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A Configurational Approach to Servitization: Review and Research Directions

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Abstract. By acknowledging the full complexity of the phenomenon of servitization and its manifold drivers and outcomes, we extend the current literature through a configurational perspective, the aim of which is to understand the interplay between the drivers (conditions) that lead to certain equifinal outcomes of servitization. The present study aims to take stock of the servitization literature by utilizing the contingency theory of strategy as our foundational theory and the strategy–structure–environment approach as our primary framework to systematically review and analyze the identified configurational servitization studies. We identify commonalities and gaps in the literature, and we set directions for future research.

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Keywords: servitization • product–service systems (PSS) • configurational approach • typological approach • strategy–structure–environment fit • systematic review

1. Introduction

Servitization[1] has become an important aspect of the business models of manufacturing companies, especially equipment manufacturers as well as system integrators (Baines et al. 2017, Forkmann et al. 2017a, Kowalkowski et al. 2017a, Ambroise et al. 2018, Rabetino et al. 2018). Such companies complement their traditional product-related offerings with a variety of service offerings that are often integrated and which can provide considerable revenue as well as profit contributions. The resulting servitized business models allow manufacturers to strengthen their business relationships with key customers, thereby increasing loyalty, collaboration, and knowledge exchange (Reinartz and Ulaga 2008). In making the shift to services and a servitized business model, companies are directed to pay attention to a variety of issues, such as the service characteristics offered (Mathieu 2001, Cusumano et al. 2015), ways to price these services (Rapaccini 2015), the organizational design associated with the implementation of new services (Raddats and Burton 2011, Bustinza et al. 2015), the development of service-related capabilities and underlying resources (Huikkola et al. 2016, Gebauer et al. 2017, Sousa and Da Silveira 2017), creation of novel triadic or network-level collaborative structures (Kowalkowski et al. 2016), or processes of delivering services (Kindström and Kowalkowski 2014). These issues are integrated within the overall development of a consistent service value proposition, as well as a value capture model, as part of an integrated servitized business model (Forkmann et al. 2017b, Kohtamäki et al. 2019).

The extant literature identifies individual success factors for achieving servitization (Lightfoot et al. 2013, Grubic 2014, Reim et al. 2014, Eloranta and Turunen 2015) and provides initial evidence of the beneficial consequences of servitization (Fang et al. 2008, Kohtamäki et al. 2013, Visnjic Kastalli and Van Looy 2013). However, such positive evidence is not unequivocal; for example, there are arguments against servitization as a fit-for-all solution (Kowalkowski et al. 2017, Valtakoski 2017). Although servitization is

generally seen in the context of business model innovation (Parida et al. 2014, Forkmann et al. 2017a), and developing a servitized business model is explained as a strategic transitioning activity, the ambiguous findings, for example, regarding key success factors as well as ultimately achieving performance goals, indicate the need to understand the underlying logic and mechanisms of servitization from a comprehensive and integrative perspective. We thus advocate the development of a converging perspective on servitization that incorporates and links important extant knowledge. This perspective will not merely suggest a mechanistic integration of the stock of current knowledge, as the ambiguity and variance in the findings on servitization suggest context-dependent interactions among the factors involved in the phenomenon of servitization; in other words, the interplay between different aspects of servitization is the basis for various (successful) configurations. We thus embrace the *contingencies* that are clearly at work in making servitization a successful business model.

We take these considerations as our starting point and posit as our objective that what is needed to develop the research area of servitization is an *understanding of the configurations of servitized business models—specifically, their strategies and underlying structures as well as their environmental contingencies.* By applying a *configuration logic* to servitization, our aim is to include the important determinants, mechanisms, and contingencies of servitization, thereby allowing for a convergence of current theoretical knowledge without oversimplifying the underlying causal mechanisms. Acknowledging the previous reviews conducted in the field of servitization (Lightfoot et al. 2013, Kowalkowski et al. 2017a, Rabetino et al. 2018, Raddats et al. 2019), we justify the use of such a configurational logic as it addresses some of the limitations of the existing research in the area of servitization, which is often based on an in-depth understanding of specific cases of servitized business models (without providing a systematic integration of such cases) or on a linear/symmetric and unifinal logic (known as simple causation, which neglects issues around complex causation such as the asymmetric drivers of servitization, equifinal success constellations, or nonlinear effects), as well as on merely conceptual considerations (which have yet to be tested empirically). By embracing a *strategy–structure–environment framework* to operationalize our configuration logic, we adopt a strategic management theory that singles out these three domains as important macro drivers of company performance. However, these domains do not just represent direct antecedents of outcomes; they are (also) components that interact with one another. The logic of this framework indicates the importance of the *fit between domains*—that is, the alignment among strategy, structure, and environment for successful servitization activities by manufacturing companies. This framework also allows for the possibility of "different recipes for success": in other words, different equifinal ways in which the three domains can interact with one another to bring about successful servitization, which is in line with configuration logic (Forkmann et al. 2017a).

The use of a configurational logic (based on assumptions of complex causation) (Ragin 2000, Fiss 2007), and operationalized through the strategy–structure–environment framework (Vorhies and Morgan 2003), allows for integration of the extant literature and serves as our "sensemaking tool" to summarize, systematize, and categorize the extant research on servitization and to identify important gaps in the literature guiding specific future research directions. We therefore contribute to the development of the research field by proposing a configurational approach to servitization. The configurational approach includes important contingency perspectives to extend a nascent (and evolving) theory of servitization (Kowalkowski et al. 2017a), which is important as the research field has become endangered by the excessive divergence of conceptualizations and often contradictory (and unexplained) findings.

2. Theoretical Foundations

2.1. Servitization

In the extant literature, the concept of servitization refers to transformation processes whereby a manufacturer (or a similar entity such as a systems integrator) moves from selling products only to selling additionally services or, in extreme cases, selling outcomes or solutions (Oliva and Kallenberg 2003, Raja et al. 2013, Batista et al. 2017, Visnjic et al. 2018). In a classic example, instead of selling jet engines, Rolls Royce sells "power-by-the-hour," or total care solutions; or instead of selling a forklift truck, a servitized manufacturer sells intralogistic transportation functionality, helping customers with their internal transformation activities (Wang et al. 2011, Ng et al. 2012, Rabetino et al. 2015). In such a basic conceptualization, servitization is understood as being played out on a unidimensional service continuum (Kowalkowski et al. 2017a). However, recent studies have called for a multidimensional, richer, and more realistic conceptualization regarding servitization—for example, via alternative narratives, paradigmatic alternatives (Luoto et al. 2017), and interpretations of change (Martinez et al. 2017). We participate in this current discussion by enriching the conceptual landscape through our configurational considerations regarding servitization.

In the practice of manufacturing companies wanting to move toward a servitized business model,

servitization often means moving from more standard products and simple add-on services to customized integrated solutions and advanced services. Thus, in the servitized business model, advanced services play a significant role; examples of advanced services are operational optimization services, performance services, pay-per-use services, and outcome-based services. In servitized business models, manufacturers tend to combine customized products and advanced services to form integrated solutions. In many instances, studies use such concepts relating to integrated solutions and product–service systems interchangeably. For example, Baines et al. (2007, p. 1545) define product–service systems as representing "an integrated product and service offering that delivers value in use." Brady et al. (2005, p. 572) define integrated solutions as the "bringing together of products and services in order to address a customer's particular business or operational requirements." Sawhney (2006, p. 369) describes customer solutions as "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." These concepts refer to offerings related to a servitized business model as commonly used in the servitization literature.

