

Theoretical landscape in servitization

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1. Introduction

Manufacturers have shifted their focus from products to smart solutions in the search for higher returns and additional growth opportunities (Lightfoot, Baines, & Smart, 2013; Matthyssens & Vandenbempt, 2008; Rabetino, Kohtamäki, Lehtonen, & Kostama, 2015). This shift, described as servitization (Vandermerwe & Rada, 1988) or later as digital servitization (Coreynen, Matthyssens, & Van Bockhaven, 2017; Kohtamäki, Parida, Oghazi, Gebauer, & Baines, 2019), is a lengthy and complex process for which positive outcomes cannot be guaranteed (Gebauer, Fleisch, & Friedli, 2005; Oliva & Kallenberg, 2003). The present chapter consolidates contemporary research on servitization and sheds light on the structure and relevant concepts in this multidisciplinary field (Rabetino, Harmsen, Kohtamäki, & Sihvonen, 2018).

Servitization—the shift from a product-centric to a service-centric business model and logic (Kowalkowski, Gebauer, Kamp, & Parry, 2017)—represents a powerful growth engine for firms seeking to expand beyond their traditional product core. Examples include both traditional machine manufacturers and software companies that have shifted to cloud-based subscription models. Today, servitization has become a flourishing and active research domain, attracting interest from a wide range of disciplines, including marketing, operations, engineering management, service management, and environmental research (Rabetino et al., 2018; Raddats, Kowalkowski, Benedittini, Burton, & Gebauer, 2019).

Whereas managers generally agree that they must move into services, empirical research suggests mixed outcomes from such transformations. The link between servitization and performance has been demonstrated to be potentially nonlinear and complex (Fang, Palmatier, & Steenkamp, 2008; Kohtamäki, Parida, Patel, & Gebauer, 2020; Kohtamäki, Partanen, Parida, & Wincent, 2013). Frequently, failures have been argued to emerge from poor implementation, lack of required capabilities, poorly executed processes, organizational tensions, and other factors (Lenka, Parida, Sjödin, & Wincent, 2018; Martinez, Neely, Velu, Leinster-Evans, & Bisessar, 2017; Parida, Sjödin, Wincent, & Kohtamäki, 2014; Visnjic Kastalli, Van Looy, & Neely, 2013). Recent studies highlight the important role of digitalization in ensuring profitable servitization (Cenamor, Sjödin, & Parida, 2017; Lenka, Parida, & Wincent, 2017). This interplay between digitalization and servitization has been captured under the term ‘digital servitization’, which emphasizes value creation through the interplay between products, services, and software (Kohtamäki, Parida, et al., 2019; Porter & Heppelmann, 2014) and represents an important future research stream in the servitization literature.

This chapter provides an overview of the changing landscape of servitization research, including the transformation process, business model content, and context with various contingencies (Kohtamäki, Henneberg, Martinez, Kimita, & Gebauer, 2019). Although our core focus is on servitization, we intend to broaden the rich conceptual landscape evolved around this literature, including related concepts such as digital servitization and product-service systems (PSS). We provide some theoretical background and methodological angles to demonstrate future directions for expanding servitization research further.

The remainder of the chapter is structured as follows. We first present the definition and

content of servitization and related concepts, highlighting the role of software as part of product-service-software systems. We then review the current structure of the servitization field and then the conceptual landscape of the servitization literature, followed by a discussion of the servitization concept from the perspectives of content, process, and context. We offer some notes on the methodological landscape in servitization before we end the article discussing the future avenues of servitization research.

2. Evolution of the field of servitization

2.1. Defining servitization

Since Vandermerwe and Rada first introduced the concept of servitization in (1988), we have witnessed its conceptual emergence and development. The early developments were slow, and the literature did not significantly take off before the early 2000s, when some of the seminal papers were published. Since then, servitization has gained enormous attention by researchers, and 726 scholarly papers have been published on and around the topic. In addition, dedicated academic conferences and conference tracks have been established during the last decade (Kowalkowski et al., 2017a), and managerial books have been written (e.g., Baines & Lightfoot, 2013; Kowalkowski & Ulaga, 2017). Studies from Oliva and Kallenberg (2003), Mathieu (2001), Davies et al. (Davies, 2004), Gebauer et al. (Gebauer et al., 2005), Tukker (Tukker, 2004), Brax (Brax, 2005) and Baines et al. (2007) initiated the stream of servitization literature, and we see a growing trend in publishing on this topic today (Rabetino et al., 2018).

Table 1 synthesizes the definitions of servitization-related concepts within these traditions. At the core, *servitization is about the transition from product to service logic, often involving a complex integration of product-service-software systems, where the ideal-typical form of*

service logic can be understood as a customer paying for the realized value in use. Researchers have also noted the lack of software or digital emphasis in the prior servitization literature, perhaps resulting from the lack of advanced digital technologies, which we see emerging currently. Studies have called for the concept of digital servitization to emphasize the role of software as the core of novel product-service systems, so-called product-service-software systems (Coreynen et al., 2017; Kohtamäki, Parida, et al., 2019). These offerings and the interplay between products, services, and, more recently, software modules are central to the servitization literature (Cenamor et al., 2017). Manufacturers engage in a both-and game, where they must accept various paradoxical tensions that emerge due to the simultaneous engagements in product, service, and software development, lifecycle, and upgrading cycles (Kohtamäki, Einola, & Rabetino, 2020; Lenka et al., 2018). Such product, service, and software offerings have played an important role in servitization research, where offerings are often used as an obvious indicator of strategy and value proposition (Kohtamäki et al., 2013; Rabetino et al., 2015).

