, named offerings, creates clarity for customers, gives sales something concrete to communicate, and establishes internal accountability for delivery:

"Rather than trying to standardize everything at once, we could take individual services and productize them one by one, so that when we sell a product, a defined service comes with it as a package." (Interviewee 5)

When services are clearly defined, the customer conversation changes. Instead of negotiating what is included on a case-by-case basis, the discussion turns to which service tier applies, which is a commercial question rather than an operational one. Without that clarity, the organization cannot reliably measure service performance, train sales staff on what they are selling, or invest in service development with confidence.

4.4.3 VMI shows that the supply chain can lead service relationships

The clearest empirical evidence that service-led supply chain operations are viable comes from the vendor-managed inventory (VMI) model already deployed in selected markets. Tank monitoring operates as a live availability service in which the supplier remotely tracks customer inventory and autonomously initiates replenishment, thereby relieving the customer of the administrative burden associated with inventory management. The model also demonstrates measurable pricing power, as customers are willing to pay a premium for the certainty and convenience that VMI delivers.

"So, it would, let us say, help us to provide customer service and without them spending resources for supervising their own warehouses and inventories and then sending the POs to us, receiving the goods and checking the material receivables, etc." (Interviewee 2)

VMI creates a form of operational dependency that makes switching suppliers costly. When the supplier's monitoring infrastructure is embedded in the customer's operational process, the customer is relying on the supplier's service capability as part of their own operations. Interviewee 1 described scaling this model to Asia Pacific as the next

significant growth opportunity. The example illustrates that the vision of supply chain as a service leader is not aspirational, it is already operational in parts of the business.

"I think what we are doing in Europe right now, if we can expand it into Asian countries and South American countries, is this vendor-based management, the tank monitoring systems, for example." (Interviewee 1)

4.5 Strategic market orientation and value capture

The fourth aggregate dimension captures the commercial conditions that determine whether supply chain services generate revenue. Three themes emerged: the need for customer understanding as a prerequisite for service pricing, the limits of universal service models across different regional markets, and the challenge of monetizing services that are currently invisible inside the product price. In RCOV terms, this dimension corresponds to the Value proposition dimension, it addresses how value is defined, communicated, and captured commercially across different customer segments.

4.5.1 Service pricing requires customer understanding first

Without visibility into the cost of serving each customer, pricing decisions become largely speculative, and this analytical gap persists within the case company. The organization cannot determine whether a given service relationship is commercially viable or whether profitable accounts are subsidizing less profitable ones. It cannot identify where additional service investment would generate the greatest return. Because customers differ in the value they place on supply chain services, segmentation becomes the mechanism through which differentiated pricing is made structurally feasible.

"What would be important is to understand different customer behaviors and appreciations, so you can group them and maybe allocate some standard offerings, you could call them service levels, to specific customer groups. This is essentially how e-commerce applications and AI work in our personal lives today. And I would

say that AI applications in the future could bring quite a lot, especially when it comes to analytics and the classification of customers, understanding and recognizing valuable customer behaviors and cost-to-serve structures." (Interviewee 2)

A service catalogue only works when it is matched to the customer segment it is offered to, and the maturity of each region shapes which price points are commercially viable. Building a commercial service architecture therefore requires a segmentation model that identifies which customers value which services and at what price they are willing to pay. Without this, the organization ends up offering the same undifferentiated supply chain activities to customers whose needs and willingness to pay differ substantially.

4.5.2 One service model does not fit all markets

Customer expectations and market maturity vary significantly across the geographies in which the case company operates. European customers pay for service quality. Asian customers treat reliable supply as the norm and are more resistant to paying for it explicitly. The pace of change toward service orientation differs by region. A single global service model risks being too advanced for markets not yet ready to pay for services, and too simple for markets where customers already expect deeper integration.

"In Asia the customer base is much more product-oriented and transactional, while in Europe we have more of a genuine service business. That naturally influences what kind of supply chain you can and should run in each region." (Interviewee 3)

The same operational platform requires different commercial approaches across markets, as industrial and municipal customers operate on fundamentally different logics: production continuity versus regulatory compliance and cost sensitivity. This heterogeneity means servitization is not a single organizational transformation but a portfolio of market-specific trajectories, each advancing at the pace its customer context allows. The enabling architecture is a differentiated commercial interface built on a common operational platform.

"On the paper side I would describe it as a diverse mix of specialty and commodity products... with extensive service loads, consulting and added technical support that enables and maintains the product sale... If you go to the other extreme and look at water, at least the municipal part where I am now sitting, it's essentially a commodity. Price-driven, minimal service, minimal value-add. Municipalities are working with taxpayer budgets and they're looking for the lowest possible cost. Even if there are efficiency improvements available, they're usually not willing to pay for them unless it's free." (Interviewee 4)

4.5.3 Converting service activity into service revenue

Defining services internally, as discussed in section 4.4.2, is a necessary first step but does not by itself generate revenue. The harder commercial challenge lies in moving from a pricing model where supply chain activities are absorbed into the product price to one where they appear as separately priced line items. This transition is as much a change-management problem as a pricing one, because customers who have received these activities as part of the product relationship for years do not automatically accept them as billable when the underlying service has not visibly changed.

"In our sales department they see that we as SCM are providing something that they see as their customers appreciate a lot. And they would like us to provide those services, but at the same time, customers might not really be willing to pay for it." (Interviewee 2)

The practical path forward is incremental rather than abrupt. Express delivery charges and fuel surcharges represent viable first steps because the service triggering the charge is concrete and the cost driver is transparent enough for customers to accept. Pricing precedents of this kind matter because they reset the commercial relationship gradually, normalizing the principle that specific supply chain activities carry specific costs without requiring a wholesale renegotiation of existing contracts.

"If customers need faster delivery, express delivery, we will charge for those kinds of services in the future. And especially now in times of crisis, when fuel costs are exploding in the market, we are putting fuel surcharges on the invoices to

customers. I think that is quite normal and I expect that we need to do those kinds of things more in the future as well." (Interviewee 1)

Each successful repricing precedent makes the next one easier, which means customer education becomes part of the commercial work rather than a step preceding it. For a multinational manufacturer transitioning toward servitization, this articulation capability is itself an enabler. Customers struggle to perceive the value of services they previously received at no explicit cost, so value can only be captured once the supply chain has named these activities and made them tangible enough to be recognized as worth paying for.