2.2. Configuration Theory and the Strategy–Structure–Environment Framework

A configurational logic posits that not only do outcomes often result from the *net effects* of individual antecedents (drivers) but also that in most social sciences, the interplay between different drivers (or domains of drivers) brings about a specific outcome. Such *combinatory effects* are based on considerations of complex causation derived from Gestalt theory (Hult et al. 2006). The importance of complex causation is evident from the extant literature on servitization: for example, if certain servitized offerings are used, the development and utilization of service-related capabilities (Ulaga and Reinartz 2011) increase the seller company's revenue and profits in some cases while impeding them in others (Forkmann et al. 2017a). Understanding such differential (and counterintuitive) effects of the same driver is diminished, masked, or washed out in analyses that focus primarily on net effects and do not take combinatory effects into account as part of a configurational logic.

The use of configuration theory can help to overcome limitations in net effect considerations by simultaneously focusing on multiple and interwoven components or domains (Hult et al. 2006). Configuration theory plays a key role in research on strategic management; the main assumption of configuration theory is that the coalignment of strategy and its contexts (and thus other relevant driver domains) results in performance variance. Configuration theory therefore does not suggest that there is only one correct strategy to choose in order to be successful (e.g., choosing either to engage or not to engage in a servitized business model or choosing a specific servitized business model such as solution provision); rather, it suggests that there is a combination of factors that should fit together. Different strategies are assumed to be equifinal; in other words, they could be equally successful. The configuration theory research shows that the appropriateness of a particular strategy depends on its fit (or alignment) with the organizational context domains in which it is employed and that good fit significantly improves performance (Venkatraman 1989).

To implement a configurational logic in the context of servitization, different domains of drivers must be identified, which, through their interplay, determine the success of servitization. To provide a framework for such domains in the context of servitization as a business model, the strategic management literature (and configuration theory) is used for guidance. Whereas the early studies on configuration theory mostly investigated the linkages between organizational strategy and the external environment, the extant strategy research early on recognized the need for fit among the strategy, structure, and environment domains (Chandler 1962). We use this *strategy–structure–environment framework* to guide our configurational approach, which we also relate to issues of *alignment* among the domains as well as the resulting *outcomes*.

First, in the literature, *strategy* usually refers to the means by which a company achieves its vision. These means are then depicted through a variety of concepts including strategic orientation (Miles et al. 1978, Miller and Friesen 1978), strategy type (Varadarajan and Clark 1994), sources of competitive advantage (Porter 1980), core capabilities (Barney 1991), routines (Nelson and Winter 1982), processes (Burgelman 1991), value constellations (Normann and Ramiréz 1994), or strategic practices (Whittington 1996). Although we use the overarching concept of strategy, we note that a business model can be considered the operational form of a strategy. For the conceptualization of strategy types, there are many alternative modes (e.g., Miles et al. 1978, Mintzberg 1978, Porter 1980), each of which represents a viable strategy or a business model for a company; thus there are plenty of ways to conceptualize strategy. In the context of servitization, providing service offerings has been identified as a way to reflect the value proposition and strategy (Kohtamäki et al. 2019). Gebauer et al. (2010b) use business models to operationalize servitization strategy. Kohtamäki et al. (2013) use service offering to measure the state of servitization strategy. Forkmann et al. (2017a) use Mathieu's (2001)

differentiation of services supporting the product (SSPs) versus services supporting the customer (SSCs) to operationalize strategic offering portfolios as part of servitization. Kowalkowski et al. (2015) conceptualize strategy in servitized business models using the terms "industrializer," "availability provider," and "performance provider." Huikkola and Kohtamäki (2018) consider models in categories that include product, service-agreement, process-oriented, and performance-oriented business model. Fliess and Lexutt (2019) use the concept of "servitization house" to depict various strategic and structural factors that influence the success of servitization processes. Brax and Visintin (2017) depict eight value constellations and compare them using product ownership, the payment model, and financing. However, to date, there has been no clear, unified servitization strategy–type concept in the extant literature beyond such considerations of offering portfolio characteristics (which are used as proxies for strategy types).

Second, *structure* is most often related in the strategy literature to issues surrounding implementation decisions with regard to a chosen strategy. Such implementation decisions can be, for example, about organizational form, organizational processes, routines, practices, activities, and resources (Danneels 2010) but also about relationships with external partners (Teece 2007). In the context of servitization, the issue of structure can be related to how services are offered by the seller company (Oliva and Kallenberg 2003, Josephson et al. 2016), the developed organizational capabilities or orientations (Ulaga and Reinartz 2011, Raddats and Burton 2014, Huikkola et al. 2016), or the pricing decisions that are made for value capture (Steiner et al. 2014). Structure can also reflect the way in which services are coproduced and delivered in collaboration with multiple partners (Kowalkowski et al. 2016).

Third, the *environment* provides an important context in which strategic and structural decisions are made and implemented. The strategy research provides evidence for the importance of external factors for organizational decisions and, consequently, performance (Porter 1980). In particular, it has been demonstrated that the competitive situation, as well as environmental dynamics, affects companies' strategic and structural organizational domains. As such, the business environment is seen as one of the core domains when searching for optimal configurations (Fiss 2007, Kohtamäki and Helo 2015). The literature on servitization has already included some considerations of the environmental context in its exploration of optimal configurations (Gebauer 2008). For example, it has been shown that environmental dynamics affect the development of a servitization strategy as well as provide hindrances and conduits for process issues of servitization implementation (Martinez et al. 2011). Moreover, Kohtamäki and Helo (2015, pp. 172–173) provide a framework for "linking industrial service strategy, service organization and the business environment."

Fourth, the strategy–structure–environment framework not only provides a delineation of the relevant domains but also posits the coalescing mechanism with regard to how these domains should interact. Configuration theory identifies the *alignment or fit* among the domains as determining performance outcomes. The strategy research provides different ways to operationalize such a fit (e.g., fit as an ideal profile deviation or fit as moderation) (Venkatraman 1989, Doty et al. 1993, Doty and Glick 1994). Overall, our framework posits that there are different (equifinal) configurations of strategy, structure, and environmental aspects of servitization, all of which may result in better company performance the better their respective fit with each other is.

Fifth, the servitization performance based on the strategy–structure–environment framework relates to the *outcomes* for a seller company utilizing a servitized business model. Again, one can distinguish a technical as well as evolutionary fit (Teece 2007): technical fit describes the operational efficiency with which a servitized business model provides certain outcomes, whereas evolutionary fit describes a company's ability to react to environmental dynamics—that is, its effectiveness in "readjusting" its business model (Kindström et al. 2013, Cusumano et al. 2015, Eloranta and Turunen 2015). The extant literature focuses on several outcome aspects of servitization on the seller company's side. These can be distinguished in terms of indirect outcomes for the customer company (e.g., higher customer satisfaction, increased willingness to pay or loyalty, reduced risk exposure, increased collaboration commitment), which contribute to direct outcomes for the seller company (e.g., additional revenue streams, higher margins, more predictable cash flow). The resulting strategy–structure–environment framework, together with the alignment and outcome considerations, provides the starting point for a systematic review of the literature on servitization.

