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What firms measure, they become: Performance Measurement Design in Servitized Manufacturing

A single-case study of a global B2B manufacturing firm

Master's thesis in Management and Economics of Innovation

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DEPARTMENT OF TECHNOLOGY MANAGEMENT AND ECONOMICS

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Abstract

Servitization is an increasingly common strategic response among B2B manufacturers seeking to avoid commoditization. Yet many companies fail to realize the expected benefits of transitioning toward service-based offerings. Reconfiguring performance measurement systems (PMS) has been identified as a relevant but underexplored factor in understanding why servitization efforts experience challenges. There is especially a lack of empirical evidence regarding what the development of PMS looks like in practice.

This study examines how PMS are designed and reconfigured in a B2B manufacturing firm undergoing servitization. Through a qualitative single-case study at Sandvik Coromant, a global Swedish manufacturer of cutting tools and broader machining solutions, empirical data were gathered through contextual interviews, external benchmarking, and participation in workshops with key stakeholders during the design work.

The study finds that PMS design during servitization is less about selecting the right metrics and more about building the organisational and data conditions under which any suitable metrics can work. The existing data proves to be the binding constraint throughout the design work, which pushes the work into an iterative cycle, contrasting with the sequential logic of traditional PMS frameworks. The study also argues that PMS design during servitization both reflects and reinforces the structural tensions at the centre of the servitization paradox. This suggests that the value of redesigning a PMS may lie as much in the organisational conversations it surfaces as in the metrics it eventually produces.

Keywords: Servitization, PMS design, iterative design, B2B manufacturer, performance measurement systems

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Malte Kasemo & Philip Sjöberg, Gothenburg, June 2026

List of Acronyms

Below is the list of acronyms that have been used throughout this thesis listed in alphabetical order:

B2B	Business-to-business
B2C	Business-to-consumer
CLV	Customer Lifetime Value
CRM	Customer Relationship Management
KPI	Key Performance Indicator
NPC	Net Price Change
PMS	Performance Measurement Systems

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1

Introduction

This chapter introduces the industrial and theoretical context of the thesis, focusing on business-to-business (B2B) manufacturing firms facing increasing commoditization. It outlines how servitization has emerged as a strategic response to declining differentiation and margin pressure, while highlighting the practical and theoretical challenges firms encounter when implementing service-oriented business models. Particular attention is given to the role of performance measurement systems and how misalignment between product-oriented metrics and service-oriented strategies may contribute to the servitization paradox. Based on this problematization, the chapter defines the aim of the study and formulates the research questions guiding the thesis.

1.1 Background

Servitization has been described as a strategy to create and capture additional value for manufacturers operating in highly competitive markets (Oliva & Kallenberg, 2003). Despite this, many manufacturing firms fail to realize the expected benefits of servitization (Gebauer et al., 2005). In the following section, we introduce the concept of servitization and explain why performance measurement systems (PMS) are an under-theorized area in need of research to extend knowledge on how manufacturers transition from product-oriented to more holistic performance measurement systems during servitization journeys.

1.1.1 A new manufacturing landscape

Modern automation, digitization, computer-aided manufacturing, and integrated reprogrammable systems enable manufacturers to balance the previously incompatible parallel objectives of customization and mass production (Barata et al., 2023). Consequently, the very capabilities that previously differentiated manufacturers, like quality, efficiency, and advanced processes, have become baseline expectations. This commoditization (Reimann et al., 2010) of advanced products leaves manufacturers in search of new sources of competitive advantage.

Especially interesting is the commoditization problem in a B2B context. In contrast to business-to-consumer (B2C) markets, B2B markets are characterized by complex, multi-stakeholder purchasing processes involving a variety of organizational functions (Steward et al., 2019). Commoditization occurs when suppliers within an industry offer increasingly homogeneous products to price-sensitive business consumers

(Reimann et al., 2010). This phenomenon is accelerating as product life cycles are becoming shorter (Wagner et al., 2023), giving leading firms less time to capitalize on their investments before competition imitates their innovations.

The consequences for manufacturers can be substantial. Switching costs decline, customer relationships weaken, and price sensitivity increases (Reimann et al., 2010). Commoditized industries also have an increased risk of price competition (e.g. Davenport, 2005) as well as lower margins (e.g. Matthyssens & Vandenbempt, 2008).

1.1.2 Servitization as a strategic response

In response to these challenges, servitization has emerged as a promising strategy for B2B manufacturing firms seeking to avoid commoditized markets. Firms also servitize to enable new forms of value creation for other reasons, like capturing greater relationship values or meeting increasingly complex customer demands for integrated solutions (Kowalkowski et al., 2017). Servitization can be understood as a transition from a product-oriented approach toward a more service-oriented business model, in which services complement products to deliver long-term value (Kowalkowski et al., 2017; Neely et al., 2011). Recent servitization examples include SKF, which previously just sold turning systems but today helps its customers increase yield and reduce downtime (Kashani, 2006), Rolls-Royce, which famously coined “power-by-the-hour” where customers pay for uptime (Smith, 2013), and KONE, which delivers contracted elevator availability (Ardolino et al., 2018). Through these kinds of shifts, firms deepen customer relationships, create switching costs, and develop resources that are more difficult for competitors to imitate, thus raising barriers to entry (Hakanen et al., 2017; Vandermerwe & Rada, 1988).

While theory presents servitization as an effective way for manufacturers to create and capture additional value, practical implementation presents challenges. Although some firms increase revenue streams through servitization, others fail to translate strategic intent into financial performance (Gebauer et al., 2005). Empirical studies have found that servitizing manufacturers have an increased risk of bankruptcy (Benedettini et al., 2015), and prominent firms ThyssenKrupp, Dürr, and Xerox were forced to divest their service units after not reaching financial targets (Kowalkowski et al., 2017). The existing literature on the matter calls this the “servitization paradox”, where anticipated benefits of servitizing are not achieved (Gebauer et al., 2005; Neely, 2008). The following section suggests why internal measurement and control mechanisms are an important area to address when seeking to understand why manufacturers fall into the servitization paradox.

1.1.3 The role of performance measurement in servitization

Manufacturers struggle with servitization partly due to the difficulty of shifting managerial and organizational mindsets from product-oriented to service-oriented (Neely, 2008). Gebauer et al. (2005) show that managers often underestimate the economic potential of services and perceive services as risky, leading to insufficient

resource allocation. This mindset is possibly shaped by the PMS in use, because when managers are evaluated on traditional product-oriented metrics like unit margin or contributing margin, they are disincentivized from committing to services that do not directly influence these metrics (Kerr, 1975). Additionally, decision-making is often functionally organized in B2B manufacturing contexts, with some departments focusing on service offerings and others on pure products (Osei-Frimpong et al., 2025), and incentives and performance metrics are commonly role-specific (Nudurupati et al., 2016). As a result, manufacturers unable to embed coherent incentives and decision structures into their operations will face difficulties in accomplishing a transition.

Manufacturers furthermore face significant challenges related to the timing of costs and revenues in servitization. Neely (2008) highlights that servitization initiatives involve substantial upfront investments in service capabilities, while financial returns emerge in the longer term. This may be especially concerning for B2B manufacturers where revenues are tied to long contracts, and many of the costs associated with these contracts are incurred long before profits are generated (Kohtamäki et al., 2013). This mismatch between short-term costs and long-term revenues demonstrates the need for forward-looking and long-term measurement in the servitization process (Gebauer et al., 2005).

Effective service delivery requires substantial organizational transformation in historically production-oriented firms, as servitization entails a shift from transaction-based to relationship-based business models (Oliva & Kallenberg, 2003). For traditional manufacturers, a paradox often arises. While the strategy aims to maximize customer value-in-use, such as uptime or yield, the internal metrics still reward value-in-exchange, like sales volumes or service hours credited. This discrepancy between the transformed strategy and the old transactional metrics creates internal tensions that ultimately contribute to ineffective transformations (Kohtamäki et al., 2013).

While the challenges associated with servitization journeys are well documented, and research examines appropriate metrics and their general deployment, the work through which firms design and reconfigure measurement systems during servitization remains empirically underexplored.

1.2 Problematization

Despite recognition that measurement systems must be adapted to support servitization, limited insights exist regarding how PMS design contributes to servitization outcomes. This indicates a gap in current research, as measurement systems are not simple tracking tools, but rather used to shape behaviors (Kerr, 1975).

When manufacturers pursue servitization while maintaining product-oriented performance measurements, they institutionalize decision-making patterns they are trying to remove. From this perspective, the servitization paradox may not simply reflect lacking capabilities, but measurement misalignments that create self-reinforcing failures.

While existing performance measurement literature offers guidance on metric selection in general, it provides limited insights into how the design work is navigated in practice. Frameworks like the balanced scorecard (Kaplan & Norton, 1996) argue that metrics must be designed to reflect the overarching strategy, while contingency approaches emphasize that PMS design should be tailored to contextual factors like competitive environments and organizational structures (Chenhall, 2003; Melnyk et al., 2014; Otley, 2016), and most PMS design work tends to follow a sequential flow (Bourne et al., 2000). Design principles are well-established: metrics should reflect strategic priorities, balance forward-looking indications and actual outcomes, and shape appropriate managerial behavior (Kerr, 1975; Melnyk et al., 2014).

However, servitization introduces complexities that challenge the application of these frameworks. Firms must integrate product and service logics in parallel (Gebauer et al., 2005), account for lifecycle perspectives (Neely, 2008), measure customer relationships instead of product transactions (Reinartz & Kumar, 2003) and reconcile competing stakeholder interests across functions (Osei-Frimpong et al., 2025). How firms weigh and apply the previously established design principles when challenged with these complexities, that is, the design work itself, remains empirically unclear.

Existing descriptions remain conceptual, offering abstract guidance such as “align metrics”, but without identifying the key tensions involved or explaining how PMS design enables servitization. The organizational practices where different options of PMS design are weighed, and adjusted, who participates in these discussions, and how competing logics are negotiated are underexplored.

1.3 Aim of the study

This study aims to advance research on PMS design in servitizing B2B manufacturers by investigating performance measurement systems as a critical, yet underexplored, mechanism in servitization. While existing theory attributes the paradox to capability gaps or mindset issues, the role of PMS design in enabling or inhibiting servitization remains insufficiently researched. By bridging servitization and PMS theory with case evidence, the study seeks to provide needed empirical evidence regarding their interplay.

Theoretically, the research aims to extend servitization theory by identifying how PMS work is pursued in practice and what hurdles exist to design effective measurement systems. Practically, it intends to provide actionable guidance for B2B manufacturing firms on selecting appropriate metrics and navigating measurement challenges during servitization transitions.

This requires examining not just what metrics firms choose, but also the decision-making processes that shape metric selection. By investigating PMS design work as embedded in organizational realities, rather than as a technical optimization problem,

a better understanding of how measurement systems either enable or constrain servitization can be accomplished.

1.4 Research question

RQ: How can performance measurement systems be designed and reconfigured in B2B manufacturing firms to address the challenges of servitization?

2

Theory

This chapter presents the theoretical foundation of the thesis. It examines servitization in B2B manufacturing as a strategic response to commoditization and reviews the challenges firms face in implementing and sustaining service-oriented business models. The chapter then explores performance measurement systems (PMS) as organizational mechanisms for guiding behaviors, aligning activities with strategic priorities, and shaping perceptions of value. Finally, it considers how servitization reshapes both what PMS need to measure and how PMS are designed. This forms the analytical basis for the empirical study.

2.1 Servitization in B2B manufacturing

2.1.1 Theoretical perspectives on servitization

Servitization was first articulated by Vandermerwe & Rada (1988) to describe how companies extend a focus on products, to also include service-based value creation. Many manufacturers have historically been service providers and product suppliers in parallel, but the way they provide their services has evolved. They offer integrated bundles of products, services, support, self-service, and knowledge to create additional value to customers (Vandermerwe & Rada, 1988). Although there is a decreasing marginal benefit to increased product quality in the modern manufacturing landscape (Reimann et al., 2010), buyers still need help making the right decisions, getting the products when and where they want them, optimizing the potential of what they already own and being assisted if something goes wrong (Vandermerwe & Rada, 1988). Manufacturers who can create specialist services are often argued to be better positioned to help customers with these challenges and avoid competing purely on price (Vandermerwe & Rada, 1988). While servitization is present in a range of markets and industries, it has been particularly prominent in B2B manufacturing. This setting is characterized by long customer relationships and operationally embedded value creation, which makes service-based offerings especially relevant (Kohtamäki et al., 2013).

B2B companies that have expanded toward service-oriented business models in recent years include SKF, Rolls-Royce, and Kone. SKF is the world's largest manufacturer of ball bearings (Kashani, 2006). Bearing technology has become increasingly commoditized, which has turned the market into one where SKF primarily competes on price. According to Kashani (2006), SKF responded by leveraging its expertise in

how rotating equipment behaves, wears, and fails into services and shifted its role to being a provider of operational efficiency. Customers buy reduced downtime and increased yield, instead of pure products (Kashani, 2006).

Rolls-Royce’s jet engines were previously sold as high-value capital goods. Airlines would purchase an engine, then separately contract for maintenance, repair, and overhaul. For the customers, this has been described as creating financial uncertainty and operational risk every time an engine required servicing. Smith (2013) describes how Rolls-Royce responded to this by introducing its “Power by the Hour” model, under which customers paid for engine use or performance rather than purchasing the engine. This operating model was supported by investments in remote monitoring and predictive analytics, enabling Rolls-Royce to take a more active role in managing engine performance and maintenance over time (Smith, 2013).

Kone is a Finnish elevator and escalator manufacturer. Demand for new elevator and escalator installations is closely tied to construction cycles, which can make revenues from equipment sales cyclical. Kone’s response was to shift focus from the physical product to the experience it enables (Ardolino et al., 2018). The installed elevator acts as a basis for an ongoing service relationship rather than as a one-off sale.

The reasons why B2B manufacturers like SKF, Rolls-Royce, and Kone pursue servitization are multiple. It is a reactive response to trends that erode profitability for the historical business models. Customers have become more knowledgeable, enabling them to more easily switch to substitutes (Matthyssens & Vandenbempt, 2008). Digitalization has made imitation easier as production know-how has become embedded into physical tools, software, and complete systems (Shih, 2018). The entry of low-cost manufacturers has intensified price competition (Reimann et al., 2010), and purchasing power has shifted from technical specialists who traditionally placed greater emphasis on quality and performance to centralized procurement functions that generally place greater emphasis on minimizing spend (Bals & Turkulaianen, 2021). These trends are understood to create a need for B2B manufacturers to differentiate themselves to avoid competing purely on price, reduce their interchangeability, and deepen relationships. At the same time, these initiatives create barriers to entry, make third-party substitution more difficult, hinder customers from expanding up the value stream, and increase switching costs (Vandermerwe & Rada, 1988).