4.6 Implications for profitable growth

Interviewees were broadly positive about the supply chain's potential to contribute to profitable growth, though the diagnosis was consistent: the capabilities already exist, but the commercial architecture to translate them into revenue has not been built. The gap is not primarily a capability problem. As Interviewee 3 described it, it is a recognition and monetization problem:

"This is very much work in progress. A key challenge, and frankly across the (product) industry, is that we have spent years educating customers that we do not charge separately for service. The service has always been baked into the price of the chemistry, without a separate line item. That mindset is deeply embedded." (Interviewee 3)

The financial mechanism through which each enabler contributes to profitable growth differs, and that distinction matters for how investment is sequenced. Digital infrastructure enables outcome-based pricing that would otherwise not be viable. Without visibility into customer consumption and product performance, services cannot be priced on outcomes, and revenue remains bundled inside the product margin. Interviewee 8 identified the tension between deploying this capability and monetizing it directly:

"Our challenge is not the technology. It is our willingness to monetize it at the level we would like. There is real benefit in offering customers something like tank monitoring free of charge, because if we take over the ordering and volume management, that creates commitment and helps our manufacturing footprint." (Interviewee 8)

This reflects a genuine strategic trade-off: some digital service capabilities generate indirect financial returns through customer lock-in and demand stability rather than direct service revenue, and both routes contribute to profitable growth differently. The key is to make that choice deliberately rather than by default.

Competency development contributes through margin protection rather than revenue creation. When supply chain employees understand cost-to-serve and can identify which customer relationships are commercially viable, the organization stops subsidizing unprofitable accounts silently. Interviewee 2 captured the mindset shift required:

"How do you actually assess the value for the customer? That is a mindset and a technique. Technically, it may mean that if you treat it as a service and value, you may charge that maybe once a month, once a quarter, as a kind of a service fee. The question is, how do you recognize the value you are bringing to the customer, and how do you get your customer accepting that?" (Interviewee 2)

Cross-functional collaboration affects the cost side of the equation. Interviewee 6 pointed to an emerging shift in how the case company is beginning to address this structurally, with the supply chain's role now being factored into service design rather than treated as a downstream execution concern:

"We are already starting to see it in our packaging and hygiene operating model project. The supply chain's role is now being factored into the service offering. Discussions are happening around how customers place orders, how they can change an order, what minimum order quantities apply, and whether they can return a product. All of those are services that require internal resources to execute." (Interviewee 6)

This shift is financially consequential because it moves service cost from an untracked overhead absorbed by operations into a visible input that can be priced, measured, and

managed. The value proposition enabler is where that visibility becomes revenue. Services that remain bundled inside the product price generate no separately reportable income and cannot be scaled or invested in as a distinct business. Interviewee 5 identified the near-term priority clearly:

"Standardization before differentiation. We are trying to do the differentiation without first standardizing. Even if we could not agree right away on a full-service level model, steps towards that would definitely help support profitable growth. That also includes roles and responsibilities in general, how we operate cross-functionally, and technology overlaid on top of that." (Interviewee 5)

In the medium term, the opportunity lies in segmentation. Interviewee 7 described a practical mapping approach that points directly to where margin improvement is most accessible:

"We should start from the other end, reduce or eliminate service activities that are not important to customers but are consuming a lot of our resources, and then focus most on those service elements where the resource requirement is minimal but the value to the customer is high. That kind of mapping, combined with proper customer segmentation, would help us balance our service portfolio much more effectively." (Interviewee 7)

The longer-term vision is of a supply chain function that contributes to competitive positioning through the depth of the service relationships it enables. Interviewee 6 framed what the organizational shift toward that vision requires in practical terms:

"We need to shift toward more financial and strategic competencies. Our roles today are very operational. What we need is more analytical people who can understand what services are actually costing us and what we are truly offering. People who are systems-minded and process-oriented, but also financially aware." (Interviewee 6)

Productizing existing supply chain activities converts currently invisible value into recognized revenue. Segmented service tiers improve margin by directing investment toward the relationships where it generates the highest return. And deeper service integration,

of which VMI is the working prototype, strengthens customer retention and shifts competitive positioning away from product price toward operational and relational value.

4.7 Summary of findings

The empirical analysis identified six key enablers of servitization in supply chain management, distributed across four aggregate dimensions that mirror the RCOV framework introduced in chapter 2. Figure 8 captures the relationship between these dimensions and the performance outcome they collectively support. The four boxes show how the enabling conditions discussed in the preceding sections converge on a single result, profitable growth, while also revealing that no single dimension produces this outcome on its own.

The first dimension, Operational foundation of servitization, describes the conditions that must exist before any service layer can be developed. Competitive pressure makes the transition strategically urgent, and delivery reliability provides the baseline on which service credibility is built. The case company already performs well on these traditional metrics, which means the operational platform is largely in place. What remains missing is an explicit service framing around activities the supply chain already performs reliably, including order management, technical coordination, and logistics responsiveness.

The second dimension, Organizational enablers of servitization, captures the internal conditions that determine whether strategic intent translates into operational behavior. Cultural readiness has not yet caught up with the strategic direction set at senior levels, and supply chain remains functionally isolated from the commercial conversations where service commitments are actually made. Leadership intent therefore needs to be reinforced through aligned KPIs and repeated communication rather than announced once and assumed to take hold. Across the empirical material, this dimension contained the most consistent and detailed accounts of where the transition currently stalls.

The third dimension, Digital and commercial enablers of servitization, addresses what is needed to build and deliver services in practice. Technology requires process clarity to deliver value, because digital infrastructure layered on an undefined service model encodes existing confusion rather than resolving it. Standardization must precede differentiation, since differentiated service tiers cannot be built without a common baseline to differentiate from. The vendor-managed inventory model already operating in selected markets demonstrates that service-led supply chain operations are commercially viable, providing the case company with an internal proof of concept for the broader transition.

The fourth dimension, Strategic market orientation and value capture, concerns the commercial conditions under which supply chain services generate revenue. Pricing requires customer understanding first, because cost-to-serve invisibility prevents the organization from identifying which service relationships are commercially viable. Customer expectations also vary substantially across regions and segments, which means a single global service model fits neither mature service markets nor transactional ones. Services that remain bundled inside the product price cannot be monetized, which is the commercial expression of the definitional gap identified in the third dimension.

Viewed through the RCOV lens, the four dimensions in Figure 8 are interdependent rather than parallel. Each is necessary but not sufficient on its own, and development along one dimension without corresponding progress across the others will eventually stall. The case company is closer to the conditions for profitable servitization than the current state suggests, since the underlying capabilities are already present across all four dimensions. They do not, however, yet translate into financial returns, because service activity is not consistently defined, priced, or measured as a revenue-generating function, and its commercial contribution therefore remains largely invisible in the organization's performance figures. Converting these capabilities into performance requires three conditions to be met in combination. First, services must take a clear commercial form so that they can be sold and reported on their own. Second, the supply chain function must be present in the commercial decisions through which service commitments are made.

Third, performance measurement must capture service contribution rather than only cost efficiency and delivery reliability. The converging arrows in Figure 8 capture this logic visually: the four dimensions can support a single outcome, profitable growth.