3. Methodology of the Literature Review

A systematic review methodology (Tranfield et al. 2003) was utilized to scrutinize how the extant studies use configurational logic in the servitization research. To identify the relevant literature, two complementary search strings were used to analyse titles, abstracts, and keywords: a servitization-related search string, focusing on the keywords "service transition," "service infusion," "servitization," "solution business model," "service-driven manufacturing," "solution business," and "industrial service*," and a search

string focusing on the configurational approach, using the keywords "config*," "typolog*," and "equifin*." The bibliographies of the identified literature provided further input based on a snowballing method. We limited our search to academic journal articles. Articles were sought based on Scopus, as it comprehensively covers reputable journals.

The initial search produced 55 results, which we reviewed for obvious mishits. From an abstract review, we removed 16 articles because the articles did not focus on the servitization of manufacturing companies. We excluded articles that did not explicitly contribute to configurational or typological theory development but which only mentioned the constructs used in our literature search, without contributing to the configurational research. If an article's focus remained unclear, we read the full paper. Next, we reviewed the remaining 39 articles, and, after cross-referencing with the bibliography of these articles, another 13 papers were added that were not part of the initial search but, on closer inspection, demonstrated that they contributed to configurational approach in servitization—in other words, they help with an understanding of the interplay between different dimensions or how they interact to generate multiple configurations and types. The final data sample thus included 52 articles.

The selected articles for the systematic literature review on servitization were analyzed using configuration theory as the foundational theory, particularly within the framework domains of strategy, structure, and the environment. The articles were investigated by using the strategy–structure–environment framework to understand how these articles conceptualize servitization strategy and structure in the context of the business environment. Figure 1 outlines the structure of our argument, which contributes to the existing literature by identifying gaps and providing the foundation as well as motivation for future research directions. Studies vary regarding how they use and conceptualize different dimensions. Hence, we had to make interpretations but also leave blanks if a study did not use the dimension. The present study aims to help future servitization research with creating consistent research settings.

4. Review of the Literature and Identifying Gaps and Directions for Future Research

Table 1 provides a synthesis of the studied articles, including information on topics such as classification dimensions (domains); identified types (concepts/conditions); type of data and method used; and the utilization of the strategy, structure, and environment dimensions, as well as the interplay within configurations and outcomes. On the basis this table, we outline the critical findings, pinpoint the main gaps in the extant literature, and suggest research directions to address these gaps. Our recommendations are meant to instigate discussions and further momentum for the development of better concepts relating to servitization and to contribute to a theory (or theories) of servitization. After reviewing the articles using a configurational approach to servitization, we summarize our findings and identify some gaps that result in suggestions for research directions.

4.1. Definition and Operationalization of Servitization Domains

The studies operationalize strategy in the context of servitization using a variety of concepts and definitions such as the scope of service offerings (Gebauer et al. 2008, Kowalkowski et al. 2009, Kohtamäki et al. 2013), the service strategies used (Gebauer et al. 2010a,

Figure 1. Outline of the Article Argument

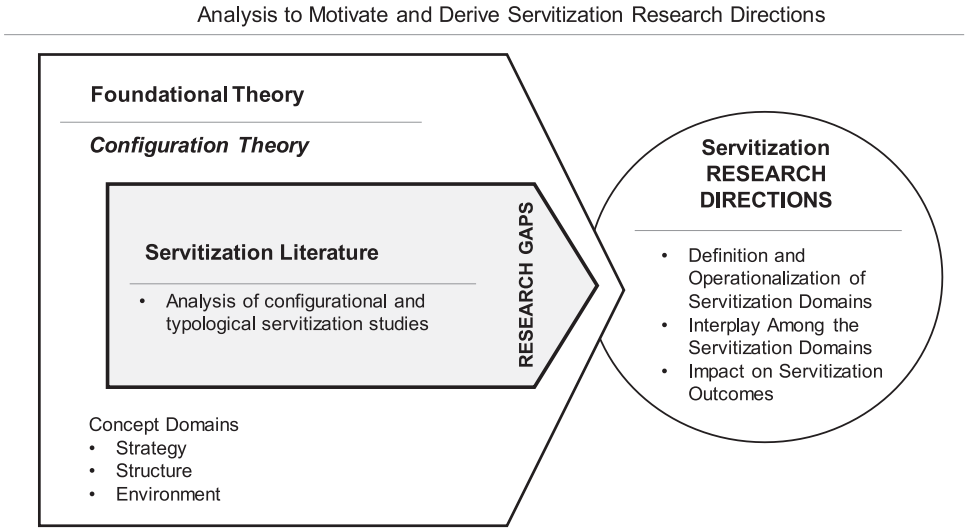

Table 1. Overview of Studies Using a Configurational Approach

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Adrodegari et al. (2018)	Transfer of ownership rights from the provider to the customer, transfer of associated risks from the provider to the customer, impact of the offering on the customer's activity chain, and impact of the offering on the business models of both the provider and the customer	Three types of servitization strategy: —Added services —Activities reconfiguration —Business model reconfiguration	Face-to-face interviews based on a questionnaire with 184 chief executive officers of companies that offer a combination of products and services	Servitization strategy (added services, activities reconfiguration, and business model reconfiguration)	Customer-oriented organizational design (corporate service culture, customer interface, and service delivery system)	None	None	Financial performance (profitability)
Aloini et al. (2013)	—Servitized strategy —Supply chain relationships —Integrated life-cycle solutions	Integration, product, service, use, and results-oriented	—Case study —Semistructured interviews with managers (four companies)	Servitized strategy (integration, product, service, use, results-oriented)	Supply chain relationships	None	None	Supply chain performance (innovation, cash flow stability, customizability, cost, lead time, responsiveness, delivery, efficiency, brand relevance, quality, service level, coordination)
Ambroise et al. (2018)	Three categories of strategy: added services (AS), activities reconfiguration (AR), and business model reconfiguration (BMR) Three dimensions are considered: service culture, customer interface, and service delivery system	No resulting identified types—just support, or not, for the financial growth: (1) AS: no increase in financial performance (2) AR: main positive condition when based on service delivery (3) BMR: main positive condition but supported by the supply chain	—A study involving 184 manufacturing firms —Methodologically: the results from both structural equation models and qualitative comparative analysis (fsQCA)	Driver configurations: (1) servitization strategy and (2) financial performance (profitability)	(3) Customer-oriented servitization design (service culture, customer interface and service delivery system)	None	Strategy and structure	Financial performance and service strategy types
Ayala et al. (2017)	—Supplier's involvement —White box (design is buyer-driven) —Grey box (joint design) —Black box (design is supplier-driven) —Business model innovation types: product-oriented product–service systems (PSS) and service-oriented PSS	Six different knowledge-sharing dynamics in the buyer–supplier integration for servitization-driven business model	Multiple-case study on seven multinational companies	Business model innovation types (product-oriented and service-oriented PSS)	Supplier's involvement (design is buyer-driven, joint design, or design is supplier-driven)	None	Show the connection between buyer–supplier collaboration and business model innovation	None