The literature commonly frames servitization as a reorientation of organizational logic, moving from producing and selling products toward supporting and delivering customer outcomes. Rather than replacing products or transactions entirely, this shift reflects an expansion in which manufacturers increasingly offer long-term and outcome-oriented solutions delivered through collaborative networks (Neely et al., 2011). These shifts typically require changes at both the strategic level and at the operational level. The gap between strategic intent and operational reality helps explain why servitization efforts sometimes fail.

The strategic changes required in servitization build on the existing organizational

logic, shifting it from a primary focus of producing and selling products toward one that also supports customer outcomes (Oliva & Kallenberg, 2003). Structurally, the shift from products to services is often difficult to accomplish within organizational designs built for product businesses. Gebauer et al. (2005) argue that firms should create separate service organizations, which is in line with Matthyssens & Vandenbempt (2008) who observe that employees without profit and loss responsibility tend to offer services for free in hope of product sales. Ulaga & Reinartz (2011) explain how designing products with serviceability in mind is a capability associated with servitizing manufacturers, and exploiting this requires the kind of cross-functional alignment that siloed structures may prevent. Regarding capabilities, Oliva & Kallenberg (2003) point out the management of large service personnel networks and the diffusion of knowledge across those networks as requirements. The shift from transactions to relationships requires manufacturers to leverage their privileged access to customers to build relationships to co-create value (Ulaga & Reinartz, 2011). Additionally, the shift from suppliers to network partners demands that inter-firm relationships evolve. Product-oriented supply chains are typically standardized with limited trust or communication. Service delivery requires deeper integration and coordination (Matthyssens & Vandenbempt, 2008). These strategic changes point toward an organization capable of orienting itself around customer outcomes rather than product shipments. All in all, servitization demands alignments between functions and organizations, together with strategic work to create coherent offerings. But strategic intent and organizational reality are two different things. The gap between them may be shaped largely by what happens at the operational level and specifically, by how performance is understood and what behaviors get rewarded.

At the operational level, servitization demands changes in, among other areas, resource allocation and business logic. In terms of resource allocation, Gebauer et al. (2005) highlight the tension between efficiency, which is central to product operations, and flexibility, which is at the core of service delivery. Consequently, upfront investments in service capabilities must be balanced against the existing product business. The second dimension, business logic, is also regarded as essential to servitize. A firm can redesign its structure, build new capabilities, and create customer lock-ins, but pursuing these changes also depends on behaviors (Oliva & Kallenberg, 2003). When managers are evaluated on product margins, they may rationally protect product margins. When service contributions go uncounted, they will be underinvested (Kerr, 1975). The product logic is already embedded in the structures and organization. The service logic remains subordinate in comparison to the previous product-oriented logic, and there are often fewer established ways of measuring its contributions. This asymmetry points to a structural problem. Even when the strategic intent exists, the organizational structure often ends up rewarding product-oriented behavior because that is the only behavior the system knows how to recognize. This may be one of the reasons for the servitization paradox, which is explored further in the next chapter.

2.1.2 The servitization paradox and why firms fail

Even though manufacturers like SKF, Rolls-Royce, and Kone (Kashani, 2006; Smith, 2013; Ardolino et al., 2018) together with others pursue servitization, many companies still struggle to realize the expected benefits (Neely et al., 2011). The existing literature on the matter calls this the servitization paradox, where the costs of achieving a more service-focused organization outweigh the higher revenues as profit margins shrink (Neely, 2008).

One explanation found in the literature on the servitization paradox is the difficulty firms face when trying to displace the product-oriented logic. As previously discussed, strategic intent is necessary, but it may not be sufficient on its own as it needs to be reinforced through signals, incentives, and organizational practices that support desired behaviors. Gebauer et al. (2005) further explain that resistance to servitization stems from risk aversion, intangibility of services, and a lack of reward. These barriers may also reflect limited visibility into potential benefits and misaligned incentives. This suggests that resistance is perhaps not purely psychological, but could also be structural.

Another reason for the servitization paradox is the challenges manufacturers face related to the temporal dimension of servitization. Neely (2008) highlights that servitization initiatives often involve upfront investments in service capabilities, while financial returns tend to show only in the longer term. Empirical evidence shows decreasing firm value for manufacturing firms before they reach a critical mass, after which firm value starts to increase (Fang et al., 2008). Additionally, revenue increases because service offerings follow a non-linear relationship that requires volume to materialize (Kohtamäki et al., 2013). This mismatch between short-term costs and long-term benefits often causes service strategies to appear unprofitable in their early stages, demonstrating the need for forward-looking and long-term measurement of how successful the servitization process is, and a lack thereof may lead to abandonment (Gebauer et al., 2005; Kowalkowski et al., 2017).

The third major challenge concerns the difficulty of adapting existing business models and organizational structures to support service-based offerings. Service delivery requires organizational transformation in historically production-oriented manufacturers, as servitization typically involves a shift from transaction-based to relationship-based business models and the development of new capabilities in areas such as service development, relationship marketing, and customer value management (T. S. Baines et al., 2011; Oliva & Kallenberg, 2003). For traditional manufacturers, a paradox often arises at this point. While the strategy aims to maximize customer value-in-use, like uptime or yield, the performance metrics still prioritize value-in-exchange, such as sales volumes or service hours credited. This misalignment between the servitization strategy and the more established product-oriented business models may create internal frictions that prevent transformation (Nudurupati et al., 2010).

These challenges reveal a pattern. The persistence of product-based logic is partly attributable to performance metrics that do not incentivize service-oriented behavior,

service strategies can appear unprofitable because measurement systems are often designed for short-term product logic, and organizational logic is difficult to change because there is no measurement infrastructure to make the new logic visible. This suggests that understanding servitization failure requires examining the internal measurement systems that determine what behaviors get recognized and rewarded.

2.2 Performance measurement systems

2.2.1 Performance Measurement Systems

As shown earlier, the servitization paradox is possibly a consequence of performance metrics that favor product-oriented over service-oriented behaviors. Performance Measurement Systems (PMS) are systems created to measure performance, steer organizations, and incentivize behaviors (Neely, 1999). They are used to quantify organizational activity into numerical figures that managers can understand and act upon (Kaplan & Norton, 1996; Neely, 1999). When an organization formalizes what it measures, it signals what it considers important. Employees at different levels tend to respond to these signals, although not always in the ways management intends (Franco-Santos et al., 2012). In a B2B manufacturing context, where plant managers and sales teams are not directly supervised in every decision, the metrics in place define what "good work" looks like. When designed to reflect strategic priorities, PMS can help direct effort toward strategic goals, but poorly designed ones incentivize optimization for the metric rather than the underlying goal it is meant to represent (Smith & Bititci, 2017), as well as creating dissatisfaction and mistrust (Franco-Santos et al., 2012). As such, the PMS design work can have an impact on long-term value creation for B2B manufacturers.

2.2.2 Designing Performance Measurement Systems

In practice, PMS design typically involves mapping business structures and processes, identifying priorities, selecting suitable indicators, and enabling systematic data collection and reporting before the system is tested and implemented (Bourne et al., 2000). Generally, there is no one-size-fits-all regarding which performance indicators to use and how to operationalize them in practice when servitizing (Folan & Browne, 2005), meaning that PMS design demands deliberate judgment rather than reliance on generic templates.

This suggests that PMS design is not a purely technical optimization. It should be interpreted as a social process where organizational actors with different perspectives, priorities, and accountabilities negotiate (Wouters & Wilderom, 2007). Designs that incorporate the local knowledge of those who will use the system produce metrics that are more likely to be perceived as legitimate and enabling rather than as externally imposed (Wouters & Wilderom, 2007). When design is conducted by a central function without operational input, the resulting system may be technically viable but without organizational anchoring. This distinction between PMS design as technical optimization and PMS design as organizational process helps explain

why similar processes can produce varying outcomes in different firms.

The balance between forward-looking metrics and backward-looking metrics also carries design implications. Backward-looking metrics show what has already occurred and are typically easier to measure and understand. Forward-looking metrics enable intervention but require a validated and reliable link to the outcomes they are supposed to predict (Bourne et al., 2000). This validation is itself a design question. Without it, forward-looking metrics risk becoming proxies that are optimized in isolation from the expected outcomes they are intended to represent. Forward-looking metrics are also more data-intensive than backward-looking measures, requiring data on customer behavior, cross-buying patterns, and lifecycles that product-oriented data structures are often not built to provide (Bourne et al., 2000; Reinartz & Kumar, 2003).

A linear design work implicitly assumes stable priorities and a collective understanding of what good performance looks like, which are assumptions that are difficult to meet in practice. This has led scholars to question what PMS actually do in organizations. Power (1997) argues that PMS may exist in firms to comfort and reassure rather than to critique ways of working, suggesting that the appearance of control can matter as much as control itself. Micheli & Manzoni (2010) similarly note that PMS design reflects what decision-makers believe will create good impressions, legitimacy, and generate advantages. Morgan (1988) extends this by arguing that measurement systems construct organizational reality in partial and one-sided ways, meaning that PMS do not merely capture what managers call performance, they actively shape what it comes to mean.

2.3 PMS design for servitization

The previous chapter framed PMS design as a process dealing with competing priorities and as an organizational discussion rather than as technical optimization. Servitization places additional demands both on what is measured and on how the design work itself is conducted because of a more integrated value offering. The following sections examine these demands in turn.

2.3.1 Implications on measurement tensions

Servitization reshapes not only what indicators firms use but the unit of analysis around which they are built. PMS in product-oriented companies typically support value-in-exchange (Matthyssens & Vandenbempt, 2008). This transactional structure fits product-oriented manufacturers well, because the primary value creation event is the exchange itself. Service value does not accumulate the same way. As Vargo & Lusch (2004) argue, value-in-use is realized by the customer through the ongoing use of a product or service over time. In B2B settings, value is co-produced through ongoing operational interaction between the manufacturer and the customer rather than at discrete points of exchange (Ulaga & Reinartz, 2011). A metric built around transactions may misinterpret this value, not because of an analytical error but

because the unit of measurement is incompatible with the unit of value creation. Nudurupati et al. (2010) document this misalignment empirically, showing that manufacturers pursuing outcome-based strategies continue to evaluate performance through transaction-based metrics, which creates internal friction between what the strategy aims to achieve and what the measurement system recognizes.

Servitizing B2B manufacturers must therefore move toward metrics that better capture value-in-use, like in the example of "Power by the Hour" in Rolls-Royce (Smith, 2013). In practice, this often means moving from transactional metrics covering specific purchases, to instead capture a broader view of per-customer profitability (Reinartz & Kumar, 2003). According to Reinartz & Kumar (2003), these kinds of measurements can better capture relational dynamics like cross-buying, retention, and relationship intensity. This also creates incentives for manufacturers to improve products, offerings, and services together with customers and the ecosystem, which has been identified as a characteristic of service-based businesses (Hakanen et al., 2017).

Beyond the logical tension, there is also a need to better capture the time horizon over which value is created. In product-oriented manufacturers, when a product is sold, performance is made visible instantaneously, and managers can act on that confirmation in future decisions. This transactional logic tends to shape not only what gets measured but also the time horizons that organizations use for analysis (Marginson & McAulay, 2007). But servitization creates a need for other longer time horizons. Costs and returns are distributed unevenly across product, customer, and production lifecycles (Oliva & Kallenberg, 2003), with upfront investments concentrated in early lifecycle stages and returns accumulating only later. In B2B settings, revenues are often tied to multi-year contracts and many of the costs are incurred long before profits materialize (Kohtamäki et al., 2013). As previously discussed, one of the reasons why manufacturers fail to servitize is that they quit before they reach a critical mass (Gebauer et al., 2005), and PMS should challenge this by making returns visible before the profits have been generated.

Forward-looking metrics address this by allowing firms to track service value before it materializes financially through indicators like relationship depth, contract pipeline, customer uptime improvements, or expected retention rates as proxies for future revenue (Bourne et al., 2000). These indicators are most meaningful when interpreted in relation to lifecycle stage, as the same metric may signal different things depending on whether a customer or offering is in an early investment phase or approaching maturity (Reinartz & Kumar, 2003).

2.3.2 Implications on design tensions

Beyond the measurement tensions, the design work itself is also influenced by a B2B setting and a servitization context. Bourne et al. (2000) describe design as a sequential process moving from strategy to objectives to measures. This sequential view assumes that the company has a collective view on what good performance

looks like. Franco-Santos et al. (2012) similarly assume that conflicts between competing priorities can be resolved before measurement begins. Servitization puts both assumptions under pressure. When a firm is operating a product logic and developing a service logic in parallel, neither the priorities nor the indicators that would capture them are stable enough for a sequential design to work. This implies that how these tensions are resolved is dependent on who is involved in the design work, and what priorities and knowledge they have (Wouters & Wilderom, 2007). Priorities and indicators depend on local knowledge that is distributed across customer-facing units rather than in the central functions that design work typically stem from. Folan & Browne (2005) therefore suggest that local operational knowledge is not merely helpful but a necessity for producing indicators that are actionable. In B2B settings, knowledge is also distributed across individual customer relationships in addition to across different internal functions (Storbacka, 2011).

A second design challenge concerns the credibility of new measures. During the transition from products to service-based offerings the PMS must balance the two logics to avoid one being pushed out. The measurement system should grant both logics legitimate visibility rather than allowing one to colonize the other. Coexistence is difficult to achieve because the two logics are not symmetrically positioned within the organization. Product metrics are often embedded, whereas service metrics are new, harder to operationalize, and lack the credibility that comes from established use (Gebauer et al., 2005). If finance departments primarily trust financial measures, even appropriate forward-looking indicators may lack the credibility needed to influence resource allocation decisions (Gebauer et al., 2005), which is one of the core purposes of PMS (Neely, 1999). Coexistence may therefore require at least two things simultaneously. First, service contributions must be made countable and specific enough to be actionable and to influence resource allocation. Second, product metrics must be recontextualized, so that product performance is evaluated in relation to its role in enabling service delivery rather than as an end.