Servitization studies have incorporated the concepts of product-service systems (Reim, Parida, & Örtqvist, 2015), customer solutions, integrated solutions, services supporting the product (SSP), and services supporting the customer (SSC) (Mathieu, 2001), to name a few. It is important to remember that, from the infancy of servitization, the data-related software element has been part of the servitization literature (Vandermerwe & Rada, 1988). Vandermerwe and Rada (1988), in their seminal piece, emphasized the interplay between goods, services, and information (cf. Page and Siemplenski's (1983) concept of product systems marketing). The connection, integration, or bundling between products, services, and software can be seen as one of the central elements in the servitization literature – yet, the dynamics related to operational integration have not been discussed in great detail. For

instance, Rabetino et al. (2015) argue in their empirical study that it is the product lifecycle that enables intuitive integration of products and services. Similarly, Cenamor et al. (2017) discuss how advanced service offerings by manufacturing firms would require viewing software or information modules as a core around which different product and service modules are integrated to efficiently create a customized solution for customers. Practical examples of such offerings can include fleet solutions, site optimizations, or even autonomous solutions, as offered by manufacturing firms. Thus, further attention to software elements is central to adapting servitization in the current digital age.

Table 1. Definitions of key servitization-related concepts.

Study	Concept	Definition
Offerings		
Baines et al., (2007: 3)	Product-Service system	PSS is “an integrated product and service offering that delivers value in use. A PSS offers the opportunity to decouple economic success from material consumption and hence reduce the environmental impact of economic activity.”
Sawhney (2006: 369)	Customer solution	“an integrated combination of products and services customized for a set of customers that allows customers to achieve better outcomes than the sum of the individual components.”
Brady et al. (2005: 572)	Integrated solutions	“bringing together of products and services in order to address a customer’s particular business or operational requirements”
Servitization process		
Kowalkowski, Gebauer, Kamp, and Parry (2017: 5)	Servitization	A transformation from a product-centric to a service-centric business model and logic.
Kowalkowski, Gebauer, Kamp, & Parry (2017: 5)	Service infusion	“The process whereby the relative importance of service offerings to a company or business unit increases, amplifying its service portfolio and augmenting its service business orientation.”
Kohtamäki, Parida, et al., (2019)	Digital servitization	The transition towards smart solutions (product-service-software systems) that enable value creation and capture through monitoring, control, optimization, and autonomous function. Digital servitization

		emphasizes value creation through the interplay between products, services, and software.
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2.2. Structure of the servitization field

Figure 1 shows the yearly number of scientific journal articles and citations from 1988 to 2020 in the field of servitization, totaling 726 servitization studies across all disciplines and journals included in Scopus. Based on the figures, we can see a sharp increase in the number of published articles, which increased from 13 papers per year before 2010 to 152 articles per year by 2020. Indeed, the publication rate has doubled every three years, and 93% of the articles have been published since 2010 (93%).

Similarly, the yellow curve demonstrates the increase in citations per paper published in servitization per year. The papers published in 2017 received 2,921 citations until the end of 2020 (yellow line). As it takes time for papers to gather citations, the citation count of 2017 provides a better picture of the progress than 2018 or later, after which the papers have had much less time to collect citations. Overall, Figure 1 demonstrates the drastic increase in published papers and paper citations, depicting the increase in servitization during the past years.