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Baines et al. (2009)	—Characteristics of value —Characteristics of operations (structural and infrastructural)	—Product-focused operations —Product-centric servitized operations —Service-focused operations	Case study of UK-based original equipment manufacturer that designs and manufactures high-value capital equipment for the power, defense, and aerospace markets (15 interviews)	Operations strategy (structural and infrastructural)	None	None	None	None
Baines and Lightfoot (2014)	Identifies six themes or dimensions: facilities and their location, microvertical integration and supplier relationships, information and communication technologies, performance measurement and value demonstration, people deployment and their skills, and business processes and customer relationships	Advanced services	—Case study —Semistructured interviews for four companies	None	Distinct operations, technologies, and practices	None	None	None
Baines et al. (2011b)	Not proposing typology		–Case study –Semistructured interviews of senior personnel of five multinationals	None	Facilities practices (customer proximity)	None	None	—Product performance —Product availability —Product reliability —Contract delivery cost
Batista et al. (2017)	Five core components (core systems) of organization	Critical relationships in outcome-based contracts systems (check resource consistency, check assumptions, negotiate priorities, develop harmony, lag control, and gather intelligence)	—Single case study —Semistructured interviews of 50 managers from provider and customer organizations	None	Relationships between the companies and their customers	None	None	None

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Böhm et al. (2017)	Service emphasis, financial situation, company size, customer links, and supplier links	Six configurations associated with revenue growth (increase in service emphasis pays off in terms of revenue growth, and the absence of a service emphasis)	Mail survey in the German mechanical engineering industry	Strategy (service emphasis)	—Resources (financial situation, company size) —Knowledge (customer links, supplier links)	None	Configurations of strategy, resources, and knowledge	Revenue growth
Chakkol et al. (2014)	—The offering and resource integration —Network configuration	—Basic product offering —Product and service offering —Full-service package or solution	Qualitative single case study based on 54 interviews in a truck manufacturer and its supply network	Offering and resource integration	Network configuration	None	None	None
Chalal et al. (2015)	—Customer behaviour —Production process	—User-oriented subsystem (behavioural aspects of customers) —Production-oriented subsystem (manufacturing-oriented or service-oriented production processes)	Single case study	None	—Customer behaviour —Production process	None	None	—Quality of service —Industrial performance
Coreynen et al. (2017)	—Back-end digitization —Front-end digitization —Process-support service —Process-delegation service —Hybrid solutions	Types of transition pass to hybrid solutions (industrial, commercial, value servitization) based on back-end and front-end digitization	Case study based on 10 interviews from four companies	Dynamic capability	Resource capability	None	None	None
Eggert et al. (2011)	(1) Services supporting the client (SSCs) and (2) services supporting the supplier's product (SSPs); moderating effect of product innovation activity	For companies with high product-innovation activity, SSPs directly increase company profitability, whereas SSCs do not display any links with long-term profitability	A five-year longitudinal study based on panel data of 414 companies from the German mechanical engineering industry	Offering types (SSP/SSC), product innovation (new product development)	None	Economic situation of the industry	None	Profit

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Eggert et al. (2014)	—Revenue (growth and level) and profit (growth and level) —Important variables: decentralization and share of customer loyalty	SSCs support the installation and use of the supplier's core products and ensures that they are properly functioning (Mathieu 2001). These services typically include offerings such as process optimization, research and development, business consultancy, or the operation of entire processes on the client's behalf —SSPs typically include services such as installation, product inspections, equipment repair, or maintenance	—Five hundred thirteen German mechanical engineering companies —Longitudinal survey data over three years	—SSP —SSC	None	None	None	—Revenue growth —Profit growth —Profit level
Ferreira et al. (2016)	Dyadic and triadic relations between a manufacturing company, service providers, and customer	—Solutions before manufacturing —Solutions related to manufacturing —Solutions for product performance —Solutions for innovation	—Case study —Fourteen interviews in six companies from the aerospace industry: one major manufacturing company, four service providers, and one customer company	None	Relationships between a manufacturer, service provider, and customer	None	None	None
Fischer et al. (2010)	—Dynamic capabilities in services: sensing, seizing, and reconfiguring (Teece 2007) —Seizing service opportunities is described as the formulation of deliberate (planned) service strategies as a strategic response	—Exploration is more successful in achieving attractive shares of service revenues —Exploration requires elaborated sensing, seizing, and reconfiguring capabilities —By contrast, exploitation is less interrelated with the sensing, seizing, and reconfiguring capabilities	Multiple-case study in 13 capital goods companies in Switzerland and Germany, with different firm sizes	Dynamic capability (sensing, seizing, and reconfiguring)	None	None	None	None

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Forkmann et al. (2017a)	—Service offerings and service pricing —Supplier and customer-service capabilities (internal and external) —Service-infusion process	—Three configurations for the supplier —Four configurations for the customer —Five configurations for the dyadic	—Case study —Ninety-four interviews from the suppliers and 43 interviews from the customers across the 25 manufacturing cases	Configurations of offerings	Supplier and customer capabilities, pricing strategy, and process characteristics	None	Configurations based on equifinal fit logic	Supplier-service-infusion value, customer-service-infusion value, and dyadic-service-infusion value
Gaiardelli et al. (2014)	(1) The relationship and interaction between the customer and the provider, (2) the orientation of the offering, and (3) the focus on the product–process of the offering	Thirty types organized into three groups: (a) product-oriented services, (b) user-oriented services, and (c) results-oriented services	—Theory building based on literature —Theory testing based on company reports and online information —A single embedded case study	Fourteen service strategies	—Customer–provider interaction: transactional/relational —Product–service offering focus: product/process-based	None	None	Customer service and growth/expansion
Gebauer et al. (2008)	—Direct recipient —Intensity of the relationship —Customization complexity —Credence properties —Newness to the market and to the company	—Customer services —Product-related services —Customer-support services	Three in-depth case studies and 18 mini-cases from business-to-business (B2B) European manufacturing industries —Twelve to fifteen interviews each in-depth case	Offering types	Structure and people for key activities and innovation climate	None	Antecedents of structure and people for each service	None
Gebauer et al. (2010b)	The service strategies explored are aftersales service providers, customer-support service providers, outsourcing partners, and development partners	—Basic services for the installed-based, maintenance services, operational services, and research and development (R&D) services —Strategy services clusters: aftersales service providers, customer-support service providers, outsourcing partner, and development partner	—One hundred ninety-five surveys for European manufacturing companies: 28.6% manufacture machines and equipment; 27.5%, analyzing and controlling instruments; 38.7%, electronic and electrical equipment; and others	Strategy clusters: aftersales service provider, customer-support service provider, outsourcing partner, and development partner	Organizational design	None	Strategy–structure configurations	—Overall profitability —Operating margins