A third design challenge concerns the unit of accountability rather than the unit of measurement. In product-oriented firms, metrics are typically assigned at the function level. Sales is evaluated on revenue, operations on efficiency, and finance on margin contribution. This structure works when value is created within functions, and transactions serve as the handoff mechanism between them. For most service-providing manufacturers, customer outcomes depend on the coordinated performance of multiple functions, none of which can produce the outcome independently. For B2B contexts, multi-stakeholder purchasing processes on the buyer side (Steward et al., 2019) mirror the cross-functional value creation on the supplier side. This makes function-level accountability incompatible with how service value is created. When metrics remain function-specific while value creation becomes cross-functional, Kerr's (1975) well-documented dynamic of sub-optimization takes hold. A function may optimize for its own indicator, even when doing so potentially undermines the collective outcome. It is challenging for employees to commit to service behavior when the measurement system provides no basis for demonstrating that their service contributions matter. When service contributions are unattributed and uncounted,

employees face a rational calculation in which product behavior is rewarded.

3

Methods

This chapter presents the methodological approach used in the study. It outlines the qualitative case study design employed in the study, combining in-depth analysis of Sandvik Coromant with external benchmarking interviews from other manufacturing firms. The chapter describes the three-phase data collection process as contextual understanding, external benchmarking, and internal validation, followed by explanations of the sampling strategy, data analysis approach, and ethical considerations guiding the research.

3.1 Research design

This study adopted a qualitative research design with a case study approach to explore how a B2B manufacturing firm undergoing servitization designs its PMS. This choice was made to be able to handle the complexity associated with understanding the design work. Qualitative research is also well suited for “why?” and “how?” questions in real organizations (Bell et al., 2019). Furthermore, the research aimed to capture managerial perceptions and decision-making processes that are difficult to quantify, making qualitative methods particularly suitable.

A case study approach was appropriate as the research investigated performance measurement in its real-life organizational context. A case study also allows for a focused and in-depth analysis (Bell et al., 2019) of the dynamics of performance measurement and enables the use of multiple data sources such as literature, interviews, and internal documents, which is important when studying complex transformations.

A single-case study was chosen due to the nature of the collaboration between the authors and the case firm. The study emerged from a joint interest, where the firm identified a need for new perspectives on performance measurement during its servitization, while the authors required access to a relevant organizational context for the thesis. The single-case design was also appropriate because it enabled a deeper understanding and richer empirical insight into the dynamics of servitization and the detailed mechanisms related to performance measurement. Although a single-firm case study limits abstraction and generalization, the case represents an information-rich example of a B2B manufacturing firm undergoing servitization, supporting broader analytical generalizations in future research (Bell et al., 2019).

As part of the study, the authors were not only observers of the design work

but also active contributors to the development of the measures examined. They conducted the external benchmarking, led workshops, and contributed directly to the development of the measure examined in the study. This close involvement provided access to internal discussions, practical design considerations, and organizational tensions that would likely have been difficult to capture through a more distant research design. At the same time, the authors remained aware of the need to maintain analytical reflexivity throughout the research process to critically assess both the empirical material and their own role in shaping the context under study.

The study was primarily exploratory and explanatory (Bell et al., 2019). It is exploratory as it seeks to identify challenges, tensions, and practices related to performance measurement design in servitizing B2B manufacturers, an area where prior empirical research remains limited. It is also explanatory as it aims to explain how old measurements become problematic as firms try to move from product-oriented measurements to service-oriented measurements.

The study was conducted in three consecutive steps. First, an exploratory phase was conducted at the case company’s headquarters, where the aim was to understand the business, the challenges the firm was facing, and how it was working with the design of performance measurement systems. The second phase included researching performance measurement sources focusing on design, and contrasting existing theories related to measurement design to the case company. It also contained semi-structured interviews with other manufacturing firms undergoing a similar process or shift. The third and final phase included semi-structured interviews with internal stakeholders and explored what tensions existing dependencies gave rise to.

3.2 Case description

Sandvik Coromant, founded in 1942, is a leading global supplier of metal cutting tools and tooling solutions for the manufacturing industry, recognized for its strong focus on innovation, productivity, and sustainable manufacturing. The company operates as a fully owned subsidiary of the Sandvik Group, a global engineering group with leading positions in tooling, mining, and materials technology. Sandvik Coromant offers a broad portfolio of cutting tools, tooling systems, digital manufacturing solutions, and associated services, primarily serving customers in machining-intensive industries such as automotive, aerospace, and general engineering. Headquartered in Sandviken, Sweden, the company employs approximately 8,000 people worldwide and serves customers in more than 150 markets.

Sandvik Coromant has provided services in addition to its cutting tools and tooling solutions for many years, although through a product-oriented business model, and has therefore historically positioned itself as a price leader within the industry. However, as other manufacturers, particularly those based in China, have progressively improved their manufacturing capabilities while maintaining lower price levels, the cutting tools industry has undergone significant change in recent years. As a result, the traditional distinction between the premium and mid-tier segments has gradually

diminished. In parallel, external factors such as geopolitical developments and disruptive events, including the COVID-19 pandemic, have increased price sensitivity among customers. In response to these shifts, firms across the industry have increasingly pursued servitization strategies to differentiate their offerings and protect margins. Sandvik Coromant has similarly intensified its focus on servitization as a strategic response to these evolving market conditions.

As part of its ongoing servitization, Sandvik Coromant has encountered challenges in how it measures performance. Traditional profitability metrics, such as product margin, have been effective in the company’s product-oriented past but fail to capture the value created by services and solutions. As a result, Sandvik Coromant is now working to develop new performance measurement systems better suited to this transition.

3.3 Data collection

The study used both primary and secondary data (Bell et al., 2019). Primary data were gathered in three phases.

3.3.1 Phase 1 - Contextual understanding

The first phase consisted of unstructured interviews held at Sandvik Coromant’s headquarters and offices at the start of the project. Manual notes were taken by the authors during these discussions. Unstructured interviews were suitable at this stage, as the authors had limited prior knowledge of the case context and therefore lacked the basis for developing a more structured interview guide. This approach allowed respondents to describe their work, experiences, and perceived shortcomings in an open-ended way, without being strongly guided by predefined questions. As a result, the interviews generated broad and informative discussions about the current situation and the problems that needed to be addressed. The purpose of these interviews was to gain an understanding of the current business model, the challenges the firm and the general industry are facing, and the path forward they have identified. A brief description of all the interviews held during this phase is presented in Table 3.1.

3.3.2 Phase 2 - External benchmarking

The second phase consisted of external interviews. Semi-structured interviews were conducted with representatives from firms that are undergoing similar transformations from product-based business models to service-based offerings. The purpose of these interviews was to benchmark performance measurement design practices, identify how other firms have addressed challenges related to performance measurement in service-oriented business models, and to gather possible solutions that could be brought to the internal interviews to be discussed and critiqued. To protect firm-specific ways of working, findings from these interviews were treated as aggregated

Table 3.1: Overview of interviews conducted during Phase 1 (Situation understanding).

Company	Role	Date	Duration	Subject
Sandvik Coromant	Transformation Program Manager	14 Jan 2026	1 h	Objectives of the study and project planning
Sandvik Coromant	Head of Transformation Office	19 Jan 2026	1 h	Firm strategy and long-term goals
Sandvik Coromant	External strategy consultants	20 Jan 2026	1 h	Problem breakdown and analytical framing
Sandvik Coromant	Change Program Coordinator	20 Jan 2026	1 h	Customer segmentation and distribution channels
Sandvik Coromant	Senior Business Development Analyst	21 Jan 2026	1 h	Market structure and dynamics
Sandvik Coromant	Senior Transformation Program Manager	20 Jan 2026	1 h	Organizational structure and departmental setup
Sandvik Coromant	Head of Product Management	20 Jan 2026	1 h	Product portfolio overview
Sandvik Coromant	Head of Solutions	20 Jan 2026	1 h 15 min	Servitization-related initiatives
Sandvik Coromant	Showroom Manager	20 Jan 2026	30 min	Products and key use cases
Sandvik Coromant	Nordics Sales Cluster Manager	21 Jan 2026	1 h	Sales operations in the Nordic region
Sandvik Coromant	Business and Partner Developer	22 Jan 2026	1 h	Digital solutions and partnerships
Sandvik Coromant	Sustainable Business Specialist	22 Jan 2026	45 min	Sustainability considerations
Sandvik Coromant	US Sales Cluster Manager	28 Jan 2026	1 h	Sales overview in North America
Sandvik Coromant	Senior Industry Strategy Manager	2 Feb 2026	1 h	Industry strategy and trends
Sandvik Coromant	Manager Digital Products & Concepts	2 Feb 2026	1 h	Digital strategy and product concepts
Sandvik Coromant	Head of Business Control	12 Feb 2026	1 h	Business control and performance overview

insights and were generally not attributed to individual firms in the report. A brief description of all interviews conducted in this phase is presented in Table 3.2.

Table 3.2: Overview of external interviews conducted during Phase 2 (External benchmarking).

Company	Company description	Role	Date	Duration
Trioworld Group	Plastic wrappings manufacturer	Business Director	29 Jan 2026	1 hour
Saab Group	Aerospace & Defence	AI & Digital Transformation Manager	20 Feb 2026	1 hour
TruckCo*	Automotive manufacturing	Strategy and Business Developer	23 Feb 2026	1 hour
Sandvik Mining Solutions	Mining equipment and solutions provider	Strategy Manager	2 Mar 2026	1 hour
Sandvik Machining Solutions	Mining and construction tools manufacturer	Manager Commercial Pricing & Profitability	3 Mar 2026	1 hour
Sandvik Crushing Solutions	Crushing and rock processing equipment provider	Business Controller	2 Mar 2026	1 hour
Sandvik Mining and Rock Solutions	Mining and rock excavation equipment manufacturer	Director of Business Control	4 Mar 2026	1 hour
Verisure	Monitored security services provider	Commercial Director	4 Mar 2026	30 min
Electrolux	Home appliances manufacturer	Senior Director Business Development	24 Feb 2026	30 min
HMS	Industrial connectivity solutions provider	Director Group Strategy and M&A	26 Mar 2026	1 hour
Echandia	Maritime battery systems provider	Technical Sales Manager	20 Feb 2026	1 hour
Aumovio	Automotive technology and mobility solutions provider	Head of Sales & Business Development	3 Mar 2026	1 hour
Munters	Climate control and air treatment solutions provider	Business Unit Manager	27 Feb 2026	1 hour

*Pseudonym used to preserve confidentiality.

3.3.3 Phase 3 – Internal Interviews

The third phase consisted of four semi-structured interviews with two people at a time from Sandvik Coromant. The interviews were conducted in a workshop-style format, where discussions between participants were encouraged to complement the regular question-and-answer responses. However, the authors were aware that this format could create a risk of conformity bias, where participants might be inclined

to agree with each other rather than express independent views. To mitigate this risk, both participants were given space to answer questions individually, and the authors encouraged them to elaborate, clarify, or add their own perspectives when needed. This helped ensure that the discussions captured both shared understandings and individual viewpoints. In addition to the semi-structured interview questions, preliminary hypotheses developed by the authors and partly based on the external interviews were introduced during the interviews to stimulate reflection and invite both confirmation and critical responses from the participants. The purpose of these interviews was to discuss and validate potential solutions and approaches to working with PMS in the servitizing case firm, based on the external insights from Phase 2 and the situational context established in Phase 1. The internal interviews were relevant to the study as they deepened and contextualized the understanding and view of PMS design built in the first two phases. A brief description of all workshop-interviews conducted in this phase is presented in Table 3.3.

Table 3.3: Overview of internal workshop-interviews conducted with Sandvik Coromant.

Session	Participants	Date	Duration
1	Strategy Manager; Digital Manager	25 Mar 2026	1 hour 30 min
2	Head of Solutions; Head of Product Management	1 Apr 2026	1 hour 30 min
3	Head of Pricing; US Sales Cluster Manager	1 Apr 2026	1 hour 30 min
4	Nordics Sales Cluster Manager; Head of Business Control	2 Apr 2026	1 hour 10 min

3.3.4 Observations

In addition to the interviews, observations were conducted continuously throughout all three phases of the study. These observations focused on the ongoing PMS design work, including which actors were involved, how the work was structured, how ideas and preliminary findings were communicated internally, and what practical steps were taken during the project. Observations were gathered by both authors throughout the work and documented continuously.

The purpose of the observations was to complement the interview data by capturing aspects of the design work that were difficult to access through interviews alone. This included informal interactions, process dynamics, decision-making patterns, and how performance measurement issues were handled in practice. By observing the design work as it unfolded, the authors were able to develop a more contextualized understanding of how PMS design and reconfiguration took place in the case organization. This strengthened the empirical basis of the study by providing insight into both what participants described in interviews and how the design work was carried out in practice.

3.4 Sampling

The study applied a purposive sampling strategy (Bell et al., 2019), where participants and documents were selected based on their relevance to the research aim rather than representativeness. Given the exploratory nature of the study and the complexity of servitization, the sampling strategy aimed to capture a broad range of perspectives across organizational functions and stages of the transformation. Sampling was also influenced by the strategy team’s recommendations regarding which stakeholders to involve.

3.4.1 Case selection

The empirical problem addressed in this study emerged through a collaboration with Sandvik Coromant rather than through the deliberate selection of a firm to study a predefined problem. The firm had identified challenges related to performance measurement during its servitization journey, while the authors sought access to a relevant organizational context for the thesis. As such, the case firm is a natural setting for studying profitability measurement in a B2B manufacturing firm transitioning toward service-based offerings.

Sampling was conducted in three phases, corresponding to the three phases of data collection.

3.4.2 Phase 1 – Contextual understanding

In the first phase, participants were selected to provide a broad understanding of the firm’s overall logic, including the products, offerings, sales, marketing, digital, strategy and transformation activities. Interviewees were identified through a contact person and supervisors within the Transformation Office and were chosen based on their relevance to different parts of the organization. This facilitated access to key respondents but may also have influenced which perspectives were prioritized in the study. The aim was not to cover specific hypotheses but to build a holistic understanding of the firm and its challenges. The phase was considered sufficient once a coherent understanding of the firm’s business model, servitization ambitions, and key tensions had been established.

3.4.3 Phase 2 – External benchmarking

The second phase focused on external benchmarking through interviews with representatives from other manufacturing firms that are undergoing a transition from transactional to service-based business models. Companies and participants were identified through personal networks, LinkedIn reach-outs, and contacts facilitated by Sandvik Coromant. The primary selection criterion was experience with servitization rather than industry similarity or firm size. It is important to note that although the firms within the Sandvik Group share the same corporate umbrella, they differ sufficiently in their operations, organizational structures, and business contexts to be

treated as external firms in this study. Sandvik Coromant itself suggested including other Sandvik firms in the benchmarking phase to explore how related organizations work with similar performance measurement questions. This provided valuable access to relevant cases with comparable challenges, while also creating a potential limitation, as these firms may still share group-level assumptions, terminology, or strategic priorities that differ from fully external organizations. The purpose of this sampling was to capture diverse approaches, practices, and challenges related to PMS design across firms, rather than to conduct direct comparisons.