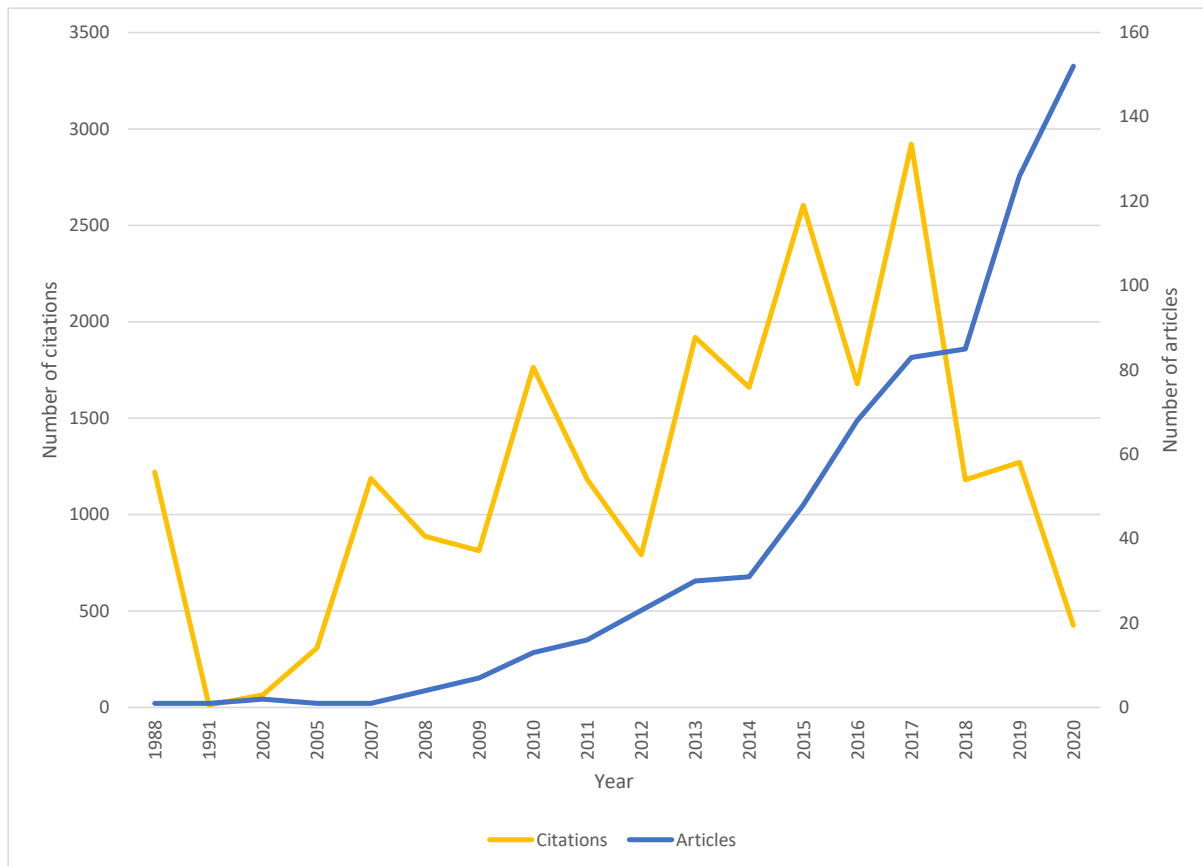


Figure 1. Increase in the number of articles and citations per year from 1988 until 2020.

Next, Figure 2 describes the current structure of the servitization field based on a cocitation analysis and VOSviewer software, with the data of 726 studies. Author cocitation analysis considers the number of times each pair of authors has been cocited in the studied data (Zupic & Čater, 2015), as cocited authors often share similar ideas. In the figure, color indicates the cluster, the size of the circle signals the number of citations (larger circle means a higher number of citations), closer location between authors means that the authors are often cocited, and the 500 most frequently cocited pairs of authors are indicated by lines.

Based on the analysis, we found four clusters: 1) customer solutions, 2) servitization, 3) product-service systems (PSS), and 4) service operations. The red cluster involves customer solutions, integrated solutions, service logic and services-dominant logic, value cocreation,

and related literature. Most of these studies are within marketing, although scholars such as Brady and Davies are within innovation management. The blue cluster includes management-oriented servitization studies, strategy, structure, innovation, and digital servitization papers. The green cluster is a PSS-oriented stream with strong engineering emphasis and involves sustainability-oriented writings in servitization. Finally, the yellow group is oriented towards service operations and service technologies, including the service science approach. Understandably, the borders between clusters are blurry and there are boundary spanners, which are located at the intersections of different communities, such as Kowalkowski, Gebauer, Baines, or Lightfoot. Reasons include cross-disciplinary publishing and the use of different terminology. The customer solutions, servitization, PSS, and service operations clusters in Figure 2 seem consistent when compared with other reviews (Rabetino et al., 2018). These streams also consist of smaller substreams, which can be recognized by looking at the most cited authors in any location of the picture and their publications over the years.