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Gebauer et al. (2010a)	(1) Aftersales service strategy, (2) customer-support service strategy, (3) development partner, and (4) outsourcing partner	Four patterns of service strategy changes: (1) from customer service strategy to aftersales service provider, (2) from aftersales service provider to customer-support service provider, (3) from customer-support service provider to development partner, and (4) from customer-support service provider to the outsourcing partner	—Ninety-seven manufacturers of capital goods —Fifteen case studies —Longitudinal study: 1997, 2001, and 2004	Service-strategy changes	Organizational design elements	None	Modification of organizational design elements when changing the service strategy	None
Goduscheit and Faullant (2018)	Dimensions of service innovation and causal conditions	—Five configurations for service concept innovation —Five configurations for customer experience innovation —Three configurations for service process innovations	Qualitative interviews and secondary materials from 24 B2B manufacturing small to medium enterprises	Service concept innovation, customer experience innovation, and service process innovation	Network of actors, resource liquefaction, resource density, and resource integration	None	None	None

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Huang and Rust (2017)	—Standardized–personalized —Transactional–relational	—Service strategy (standardization for maximal efficiency) —Relational service strategy (customer relationships for growing customer lifetime value [CLV]) —Customized transaction strategy (static personalization for optimal efficiency) —Adaptive personalization strategy (dynamic personalization for maximal CLV)	Literature review	Positioning and strategic driver	None	None	None	None
Kohtamäki and Helo (2015)	—Strategy, structure, and environment —Dynamic capabilities —Environment-strategy fit, strategy-structure fit, and environment-organization fit	None	Conceptual study	—Differentiation —Cost —Focus	—Structure —Processes —Resources	—Complexity, —Dynamism —Hostility	Dynamic capabilities facilitate the interplay between strategy, structure, and the environment	Framework of the dimensions and fit
Kowalkowski (2011)	Service activities in different functions	Role of services in senior management, sales, key account management, finance, rental, manufacturing, R&D, and engineering/consulting	Two case studies	Service activities	Services in different functions	None	How different functions contribute to service activities	—The concept of service function; in addition to service organization, other functions are seen as part-time service functions —Highlights the interrelatedness between the service organization and other functions
Kowalkowski et al. (2009)	Industrial service offerings, degree of bundling, level of customer integration, and service–process interfaces	—Unbundled product-oriented services —Unbundled process-oriented services —Bundled product-oriented services —Bundled process-oriented services	Seven manufacturing companies	Service scope	None	Customer knowledge	Customer knowledge enables customization of service offerings	—Bundled and process-oriented services facilitate competitive advantage and long-term customer relationships —Role of customer knowledge should be emphasized

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Kowalkowski et al. (2011)	Business environment, offering, and orientation	—Internal service production —Hybrid service provision —External service provision	Multiple-case study with seven manufacturing companies	Role of services in the offering	Service orientation and customer centricity	Customer and supplier markets, and competition and resource munificence	Increasing demand for services may lead services to become an integral part of offering, which adds to customer orientation	Companies must find optimal configuration
Kujala et al. (2010)	Business model elements: customer, value proposition, competitive strategy, position in the value network, internal organization and capabilities, and logic of revenue generation	—Basic installed-based services —Customer-support services —Operations and maintenance outsourcing, and life-cycle solutions	A single embedded-unit case study in a power-plant supplier within five units: metal, construction, cogeneration, base load, and development solutions	Business model: value proposition for the customer and revenue-generation logic for the supplier	None	None	None	None
Kucza and Gebauer (2011)	Organizational distinctiveness, proximity to customers, organizational functions, and behavioural orientation	Integrated and ethnocentric global service, integrated and polycentric global service, separated and polycentric global service, and separated and geocentric global service	Qualitative multicase research based on interviews of 60 managers from 16 companies	None	Organizational structure (separation, customer proximity, functions, behaviour)	None	None	—Profitability of services —Share of service revenue to total revenue

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Medini and Boucher (2016)	—Context —Usage	Study identifies four scenario types: S1, where the equipment manufacturer sells equipment and maintenance to a manufacturer, which does compacting, briquetting, and maintenance operations; retrieves cutting fluids; and sells briquettes to the smelter; S2, where the equipment manufacturer rents equipment; maintenance is included or excluded from the contract; S3, where briquette-making equipment is sold to an intermediate actor doing compacting, briquetting, and maintenance operations and sells briquettes to the smelter; and S4, where equipment is owned by its manufacturer and moves periodically between different manufacturers	Three cases and simulation	—Make —Buy (rent equipment)	None	Amount of maintenance needed	None	—Study provides evidence of the performance drivers in manufacturing —The drivers were market volumes, roles within the PSS value network, and scrap costs
Nam and Lee (2010)	—Degree of cocreation —Degree of networked collaboration	Conventional innovation, collaboration-based innovation, customer-oriented innovation, cell, and service dominant-innovation	Showing examples of Xerox, UPS, Wikipedia, Apple, Google	None	Cocreation (customer participation), network collaboration	None	None	None

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Park et al. (2012)	Integrated product service (IPS), including (1) bundling, (2) system selling, (3) full service, (4) service package, (5) product service, (6) installed-based service, (7) solution, (8) integrated solution, (9) ecoefficient production system, (10) product–service system, (11) functional sales, (12) functional product, and (13) integrated product–service offering	Based on taxonomy: marketing-oriented IPS vs. engineering-oriented IPS	Taxonomy (literature analysis) and typology development	None	(1) Degree/ nature of integration (mixture/ compound) (2) Product ownership (supplier/ customer) (3) Role of technology	None	Typology of structure interplay; none between domains	None
Partanen et al. (2017)	Scope of industrial service offerings: (1) breadth and (2) depth, based on service promises/activity in offering it	Scale development for industrial service scope	Scale development testing with 91 manufacturing companies and their customer relationships	Service scope as a compound of breadth and depth	None	None	Reflective measurement model	None
Raddats (2011)	Service development process to align with their (service) strategies	Service development process types—that is, discrete services (closely aligned with products), product life-cycle services (closely aligned with activities in the product life cycle), and output-based solution (closely aligned with customers' operational issues)	—Forty interviews with 25 organizations —Semistructured interviews	Resource-based differentiation based on resource origins, linked to primary service strategies	Service categories (service development process) by types of alignment with (1) products, (2) the product life cycle, and (3) customer/output needs	None	General notion of alignment between service offering and differentiation strategy/service strategy without conceptualization	None; general notion of differentiation
Raddats et al. (2016)	Motivation to servitize	Motivations vary by product complexity and demand-based considerations	Forty semistructured interviews in 25 organizations	Differentiation, new revenue streams, risk reduction, and increased motivation: all linked to outcomes	Servitization (general notion)	None	None	General notion of differentiation, new revenue streams, risk reduction, and increased motivation (all linked to motives)
Raddats and Burton (2011)	Service engagement, extension, penetration, and transformation	—Integrating services into product SBUs —Independent-services SBUs —Customer-focused SBUs	Forty semistructured interviews with managers in 25 business units (22 companies) from 11 sectors	Services strategy: engagement, extension, penetration, and transformation	Organizational structure: combined product and services, independent services, and customer focus	None	Relationship between service strategy and organizational structure	None