3.4.4 Phase 3 – Internal Interviews

In the third phase, internal participants from Sandvik Coromant were selected to validate, critique, and contextualize the insights and models identified during the external benchmarking phase. The sampling aimed to include participants from a broad range of functions, including sales, controlling, solutions, pricing, finance, product management, digital development, and transformation roles. Emphasis was placed on capturing differing viewpoints, including both supportive and critical perspectives on the applicability of identified models and practices, to reveal organizational capabilities and gaps related to profitability measurement. To stimulate discussion, the participants were paired to represent different parts of the organization, allowing for diverse perspectives to emerge.

3.4.5 Observation sampling

Observations were conducted continuously throughout all three phases. Rather than applying predefined selection criteria, observations were recorded as situations and interactions emerged that appeared relevant to the research aim. This approach reflects the exploratory nature of the study, where the boundaries of what was considered noteworthy evolved alongside the authors' developing understanding of the firm and its challenges.

3.4.6 Document sampling

Internal documents were selected based on their relevance to the research aim and to the evolving understanding of the case and were used primarily as background material to support contextual interpretation.

3.5 Data analysis

The data analysis followed an iterative and abductive approach, in which empirical material and theory were continuously compared throughout the research process (Bell et al., 2019). This abductive logic is consistent with the principle of systematic combining, which emphasizes iterative matching between empirical observations and theoretical frameworks throughout the study process (Dubois & Gadde, 2014). To structure the empirical material, the analysis was inspired by the Gioia methodology as outlined by Gioia et al. (2013), moving iteratively from first-order concepts

grounded in the participants' expressions, to second-order themes representing more interpretive patterns, and finally to aggregate dimensions capturing broader aspects of performance measurement design in a servitizing B2B manufacturing context. This approach was suitable given the exploratory and explanatory nature of the study, as it allowed emerging insights from the empirical material to be interpreted and refined through existing theoretical frameworks related to PMS design during servitization.

Interview data from Phase 1 were documented through detailed notes and summaries, while interviews from Phases 2 and 3 were audio recorded and transcribed. The empirical material consisted of both Swedish- and English-language sources. While most of the interviews were conducted in Swedish, some interviews were conducted in English, and all documents used in the study were in English. As the analysis was conducted in English, Swedish interview material was translated and interpreted by the authors during the analytical process. To preserve meaning and contextual nuance, the authors continuously revisited the original wording when discussing interpretations and selecting quotations for the thesis. The analysis was conducted jointly by the authors from the outset to ensure a shared interpretation of the material and to reduce the risk of individual bias. Rather than relying on predefined categories, the analysis allowed first-order concepts and broader themes to develop inductively through repeated engagement with the empirical material, reflecting recurring patterns, challenges, and perspectives expressed by the participants. This approach aligns with systematic combining, where analytical focus and theoretical framing evolve in response to empirical insights (Dubois & Gadde, 2014).

The analysis was conducted in several iterative stages. First, interview material from Phase 1 (contextual understanding) was analyzed to build a contextual understanding of the case firm's business logic, servitization context, and emerging performance measurement challenges. This phase served as a foundation for the subsequent analysis and informed both the literature review and the design of subsequent interview guides.

Second, data from Phase 2 (external benchmarking) were analyzed separately to identify common patterns, differences, and illustrative practices across manufacturing firms undergoing servitization. This phase primarily supported the search for and refinement of themes, intending to enable pattern recognition and inspiration rather than direct comparison. Through this process, alternative approaches and models for designing PMS in a service-based business model were identified.

Third, themes and insights from the external benchmarking were brought back to the case firm in Phase 3 (internal interviews). Interview data from this phase were analyzed with the purpose of reviewing, critiquing, and contextualizing the identified models and themes. Special attention was given to areas of alignment and tension between existing practices at the case firm and external or theoretical approaches.

Throughout the three phases, the authors' own observations were continuously gathered and documented. The findings from these observations were reviewed along-

side the interview material to contextualize participants' statements and to capture aspects of the PMS design work that were difficult to access through interviews alone, such as informal interactions, process dynamics, and decision-making patterns. The observation findings were therefore analyzed together with the interview material from the corresponding phase to support interpretation, strengthen contextual understanding, and complement the empirical basis of the study.

Following the three phases of data collection, the empirical material was analyzed and presented in two different ways. The findings from Phase 1 and Phase 2 were analyzed primarily to establish the case context and identify external benchmarking insights and are therefore presented as separate findings at the beginning of the results chapter.

Phase 1 data was analyzed jointly by both authors, beginning after the first visit to Sandvik Coromant's headquarters and continuing as the remaining interviews were conducted via online meetings. Interview notes were first reviewed individually for each interview to capture the most relevant information for our research aim and to deepen our understanding of the company. Notable quotes and key information were recorded in a separate document to structure important findings. These findings were then consolidated across interviews to form a comprehensive picture, and subsequently categorized into areas of interest, including: ways of working, current challenges, current measurement practices, what measurements need to capture in servitization, and how perspectives differed across functions within the company.

Phase 2 data was analyzed jointly by both authors after all external interviews had been conducted. Following the same approach as Phase 1, interview transcriptions were first reviewed individually to capture the most relevant findings, with notable quotes and key information recorded in a separate document. These findings were then consolidated across interviews and categorized into areas such as: service maturity, the business models and how they differed between firms and to Sandvik Coromant, measurement challenges in servitization, conditions for better measurement in servitization, and solutions to the identified challenges.

Phase 3 data was organized and presented using the Gioia methodology, structuring findings into first-order concepts, second-order themes, and aggregate dimensions. The internal interviews conducted in this phase provided the primary empirical material for addressing the research question.

Both authors were actively involved in developing the first-order concepts from the collected empirical material, including interview transcripts, field notes, and their own observations. The coding was conducted manually, and the second-order themes were initially developed by one author and then reviewed by the other. Differences in interpretation were discussed iteratively between the authors until agreement was reached and the final thematic structure was established. The structure is presented in figure 3.4 below. At this stage, the developed themes represent the outcome of repeated back-and-forth between theory and empirical material rather than a linear analytical process (Dubois & Gadde, 2014).

Internal documents were used as background material to support contextual understanding and to complement interview data. Together with interview data, observations, and academic literature, this enabled triangulation across multiple sources, strengthening the credibility of the analysis.

The analysis process continued until the research aim was considered fulfilled, meaning that the empirical material provided sufficient depth and coherence to answer the research questions and to generate relevant insights regarding profitability measurement in servitizing B2B manufacturing firms.

3.5.1 Gioia diagram

Figures 3.1 and 3.2 present the empirical material in a Gioia data structure, separated into two figures for readability. First-order concepts represent categories derived closely from the language and observations of participants and the project. These are grouped into second-order themes through a more interpretive process, in which patterns across informants have been identified and labeled at a higher level of abstraction. The second-order themes are then gathered into four aggregate dimensions, each of which forms the basis for a subsection in the results chapter that follows.

3.6 Ethical considerations

Ethical considerations have been taken into account throughout the research process in accordance with existing principles for business and management research (Bell et al., 2019). Given the close collaboration with the case firm and the use of interview-based data, particular attention was paid to informed consent, confidentiality, and responsible data handling.

3.6.1 Informed consent and voluntary participation

All interview participants were informed about the purpose of the study and how the collected data would be used. Participation was voluntary, and participants could withdraw from the study at any time without consequence. Consent was obtained either verbally or in written form prior to the interviews. To reduce the risk of misquotation, interview participants were given the opportunity to review quotations attributed to them prior to final submission. This was done to ensure that their statements had been represented accurately and in line with their intended meaning. Interview guides were shared in advance when appropriate to allow participants to prepare.

3.6.2 Anonymity and confidentiality

Individual participants were offered anonymity, and personal identifiers were removed from the empirical material unless permission was granted to show names or roles.

Figure 3.1: Gioia data structure (Part 1 of 2).

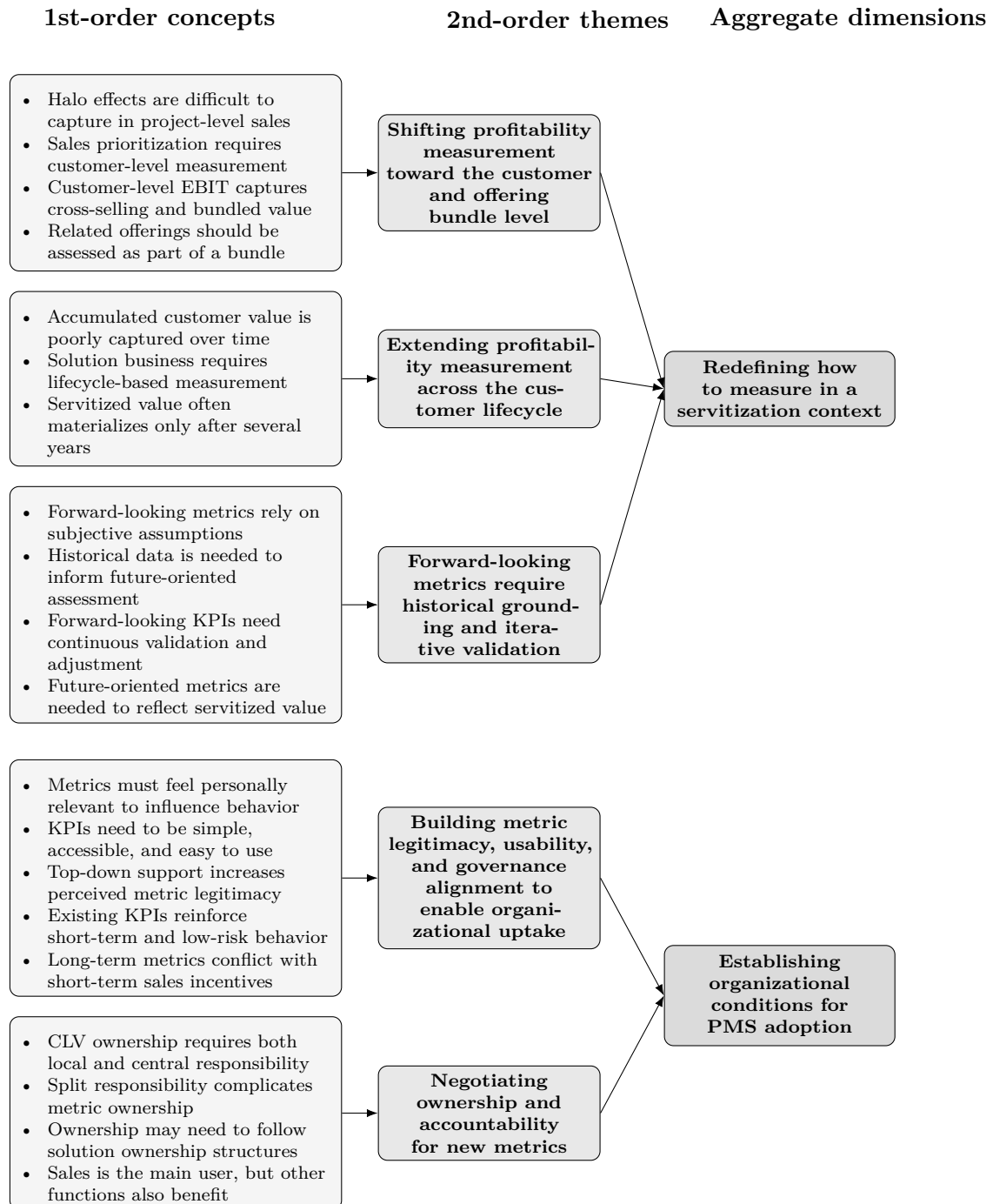
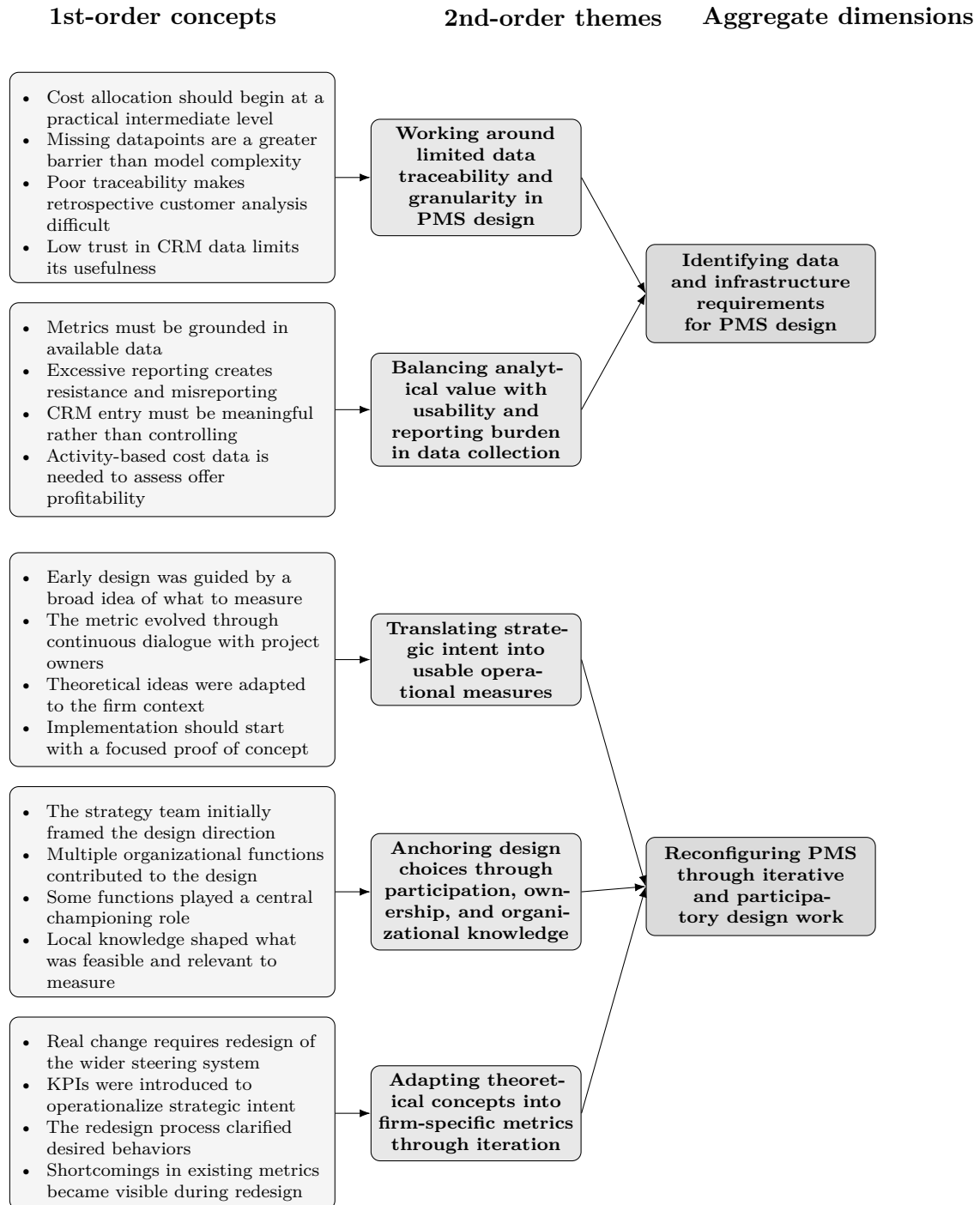


Figure 3.2: Gioia data structure (Part 2 of 2).