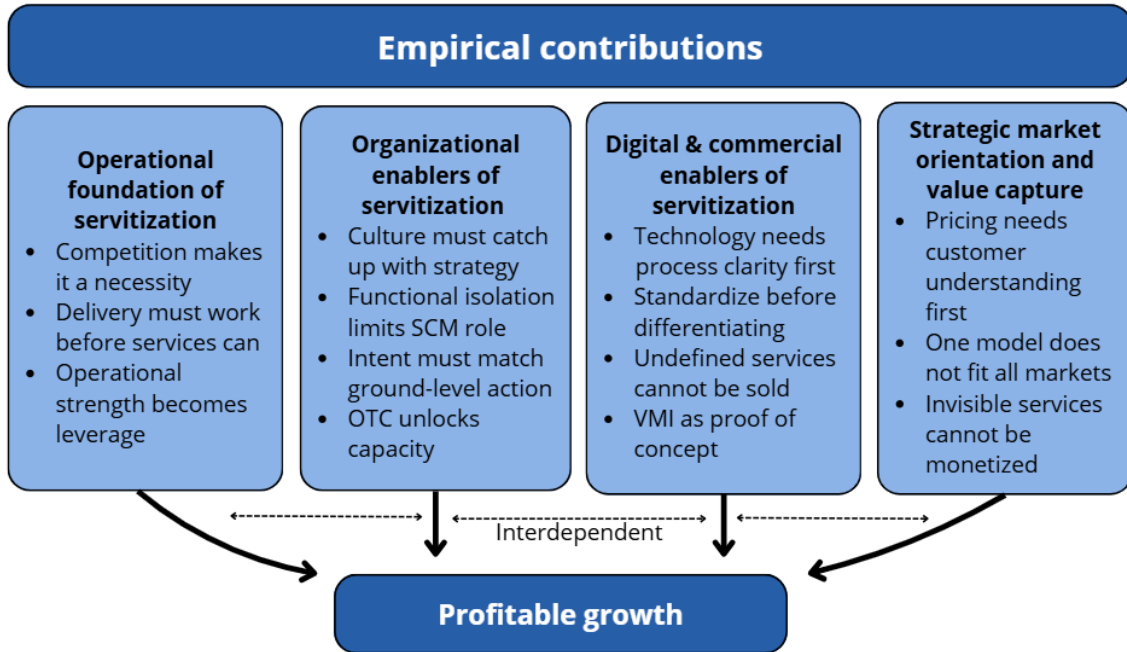


Figure 8. Summary of findings

5 Discussion and conclusion

This chapter brings the theoretical framework developed in chapter 2 together with the empirical findings reported in chapter 4. It opens with a synthesis that positions the six enablers identified in the case study against the four RCOV dimensions. The discussion then turns to the theoretical implications of the study, the managerial guidance it offers to firms navigating the servitization transition. Lastly this chapter addresses limitations and the directions for future research that extend the contribution beyond the case context.

5.1 Synthesis and revised framework

This study set out to identify the enablers of servitization in supply chain management and to examine how they can support profitable growth. The theoretical framework, built on the RCOV lens, organized the inquiry around four interacting dimensions: Resources, Competencies, Organization, and Value proposition (Plé et al., 2010, p. 230). The empirical analysis produced four aggregate dimensions that align with these theoretical starting points and specify what each one contains in the context of a multinational manufacturing firm.

The relationship between the theoretical foundation and the empirical contribution is summarized in Figure 9. It presents the overall dimensions as interdependent pathways that can support sustainable growth. Table 6 sets out the correspondence between the theoretical enablers, the empirical findings, and the key tensions surfaced in the case study, providing a more detailed account of how each dimension behaves in practice.

The case study identified six key enablers distributed across the four RCOV dimensions. Under Resources, digital infrastructure and data integration provide the technological foundation on which service-based operations depend. Under Competencies, two enablers operate together: service-oriented skills and commercial competencies at the

operational level, and leadership commitment and change management capacity at the strategic level. Under Organization, cross-functional collaboration and organizational integration address internal alignment, while external collaboration with customers and partners extends that integration across firm boundaries. Under Value proposition, a clearly defined internal service value proposition translates the strategic shift toward service into a basis on which services can be priced, sold, and measured. Each of these enablers is necessary but not sufficient on its own; their contribution to profitable growth depends on how they develop in combination, which is the focus of the following discussion.