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Raddats et al. (2015)	Importance of resources and capabilities for servitization; identification of resource configurations: (1) leaders and service personnel and (2) service methods and tools	Five different resource configurations for servitization are tested in driving service success; only two show a significant effect on service success	Quantitative study with 155 manufacturers	Resource components as higher-order resource configurations (emulating offering strategy)	None (implicitly as components of resource configurations)	None	None	Service success
Raddats and Easingwood (2010)	Typology of service strategies for manufacturers: (1) service strategy types and (2) growth options	Different service strategies identified: (1) product-attached services on own product, (2) product-attached services on own and third-party products, (3) operations services on own products, and (4) vendor-diagnostic operations services	Forty semistructured interviews with 25 business units (22 companies)	Four different service strategies, associated with three growth options	None	None	None	None
Raddats and Kowalkowski (2014)	Typology of service strategies for manufacturers, based on service offerings	—Different service offerings: (1) product-attached services, (2) operations services on own products, and (3) vendor-independent operations services —Different service strategies: (1) service doubters, (2) service pragmatists, and (3) service enthusiasts	Quantitative study with 145 manufacturers	Three service strategies based on service offerings	Service offering characteristics	None	None	None
Raja et al. (2018)	Product-, use-, and result-oriented services	Front-end and back-end configurations	A large-scale exploratory case study was conducted, consisting of embedded cases in three divisions of a UK-based, global manufacturing firm	(1) Split between front- and back-end functions (2) Increased offer's complexity and temporality, requiring broadened expertise in the front end	Integrated project teams	The power of the customer has implications for the structuring of servitizing organizations	Structure and environment	None (good study but no clear outcomes)

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Salonen (2011)	None	—Systems sellers —Systems integrators	—Two in-depth case studies of global manufacturers operating in the metal engineering sector —Thirty-three interviews, with positions of informants ranging from manager to division head	None	Organizational challenges: culture, customer interface, operations	None	None	None
Sjödin et al. (2019)	—Service innovation —Perceived switching costs —Attractiveness of alternatives —Explicit contracts	Innovation governance strategy, relational governance strategy, and market-based governance strategy	fsQCA for survey data of 50 Swedish advanced service providers	Service innovation	—Perceived switching costs —Attractiveness of alternatives —Explicit contracts	None	Interplay between dimensions produces types of relational governance strategy in advanced service provision	Relational governance strategies for advanced service provision: various paths to financial performance in servitization
Sjödin et al. (2016)	Four capabilities: configurations of mass service customization, digitalization, network management, and service development	—Two paths toward advanced service offerings: (1) standardized service development at back-end units (e.g., R&D) and (2) building capabilities for mass service customization in the front-end market-facing units —Digitalization capability is a key underscoring condition	fsQCA for a survey questionnaire of 131 Swedish manufacturing companies with more than 20 employees	Mass service customization	Digitalization, network management, and service development	None	Interplay between dimensions builds on service development capabilities and mass service customization capabilities	Service development capabilities and mass service customization capabilities
Sweet (2001)	—Five macroeconomic paradigms: industry service, information, knowledge, and web —Three microeconomic paradigms: increasing returns-to-scale (critical mass), scope of economics (flexibility and specialization), and scale economies (productivity/growth)	Four types of strategic value configuration logic: value-adding, value-extracting, value-capturing, and value-creating	Theory building—conceptual analysis	Types of strategic value configuration logic: value-adding, value-extracting, value-capturing, and value-creating	None	None	None	None

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Ulaga and Reinartz (2011)	Two dimensions: (1) service recipient (supplier's goods or the customer's process) and (2) the supplier's service-value proposition to perform a deed (input-based) or achieve performance (output-based)	Four types of hybrid service: (1) product life-cycle services, (2) asset efficiency services, (3) process-support services, and (4) process-delegation services	—Two pilot cases with 13 multiple managers across functions and hierarchical levels —Twenty-two manufacturing companies (from medium-sized to Fortune 500)	Hybrid offerings: service recipient and nature of the value proposition	Unique resources and distinctive capabilities	None	None	—Cost advantage —Differentiation advantage
Van Ostaeyen et al. (2013)	(1) Performance orientation of the dominant revenue mechanism: input-based, availability-based, usage-based, and performance-based (2) Level of integration of the PSS elements: a segregated, a semi-integrated, and a fully integrated PSS	Integrated/semi-integrated/segregated dominant revenue mechanism–type PSS	Showing examples (elevators, space heating radiators, lighting systems and fire-detection systems)	Revenue mechanism: input-based, availability-based, usage-based	Integration of product and service elements	None	None	None
Veldman et al. (2011)	Two dimensions: (1) the method for obtaining the expected value or trend (statistical and analytical model) and (2) the type of data used (process data and failure data)	Four types of condition-based maintenance services for effective maintenance decision making: (1) analytical modelling and process data, (2) analytical modelling and failure data, (3) statistical modelling and process data, and (4) statistical modelling and failure data	Multiple-case study, nine cases in an industrial renovation and maintenance consortium at a major natural gas production facility	Types of condition-based maintenance services	None	None	None	None
Wikström et al. (2009)	Two dimensions: (1) complexity of the project delivered and (2) company's degree of maturity in delivering services	Four types of logic: product-driven, innovation/technology-driven, service-driven, and business-driven	Qualitative case studies in six supplier companies from various industries and 17 interviews with executives	Four types of business logic: product-driven, innovation/technology-driven, service-driven, and business-driven	None	None	None	None

Table 1. (Continued)

Authors	Classification dimensions	Identified types	Data and method	Strategy	Structure	Environment	Interplay within configurations	Outcome
Winkelmann and Luczak (2006)	Four dimensions: customer orientation (product/service) and market conditions (price/performance competition)	—A domain-specific conceptual model of cooperative provision of industrial services —With 23 parameters to measure cooperation	A simulation model based on the Petri net theory for the prospective analysis of cooperative provision of industrial services	Product–service oriented	Cooperation	Price vs. performance competition	None	None
Xing et al. (2017)	Integration model and absorptive capacity as factors influencing service capability development	Servitization strategies: adding, utilizing, and reconfiguring	Qualitative study: 37 Chinese manufacturing companies' acquisitions in Germany	Adding, utilizing, and reconfiguring	Integration model and absorptive capacity as factors	None	None	None

Raddats and Burton 2011), the business model (Kujala et al. 2010, Forkmann et al. 2017b), the implementation strategy in terms of "make-or-buy" of the service provision (Medini and Boucher 2016), the growth options (Raddats and Easingwood 2010), the extent of mass service customization (Sjödin et al. 2016), or the resources and capabilities needed (Raddats 2011). Overall, a unified, accepted, and common definition is missing and has not been attempted or problematized. The challenge posed by the large variety of conceptualizations is that they currently hamper consistent servitization strategy concepts that would acknowledge strategy–structure–environment configurations. A lack of more unification in conceptualizing servitization strategy and structure leads to incommensurability of the studies using very different types of definitions and operationalizations. An upside of this aspect is that new concepts and measurements add important richness; however, the downside is the lack of a core body of knowledge in the field because of missing core conceptualizations and operationalization. Although we agree that conceptualizations should not be overly precise and limiting, as this would impede further research development, a clear and consistent core of any definition and conceptualization is necessary to ensure some coherence within a research field. *The field evolves through the creation of consistent body of knowledge, and this would require a very clear and precise way of developing theory in servitization.*

Similarly, structure in the context of servitization is operationalized in manifold ways—for example, the organizational design of service activities and service orientation (Kowalkowski et al. 2011), organizational culture (Salonen 2011), organizational structure (Raddats and Burton 2011), service operations (Salonen 2011), customer interfaces (Salonen 2011), the extent of digitalization (Sjödin et al. 2016, Coreynen et al. 2017), network management (Sjödin et al. 2016), service development (Sjödin et al. 2016), service integration (Xing et al. 2017), absorptive capacity (Xing et al. 2017), network configuration (Chakkol et al. 2014), customer proximity (Kucza and Gebauer 2011), customer participation (Nam and Lee 2010), or customer cooperation (Winkelmann and Luczak 2006). Overall, consideration of the structures tends to emphasize, perhaps not surprisingly, the customer.