While the case firm, Sandvik Coromant, is named in the study, care was taken to anonymize sensitive information. For external benchmark firms, anonymization was applied selectively based on company or participant preference, as illustrated by the use of pseudonyms.

3.6.3 Data handling and storage

Interview notes, summaries, and collected documents were stored securely by the authors and accessible only to the research team. No third parties were granted access to the raw data. All empirical material was deleted after the completion and examination of the thesis, in line with responsible data management practices.

3.6.4 Organizational sensitivity and power considerations

Although interviews were conducted with individuals holding different organizational roles, no direct hierarchical dependencies between the researchers and the participants existed. The analysis and presentation of findings were written with care to avoid evaluative statements that could negatively affect individual participants or internal organizational units.

3.6.5 Use of internal documents

Internal company documents were used primarily as background material to support contextual understanding. When documents are referenced directly, approval was sought from the document owner prior to inclusion. Sensitive information was either excluded or rephrased to prevent unintended disclosure.

3.6.6 Collaboration and conflicts of interest

The study was conducted in collaboration with Sandvik Coromant, and the authors received financial compensation for the work. However, the research was carried out independently, and the collaboration did not entail any commitments regarding future employment or additional work. The authors retained full academic responsibility for the research design, analysis, and conclusions.

3.7 Use of artificial intelligence tools

AI tools, primarily Claude (Anthropic) and ChatGPT (OpenAI), were used in the course of this thesis work across four areas.

- Literature identification: AI was used to suggest relevant sources and papers based on the research topic. All suggested sources were manually retrieved, read, and verified by the authors before inclusion, and no source was cited based on AI output alone.

- Reflective discussion: AI was used as an external discussion partner throughout the thesis process and was used to think through ideas, challenge assumptions, and explore alternative interpretations. This served as a complement to the authors' own deliberations, not a substitute for them.
- Visual material: AI was used to generate figures, diagrams, and charts used in the thesis. All visuals were reviewed and approved by the authors to ensure accurate representation of the intended content.
- Language and writing: AI was used for proofreading and improving readability, with all suggestions critically reviewed before inclusion.

No sensitive or proprietary information related to Sandvik Coromant was shared with any AI tool during this process. Full responsibility for the content, arguments, and conclusions of this thesis rests with the authors.

3.8 Methodological limitations

The chosen methodology was suitable for exploring how performance measurement is designed and reconfigured in a B2B manufacturing firm undergoing servitization. The qualitative single-case design made it possible to study the issue in depth, while the three-phase setup strengthened the study by combining contextual understanding, external benchmarking, and internal validation.

At the same time, the study has limitations. One key limitation was the authors' close involvement in the case organization. Since the authors acted in a role resembling internal consultants and were actively involved in driving the development process, there is a risk that this influenced both the empirical material and its interpretation. Although this involvement provided rich access to the organization and practical insight, it may also have made analytical distance more difficult to maintain.

This risk was partly addressed through continuous dialogue with the case firm supervisor and through repeated validation of ideas and interpretations during the process. At the same time, this repeated validation may also have contributed to reinforcing the case firm's own framing of the problem and the relevance of particular interpretations. The relatively large number of interviews, including 13 external and 24 internal interviews, strengthened the empirical basis of the study. However, the findings should still be interpreted in light of the collaborative nature of the research setting.

Another key limitation was that the authors were not present at the firm long enough to follow the full implementation of the new metrics. Although they were involved in a substantial part of the design work, they were not able to observe the complete journey from design to organizational use. As a result, while the study provides a broad understanding of the processes and challenges involved in designing new metrics, it offers more limited insight into how new performance measurement systems are most effectively implemented in servitizing firms.

A further limitation is that Phase 1 interviews were documented through notes rather than recordings and full transcriptions, which may have reduced the level of detail available in the early analysis. In addition, the study relied on a single case firm, which limits the transferability of the findings. The purpose of the study was therefore not statistical generalization, but rather to generate analytically relevant insights that may be useful in similar servitizing manufacturing contexts.

4

Results

This chapter presents the empirical findings of the study. It begins by outlining the findings from the first two phases of data collection. The first section presents the findings from Phase 1, which examines how Sandvik Coromant's product-oriented measurement legacy has become misaligned with its servitization ambitions, showing that existing metrics centered on product margins and transaction-level profitability are insufficient for capturing customer- and relationship-level value. The second section presents selected findings from Phase 2, which draws on external benchmarking to illustrate how some comparable firms have responded to similar tensions, with solutions such as forward-looking estimates, and broader customer- or lifecycle-level measurement perspectives, while also highlighting data quality as a central condition for making such approaches work.

The remainder of the chapter presents the findings from Phase 3, using the Gioia structure as an organizing framework. These findings are presented under four aggregate dimensions that together capture key challenges and design considerations related to performance measurement in a servitizing manufacturing context. The dimensions concern the measurement requirements of a service-based and customer-centered business, the organizational conditions surrounding PMS design, the data structures and information infrastructure needed to support new measures, and the design work itself as an iterative form of organizational work.

4.1 Findings from Phase 1: The product-oriented measurement legacy

The first phase of the study established the situational context in which Sandvik Coromant's performance measurement challenges had emerged. The interviews showed that the company was operating in a market where its traditional product-based differentiation had become difficult to sustain. All participants described growing price pressure and increased competition from lower-cost manufacturers, especially in standardized product categories. At the same time, customers were described as less willing to pay for marginal product performance improvements alone, which made it harder to defend a premium position based only on tool quality or technical superiority.

Against this background, servitization was presented internally as a way of redefining the company's value proposition. Rather than only competing through better cutting

tools, the company sought to move closer to the customer’s manufacturing problems and offer broader support around productivity, process knowledge, digital solutions, and application expertise. The Head of Product Management summarized this shift as moving from selling the best product to providing the best offering.

However, the contextual understanding interviews also showed that the existing measurement logic was still largely shaped by the company’s product-oriented history. All participants described how profitability and performance were mainly followed through product sales, product margins, volumes, and cost-related measures. An external strategy consultant noted that if the company continues to evaluate all initiatives against the profitability profile of its strongest product categories, other products and solutions may appear unattractive, even when they contribute to customer value and relationship profitability over time.

Activities that were costly in the short term could appear unprofitable when assessed in isolation, even if they were thought to help the company gain access to customers, increase retention, strengthen relationships, or generate future sales. Some participants even pointed to examples such as special tools, engineering support, and digital solutions, where the direct profitability of the activity did not necessarily reflect its broader contribution to the customer account. According to the Head of Solutions, this created a need to “zoom out” from individual products or transactions and better understand profitability at the customer and relationship level.

The interviews also indicated that this measurement challenge was closely connected to data and organizational structures. Relevant information existed in different parts of the organization, but it was not always connected in a way that made customer-level analysis possible. Some participants discussed challenges related to fragmented systems, limited traceability between activities and later sales, and uncertainty regarding who should own shared data or revenue effects. Therefore, it became clear that the challenge was not only to define a better metric, but to understand whether the organization had the data, governance, and ways of working needed to support it.

This raises the question of why the company has continued to rely on a product- and transaction-oriented measurement logic despite recognizing its limitations. If more customer- and relationship-oriented profitability measures were widely seen as important for supporting servitization, it becomes somewhat paradoxical that such measures have not yet been fully developed or embedded in practice. This suggests that the challenge may not only lie in recognizing the need for change, but also in overcoming organizational barriers related to the problem.

4.2 Findings from Phase 2: External approaches to managing service-oriented measurement tensions

The external benchmarking phase showed that firms moving from transactional product sales toward services, digital solutions, or outcome-oriented offerings often face similar performance measurement challenges. Across the interviews, a majority of participants emphasized that traditional product- or deal-level profitability measures were often insufficient for understanding whether a business opportunity was attractive. Instead, the firms increasingly tried to evaluate profitability from a broader customer, installed-base, contract, or lifecycle perspective, depending on where value was created in their specific business model.

One recurring pattern was the use of forward-looking estimates to assess future value before it had fully materialized. Four of the interviewed firms used explicit assumptions about customer lifetime, future volumes, aftermarket potential, probability of winning, retention, service attachment, and delivery costs to evaluate opportunities. These estimates were not treated as exact predictions, but as structured ways of making uncertain future value visible. These firms emphasized that the important part was not only to estimate future value, but also to compare assumptions with actual outcomes over time and revise the model as more data became available.

The benchmarking also showed data quality as a central condition for new performance measurement. Several firms were working to improve customer-level, lifecycle, or aftermarket data, but some participants also warned against making models too complex. Customer lifetime value and similar measures could be made increasingly granular, but too much detail risked reducing usability. Cost allocation was described by the majority of the firms as particularly difficult, since including too many indirect costs could make the model administratively heavy.

Finally, the interviews showed that new metrics need to be adapted to organizational roles and decision rights. Sales, business development, service, and management were often measured differently, depending on what each function could influence. One firm, for example, used forward-looking metrics such as design wins to measure and incentivize sales performance, while controlling profitability through discount frameworks that required management escalation if a deal fell outside predefined margin thresholds. A similar escalation logic was observed at one other firm, where accepting a lower margin for relationship-building purposes required approval at a higher organizational level. This suggested that PMS design was not only about finding the analytically best metric, but also about creating a measurement structure that supports the intended behavior without producing unwanted incentives.

These external insights helped clarify what other measurement approaches might look like in practice, while also clarifying the central question carried forward from the contextual understanding interviews. The benchmarking confirmed that the

tension between short-term product profitability and broader customer value is not unique to Sandvik Coromant, and that firms navigating this shift tend to converge on similar solutions, such as forward-looking estimates and customer- or lifecycle-level perspectives. However, it also raised a question: given that these approaches were relatively well-established in comparable contexts, what specifically makes them difficult to adopt at Sandvik Coromant? This provided a basis for Phase 3, in which the external approaches were brought back into the Sandvik Coromant context to explore what could realistically be adopted and which organizational conditions were making implementation difficult.

4.3 Findings from Phase 3: Navigating tensions in measurement adaptation

Building on the contextual findings from Phase 1 and the external benchmarking insights from Phase 2, the internal workshop-interviews explored how broader customer-level, lifecycle-oriented, and forward-looking measures could be applied in Sandvik Coromant's specific context. While the first two phases established the relevance of moving beyond individual products, transactions, and short-term outcomes, Phase 3 showed how these ideas were interpreted, challenged, and refined by internal stakeholders. Participants described how profitability often emerges across broader customer relationships, bundled offerings, and longer time horizons, while also emphasizing that such measures must remain actionable in practice. Together, these findings show how the transition toward service-oriented value creation creates a tension between the need to capture broader customer-level profitability and the continued importance of transactional visibility.

4.3.1 Reconciling product-level profitability with customer-level value creation

As established in the contextual understanding interviews, existing measurement approaches were perceived as insufficient for capturing the full profitability of service-based offerings. Phase 3 deepened this finding by showing how internal stakeholders understood the need for customer-level and offering-bundle measurement in practical decision-making. One issue raised by the Strategy Manager was the difficulty of capturing halo effects, the wider value effects generated beyond the initial transaction, with existing measures.

Instead, several participants emphasized that profitability should be assessed from a total customer perspective rather than per product or deal. This discussion was based on findings from the external benchmarking interviews, where other firms similarly moved the unit of analysis away from individual products or deals toward customers, installed bases, contracts, or lifecycles, depending on where value was created. As the Head of Business Control put it, although profitability is often discussed at the individual deal or product level, "smart companies work with an overall view of customer profitability." Both the Nordics Sales Cluster Manager and

the Head of Business Control described how customer value and profitability in the case company often emerge across a broader relationship, where products, services, and investments interact. The Nordics Sales Cluster Manager further noted that even if one part of an offering appears less profitable on its own, the overall customer business can be profitable and long-term attractive.

The Nordics Sales Cluster Manager and the Head of Business Control also described customer profitability metrics as useful for supporting resource allocation and account prioritization. Such measures are seen as potentially valuable for deciding where to allocate sales effort, specialist resources, and managerial attention. In this sense, customer-level profitability was described not only as an outcome measure, but also as a basis for prioritization. Similarly, the Head of Product Management expressed that customer-level measures should help evaluate where resource investments generate the most “bang for the buck.” They all described a need for metrics that make it easier to compare customers or customer groups in terms of where time, effort, and organizational resources are best spent.

However, this broader unit of measurement also introduced a trade-off. While customer-level profitability could make relationship-based value more visible, it was also mentioned that it risked becoming less directly attributable to individual products, deals, or functions. The issue was therefore not simply to move away from product-level profitability, but to understand how product-level and customer-level views could exist at the same time.

4.3.2 Balancing short-term profitability visibility with long-term lifecycle value

The contextual understanding interviews had already indicated that existing metrics struggled to capture the value that accumulates over time. In Phase 3, this issue was further specified by the participants, who explained that current measurement approaches fail to capture cross-selling effects, where one transaction leads to additional transactions, and loss-leader strategies, where products are sold more cheaply to drive later sales of other products.

One example raised was that Sandvik Coromant has previously carried out special engineering projects that appeared unprofitable when assessed through existing profitability metrics but later proved valuable because they led to increased sales at the customer over time. However, the fact that this insight came from one individual and was not fully disseminated across the organization, also illustrates a paradox. Although the project suggested that seemingly unprofitable engineering activities could generate longer-term customer value, this knowledge had not been sufficiently embedded in the organization, meaning that such activities could still be perceived as less profitable than product transactions when evaluated through existing metrics. Rather than showing how profitability develops across a longer relationship, current metrics were described as tied to more immediate outcomes, making it harder to capture the broader economic contribution of service-based offerings that often last

longer than transactional offerings. As the US Sales Cluster Manager put it, “today we measure as a snapshot, but with solutions you need to measure over the life cycle.”