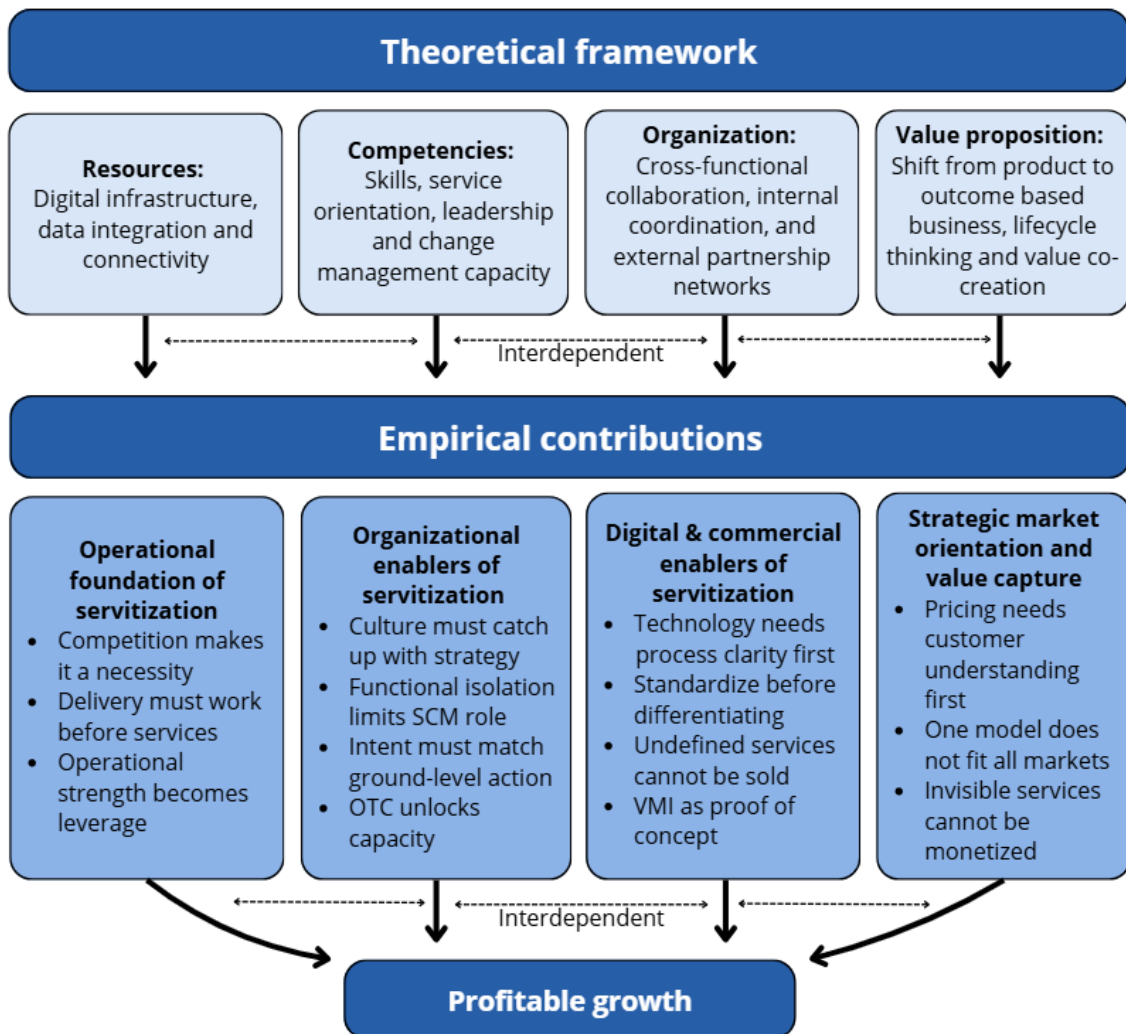


Figure 9. Synthesis of theory and empirical contributions

Four observations cut across the framework and require explicit discussion. Figure 9 depicts the dimensions as parallel paths, but the empirical data reveals a logic of priority that the visual symmetry does not capture. Delivery reliability must precede credible service offerings, process clarity must precede technology investment, a standard baseline must exist before differentiation is viable, and services must be named before they can be priced. While the RCOV framework establishes that no single dimension generates service-based value on its own (Demil & Lecocq, 2010, p. 230), the empirical findings add a temporal logic the framework does not specify: the dimensions do not unlock simultaneously, and some enabling conditions must develop before others can become operational. This sequencing logic extends RCOV from a static configuration into a dynamic one, responding to calls in the servitization literature for more processual accounts of how firms progress through the transition (Kowalkowski et al., 2017, p. 8; Baines et al., 2020, p. 3).

Where the implementation gap sits. Across the four aggregate dimensions, the most detailed interviewee accounts consistently described organizational barriers rather than technical ones. The digital infrastructure exists and senior-level strategic intent is in place, yet the cross-functional integration, aligned KPIs, and shared accountability that convert intent into operational behavior remain underdeveloped. Table 6 captures this directly: the Competencies tension identifies middle management as the critical implementation gap, and the Organization tension reframes functional isolation as a structural rather than a communication problem. While the servitization literature widely recognizes organizational conditions as a central challenge (Baines et al., 2017, p. 8; Kamal et al., 2020, p. 20), prior work tends to treat them as contextual factors rather than as primary enablers in their own right (Rabetino et al., 2017, p. 11). This study repositions them as central, locating that challenge specifically within the supply chain where functional isolation is structurally reinforced by how supply chains are designed and measured (Christopher & Peck, 2004, p. 19; Mentzer et al., 2001, p. 8). The Organization dimension therefore functions as the bottleneck through which value generated elsewhere must pass to reach the profitable growth shown at the foot of Figure 9.

The servitization paradox, reframed. The case company is not caught in the paradox because its servitization strategy is misaligned, but because cultural readiness, functional integration, and commercial clarity have not yet developed together. Brax et al. (2021) identify this as the defining characteristic of the paradox at intermediate stages of servitization, where investment in services is underway but internal alignment has not caught up (Brax et al., 2021, p. 536). Figure 9 reframes the paradox empirically by treating the four aggregate dimensions as preconditions that must be jointly developed before profitable growth becomes reachable. The path through the paradox therefore runs through the enabling conditions identified in this study, not around them.

The position of value capture. The Strategic market orientation and value capture dimension on the right of Figure 9 represents the commercial expression of the servitization transition, not its starting point. Pricing, segmentation, and service visibility become meaningful only once the operational, organizational, and digital foundations are in place (Bustinza et al., 2015, p. 4). Table 6 makes this dependency explicit through its Value proposition row. The key tension, that standardization must proceed in parallel with differentiation, and that value can only be recognized once the service has been named and brought to the customer's attention, requires that the work phases described in the other three lines have been completed in advance. As shown in section 4.6, the case company attempts to capture service value before completing this foundational work, which produces the commercial invisibility and pricing difficulty that characterize the current state, a pattern consistent with what Brax et al. (2021) describe as the organizational version of the servitization paradox, where service investment proceeds without the structural changes needed to make it commercially viable (Brax et al., 2021, p. 536). The framework therefore implies that the four aggregate dimensions should be developed in deliberate order rather than in parallel, and that profitable growth at the foot of Figure 9 becomes reachable only once value capture is built on the foundation the other three dimensions establish.

Table 6. Key tensions between theory and empirical findings

RCOV Dimension	Theoretical Enablers	Empirical Findings	Key Tensions
Resources	Digital infrastructure, data integration and connectivity	Reliable delivery is the commercial foundation on which service trust is built. Sustained under pressure, operational strength becomes pricing power. Competitive intensity makes servitization strategically urgent rather than optional.	The digital infrastructure exists but is underused. Technology cannot add value until the processes it supports have been defined.
Competencies	Service orientation, leadership and change management capacity	Culture has not caught up with strategy, and leadership direction translates into behavioral change only when reinforced by aligned KPIs, repeated communication, and visible commitment. Manual order-to-cash complexity also absorbs capacity that should be directed toward service development	Middle management is the critical implementation gap. A single directive does not change how daily decisions are made.
Organization	Cross-functional collaboration, internal coordination and external partnership networks	Supply chain enters commercial conversations only once execution is underway, leaving sales without visibility of service costs and supply chain without visibility of the commitments made on its behalf. VMI shows that the function can lead a	Functional isolation is a structural problem, not a communication one. Resolving it requires shared processes and joint accountability.

		service relationship rather than only support one.	
Value Proposition	Shift from product to outcome-based business, lifecycle thinking and value co-creation	Services that have no standard definition cannot be described, sold, or priced. Bundled inside the product price, they remain commercially invisible, and pricing without customer segmentation becomes guesswork. One model does not fit all markets.	Standardization must precede differentiation. Value can only be captured once it has been named and made visible to the customer.

5.2 Theoretical implications

This study makes three contributions to the theoretical understanding of servitization in supply chain management. First, it extends the RCOV framework by adding a temporal dimension. Demil and Lecocq (2010) present RCOV as a model of interdependence in which the four dimensions develop in combination (Plé et al., 2010, p. 230). The findings confirm this but specify what the original framework does not: the dimensions do not develop simultaneously. Operational reliability must precede credible service offerings, processes must be defined before technology can support them, a standard baseline must exist before differentiation is viable, and commercial visibility must come before pricing. This sequencing logic extends RCOV from a static configuration into a dynamic one, where the order in which enablers develop matters as much as whether they develop at all. It also responds to calls for more processual accounts of the servitization transition.