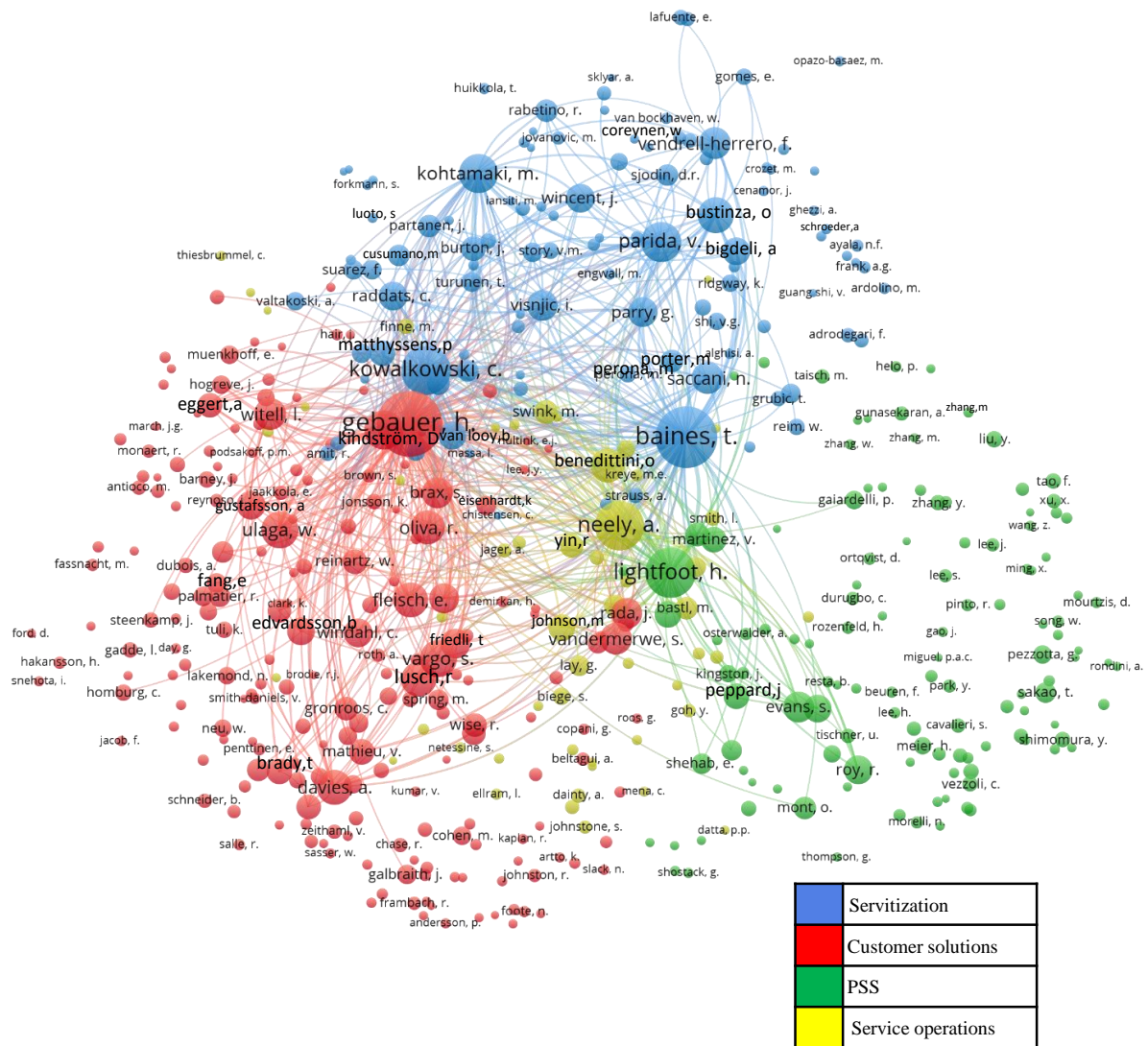


Figure 2. Structure of the servitization field 1988-2020 (based on cocitation analysis of 726 articles).

2.3. Conceptual landscape in servitization

The anatomy of the servitization literature can be understood by depicting and analyzing the concepts embedded in servitization studies. For this purpose, we used textual analysis of the servitization articles and a linguistic text mining process. We utilized Leximancer software, following the examples provided by previous strategy and innovation studies (Wilden, Devinney, & Dowling, 2016). Leximancer uses thematic and semantic analyses and a Bayesian machine-learning algorithm to analyze the text in the sampled journal articles and

to reveal concepts and themes based on the cooccurrence of words, as the context defines any word. (Wilden et al., 2016: 1010). Thus, the analysis reveals the primary conceptual themes (clusters) in the literature and represents the main concepts within each cluster. In addition to linguistic text mining, we use traditional narrative review to understand the conceptual landscape in the servitization literature. Figure 3 synthesizes five main clusters of concepts stemming from the servitization literature. The dimensions and the most typical concepts emerging from the studies were 1) services, 2) customers, 3) business, 4) strategy, and 5) maintenance. Servitization centers around offerings, customers, value, and maintenance operations, which are part of the business model. This objective depiction from the literature involves the most typical concepts in the servitization literature, providing a valuable lens to view the literature.