Research Gap 1. *The extant research demonstrates great variety in the definition of servitization strategy as well as structure, thereby producing a large number of heterogeneous configurations that do not allow for sufficient integration within the servitization literature.*

Reviewing the extant articles on the configurational aspects of servitization reveals a gap concerning possible

conceptual integration and solidification resulting from ambiguity and, to a certain degree, inconsistency, of different conceptualizations and operationalizations around issues of the servitization strategy, the servitization structure, and the resulting configurations. For example, the initial conceptualizations of what a "servitization strategy" actually is, and the "servitization strategy types" that may exist, have been developed; however, more work is needed. As such, the field requires empirical studies and integrative reviews for the creation of a consistent body of knowledge. As such, the configurational approach adds richness in terms of theorizing, and hence, it requires evermore rigorous definition and operationalization of constructs. Future studies should pay attention to formal definitions of core concepts to align with previous studies and better contribute to the development of a consistent body of knowledge in servitization research. Thus, we posit as our first proposition for future research.

Research Direction 1. *(More) coherent definitions and operationalizations regarding servitization strategy and servitization structure should be developed in future configurational research on servitization.*

Regarding the dimension of the business environment, the lack of its utilization and clear conceptualization, if used, is noticeable in our analysis of the extant articles on the configurational issues of servitization. Only a few studies (7 out of 52) include the domain of the business environment as a specific concept in their conceptual model and analysis. Overall, most configurational studies focus on servitization entirely related to different organizational components instead of acknowledging the macroenvironment, which is possibly problematic, as it leads to a lack of identification of contingencies and thus important boundary conditions for the success of servitization.

Research Gap 2. *The extant research tends to neglect the characteristics of the business environment when studying servitization, thereby hampering the development of contingency explanations.*

Future research would benefit from intensified considerations and clearer definitions/operationalization of environmental domains, as servitization does not take place in a vacuum; rather, it is very much linked to the business context—for example, the business environment (Winkelmann and Luczak 2006, Kowalkowski et al. 2011, Medini and Boucher 2016, Coreynen et al. 2017). For example, as the role of digitalization continues to increase in servitization, the importance of technological turbulence (not only as an enabler of new options but also as a hindrance through the hardening of legacy technologies) is underscored. Future studies should use appropriate measures (objective or perceived) to at least control for environmental impact, including, for example, environmental dynamism and complexity; demand uncertainty; technological change; social, legal, and ecological changes; and competitive hostility or resource munificence (Kowalkowski et al. 2011, Sjödin et al. 2016), whereas the explicit inclusion of contextual domains in configurational considerations of servitization could provide a better understanding of contingency factors (Fang et al. 2008). Consider, for instance, the study from Fang et al. (2008), which found that the effect of servitization on firm value turns from nonexistent to positive under low-industry growth conditions or under condition of high industry turbulence. The study indicates the importance of controlling the effects of the business environment. Moreover, future servitization studies could also operationalize the macrolevel value system, or ecosystem, to better grasp the business context in which servitization takes place. Servitization impacts the whole ecosystem (and vice versa) and thus not only focal firms and their business relationships that are important determinants of servitization success (Raddats et al. 2019). Kohtamäki et al. (2019) make a case for the development of the particular solution of a semiautonomous harbour, which requires integration and codevelopment of product–service–software systems that interact seamlessly with systems, as well as systems of systems across a business ecosystem (Porter and Heppelmann 2015). Developments around the Internet of Things for autonomous vehicles require effective collaboration between various companies operating (and even competing) within the ecosystem, and hence, the ecosystem layer plays an important role in servitization (and digital servitization). In particular, as industries have been, and are, under constant pressure to digitalize, the transition toward digital servitization based on the concept of the Internet of Things extends the requirements regarding coordination taking place beyond focal firm boundaries—namely, within ecosystems and whole value systems (Forkmann et al. 2017b, Kohtamäki et al. 2019). Hence, we propose the following.

Research Direction 2. *The business environment and ecosystem levels should be acknowledged (or at least controlled for) in future configurational research on servitization. Studies explicitly including ecosystem-level considerations are needed.*

4.2. Interplay Among the Servitization Domains

Reviewing the extant research using a configurational approach to servitization shows that studies rarely operationalize constructs with particular precision or identify how the constructs interplay (within, as well

as between, domains). This may be a result of the fact that only a few of the analysed studies rely on quantitative data (9 out of 52) (Gebauer et al. 2010b; Sjödin et al. 2016, 2019), whereas many others use multiple case studies (Kowalkowski et al. 2009, Forkmann et al. 2017a).

The results from these studies underscore the importance of the interplay among servitization domains. For instance, a seller's service capabilities seem to systematically interact with a customer's service capabilities in driving servitization success (Forkmann et al. 2017a). Sjödin et al. (2016) identify four configurations using four capabilities such as mass service customization, service development, digitalization, and network management capabilities, which produced four configurations, whereby either mass service customization or service development capabilities played a central role in the facilitation of servitization for the manufacturer. Similarly, Raddats and Burton (2011) investigate how product-centric businesses configure their organizations to align their service strategy with organizational structures (based on four service strategies and three structural elements), concluding that the strategy–structure interplay in product-centric companies represents an important success factor (Raddats et al. 2019). Moreover, initial considerations about holistic servitization business models include different "key elements" such as customer requirements, value proposition, competitive strategy, position in the value network, and internal organization and capabilities, which coalesce into different "types" of business models for revenue generation (Kujala et al. 2010). However, many of these identified studies do not outline the mechanisms underlying the supposed domain interplay, and only a few studies analyse the emerging configurations with methods commensurate with a configurational enquiry system (e.g., fuzzy set qualitative comparative analysis [fsQCA]; see Forkmann et al. 2017a, Sjödin et al. 2019). Moreover, one focus of the existing studies is on the configurations that emerge among a variety of structural characteristics, specifically capabilities, instead of looking beyond one domain to embrace more holistic configurational considerations such as those exemplified by the strategy–structure–environment framework. Finally, we observe that many of the extant studies were not originally designed to be configurational per se. Instead, they were designed as regular surveys or case-data collections following a causation logic, but they were later utilized for a configurational approach.