The Head of Business Control stated that a service-based business often requires several years before value fully materializes, as solution-oriented offerings involve upfront investments, longer relationship-building periods, and delayed returns compared to transactional business. Several participants, therefore, argued that service-based business requires lifecycle measurement rather than snapshot measurement. As the US Sales Cluster Manager explained, point-in-time measurement risks missing how value develops across the customer relationship, from early investments and implementation to later revenue realization and more stable profitability. Profitability thus not only takes longer to emerge but also unfolds unevenly across different stages of the relationship. Another proposed solution came from the Head of Pricing, who argued that Sandvik Coromant should charge for services upfront as a proof of concept and to demonstrate their value rather than waiting for delayed returns to materialize. However, the participant noted that this remains difficult in practice, as the salesforce lacks the confidence to sell these services, having not yet had sufficient time to evidence their true value. This creates a fundamental tension as Sandvik Coromant wants to be compensated for the services it delivers, yet the value of those services only becomes apparent over an extended time horizon.

When talking about lifecycle-oriented metrics, several participants note that the appropriate measurement horizon is difficult to determine because value often unfolds slowly over time. Rather than suggesting that value should always be assessed over one fixed period, participants describe the need for a time horizon long enough to reflect how profitability develops across the customer relationship. To handle this, the Nordics Sales Cluster Manager explains that the measurement horizon should depend on the type of customer. Different customer types are described as involving different purchasing patterns, implementation times, business dynamics, and relationship durations. As a result, the participant suggests that a single fixed horizon may be too blunt, and that the time perspective of a measure should reflect the characteristics of the customer or the business context in question. This reflected the benchmarking interviews, where firms emphasized that the relevant measurement horizon depends on the business model, for example whether value is created through customer retention, service attachment, aftermarket sales, or installed-base effects.

Finally, the Head of Product Management described how lifecycle-oriented metrics may be more useful as a strategic compass than as a day-to-day steering metric. Rather than functioning as a detailed operational tool for everyday decisions, the participant described such measures as helping the organization understand longer-term direction, prioritize accounts, and assess broader patterns of value creation over time.

The longer measurement horizon, therefore, addresses one problem while creating another. It makes delayed value more visible, but at the cost of introducing assumptions about customer behavior, retention, and future volumes that are difficult

to verify in advance. This means that the measure gains relevance as a strategic tool while losing some of the objectivity that gives financial metrics their organizational legitimacy.

4.3.3 Balancing forward-looking value estimates with historical credibility

An interest in forward-looking metrics emerged across the interviews. When asked whether concepts such as customer lifetime value could support the company's transition toward a more service-based business model, several participants reflected positively on their potential usefulness. At the same time, participants were candid about the limitations of measures focused solely on historical profitability. While lifecycle-oriented metrics make it possible to follow profitability across longer customer relationships, participants also emphasized that some relevant phases and outcomes have not yet materialized at the time of measurement.

It was also emphasized that there are difficulties involved in forward-looking measurement. Estimating future profitability was described as inherently uncertain, particularly when value depended on factors such as customer development, solution uptake, retention, and longer-term commercial effects. Related to this, discussions pointed out that forward-looking measures require subjective assumptions rather than universal rules. The Strategy Manager and Digital Manager, for example, described how choices regarding variables, time horizons, and assumptions must be made in ways that fit the context of the business, and that there is no single objectively correct formula that can simply be applied across situations. This reflected the findings from the external benchmarking, where firms emphasized that forward-looking models depend less on finding a universally correct formula and more on making the most important assumptions explicit and possible to follow up on.

Participants mentioned that forward-looking assessment partly depends on historical grounding. As the Nordics Sales Cluster Manager put it when talking about forward-looking versus backward-looking metrics, "one does not work without the other." Historical observations are described by the participant as an important basis for building future-oriented estimates, both by showing how customers or offerings have developed previously and by providing a reference point for what may be reasonable to expect going forward. The Strategy Manager added that historical patterns become more useful when they are analyzed in sufficiently homogeneous groups. Rather than looking at all customers together, the participant describes greater value in identifying similarities between customer types, industries, regions, or offering contexts, and using these more comparable groups as a basis for forward-looking assessments. This reasoning was also built on findings from the external benchmarking, where firms using customer lifetime or expected-value models often relied on historical patterns from comparable customer groups rather than treating the customer base as one homogeneous population.

Where detailed historical data is lacking, participants noted that the firm must

instead rely on simplified indicative models. In such situations, the purpose was described less as producing exact forecasts and more as generating a reasonable indication of future profitability. Inspired by the external benchmarking interviews, one practical way of achieving this balance that was discussed was the use of rule-based assumptions. For example, applying a standardized retention rate across comparable customer segments or using a fixed cost allocation per activity type, which reduces the need for individual manual estimation while still producing directionally meaningful outputs. Tied to this, several participants noted that useful assumptions must balance operational usability with directional accuracy. The Digital Manager summarized this balance as needing something that is “operationally usable” while still “true enough” to provide the right direction. In this sense, forward-looking metrics were portrayed as requiring a balance between precision and usability.

Forward-looking metrics were further described as something that should be validated and adjusted over time. The Digital Manager said that rather than being fixed estimates, such measures need revisiting as new information becomes available and as actual developments can be compared with earlier expectations. One concrete mechanism discussed, found in the external benchmarking, was gating, which means that forward-looking estimates should be revisited at predefined points as more information becomes available, for example, when a customer moves from scaling production to stable production, and volumes become clearer. Rather than treating forward-looking metrics as fixed tools, participants describe a need to try out assumptions, compare them with actual outcomes, and refine the approach over time.

Forward-looking metrics were therefore not discussed as a simple solution to the temporal challenges of servitization. They helped make future value visible before it appeared in financial results, but only by introducing assumptions that had to be grounded in historical evidence, validated over time, and adapted to different customer contexts.

4.4 Establishing legitimacy for service-oriented metrics in a product-oriented governance system

The empirical findings suggest that the design of new performance measures at Sandvik Coromant was shaped not only by analytical considerations, but also by organizational conditions that determine whether such measures are taken seriously and used in practice. Participants described how the introduction of new profitability measures depends on whether they are perceived as legitimate, understandable, and relevant to those expected to use them. At the same time, new measures need to coexist with existing metrics, incentive structures, and governance mechanisms that continue to reflect a more transactional and product-oriented business logic. Together, these findings show that PMS design at Sandvik Coromant was not only a matter of identifying better measures, but also of ensuring that those measures were organizationally credible, practically usable, and aligned with the broader steering

system in which they were introduced.

4.4.1 Aligning metric legitimacy and usability with existing incentives

When discussing the introduction of new profitability measures at Sandvik Coromant, participants repeatedly emphasized that such measures must be perceived as legitimate and usable to influence behavior. One important aspect of legitimacy concerns individual relevance. The Digital Manager pointed out that salespeople need to understand “what’s in it for me” if they are expected to adopt a new way of measuring profitability. If they do not see the value or relevance of a new metric, there is a risk that they will continue relying on existing measures.

Participants also described legitimacy as depending on whether the measure is perceived as credible enough to compete with existing indicators. As the Head of Solutions put it, because current metrics are simple to measure, it becomes easy to say that a new metric “does not mean that much” unless it has enough weight to compete with them. At the same time, legitimacy alone is not enough. The measure must also be easy to understand and simple to use in practice. The Strategy Manager argued that overly abstract or complicated measures risk not being used at all, as employees tend to turn away from ways of working they do not fully understand. This creates a recurring trade-off between precision and adoption. A more advanced measure can potentially capture service-based value more accurately, but if it becomes too abstract or difficult to understand, it risks not influencing behavior at all.

Although there existed internal buy-in for the transition from product-orientation to service-orientation, the Head of Solutions and Head of Product Management described the change itself as difficult to visualize. In this context, a clear and accessible metric can help make the transformation more concrete. Participants also stressed, however, that for a new measure to gain real importance, it must be reinforced organizationally. One observation that clearly supports this was the role of the Transformation Office in communicating and promoting the design project for the new metric internally. By presenting the project as an important and ongoing initiative, the Transformation Office helped establish it as legitimate and credible from the outset. This signaled to participants that their involvement was not merely symbolic, but that the design work required serious engagement and could influence how performance would be measured and managed going forward. The US Sales Cluster Manager also explained that new metrics need to be pushed top-down to signal strategic intent, while the Head of Pricing added that measures only become part of day-to-day work once they are embedded in dashboards, reporting routines, and recurring organizational follow-up.

Beyond individual relevance and usability, a new metric’s ability to influence behavior also depends on how well it aligns with the existing governance structures into which it is introduced. A new metric does not enter a neutral organizational environment, but an already established system of metrics, reporting routines, reward

structures, and decision-making logics that shape what is considered important and how employees act. Existing metrics still play a central role in directing attention and behavior, and several participants described them as reinforcing short-term and low-risk decision-making. This becomes problematic when new metrics are introduced to support a more long-term view of profitability, particularly one that involves uncertainty, upfront investments, or relationship-based value creation.

Participants, therefore, pointed out that new metrics can struggle to gain traction if they appear to conflict with the measures employees are already held accountable for. As the US Sales Cluster Manager noted, new measures lose legitimacy if they contradict existing indicators and incentives, particularly when they conflict with metrics that finance or other central functions treat as critical. The Head of Pricing elaborated on this by arguing that the challenge is not only to avoid contradiction, but to clarify how different metrics relate to each other and what should take priority in different situations. For example, if one team is assessed based on NPC (net price change), they will be incentivized to increase prices, while a CLV calculation may instead incentivize lower prices to prolong customer lifetime and improve retention. Using this example, the participant illustrated how functions can receive conflicting signals. This, in turn, may lead to sub-optimization of something that should instead be managed coherently and aligned across the organization. This points to the challenge of balancing new needed metrics with established and trusted ones, where there is no simple solution. While new and existing metrics may need to coexist during the transition, participants' reflections suggest that this coexistence can also create ambiguity and reinforce the paradox of trying to promote long-term, service-oriented behavior within a measurement system still shaped by short-term, product-oriented logic.

4.4.2 Negotiating ownership and accountability for new metrics

Another theme that emerged across participants concerned the question of accountability and ownership of a potential new profitability metric. The Strategy Manager pointed out that such a metric would require both local business ownership and central strategic guidance to function effectively. This dual requirement reflects a broader organizational tension, which is that the functions closest to the customer are best positioned to interpret, adjust, and act on a metric, while central functions are needed to ensure that it remains aligned with the company's overall strategic direction.

Participants were not aligned, however, on where formal ownership should sit. The Head of Solutions described the responsibility for a new profitability metric as falling somewhere between sales and the service package owners, in other words, the functions responsible for constructing the offering being measured. The Head of Pricing argued that sales should carry the primary responsibility, given their direct relationship with customers and their visibility into how profitability materializes in practice. At the same time, the US Sales Cluster Manager noted that product and service development functions have a legitimate stake in the metric, since it is

their offer that is being evaluated. This suggests that ownership cannot be cleanly assigned to one function without risk of excluding perspectives that are necessary for the metric to be both meaningful and actionable. This is also reflected in the Head of Business Control’s view that sales would have the greatest practical use of such a metric, while product and service package functions would also benefit from the customer profitability perspective. This may help explain why the organization can recognize the need for more customer-oriented profitability measurement while still struggling to implement it, as the value created by servitized offerings cuts across several functions, whereas formal accountability remains distributed across separate organizational areas.

The Head of Product Management pointed to the organizational consequences of leaving this question unresolved. The participant argued that if the priorities of the relevant functions are not aligned around a shared metric, “the metrics become quite hollow,” formally present but practically without effect. This observation connects to a broader pattern from the interviews, which is that the legitimacy of a new metric depends not only on its design, but on whether the organizational structures surrounding it create lines of accountability.

The ownership question, therefore, represents another way in which the servitization paradox becomes visible in PMS design, as the value to be measured is increasingly cross-functional, while accountability structures remain partly function-based.

4.5 The gap between service-oriented measurement needs and product-oriented data structures

The contextual understanding interviews identified fragmented systems, limited traceability, and unclear ownership of shared data as important contextual barriers. Phase 3 deepened these findings by showing how these data conditions shaped the design of new metrics in practice. Participants described how the usefulness of new profitability measures depended not only on what the firm wanted to measure, but on whether relevant datapoints could be traced, extracted, and connected at a sufficiently detailed level. At the same time, the data collection required to support these measures must remain simple enough to use in practice and not create excessive administrative burden. Together, these findings show that PMS design at Sandvik Coromant requires information structures that are granular and reliable enough to support service-oriented measurement, while still being practical enough for everyday use.

4.5.1 Working around limited data traceability and granularity in PMS design

Participants described the main obstacle to more advanced profitability measurement as a lack of usable datapoints rather than a lack of interest in working more data-driven. As the Strategy Manager explained, promising metrics had previously failed when the data had not been of good quality or had not existed. The participant pointed out that Sandvik Coromant has tried to introduce metrics that look compelling in theory, but that such measures often fail in practice because the underlying datapoints are not available in a form that can be followed over time. In the same discussion, the participant also stressed that the main barrier when implementing a new metric is not the model complexity but rather missing datapoints, emphasizing that the challenge is often not the formula itself, but the absence of the structured inputs needed to make it credible and usable. This reinforced a central finding from the external benchmarking, where firms described data quality as a prerequisite for using customer-level or forward-looking metrics in practice. This meant that the analytically preferred metric was not always the practically available metric. The design work, therefore, involved adapting measurement ambition to what the existing data infrastructure could support.

Building on this, several participants described how even theoretically measurable metric variables are hard to estimate without structured data. The Strategy Manager noted that even variables that, in theory, should be easy to estimate, become difficult in practice because the relevant data is not structured appropriately today. A similar issue appeared when participants described the effort required to evaluate business retrospectively. The Head of Product Management explained that a lack of traceability makes retrospective customer analysis labor-intensive, pointing out that the organization sometimes must manually trace data retroactively when trying to understand what happened in a customer relationship or initiative, describing it as “a lot of detective work.” Because the relevant datapoints are not systematically documented and connected over time, retrospective analysis becomes time-consuming and generates relatively limited learning compared to the effort required.

At the same time, participants acknowledged that the firm may not be ready to move directly to the most detailed end of the scale. The Digital Manager described how cost allocation could start by using general estimations and then moving toward more granular approaches, arguing that the ideal would be activity-level costing, but that such an approach may be unrealistic as a starting point. Instead, the participant suggested beginning with rougher allocations such as average cost per segment or customer, and then gradually moving toward more precise estimates as data quality, systems, and routines improve. The Nordics Sales Cluster Manager, on the other hand, believes that more granular data may already exist in parts of the organization, for example, through CRM-based time logging or customer activity reports. This discussion and gradual approach reflected a compromise between the ideal of precise customer-level profitability measurement and the practical limitations of existing systems and routines.