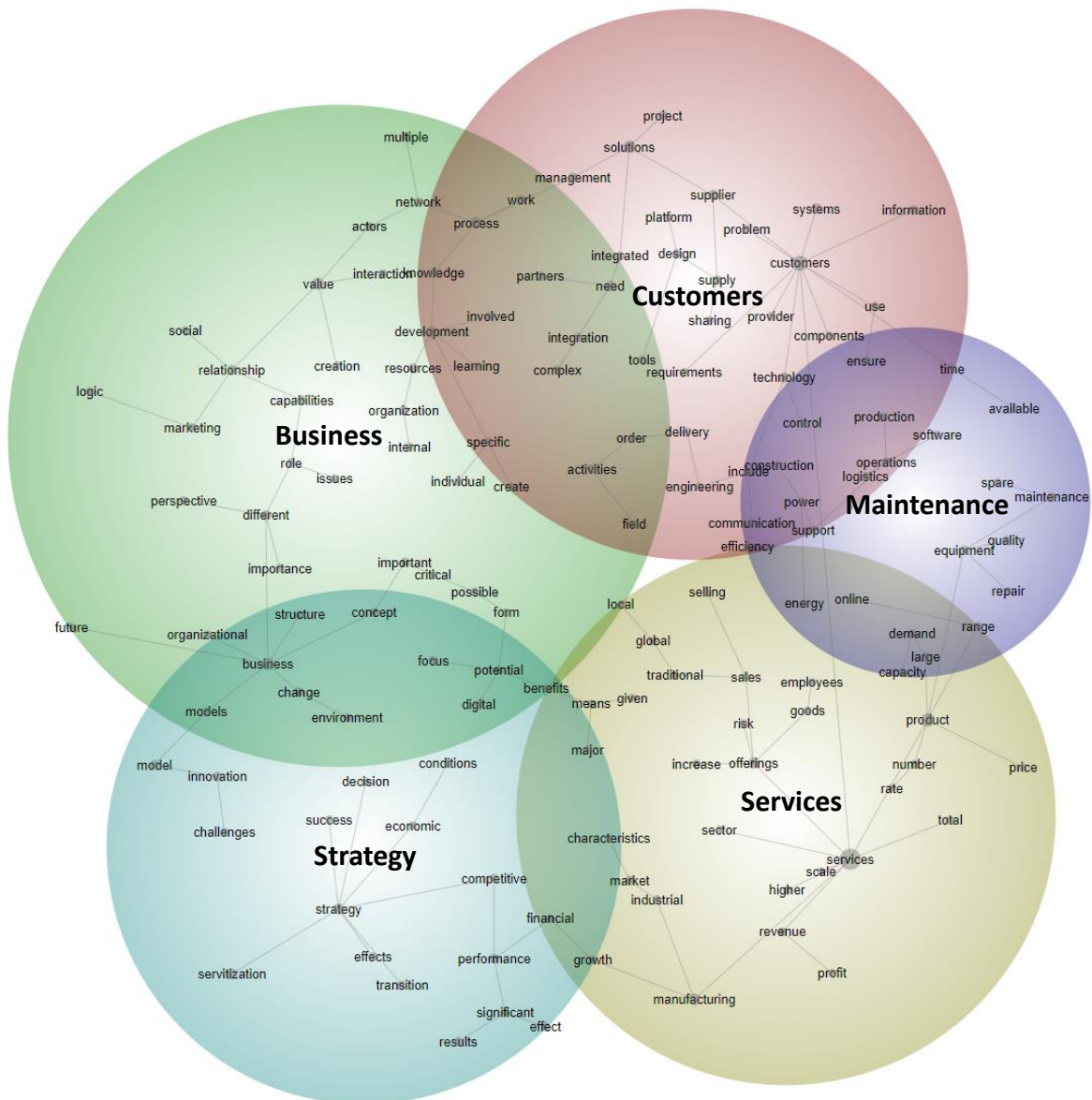


Figure 3. The conceptual landscape of servitization resulting from concept mapping.

The first cluster is about *services*, including offerings, and related concepts (product, goods) and the effects of services (revenue, growth, profit). The cluster also contains concepts related to risk, sales, selling, and contextual factors (e.g., manufacturing). The second cluster centers on *customers* covers concepts such as solutions, processes, activities, platforms, tools, problems and sharing. Indeed, the role of customers has been emphasized in the servitization literature, for instance, by the service infusion concept, the transition towards service logic. The third cluster, *business*, captures the concepts around value, capabilities, organization,

structure, logic, learning, and interactions. Many of these concepts interact with customers and strategy and link to other concepts around different forms of value creation, which are undoubtedly relevant to the servitization literature. Fourth, the concept *strategy* involves servitization, business models, transition, change, digital, effects, and success—all typical concepts from strategy-related servitization studies. Finally, the fifth cluster involves *maintenance*-related concepts linked to operations, equipment, production, control, efficiency, available, spare, capacity, software, repair, and online. These concepts focus on operations and service technologies. The five clusters of concepts reveal the typical themes and concepts covered in servitization research. The picture is not complete because it includes only the most typical concepts.

2.4. Servitization as content, process, and context

If we look at the servitization literature through the lens of strategy, we can divide the analysis into 1) content, 2) process, and 3) context (Ketchen, Thomas, & McDaniel Jr., 1996). Such categorization helps to analyze the research from an inside-out perspective (business model of value creation content), as a process view (how the servitization strategy content is created, or how servitization progresses as planned and emergent), and from an outside-in perspective (contingency).

The largest proportion of studies focuses on pure strategy or business model content, and the lowest number (~20) focuses on the servitization process. Contingency-theoretic or configurational research is somewhere in between the content and process. The proportion of papers focusing on the servitization process is surprisingly low, particularly those using the processual approach. There are several papers using the terms process or change, but most of these studies do not explore the servitization process, instead focusing on value creation,

innovation process, behavioral processes, and so forth. Most of the servitization work to date has analyzed the strategy, business model content, capabilities, service offerings, PSS, value creation, service innovation, technologies, performance, or related constructs. Servitization studies are predominantly content oriented, or they analyze more microlevel relevant processes but rarely servitization processes. Finally, a significant research effort has identified contingency factors, such as the nature of the business environment, or internal contingency factors, such as the nature of the business models, offerings, or technologies, depending on the research settings. In what follows, we describe in more detail the focus of the research found under the themes.