Second, the study repositions organizational conditions as primary enablers rather than contextual factors. The most consistent interviewee accounts concerned organizational barriers, not technical ones. Digital infrastructure exists and strategic intent is present at

senior levels, but the organizational architecture that converts intent into behavior, shared accountability, aligned KPIs, and early cross-functional involvement, is missing. Organizational conditions therefore belong to the center of servitization theory, particularly in the SCM context where functional isolation is structurally reinforced by how supply chains are designed and measured.

Third, the study provides an empirical account of the servitization paradox at the supply chain level. This study confirms that diagnosis and specifies what incomplete alignment looks like in the SCM context: services that are operationally delivered but commercially invisible, pricing without cost-to-serve transparency, and service investment proceeding without a defined offering. The path through the paradox runs through the six enabling conditions identified here, not through strategic repositioning, but through the organizational and commercial work that makes existing capabilities generate returns. This contributes a supply-chain-specific account of the paradox that was absent from prior literature.

5.3 Managerial implications

The findings offer four implications for supply chain managers and senior leaders navigating the servitization transition. **Start with operational reliability, not service innovation.** The path to service-based growth begins with getting the basics right: delivery reliability, order-to-cash simplicity, and supply security are the commercial foundation on which customer trust is built. Firms that launch differentiated service offerings before establishing this foundation will find that customers do not believe the service promise, regardless of how well it is designed. Sequence investment, accordingly, stabilize the operational foundation first, then build commercial service capabilities on top of it.

Involve supply chain in commercial conversations earlier. Functional isolation is a structural problem: supply chain enters commercial processes too late to shape service design or influence what is promised to customers. The solution is not better communication

but structural change, supply chain managers need to be present in commercial planning, service catalogue development, and customer segmentation from the outset. This requires leadership to redefine the function's role explicitly. Not as execution that responds to commitments made elsewhere, but as co-designer of the service model.

Define products and services before attempting to price them. Services are commercially invisible because they have never been named or separated from the product price, leaving pricing as guesswork and performance measurement without a baseline. The practical path is to productize capabilities incrementally, starting with the most discrete and visible, such as express delivery or defined lead-time guarantees, and build toward a structured service catalogue. Standardization must also precede differentiation. Only once a baseline is defined can the organization build differentiated tiers for different customer segments and geographies.

Measure supply chain on value creation, not only cost and delivery. Current KPIs reflect a product-focused logic, cost efficiency, on-time delivery, inventory levels, and fail to capture the commercial contribution of service-oriented activities, systematically undervaluing the function's growing role in customer value creation. Indicators that reflect service-based contribution should be introduced. Customer retention linked to service levels, revenue from explicitly priced services, cost-to-serve transparency by segment, and cross-functional collaboration metrics. Without this shift, the incentive structure continues to reward operational efficiency over service development.

5.4 Limitations

This study is subject to several limitations that should be acknowledged when interpreting the findings. First, the empirical material is drawn from a single manufacturing case. The single-case design enabled a detailed examination of how enablers interact in a specific organizational setting, but it limits how far the findings can be generalized. Industries with different product characteristics, customer structures, or competitive

dynamics may surface different enablers or weigh them differently. The findings should therefore be read analytically rather than statistically generalized.

Second, the data were collected exclusively from informants inside the focal firm. This means that the perspectives of customers, suppliers, and network partners are not directly represented. Since servitization is widely understood as a co-created phenomenon, the absence of external perspectives places a boundary on what can be claimed about the relational dimension of the transition. External collaboration is examined here only through how the focal firm manages it internally.

Third, the study is cross-sectional. The sequencing logic identified in the synthesis is inferred from interviewee accounts and the current state of the organization rather than observed over time. A longitudinal design would be needed to test whether the proposed order of development holds as the case company progresses through later stages.

Fourth, the findings describe a potential mechanism through which the enablers can support profitable growth, but the case company has not yet fully realized that growth in financial terms. The VMI model provides a partial proof of concept at small scale, and interviewee accounts describe the conditions needed for broader translation. The study therefore explains how the enablers can support profitable growth rather than demonstrating that they have already done so.

5.5 Future research suggestions

The limitations outlined above point to several directions for future research. Four are particularly worth pursuing. **Longitudinal design:** The sequencing argument, which holds that some enablers must develop before others can contribute, cannot be confirmed from a cross-sectional study. Tracking the same organization across multiple stages of servitization would allow researchers to test whether the sequence holds and how interdependencies between enablers evolve. It would also clarify whether the order

observed here is a stable feature of the transition or specific to firms at the intermediate stage, where the paradox is most acute.

Multi-case comparison: Replicating the study across firms at different stages of servitization maturity, and in different industries, would test whether the six enablers identified here are consistently relevant or vary by context. Comparing firms that have moved through the paradox with those still stuck would be particularly useful for refining the configurational logic. A cross-industry comparison could also reveal whether the supply chain dimension is as central in process manufacturing as in discrete.

Customer perspective: This study captures enablers entirely from the provider's side. A dyadic design incorporating customer perspectives would show how service value is recognized across regional markets and whether the pricing strategies identified here are commercially viable in practice. It would also test whether the regional variation observed here reflects genuine differences in customer expectations or the provider's assumptions about them.

Digital technology's role: The finding that technology cannot add value until processes and organizational conditions are in place has direct implications for how firms prioritize digital investment. Future research could examine at what point in the servitization sequence digital investment produces the strongest returns, a practical question given the scale of investment currently underway in manufacturing. Linking specific digital capabilities to specific stages of the sequence would also help firms decide which investments are premature and which are overdue.

6 References

- Adrodegari, F., Pashou, T., & Saccani, N. (2017). Business model innovation: Process and tools for service transformation of industrial firms. *Procedia CIRP*, 64, 103–108. From: <https://doi.org/10.1016/j.procir.2017.03.056>
- Ardolino, M., Rapaccini, M., Saccani, N., Gaiardelli, P., Crespi, G., & Ruggeri, C. (2018). The role of digital technologies for the service transformation of industrial companies. *International Journal of Production Research*, 56(6), 2116–2132. From: <https://doi.org/10.1080/00207543.2017.1324224>
- Baines, T., Ziaee Bigdeli, A., Sousa, R., & Schroeder, A. (2020). Framing the servitization transformation process: A model to understand and facilitate the servitization journey. *International Journal of Production Economics*, 221, 107463. From: <https://doi.org/10.1016/j.ijpe.2019.07.036>
- Bigdeli, A. Z., Dmitrijeva, J., Schroeder, A., & Baines, T. (2018). Servitization in manufacturing: A business model perspective. In *Proceedings of the 25th Annual EurOMA Conference* (pp. 1–10). European Operations Management Association. From: <https://research.aston.ac.uk/en/publications/servitization-in-manufacturing-a-business-model-perspective>
- Brax, S. A., Calabrese, A., Levaldi Ghiron, N., Tiburzi, L., & Grönroos, C. (2021). Explaining the servitization paradox: A configurational theory and a performance measurement framework. *International Journal of Operations & Production Management*, 41(5), 517–546. From: <https://doi.org/10.1108/IJOPM-08-2020-0535>
- Bustinza, O. F., Bigdeli, A. Z., Baines, T., & Elliot, C. (2015). Servitization and competitive advantage: The importance of organizational structure and value chain position. *Research-Technology Management*, 58(5), 53–60. From: <https://doi.org/10.5437/08956308X5805354>
- Cassell, C. (2019). *Conducting research interviews for business and management students*. SAGE. From: [Sage Research Methods - Conducting Research Interviews for Business and Management Students](https://doi.org/10.1080/10579417.2019.1648888)