4.5.2 Managing the trade-off between analytical precision and reporting burden

Closely related to the challenges of data traceability and granularity, participants also described a second tension concerning how new measures and their supporting data collection routines can be made usable in practice. Several participants stressed that a profitability measure may be analytically relevant, but still fail if it is too complicated to use, too demanding to maintain, or too burdensome for those expected to provide the underlying data.

A central question in this regard concerns the level of granularity at which data needs to be collected to make a measure analytically meaningful. The Head of Solutions argued that activity-level cost tracking is necessary to make offering-level profitability visible, since more aggregated approaches become too blunt to support meaningful decisions about service-heavy offerings. In the participant's view, general cost estimations fail to reveal how profitability emerges when activities and resource inputs vary substantially across customers and situations. This tension was discussed based on findings from the external benchmarking, where firms generally found revenue effects easier to trace than cost allocation, particularly when deciding how much indirect cost should be assigned to a customer, service, or offering.

The Strategy Manager explained that, for a new metric to be successful, users need to be able to “go into a simple report or dashboard, click through, and see what is happening” without having to work through overly complicated logic or manual adjustments. As the participant described, usability is central to whether a measure will be used in the organization. A metric may be analytically strong, but if it is difficult to access or interpret, it risks remaining detached from everyday decision-making. The participant also emphasized that a new metric must be grounded in available data, and that while it does not need to be perfect from the outset, it must show some form of development over time. The Strategy Manager further explained that manual outcome estimation undermines usability and learning. In the participants' view, if users constantly need to estimate outcomes manually afterwards and ask what the real result was, much of the purpose of the metric is lost. Instead, the participant described the need for simple and clear measures that help people understand what to do, and that can guide behavior in a consistent direction over time.

At the same time, several participants stressed that the collection of additional data cannot become too demanding. A recurring concern across interviews was that excessive reporting requirements create resistance, administrative burden, and misreporting. This is particularly visible in the discussions around time logging and activity tracking. Discussions with the Strategy Manager and Digital Manager pointed out that if too much detailed reporting is required, it risks being experienced as “big brother,” which in turn can create resistance and reduce the quality of what is reported. Similar concerns were raised by the Head of Product Management and the Head of Solutions, who describe how too many required datapoints could

make the design work feel controlling rather than supportive. The Head of Product Management made this trade-off even more explicit by noting that additional data collection competes with already heavy frontline sales administration. The participant explained that the frontline sales organization already carries substantial administrative work, and that every additional datapoint requested is time taken away from something else. This creates a tension at the core of the data collection, as greater granularity increases analytical value, but it simultaneously risks increasing the reporting burden on those expected to provide the underlying data.

A closely related point was raised by the Head of Solutions, who argued that CRM (Customer Relationship Management) data entry must be meaningful to users rather than experienced as control. The participant explained that salespeople need to understand why information is being tracked and how the data will be used. Otherwise, additional data entry risks being interpreted as surveillance or administrative control rather than as something that supports better decision-making. In this sense, data collection also had a behavioral dimension. A measure that requires too much reporting can weaken trust and reduce data quality, even if the additional datapoints would improve the model analytically.

4.6 Reconfiguring PMS through iterative and participatory design work

The external benchmarking interviews had suggested that there was no one-size-fits-all model for measuring service-based or forward-looking value. This became visible in Phase 3, where PMS design at Sandvik Coromant did not unfold as a linear technical exercise, but as an iterative organizational activity shaped by strategy, participation, and practical testing. Participants and project observations indicate that new measures had to be translated from broad strategic ambitions into operational forms that users could understand and act upon. At the same time, design choices were continuously influenced by the involvement of different functions, the organization's own knowledge of what was feasible, and repeated adjustments as ideas were tested against actual business conditions. Together, these findings show that PMS design at Sandvik Coromant developed through ongoing interaction between strategic intent, organizational realities, and iterative refinement.

4.6.1 Translating strategic intent into usable operational measures

A recurring pattern observed throughout the design work was that performance measures could not be designed independently of the company's broader strategic direction. In the observed discussions, measurement was therefore not treated as a purely technical exercise. Instead, the stakeholders consistently positioned new metrics as pragmatic responses for making strategic intent operational, translating abstract ambitions around service offerings, customer value, and broader profitability into forms that could guide everyday decisions and behavior.

This view was most explicitly articulated by the Head of Transformation Office, who emphasized that real organizational change requires redesigning the full steering system, including metrics and incentives. In the participant's description, shifting strategic direction could not be achieved through communication alone. It also required changes in the mechanisms through which behavior is guided and evaluated inside the company. Metrics were therefore not treated as a secondary concern, but as one of several structural elements that would need to be adjusted if the company were to move beyond a product-oriented logic and toward a more service-oriented one.

Before new measures could be designed, however, the early stages of the design work repeatedly returned to where existing measures were falling short. Through interviews and discussions with internal stakeholders, current ways of measuring profitability were repeatedly described as too transactional, too product-oriented, or too limited to capture broader value creation. These observations did not immediately point to one single new metric, but they clarified what kinds of shortcomings any future measure would need to address.

From this foundation, the observed design work gradually moved toward a more explicit articulation of what new measures should help people do differently. The focus was not only on what could be measured, but on what the measures should enable in practice and how employees should prioritize customers, assess broader value, or engage with more long-term and service-oriented business. In this sense, the translation of strategic intent into operational measures was not a single design decision, but an iterative work of moving from abstract ambition toward measures specific enough to shape everyday behavior.

4.6.2 Using participation to negotiate competing functional views of value

A second pattern observed was that design choices were not determined by any single function but took shape through structured interaction between actors with different roles, knowledge, and proximity to the decisions the measures were meant to support. Participation was therefore not incidental to the design work; it was central to producing measures that reflected the actual complexity of the business rather than the perspective of one department.

The strategy team owned the work of designing the new metrics, but the work did not remain confined to the strategy team. As observed throughout the project, efforts were made to involve as many relevant functions as possible to avoid missing perspectives that could prove important later in the design work. This included actors from areas such as sales, solutions, pricing, finance, and other functions with insight into how profitability is created, measured, and acted upon in practice. The purpose was not only to collect opinions, but also to ensure that the emerging measures reflected the complexity of the business rather than the perspective of a single department.

Within this broader participation, certain individuals and functions came to play a particularly central role. These core champions, as they were referred to during the project, were not only involved because of formal responsibility, such as sales leadership or ownership of service-related offerings, but also because their input was considered especially valuable in moving the work forward. Some were included because they sat close to the decisions the measures would influence, while others became important because they were seen as capable of thinking critically, challenging assumptions, and expressing views clearly even without formally “owning” the issue.

Across the design work, one of the most important sources of guidance was the organization’s own internal knowledge of how Sandvik Coromant actually works. This became visible in the design discussions, where internal experience regarding available data, system limitations, organizational roles, and everyday ways of working became central in determining what kinds of measures were realistically possible to introduce. Rather than designing an ideal measure independently of context, the work was shaped by what participants believed could be implemented with the knowledge, data, and organizational conditions currently in place.

Although internal knowledge served as an important point of guidance, a notable finding was that internal views were not always aligned, even among participants in similar roles within the organization. This was observed in workshop discussions, where participants with comparable responsibilities described different needs and priorities. This became particularly clear in the discussion on gating as one way to manage uncertainty and strengthen forward-looking metrics. The Nordics Sales Cluster Manager expressed strong support for the idea, while the US Sales Cluster Manager did not consider it necessary. This indicates that perceptions of what constitutes a relevant or valuable measure varied within the organization, even across roles with similar responsibilities.

4.6.3 Adapting theoretical concepts into firm-specific metrics through iteration

A third pattern observed across the design work was that metric development did not progress linearly from theory to implementation, but was observed as an iterative narrowing from broad strategic ambition toward firm-adapted measures. Rather than beginning with a predefined technical solution, the work started from a target image of what kinds of value and behavior new measures would need to capture and gradually moved toward more specific alternatives as ideas were tested against organizational realities.

Throughout this early phase, the project leaders played a central role in shaping and refining the work. This was visible in recurring project discussions, where they were involved continuously in discussing ideas, proposing alternative directions, helping make concepts more concrete, and determining which people and functions should be involved at different stages. The work progressed through repeated rounds

of dialogue in which possible measures were challenged, clarified, and adjusted in relation to the company's strategic needs and organizational realities.

A recurring feature of this work was that broad and theoretically inspired measurement ideas were not treated as ready-made answers but had to be adapted to fit Sandvik Coromant's specific context. In the observed design work, concepts drawn from literature and external examples provided an initial direction, but these ideas were repeatedly assessed in relation to the company's business model, organizational setup, available systems, and the kinds of decisions the measures were meant to support. In addition, examples from other firms facing similar business conditions were brought into the design work as candidate solutions. During the internal discussions, these externally observed practices were not adopted directly but were instead used as concrete proposals to test and evaluate against Sandvik Coromant's own context.

As the work progressed, the proposed measures were also made more specific. This was observed as measures that initially appeared broad or conceptually attractive had to be refined in relation to what data existed, what level of granularity was realistic, and how the measures might be used by the people expected to work with them. The design work therefore moved step by step from more general ideas about future-oriented profitability toward more context-adapted alternatives that could realistically fit the organization. At the same time, the results showed a clear preference for simplicity in how the measures were expressed. Internal discussions indicated that a new metric, particularly a forward-looking one, would be difficult to adopt unless it was easy to understand and act upon. As a result, the proposed outcome evolved from a purely numerical value toward descriptive labels indicating the quality of a business opportunity, rather than assigning it a precise number.

During the design work, participants discussed testing candidate metrics on existing data and historical business cases. The idea was to first examine how candidate metrics behaved when applied to earlier cases where outcomes were already known. The Strategy Manager mentioned that metric implementation should begin with building data through a focused proof of concept. Several participants describe how a new metric should first be tested on existing and known data before being introduced on new and untested business. This would make it possible to compare the output of the measure with actual historical outcomes and thereby assess whether the logic appears meaningful before the metric is used more actively in decision-making.

4.7 Summary of empirical tensions in PMS design during servitization

Overall, the findings show that PMS design at Sandvik Coromant is characterized by recurring trade-offs rather than straightforward solutions. Customer-level metrics can help make relationship-based value visible, but also make attribution to individual products, deals, and functions more difficult. Lifecycle-oriented and forward-looking measures address the delayed nature of service value, but introduce uncertainty and

a need for historical grounding and iterative validation. More granular data improves analytical precision, but increases reporting burden and risks reducing usability. Finally, cross-functional value creation makes shared ownership necessary, while existing accountability structures remain partly function-based. Together, these tensions show how the servitization paradox became visible in the design of PMS, as the organization needed measures that supported a service-oriented future while still operating within product-oriented measurement structures.

5

Discussion

This chapter discusses the empirical findings in relation to the theoretical framework, structured around three interconnected tensions that surfaced during PMS design at the case company. Section 5.1 addresses the logical tension between transactional and relationship-based measurement, arguing that existing metrics fail to capture relational value-in-use during servitization. Section 5.2 examines how data infrastructure acted as a binding design constraint, and how the resulting credibility challenges shaped both the design process and its outcomes. Section 5.3 connects these findings to the servitization paradox, arguing that PMS is simultaneously a cause and an expression of the paradox rather than a neutral instrument for resolving it. The three tensions reflect a broader finding, summarized in Figure 5.1: that designing a new PMS during servitization forces the organization to confront the root causes of the paradox directly, and that the design process itself, independent of the metric it ultimately produces, generates value by making implicit tensions explicit.

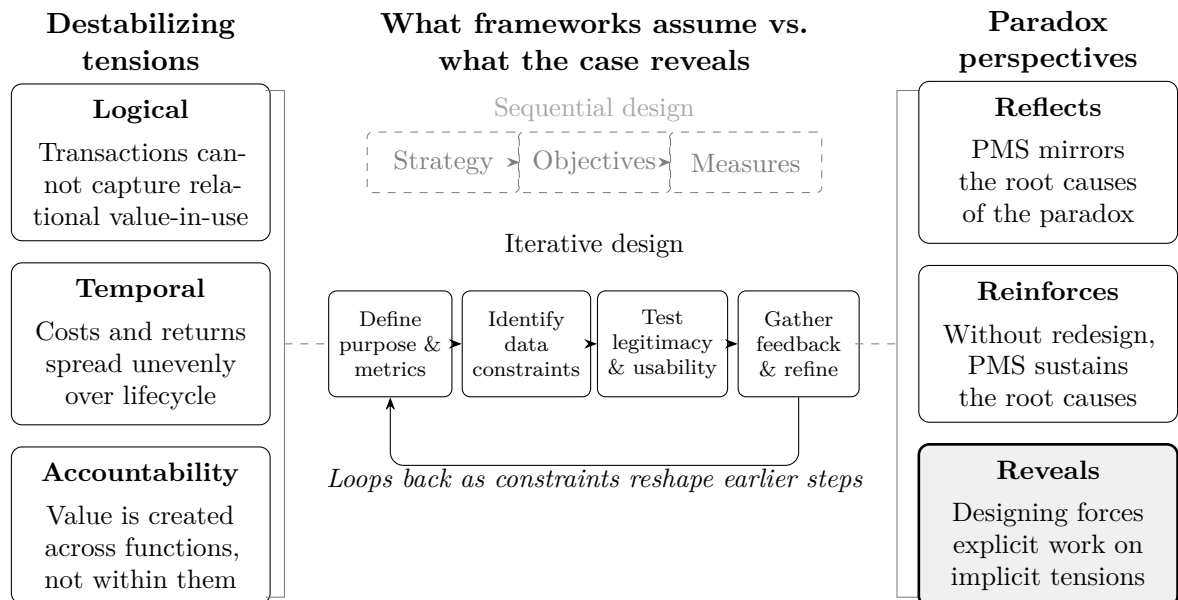


Figure 5.1: Performance measurement system design during servitization.

5.1 The tension between transactional and relationship-based logic

The empirical findings are generally consistent with the theoretical framework. Servitization demands a reorientation of organizational logic (Gebauer et al., 2005), performance measurement must shift from transactional product-level metrics toward customer-level (Reinartz & Kumar, 2003), lifecycle-oriented perspectives (Oliva & Kallenberg, 2003), and new metrics struggle to gain traction in organizations built around product-oriented governance (Nudurapati, 2010). These patterns were anticipated by existing theory, and the case suggests that they hold in practice. The case, however, adds a closer view of how these shifts progress under the specific conditions of a servitizing B2B manufacturer, which challenge the assumptions embedded in conventional PMS frameworks.