Servitization as a content: Servitization business models

We first focus on servitization from a content perspective given the large proportion of the published papers that have dealt with strategy or business model content, different kinds of servitization strategies, product-service offerings, product and service operations that servitized companies have been running, capabilities, value creation, value capture, and pricing, remote technologies. Another topic that has received attention is the effects or outcomes of servitization, for instance, the performance effects of servitization, such as the impact on revenues, profits, and company valuation.

Servitization strategy and business models have received much attention in the literature. Multiple concepts have been used, such as the servitization business model, solution business model, PSS business model, or service business model. In their study, Kowalkowski et al. (2015) identified three different business models and trajectories: availability provider, performance provider, and industrializer (see also Matthyssens & Vandenbempt, 2008; Penttinen & Palmer, 2007). While firms generally move from basic, product-oriented services

towards offerings that include more complex, process-oriented services and solutions, the researchers also identified cases where firms shift the emphasis from more advanced to more standardized service offerings. In addition, Kohtamäki et al. (2019) developed a typology of five alternative servitization business models, including a product-oriented service provider, industrializer, integrated solutions provider, outcome provider, and platform provider, which they discussed by using four theories of the firm. Recent studies have also looked more into a specific type of servitization business model, such as Sjödin et al. (2020), investigating how to design, develop and implement outcome-based business models.

Customers have been an important starting point for the servitization literature. The research highlights the role of value cocreation, value coproduction, and value capture (Sjödin, Parida, & Wincent, 2016). Thus, service-dominant logic and service logic are theoretical lenses often used in the servitization literature. As such, one of the core emphases has related to customer importance, or customer orientation, which is an inherent part of the service logic (Kowalkowski & Ulaga, 2017). Kohtamäki and Partanen (2016) study the role of customer cocreation in advanced services, finding the positive moderating impact of customer cocreation on the relationship between a manufacturer's R&D services and relationship profitability to the manufacturer. Recent studies also recognize the need to develop an agile approach towards advanced service delivery, as both often call for both providers and customers to significantly transform their relationships and the associated value creation process (Sjödin, Parida, Kohtamäki, & Wincent, 2020).

The servitization literature emphasizes the role of service offerings as an important indicator of servitization. Studies have conceptualized offerings using many different concepts, such as product-service systems (PSS), service offerings, customized solutions, customer solutions,

integrated solutions, hybrid offerings, and others. Rabetino et al. (2015) studied product-service bundling in manufacturers and used the product lifecycle to understand how manufacturers integrate services into the product lifecycle. In one of the most influential studies, Tuli et al. (2007) conceptualize solutions as a set of customer-supplier relational processes and highlight that the effectiveness of a customer solution depends not only on supplier variables but also on several customer variables.

The transition from products to product-service-software systems requires a major evolution in strategic capabilities, such as the unique set of resources and capabilities the firm possesses (or can harness from its network). The resource-based view is one of the primary strategy theories involving a large body of academic research. From the 726 papers, we identified 152 papers related to capabilities (strategic or dynamic capabilities). This relevance is also seen in servitization; the capability approach is one of the most significant research streams, not least due to the managerial value the RBV provides. The literature involves a large body of contributive papers. For example, Ulaga and Reinartz (2011) identified a set of overarching resources and capabilities required for successful servitization. Acknowledging that resources do not confer competitive advantage per se, as they need to be leveraged for capability building, they support five critical capabilities: 1) service data processing and interpretation, 2) implementation risk assessment and mitigation, 3) design-to-service, 4) solution sales and 5) offering deployment. Storbacka (2011) conceptualized a solution process with four phases (develop solutions, create demand, sell solutions, and deliver solutions) and three groups of cross-functionality issues (commercialization, industrialization, and solution platform), with 12 capability categories and 64 capabilities and management practices pertinent to the effective management of solution business. Baines and Lightfoot (2014) created an integrative framework combining various critical resources (e.g., factories and location,

supplier relationships, information and communication technologies, performance measurement, value demonstration, people management, processes, and customer relationships). Hasselblatt et al. (2018) recognized five strategic capabilities that develop, sell and deliver IoT-related capabilities: 1) building a scalable solution platform, 2) value selling, 3) value delivery, 4) digital business model development, and 5) business intelligence. Kindström, Kowalkowski, and Sandberg (2013) identified 11 microfoundations associated with the sensing, seizing, and reconfiguring capabilities geared to the facilitation of servitization. Finally, recent studies recognize the importance of digitalization capability to successfully develop and deliver advanced services to customers (Annarelli, Battistella, Nonino, Parida, & Pessot, 2021; Lenka et al., 2017).

Servitization as a process (From - To)

Multiple concepts have been used when referring to servitization. Concepts such as service transition (Fang, et al. 2008; Oliva & Kallenberg, 2003), service transformation, and service infusion (Brax, 2005; Forkmann, Henneberg, Witell, & Kindström, 2017; Kowalkowski, Kindström, Alejandro, Brege, & Biggemann, 2012) have been used to refer to the transformation from products to product-service-software systems. At its core, servitization as a process refers to the transition from a product business to product-service systems. This characterization means that in an ideal-typical situation, the other end of a continuum reflects a product logic, in practice, a standard product business with add-on services; at the other end of the continuum is the service logic, or in practice, the pure service business model (e.g., an outcome-based service business) (Kowalkowski, Gebauer, & Oliva, 2017; Oliva & Kallenberg, 2003). There may be a mixture of business models in between that configure the components of products, services, and software (Parida et al., 2014). In practice, different business models may coexist within the same organization (Kowalkowski et al., 2015).