- Caterpillar Inc. (2026). *Cat Connect equipment management solutions*. NMC Cat. Retrieved February 23, 2026, From <https://nmccat.com/service/technology/cat-connect/>
- Chowdhury, S., Haftor, D., & Pashkevich, N. (2018). Smart product-service systems (Smart PSS) in industrial firms: A literature review. *Procedia CIRP*, 73, 26–31. From: [Smart Product-Service Systems \(Smart PSS\) in Industrial Firms: A Literature Review - ScienceDirect](#)
- Christopher, M. (2005). *Logistics and supply chain management: Creating value-adding networks* (3rd ed.). Pearson Education. From: [Christopher Logistics and Supply Chain Management 4th txtbk.pdf](#)
- Christopher, M., & Peck, H. (2004). Building the resilient supply chain. *The International Journal of Logistics Management*, 15(2), 1–13. From: <https://doi.org/10.1108/09574090410700275>
- Coreynen, W., Matthyssens, P., & Van Bockhaven, W. (2017). Boosting servitization through digitization: Pathways and dynamic resource configurations for manufacturers. *Industrial Marketing Management*, 60, 42–53. From: <https://doi.org/10.1016/j.indmarman.2016.04.012>
- Deshmukh, A. J., & Vasudevan, H. (2014). Emerging supplier selection criteria in the context of traditional vs green supply chain management. *International Journal of Managing Value and Supply Chains*, 5(1), 19–33. From: [\(PDF\) Emerging Supplier Selection Criteria in The Context of Traditional VS Green Supply Chain Management](#)
- Ellinger, A. E. (2000). Improving marketing/logistics cross-functional collaboration in the supply chain. *Industrial Marketing Management*, 29(1), 85–96. From: [https://doi.org/10.1016/S0019-8501\(99\)00114-5](https://doi.org/10.1016/S0019-8501(99)00114-5)
- Emad. (2016, November 17). *Michelin: Tires-as-a-service*. Harvard Business School Digital Initiative — Technology and Operations Management. Retrieved February 23, 2026, From <https://d3.harvard.edu/platform-rctom/submission/michelin-tires-as-a-service/>

- Enz, M. G., & Lambert, D. M. (2022). A supply chain management framework for services. *Journal of Business Logistics*, 44(1), 11–36. From: [\(PDF\) A supply chain management framework for services](#)
- Eriksson, P., & Kovalainen, A. (2016). *Qualitative methods in business research* (3rd ed.). SAGE. From: [\(PDF\) Qualitative Methods in Business Research](#)
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2015). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. From: <https://doi.org/10.11648/j.ajtas.20160501.11>
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. *Organizational Research Methods*, 16(1), 15–31. From: <https://doi.org/10.1177/1094428112452151>
- Gremyr, I., Halldórsson, Á., Hsuan, J., & Smith, F. (2026). Advancement of services: Implications for the reconfiguration of service supply chain structures. *Journal of Business & Industrial Marketing*, 41(13), 61–75. From: [Advancement of services: implications for the reconfiguration of service supply chain structures - ScienceDirect](#)
- Grönroos, C. (2008). *Service Logic Revisited: Who Creates Value? And Who Co-creates* (European Business Review. Vol. 20 No. 4). From: [\(PDF\) Service Logic Revisited: Who Creates Value? And Who Co-creates?](#)
- Grönroos, C. (2015). *Service management and marketing: Managing the service profit logic* (4th ed.). Wiley. From: [Service Management and Marketing: Managing the Service Profit Logic, 4th Edition | Wiley](#)
- Johnson, M., & Mena, C. (2008). Supply chain management for servitized products: A multi-industry case study. *International Journal of Production Economics*, 114(1), 27–39. From: [Supply chain management for servitised products: A multi-industry case study - ScienceDirect](#)
- Kamal, M. M., Sivarajah, U., Bigdeli, A. Z., Missi, F., & Kolioussis, Y. (2020). Servitization implementation in the manufacturing organisations: Classification of strategies, definitions, benefits and challenges. *International Journal of Information Management*, 55, 102206. From: [Servitization implementation in the manufacturing](#)

[organisations: Classification of strategies, definitions, benefits and challenges - ScienceDirect](#)

- Karatsareas, P. (2022). Semi-structured interviews, *Research methods in language attitudes* (pp. 99–113). Cambridge University Press. From: [Petros Karatsareas INTERVIEW.pdf](#)
- Kohtamäki, M., Parida, V., Patel, P. C., & Gebauer, H. (2020). The relationship between digitalization and servitization: The role of servitization in capturing the financial potential of digitalization. *Technological Forecasting and Social Change*, 151, 119804. From: <https://doi.org/10.1016/j.techfore.2019.119804>
- Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), 120–124. From: [Full article: Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing](#)
- Kowalkowski, C., Gebauer, H., Kamp, B., & Parry, G. (2017). Servitization and deservitization: Overview, concepts, and definitions. *Industrial Marketing Management*, 60, 4–10. From: [Servitization and deservitization: Overview, concepts, and definitions - ScienceDirect](#)
- Lambert, D. M., & Cooper, M. C. (2000). Issues in supply chain management. *Industrial Marketing Management*, 29(1), 65–83. From: [Issues in Supply Chain Management - ScienceDirect](#)
- Lightfoot, H., Baines, T., & Smart, P. (2013). The servitization of manufacturing: A systematic literature review of interdependent trends. *International Journal of Operations & Production Management*, 33(11/12), 1408–1434. From: [The servitization of manufacturing | International Journal of Operations & Production Management | Emerald Publishing](#)
- Liu, S., (2011). *Supply chain management for the process industry*. Doctoral dissertation, University College London. *UCL Discovery*. From [1331895.pdf](#)
- Logistiikan maailma. (2026). *Tuotantostrategia-terminologiaa suomi–englanti*. Reijo Rautauoman säätiö. Retrieved February 23, 2026, From:

<https://www.logistiikanmaailma.fi/tuotanto/tuotantostrategia/tuotantostrategia-terminologiaa-suomi-englanti/>

- Lyu, T., Lyu, X., Chen, H., & Zhao, Q. (2023). Breaking away from servitization paradox to improve manufacturing enterprises' service innovation performance: The roles of market orientation and service supply chain dynamic capability. *Journal of Organizational Change Management*, 36(5), 848–874. From: [Breaking away from servitization paradox to improve manufacturing enterprises' service innovation performance: the roles of market orientation and service supply chain dynamic capability | Journal of Organizational Change Management | Emerald Publishing](#)
- Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. *Journal of Business Logistics*, 22(2), 1–25. From: [DEFINING SUPPLY CHAIN MANAGEMENT - Mentzer - 2001 - Journal of Business Logistics - Wiley Online Library](#)
- Morelli, N. (2006). Developing new product service systems (PSS): Methodologies and operational tools. *Journal of Cleaner Production*, 14(17), 1495–1501. From: <https://doi.org/10.1016/j.jclepro.2006.01.023>
- Neely, A. (2009). Exploring the financial consequences of the servitization of manufacturing. *Operations Management Research*, 1(2), 103–118. From: <https://doi.org/10.1007/s12063-009-0015-5>
- Neely, A., Benedettini, O., & Visnjic, I. (2011). *The servitization of manufacturing: Further evidence* [Conference paper]. 18th European Operations Management Association Conference, Cambridge, UK. From: [\(PDF\) The Servitization of Manufacturing: Further Evidence](#)
- Plé, L., Lecocq, X., & Angot, J. (2010). Customer-integrated business models: A theoretical framework. *Management*, 13(4), 226–265. From: [\(PDF\) Customer-Integrated Business Models: A Theoretical Framework](#)
- Prasetyanti, L. A., & Simatupang, T. M. (2015). A framework for service-based supply chain. *Procedia Manufacturing*, 4, 146–154. From: [\(PDF\) A Framework for Service-based Supply Chain](#)

- Rabetino, R., Kohtamäki, M., & Gebauer, H. (2017). Strategy map of servitization. *International Journal of Production Economics*, 192, 144–156. From: [Osuva Rabetino Kohtamaki Gebauer 2017.pdf](#)
- Raddats, C., Kowalkowski, C., Benedettini, O., Burton, J., & Gebauer, H. (2019). Servitization: A contemporary thematic review of four major research streams. *Industrial Marketing Management*, 83, 207–223. From: <https://doi.org/10.1016/j.indmarman.2019.03.015>
- Randall, W. S., Wittmann, C. M., Nowicki, D. R., & Pohlen, T. L. (2014). Service-dominant logic and supply chain management: Are we there yet? *International Journal of Physical Distribution & Logistics Management*, 44(1/2), 113–131. From: [\(PDF\) Service-Dominant Logic and Supply Chain Management: Are We There Yet?](#)
- Saccani, N., Visintin, F., & Rapaccini, M. (2014). Investigating the linkages between service types and supplier relationships in servitized environments. *International Journal of Production Economics*, 149, 226–238. From: [Investigating the linkages between service types and supplier relationships in servitized environments - ScienceDirect](#)
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2023). *Research methods for business students* (9th ed.). Pearson. From: [\(PDF\) Research Methods for Business Students](#)
- Smith, D. J. (2013). Power-by-the-hour: The role of technology in reshaping business strategy at Rolls-Royce. *Technology Analysis & Strategic Management*, 25(8), 987–1007. From: [Power-by-the-hour: the role of technology in reshaping business strategy at Rolls-Royce: Technology Analysis & Strategic Management: Vol 25, No 8](#)
- Spring, M., & Araujo, L. (2013). Beyond the service factory: Service innovation in manufacturing supply networks. *Industrial Marketing Management*, 42(1), 59–70. From: [Beyond the service factory: Service innovation in manufacturing supply networks - ScienceDirect](#)
- Story, V. M., Raddats, C., Burton, J., Zolkiewski, J., & Baines, T. (2017). Capabilities for advanced services: A multi-actor perspective. *Industrial Marketing Management*,

- 60, 54–68. From: [Capabilities for advanced services: A multi-actor perspective - ScienceDirect](#)
- Tukker, A. (2004). Eight types of product–service system: Eight ways to sustainability? Experiences from SusProNet. *Business Strategy and the Environment*, 13(4), 246–260. From: [Eight types of product–service system: eight ways to sustainability? Experiences from SusProNet - Tukker - 2004 - Business Strategy and the Environment - Wiley Online Library](#)
- Vandermerwe, S., & Erixon, D. (2023). Servitization of business updated: Now, new, next. *European Management Journal*, 41(4), 479–487. From: [Servitization of business updated: Now, new, next - ScienceDirect](#)
- Vargo, S. L., & Lusch, R. F. (2017). Service-dominant logic 2025. *International Journal of Research in Marketing*, 34(1), 46–67. From: [Service-dominant logic 2025 - ScienceDirect](#)
- Vargo, S. L., Wieland, H., & Akaka, M. A. (2016). Innovation in service ecosystems. *Journal of Serviceology*, 1(1), 1–5. From: [Ecosystem Stephen L. Vargo1, Heiko Wieland2 and Melissa Archpru Akaka3.pdf](#)
- Visnjic Kastalli, I. V., & Van Looy, B. (2013). Servitization: Disentangling the impact of service business model innovation on manufacturing firm performance. *Journal of Operations Management*, 31(4), 169–180. From: [Servitization: Disentangling the impact of service business model innovation on manufacturing firm performance - ScienceDirect](#)

Appendices

Appendix 1. Interview guide

1. Introduction of study

As competition gets tougher, (Case company) needs to find new ways to create value beyond just selling products. One way to do so is by offering more services and solutions to customers. But for that to work, the supply chain needs to play a bigger role, than just delivering products efficiently. My research looks at what internal conditions (e.g. technology, capabilities, cross-functional collaboration etc.) need to work well so that the supply chain is able to support this transition and contribute to profitable growth.

2. **All information you provide during this interview will remain confidential.**
3. **You can skip any question or ask for clarification at any stage of the interview.**
4. **You have the right to stop the interview at any time without any negative consequences.**
5. **Do I have your consent to record the conversation?**

Introductory questions

- Can you briefly describe your role and responsibilities in the company?
- How is your role connected to supply chain management?
- How long have you been working in your current role? (0-3, 4-7, 8-11, 12-15, 15+)

1. Current Value Creation

Q1. How would you describe what (Case company) offers customers today?

Follow-up: What role do products, services, and solutions play in that offering?

Q2. How would you describe the role of the supply chain in delivering what the company offers to customers?