Consistent with Oliva & Kallenberg (2003), the servitization journey at the case company entailed a shift in organizational logic from one centered on transactions to one oriented around service offerings. From a PMS perspective, this meant that the existing metrics needed extension to capture a customer-centered view of value creation. This shift was a necessity of the servitizing setting, where value is co-produced between supplier and customer rather than realized at discrete points of exchange (Uлага & Reinartz, 2011).

Stakeholders were careful to frame exactly how a customer-centered forward-looking metric should be interpreted, because any customer-level profitability measure is a simplification of a complex relationship; it cannot and should not be treated as a complete verdict on that customer. In B2B settings, multi-stakeholder purchasing processes are common (Steward et al., 2019). The implication is that a single customer account contains several contact points, making any single-figure verdict on customer value incomplete. Rather than producing a numerical judgment on what value a customer would bring, the metric was described as ideally functioning like a strategic heat map. Existing literature often frames PMS as translating performance into numerical outputs (see, e.g., Neely (1999) or Kaplan & Norton (1996)). In this case, the metric would, however, act as a more abstract tool for supporting resource allocation, prioritizing accounts, and developing a clearer understanding of which internal behaviors ultimately generate customer value and profitability.

This non-numerical framing became even more relevant once the temporal dimension was considered. As anticipated by Gebauer et al. (2005) and Oliva & Kallenberg (2003), incorporating a lifecycle perspective into the metric appeared necessary. Internal evidence showed that initiatives like special engineering had appeared unprofitable from a snapshot perspective, but studying cross-selling effects over time revealed that they were beneficial to the customer relationship and its overall profitability, illustrating how costs and returns distribute unevenly across lifecycle stages (Oliva & Kallenberg, 2003).

The combination of an uncertain time horizon and value creation that is distributed

across functions also made ownership of the metric difficult to settle. The question of who should own the ongoing work of producing and using metric outputs, that is, guiding customer-facing departments and generating aggregated information for management, once the design phase was completed, was less straightforward. Different stakeholders advocated for different departments, with sales, the service organization, and strategy all identified as potential candidates. As the design work was led by a time-limited project team, it remains unclear who becomes the owner of the PMS when completed. In a product-oriented firm, the ownership question might resolve naturally around customer-facing functions. But during servitization, when product and service contributions become interdependent (Uлага & Reinartz, 2011), no single function holds a complete view of customer value. Considering that appropriate ownership may vary depending on the type of customer and where in the lifecycle the relationship sits (Oliva & Kallenberg, 2003), this becomes even more ambiguous. Early-stage customers may demand more strategic stewardship while mature relationships call for operational follow-through, yet regardless of which functions lead the relationship at the time, the measurement responsibility needs to be assigned, and how it is assigned may itself need to evolve with the relationship.

5.2 Measurement infrastructure as a binding design constraint

5.2.1 Data as a binding constraint

The shift toward customer-level and lifecycle-oriented measurement described in 5.1 placed new demands on the data infrastructure. Current databases were not comprehensive enough, or too fragmented, to yield the ideal datasets. Available data acted as the binding constraint, not only shaping how the metrics were calculated, but also what could realistically be measured in the first place. Even though previous research highlights data requirements as a consideration during PMS design (Bourne et al., 2000; Folan & Browne, 2005), it tends to position data infrastructure as something to be built toward, rather than as a constraint that shapes the PMS itself. Because forward-looking, customer-oriented, and lifecycle-based metrics are more data-intensive than traditional backward-looking metrics like unit margin (Bourne et al., 2000; Reinartz & Kumar, 2003), the question of what the ideal set of metrics requires and what existing systems can provide becomes a design problem in itself, not a precondition that can be resolved before design begins.

The data problem is compounded by a second source of difficulty. Forward-looking measures are uncertain by nature, since they rely on assumptions about customer development, retention, and longer-term effects that are unknown or uncertain at the point of measurement (Bourne et al., 2000). All participants in the design work identified this as a central obstacle to building credibility for the metrics. The binding constraint on PMS design is as such the interaction between sparse historical data and the inherent uncertainty of forward-looking metrics.

These constraints may be particularly important in B2B manufacturing contexts undergoing servitization. Manufacturers have historically built data infrastructures around the transactional logic of product sales (Matthyssens & Vandenbempt, 2008). The gap between what forward-looking, relationship-based metrics require and what existing systems can provide is therefore a structural legacy of the product-oriented business model the firm is trying to move beyond, which sets the conditions under which any new PMS must be designed.

5.2.2 Credibility and legitimacy consequences of lacking data

The constraints described in 5.2.1 do not only limit what can be measured but also shape how the measure can be defended organizationally. A metric grounded in sparse data enters the organization without the same empirical backing that established product-oriented metrics have. In line with existing theoretical models (Wouters & Wilderom, 2007), the empirical evidence highlights that legitimacy is a precondition for influencing behavior. New service-oriented metrics must compete against already embedded product-oriented metrics (Gebauer et al., 2005) and in this light, visibility mechanisms and managerial enforcement argued for in the design work should therefore not merely be seen as communication tools, but as platforms for legitimizing the new metrics and logic.

Legitimacy is also dependent on how new metrics align with the existing PMS (Nudurupati et al., 2010). In a pure service or manufacturing firm, this tension might be resolved by replacing old metrics with new ones. For a B2B manufacturer mid-servitization, however, this proved especially challenging, as the company had to keep many of the existing metrics and in doing so work with two logics at once. Coexisting logics is not a simple inconvenience but rather a structural condition of servitization (Gebauer et al., 2005). Furthermore, many of the case company's customers enjoy product-based and service-based offerings in parallel, with different customer functions interacting with different parts of the value creation. As such, only having product-oriented or service-oriented metrics would risk not capturing a holistic picture (Osei-Frimpong et al., 2025), making logic coexistence not a design choice but rather a commercial requirement mirrored on the supplier side.

5.2.3 Iterative design and pragmatic responses to uncertainty

The data constraints described in 5.2.1 and the legitimacy challenges described in 5.2.2 cannot be resolved before design begins. They are present during the entire design work. The design work was initially planned in a linear flow consistent with established PMS design frameworks (Bourne et al., 2000), beginning from the core strategy, identifying desired behaviors, and then examining data requirements to support these proposed measures. In practice, the challenges tied to data constraints and uncertainty encountered in the different stages fed back into earlier ones. This introduced a need to iteratively revisit and revise ideas and solutions as learnings

grew. A hypothesis for a rule-based assumption could sound plausible in theory, but if it was impossible to pursue due to the heavy workload of supplying the data, the idea had to be adapted or dismissed for another idea compatible with existing data structures. Sequential design frameworks treat these stages as separable and assume that uncertainties diminish as the design progresses (Bourne et al., 2000), but the case suggests an opposite dynamic for servitizing manufacturers where each stage introduced new constraints that reshaped earlier decisions.

One way the organization handled this was through pragmatic design responses that traded precision for usability. Because a single precise figure could not simultaneously satisfy the demands of accuracy and organizational credibility, the organization instead opted for a simplified view with descriptive labels to represent customer value. Other design choices provided similar functionality. Rule-based assumptions, such as standardized retention rates or fixed cost allocations per activity type, reduced the need for individual estimation while still producing directionally meaningful outputs. Gating mechanisms allowed forward-looking estimates to be refined as more information became available. While these responses may lack accuracy, they are instead organizationally superior, because they make the metric usable under the data and credibility constraints described earlier.

A key question during the design work was who should own the new PMS components. To create value by offering aggregated information to management, input from customer-close functions is necessary, as they need to be involved in building, interpreting, and adjusting assumptions and inputs, consistent with Franco-Santos et al. (2012). Interestingly, this meant that specific individuals, so-called core champions, gained influence over the design work. While theory presents views on how different functions, such as those that are customer-facing (Wouters & Wilderom, 2007), should have a say, it typically assumes that people representing these functions do so according to their role and the interests of their functions. The observations show different people with the same functional role holding greatly different views. This suggests that personal convictions may also shape PMS design alongside the different functions involved. The same iteration and openness that allow local knowledge to shape the metric also make the outcome dependent on which specific individuals are selected to participate.

5.3 Implications for the servitization paradox

The preceding sections have addressed distinct tensions in PMS design during servitization, but the broader question is what these tensions imply for the servitization paradox itself. The existing literature identifies three root causes of the paradox: the persistence of product-oriented logic (Gebauer et al., 2005; Kerr, 1975), the temporal mismatch between service investments and returns (Neely, 2008; Kohtamäki et al., 2013), and the shift from transactional to relationship-based business models (Oliva & Kallenberg, 2003; Nudurupati et al., 2010). The shift in unit of measurement discussed in 5.1 reflects the relational reorientation servitization demands. The data constraints discussed in 5.2.1 reflect the temporal dimension, since the data that

would make long-term service value visible is what product-oriented infrastructures fail to capture. The legitimacy challenges discussed in 5.2.2 reflect the persistence of product logic in the form of metrics that are already credible and embedded. The iterative design discussed in 5.2.3 is the forced organizational response to the challenges introduced by servitizing.

The literature tends to treat PMS in one of two ways. In one reading, product-oriented PMS is presented as a cause of the paradox, since it rewards the wrong behaviors and hides service values (Nudurupati et al., 2010). In another, PMS reconfiguration is presented as part of the solution, since adapted metrics can make service contributions visible and shift behavior (Gebauer et al., 2005). The case suggests that both readings are correct but that they describe the same dynamic from opposite directions. The first treats PMS as a source of the paradox where misaligned metrics produce misaligned behavior. But the same dynamic can also be understood from the opposite direction. If the three root causes are taken as structural conditions, PMS design inherits much of its difficulty from them rather than being the system that produces them. The product-oriented logic is what shaped the data infrastructure long before any measurement question was asked, the temporal mismatch is what makes credible forward-looking metrics hard to ground in evidence, and the relational shift is what makes ownership of new measures ambiguous. Several of the tensions documented in 5.1 and 5.2 can therefore be understood as expressions of root causes that surface whenever the organization attempts to act on them. PMS is therefore both a cause and an expression of the servitization paradox. It is the mechanism through which the root causes become self-reinforcing, but it is also one of the more tractable surfaces on which they can be observed and discussed. Studying PMS design during servitization is therefore valuable both for what it reveals about measurement and for what measurement reveals about the conditions that produced it.

A related question is worth raising. If the three root causes are structural, is PMS redesign as a tool for addressing the paradox or a symbolic act that allows the organization to appear to be addressing it? Power (1997) argues that PMS often exists to comfort and reassure rather than to critique established ways of working, and the case offers no empirical basis for ruling out that interpretation. What can be said, though, with empirical support, is that the design work itself produces value independently of what the resulting metric achieves. Across the case, the work of designing a new PMS forced confrontation with questions relevant to avoid the servitization paradox, like who owns the customer relationship, how data should be structured, which behaviors should be recognized, and how product and service logics should coexist. The design work is therefore productive in a sense that does not depend on resolving the question of whether PMS is a cause or an expression. This is consistent with what Wouters & Wilderom (2007) describe as enabling formalization, where the act of building a measurement system together becomes the occasion for an organization to articulate its own logic. In that sense, the contribution of PMS redesign during servitization may lie less in the metric it produces than in the conversations it forces. The observation that designing PMS surfaces tensions which

the organization would otherwise have continued to navigate implicitly is itself a meaningful finding.

6

Conclusion

This study suggests that PMS can be designed and reconfigured in B2B manufacturing firms undergoing servitization through an iterative process in which measures are continuously refined in relation to data conditions, organizational priorities, and practical constraints. More specifically, these findings are likely to be most relevant for B2B manufacturing firms during servitization that rely on transactional legacy data infrastructures developed for product-oriented business models.

The findings suggest that data considerations should be seen as a key contextual condition that shapes every step of PMS design work. Data availability and quality constrain metric selection and calculation logic. The constraint is binding not only because of data scarcity, but also because the forward-looking metrics servitization calls for are also inherently uncertain. Because data limitations and uncertainty force the organization to continuously test possible hypotheses against what is available, the design work becomes iterative instead of sequential, in contrast to general descriptions that frame the PMS design as a series of distinct steps.

Because data considerations demand ongoing adaptation, much of the effort in the design work is not directed toward the technical optimization of an ideal metric. Instead, design work is governed by trade-offs such as weighing accuracy, usability, and credibility against simplicity, scalability, and the need to limit the administrative burden on operational employees. Design choices to handle trade-offs, such as descriptive labels, rule-based assumptions, and gating mechanisms, allow the organization to act on these trade-offs. They are perhaps not analytically superior to more precise alternatives, but make the metric usable under data and credibility constraints. Because the manufacturing and servitizing context makes PMS design more complex than general design principles anticipate, with many stakeholders involved and competing priorities, ownership of the PMS should be treated as part of the iterative work instead of as something to resolve after design completion. Furthermore, because certain individuals are participating in multiple iterations, their opinions are likely to become influential in the final design. Their views reflect the interests of their formal roles and departments, but their personal convictions and opinions also shape the nature of their influence.

The theoretical implication of this paper is to complement existing research that largely frames PMS design as a sequential process with clear boundaries between stages. In the setting of a servitizing manufacturer, these lines blur, and the process is not strictly sequential. Theory also commonly presents data considerations as

one step among several in PMS design. In this setting, data considerations cannot be described as a bounded step, but rather something that is continuously present throughout the design work. The study additionally reframes how PMS relates to the servitization paradox. PMS design expresses the structural root causes of the paradox and institutionalizes them, while also providing a surface on which those root causes can be observed and discussed.

The managerial implications are that servitizing companies reconfiguring their PMS should not defer examination of existing data until after metric selection. Doing so risks rework, or requiring substantial effort to create the needed data structure that the chosen metric demands. Ownership of the ongoing PMS work after design completion should similarly be treated as part of the design work, and not as something to resolve after its completion. Managers should also be aware that the design work itself produces value beyond the metric it creates, since the work of designing a new measure forces explicit confrontation with questions such as who owns the customer relationship, how data should be structured, and how product and service logics should coexist.

Further research should aim to study the PMS work beyond design completion. This would allow for understanding how different design choices impact the strategic goals during implementation and ongoing use, and whether the resulting metric actually changes behavior or functions primarily as a signal that work is being done. It would also be valuable to examine whether the iterative character of the design work persists in organizations with more mature data infrastructure. Following the reasoning developed in this thesis, a possible hypothesis is that data-mature manufacturers would be better positioned to perform their design work in a more sequential manner, but whether organizational factors are sufficient alone to sustain the need for iterations regardless of data conditions remains an open and worthwhile question.

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