Hence, a firm may have a product-centric business model, aiming to maximize equipment sales, and a service-centric model, aiming to improve its customers' processes in parallel, even if the latter implies selling fewer products. One of the most challenging elements of the processes is shifting to a service-centric business logic, which includes changing norms, values, practices, and mental models (Kindström et al., 2013).

Transition, strategic and organizational change is at the core of the concept of servitization. However, when we look at servitization studies, few can be found on the actual transition process, and only a handful of processual studies about servitization process exist. For instance, Lenka et al. (2018) show that the servitization process requires changes to a different organization level, such as strategic, tactical, and operational levels, which creates ambivalence towards organizational change. Baines, Bigdeli, Sousa, and Schroeder (2020) found in their study of 14 manufacturers that the servitization process can be conceptualized through four phases: exploration, engagement, expansion, and exploitation. Moreover, they identify a few contextual factors shaping the process. Martinez et al. (2017) investigated the servitization journey. Their study finds servitization as a process of continuous change, emphasizes some contingency factors, and specifies the pace of servitization advancing through different stages from basic through intermediate to complex services. Tronvoll, Sklyar, Sörhammar, and Kowalkowski (2020) emphasize the role of organizational identity, dematerialization and collaboration, specifically in the process of digital servitization. Kohtamäki et al. (2020) highlight the paradoxical tensions in servitization emerging between effectiveness in customizing solutions and efficiency in product manufacturing; this constant struggle between effectiveness and efficiency, which cannot be solved, and is therefore paradoxical. Tronvoll et al. (2020) studied the digital servitization process and identified the key roles of identity change, dematerialization and collaboration in the change process.

Servitization as context

The third approach sees servitization as a context for various factors around the business environment. At its core, contingency theory sees strategy and structure as contingent on the factors shaping the business environment. Strategy and structure should fit with changes in the business environment. The configurational approach considers a variety of configurations as contingent on the environment. The configurations can be used by different dimensions, such as strategy and structure, or different business model dimensions. The configurational approach carries the idea of equifinality, which suggests that multiple routes can lead to successful outcomes as long as the configuration provides fit (Doty, Glick, & Huber, 1993).

In any case, servitization as a transition relates to strategy and structures inside and outside the firm. The former refers to microlevels, whereas the latter refers to the meso- (ecosystem or value system) or macrolevel (industry and society at large). Typically, configurational studies consider this combination a configuration that should fit the environment-strategy-structure (Kohtamäki, Henneberg, et al., 2019). Thus, we can separate the three organizational levels where servitization occurs: 1) the business environment, 2) the ecosystem, and 3) the firm and its divisions, units, and individual actors. The firm is obviously at the center of any strategic transition, so it also is in servitization. The competitive macroenvironment has implications, for example, a transition towards a carbonless society or digitalization. Ecosystems set many boundaries for development – what ecosystem partners are willing to accept, what can be achieved, and to what extent the existing ecosystems and markets can be shaped. Eventually, the firm is the strategic entity that makes the strategic decision to move towards digital servitization. In this process, individual actors, service workers, middle managers, and top management are needed. To be successful, Kowalkowski and Ulaga (2017) argue that key stakeholders on all three levels—

top management, middle management, and frontline employees—need to be engaged. Notably, servitization is often studied only at the level of companies, typically the supplier firm, but sometimes it is studied from the customer's perspective (e.g., Macdonald, Kleinaltenkamp, & Wilson, 2016). Recently, a growing number of studies have adopted a service ecosystem perspective to go beyond the customer-supplier dyad to better understand the complex relationships and interdependencies between intrafirm and interfirm entities. Based on service-dominant logic and industrial network theory, a service ecosystem perspective examines servitization through a holistic, multiactor lens and emphasizes that the systemic, dynamic, and contextual aspects of the phenomenon are influenced by the interactions between actors (Sklyar, Kowalkowski, Tronvoll, & Sörhammar, 2019).

2.5. Methodological insights on the field of servitization

Servitization research involves a variety of methodologies and methods. Most servitization studies predominantly build on a realist philosophical approach, using positivist, interpretative, or socioconstructionist orientations. For instance, the servitization literature has strong emphases on qualitative field studies (e.g., multiple case studies), quantitative studies, and literature reviews. There are fewer studies using nominalist or subjectivist orientations, or, for instance, discursive and narrative methods (Luoto, Brax, & Kohtamäki, 2017), which could be highly relevant in managing complex and lengthy organizational change processes, such as digital servitization. In addition, most studies—explicitly or implicitly—build upon or extend the established body of literature within a certain servitization subcommunity; only a few studies set out to challenge underlying assumptions that exist within the field (Kowalkowski et al., 2015; Luoto et al., 2017; Rabetino et al., 2018; Raddats et al., 2019).