Follow-up: In your view, where is the supply chain mainly involved, and where is it less involved?

Q3. How would you describe the supply chain's current role in supporting service-based business?

Follow-up: Are there aspects that work well, and are there aspects that work less well in your experience?

2. Motivation

Q4. How would you describe (Case company)'s current direction with respect to services and service-based offerings?

Follow-up: What do you see as the main forces shaping that direction?

3. Enablers

Q5. How would you describe the technology and data capabilities currently available to the supply chain?

Follow-up: How are these capabilities used in practice, for example in monitoring, forecasting, or performance tracking?

Follow-up: How does data move across teams and functions?

Q6. What skills and capabilities do you see as most important for the supply chain in the context of service-based business?

Follow-up: How would you describe the current capability level in those areas?

Q7. How would you describe leadership's role in shaping the company's direction on services?

Follow-up: How does the organization typically respond when ways of working change?

Q8. How would you describe the way the company's service offering is understood internally?

Follow-up: How would you describe the supply chain's role in shaping what is offered to customers beyond the product itself?

Q9. How would you describe cross-functional collaboration and communication at (Case company)?

Follow-up: Where does it work well, and where do you observe functional boundaries that affect the flow of work?

Q10. How would you describe collaboration and communication between the supply chain and other functions specifically?

Q11. How would you describe the supply chain's relationships with customers and external partners?

Follow-up: What kinds of interactions are typical, and what kinds are less common?

4. Future Direction

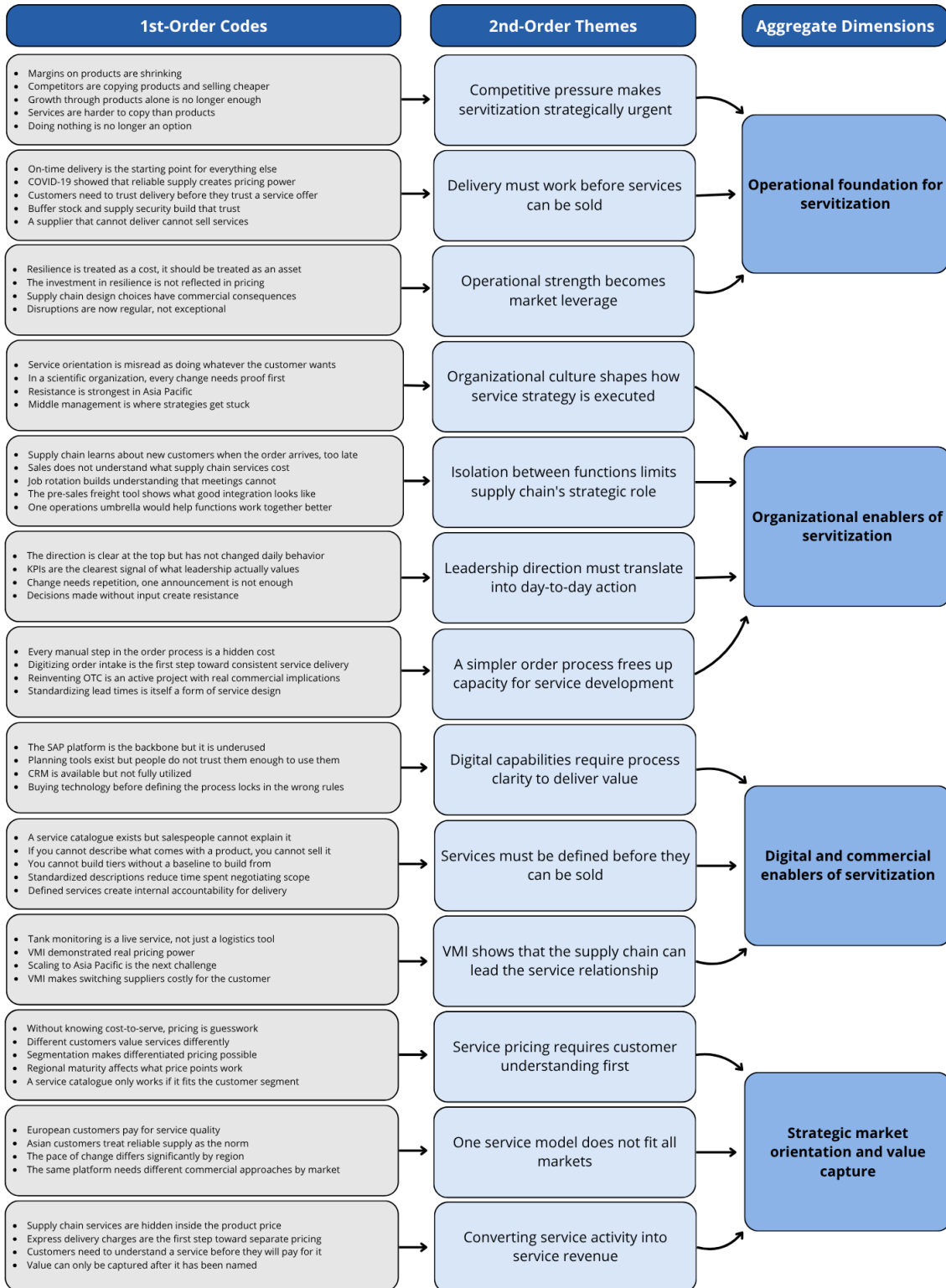
Q12. Looking forward, what do you see as the most important areas of development for the supply chain in relation to services?

Follow-up: What kinds of changes, if any, do you think would matter most, whether in structure, culture, technology, or collaboration?

5. Closing question

Q14. Is there anything we have not discussed yet that you think would be important for understanding service-based business at (Case company) and the role of supply chain management in it?

Appendix 2. Data structurization



Appendix 3. Use of artificial intelligence

Artificial intelligence (AI) tools were used in a supporting role during the research process, primarily for language editing and brainstorming. The researcher retained full intellectual control throughout. No AI tool was used to generate interview data, develop theoretical arguments or produce analytical conclusions. All sources cited in the thesis were identified and verified independently by the author, and the findings and conclusions are entirely the author's own.

- **Grammarly** was used to proofread the written text, correcting grammatical errors and improving academic English throughout the thesis.
- **Microsoft Teams transcription tool** was used to transcribe the recorded semi-structured interviews. After which each transcript was reviewed manually against the original recording.
- **Claude AI** was used as a thinking and writing aid, mainly to talk through ideas, sharpen arguments, and improve the clarity of the text. It helped identify gaps in reasoning and refined how complex concepts were expressed. Claude AI was used to support the initial grouping of first-order codes into provisional clusters. However, every suggested grouping was critically reviewed by the researcher. Clusters that lacked contextual accuracy were either rejected or revised. The construction of second-order themes and aggregate dimensions, and their interpretation through the lens of RCOV framework, was performed exclusively by the researcher.