Many previous reviews (Baines et al., 2009; Rabetino et al., 2018; Raddats et al., 2019; Velamuri, Neyer, & Möslin, 2011; West, Rohner, Kujawski, & Rapaccini, 2018) have pointed out that the vast majority of research in servitization has been qualitative and often case-based. This emphasis on exploratory grounded work is understandable considering the nascent nature of servitization research, where the focus has been to define precisely what is meant by servitization and create the right typologies to observe the phenomena (Kowalkowski, Gebauer, & Oliva, 2017). The majority of empirical studies are based on qualitative data, although the number of quantitative papers is increasing (Raddats et al., 2019). There is also increasing methodological diversity in quantitative papers, including those focused on fuzzy-set qualitative comparative analysis (Forkmann et al., 2017; Sjödin, Parida, & Kohtamäki, 2019) or those focusing on analysis of large sets of secondary data (Fang et al., 2008; Patel, Ii, & Guedes, 2019; Visnjic Kastalli & Van Looy, 2013). Overall, however, the field has struggled to shift its methodological focus towards the generation of testable propositions or the careful description of complex relationships between the strategic concepts, the transformation process, and the contingency factors that affect this transformation (Oliva, 2016). Without generating these testable propositions and provisional models, it will not be possible for the field to move into a mature stage of theoretical development where hypotheses are being tested and specific quantitative measures of constructs are developed (Edmondson & McManus, 2007). It is not until we gain some confidence in these theoretical developments that we can aspire to develop actionable and prescriptive theories to guide interventions and improve practice (Oliva, 2019).

3. Discussion – where to go from here?

Servitization research has been growing rapidly during the past 20 years, with an increasing number of yearly publications. Over these years, we have witnessed the emergence of four

subcommunities in servitization research: 1) servitization, 2) customer solutions, 3) product-service systems and 4) operations management, as demonstrated by the cocitation analysis. The thematic and semantic analyses of the most typical concepts used in the servitization literature revealed five main clusters of concepts, including 1) services, 2) customers, 3) business, 4) strategy, and 5) maintenance-related concepts. The conceptual landscape in servitization research will keep evolving, while we move forwards, with the effort of the striving servitization community and subcommunities. Hence, it is perhaps safe to conclude that servitization literature is not singular but has many areas, and there is plenty of richness in the literature to move forward. While acknowledging the substantial accumulation of knowledge, particularly in the past decade, recent research agendas point to a wide array of research priorities (Rabetino et al., 2018; Raddats et al., 2019). In particular, digitalization will continue to fundamentally affect industries and accelerate servitization, thereby providing further research opportunities.

Regarding the methods in servitization, we concluded that content-focused variance research is dominant in the servitization literature. However, we can also conclude that many opportunities exist to continue to advance the variance-theoretical research on the servitization business model, antecedents, processes and outcomes. Advancing servitization theory would certainly be beneficial, as we currently lack precise definitions and measurements for even the most basic constructs surrounding servitization. There is, however, a complementary perspective for theoretical development that has promising potential given the nature of the phenomena that servitization research is attempting to explain, namely, a process.

Another perspective is process theories, which, in contrast to variance theories, focus on processual explanations, of how and why things happen and identify how entities participate in and are affected by the sequence of events; i.e., timing is critical to the outcomes in process theories (Mohr 1982). Clearly, the relevant constructs (e.g., agents, events) and framing of hypotheses are very different for process theories when compared to the traditional statistical hypothesis testing done for variance theories. As we concluded in our analysis, servitization research lacks process research about the very core of servitization, the transition process. One possible explanation is that, typically, we are not trained in developing and testing process theories (Oliva, 2019). Another is that some journals and reviewers may not be ready to accept process research. Recent methodological developments and calls for more process theories across disciplines (e.g., Langley, Smallman, Tsoukas, & Van de Ven, 2013; Monge, 1990; Poole et al., 2000; Sterman, Oliva, Linderman, & Bendoly, 2015) seem to be removing these traditional obstacles. We should leverage the nature of the servitization phenomenon and use process research to develop improved theorizing on service transition (Kohtamäki, Parida, et al., 2019; Oliva, 2020).

Finally, we have all witnessed the massive disruption caused by the recent COVID-19 pandemic (Rapaccini, Saccani, Kowalkowski, Paiola, & Adrodegari, 2020), which has challenged some of the presumed advantages of servitization (e.g., outcome-based contracts) and revealed downsides of these complex offerings (Bond et al., 2020). Hence, research regarding the servitization context, contingency-theoretic, and configurational research on the environment-strategy-structure in servitization requires more attention. As we concluded in our analysis, the servitization literature involves research using contingency-theoretical settings and configurational settings (for configurational research, see the review from

Kohtamäki, Henneberg, et al., 2019). While servitization scholars may have given some attention to these issues, they offer additional opportunities for further research.

This article provided a short introduction to *The Handbook of Servitization*, a handbook with articles providing perspectives on servitization strategy and business model, servitization process, customers and value cocreation, innovation and managing operations.

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