Research Gap 3. *The current configurational research on servitization lacks a specific discussion of the mechanism of the interplay within and among the relevant driver domains of servitization.*

As many of the studies seem not to have been designed specifically for configurational research, the implications are that many studies do not use a particularly consistent set of theoretical constructs and dimensions to identify configurations. This critique has been presented before—studies have criticized servitization research lacking the systematic use of grand theories (Kowalkowski et al. 2017a, Rabetino et al. 2018). Configurational research, as with any causal research, requires specific design and justification of the nomological model—in particular, the utilized domains and constructs. Although we agree that a configurational approach may provide a fresh perspective on many already existing data sets, we argue that studies should be conducted employing a specific configurational research design based on clear a nomological logic of the overarching framework (as exemplified by the strategy–structure–environment of our analysis or the business model framework as utilized by Forkmann et al. (2017a). Overall, the extant literature does not yet sufficiently cover issues of interplay (i.e., complex causation) in the context of servitization, which thus provides rich opportunities for future research. These include qualitative studies that tap into the interactions among constructs by analysing how the interplay occurs from a process perspective, for example, the nature of the actual activities, practices, or routines utilized and how they unfold over time. Thus, we encourage researchers to consider the microlevel mechanisms of any configurational interplay.

Research Direction 3. *The interplay within and among the domains of strategy, structure, and business environment (and possibly other domains), as well as the related microlevel mechanisms, should be included in future (configurational) research on servitization.*

4.3. Impact on Servitization Outcomes

Whereas some configurational studies can be found that link servitization to performance outcomes, surprisingly few configurational studies have analysed the effect of different servitization strategies or structures on performance aspects such as innovation, company growth, profitability, or market value (Neely 2008). The existing servitization research regarding performance aspects is usually based on linear or nonlinear regressions, mediations, and moderations (Fang et al. 2008, Kohtamäki et al. 2013, Visnjic Kastalli and Van Looy 2013), which can include testing interactions among (a limited number of) constructs. However, such studies based on a linear algebra-based enquiry system do not allow for an understanding of the complex, asymmetric, nonlinear configurations among multiple constructs and their resulting equifinal outcomes.

The relationship between servitization and performance outcomes represents a pivotal research focus, which to date has resulted in inconclusive and sometimes counterintuitive results. For example, Gebauer et al. (2005) use the concept of the service paradox to highlight a situation in which increasing investments in servitization do not lead to increased profits. Studies have also tentatively indicated that organizational paradoxes shadow and shape companies' servitization paths (Visnjic Kastalli et al. 2013, Kohtamäki et al. 2018). Achieving positive seller performance thus seems to be far from easy to achieve via servitization, and it involves a variety of challenges, even paradoxical ones (Ng et al. 2012). Hence, the interplay between enabling and hindering factors (specifically the "bright" and "dark" side effects of servitization) is complex and remains less than fully understood.

The existing qualitative and quantitative studies have considered some aspects of direct (focal company) servitization success to be an outcome variable. Raddats (2011) utilizes the general notion of differentiation as a dependent variable, whereas Sjödin et al. (2016) use success in service infusion. Focal companies tend to use servitization to decommoditize their offerings to provide "higher value" to their customers—that is, by selling performance or outcomes instead of mere products (Oliva and Kallenberg 2003, Matthyssens and Vandenbempt 2008, Visnjic et al. 2017). Consequently, any effect on focal company outcomes is mediated by customer reactions to such value offerings. Sjödin et al. (2019) focus on the financial performance of advanced service provision and the configurations of relational governance strategies such as (1) innovation governance strategy, (2) relational governance strategy, and (3) market-based governance strategy. They conclude that firms can choose among those configurations when planning how to manage value cocreation from advanced service offerings. We conclude that there are only a few empirical studies on the equifinal performance outcomes of servitization strategy and structure (i.e., based on configurational logic), which cover limited strategic or structural characteristics.

Research Gap 4. *There is a limited understanding of the equifinal effects of strategy–structure–environment configurations on different performance outcomes.*

Therefore, the empirical research on servitization success drivers should be extended to achieve a more fine-grained understanding of performance outcomes of servitization. Of particular interest should be the equifinality of different strategy–structure–environment configurations in obtaining relevant servitization outcomes such as company growth, profitability, or market value. A configurational approach can be used to provide the needed richness in seeking to understand the complex reasons behind servitization outcomes. Hence, we propose the following.

Research Direction 4. *The interplay between the domains of servitization and their equifinal effects on different servitization outcomes, as well as final focal company outcomes (i.e., understanding servitization success and failure), should be included in future (configurational) research on servitization.*

Related to issues that pertain to outcomes, our literature analysis indicates that only a few articles analyse (equifinal) outcomes that are related to the customer company or the seller–customer company relationship (i.e., 5 out of 52 studies; see Table 1). This finding is problematic, as the outcomes for the manufacturer as the selling company are highly dependent on the outcomes experienced by the customer company or the outcomes of their relationships. Improved customer experience and customer performance through the utilization of servitization offerings enables improved manufacturer financial performance (by, e.g., selling more, or at higher prices, or with less uncertainty). On the basis of the literature review, it can be shown that evidence or discussion of the interplay among the domains related to both the seller and the customer company, or to relational-level outcomes, is lacking (Raddats et al. 2019). There are a few exceptions: for example, Forkmann et al. (2017a) analyse nested configurational models to understand the impact of servitization on the supplier and the customer, as well as on the supplier–customer relationship performance. Their study specifically underscores the relational character of servitization, as shown by the Kowalkowski et al. (2009) study, which analysed how bundled and process-oriented services facilitate long-term relationships between companies. However, most of the reviewed studies focus on focal companies. Only rare studies such as that of Forkmann et al. (2017a) or Forkmann et al. (2017b) use the manufacturer–customer relationship or a wider network or business ecosystem as their unit of analysis.

Research Gap 5. *Servitization outcomes are neglected at the level of the customer company as well as at relational, interorganizational network or ecosystem levels.*

Considering the importance of customer outcomes in servitization—that is, the value captured by the customer company as a result of the value creation that occurs in the manufacturer–customer relationship through servitization—studies focusing on the value for the customer are important for servitization research. Such studies would demonstrate the financial value aspects of a relational servitization business model, not only for the manufacturer (Kohtamäki and Partanen 2016) but also, more importantly, for the

customer (Forkmann et al. 2017a). One of the key arguments in servitization has been that through servitization offerings the manufacturer can create business benefits for the customer company through operational cost savings—for example, based on the reduction of downtime costs via proactive maintenance practices (Martinez et al. 2017). However, there is very little empirical evidence regarding the customer company benefits of servitization or about the collaborative micropractices between the manufacturer and customer companies when moving toward servitized relational interaction models. Although the servitization research field is still relatively young, customer and relational perspectives provide important avenues for further research. A configurational enquiry logic would suggest that there are also equifinal success configurations on the customer side and on the relational level (Fiss 2007, Forkmann et al. 2017a). Acknowledging the important role of customer performance in servitization, as well as the important role played by relational factors, the obvious lack of empirical and conceptual/typological servitization studies provides motivation for our last research direction. Hence, we propose the following.

Research Direction 5. *The domain interplay, as well as the outcomes of servitization at the level of the customer company, manufacturer–customer relationship, interorganizational network, and ecosystem, should be included in future (configurational) research on servitization.*

Table 2 summarizes the literature analysis, the resulting research gaps, and the research directions. It demonstrates that various research gaps and new research avenues exist when analyzing the servitization literature through the configurational lens.

Table 2. Summary of the Analyses, Gaps, and Research Directions

Analysis	Research gap (RG)	Research direction (RD)
A unified and accepted definition of servitization is missing. Although the field shows some advances toward more homogeneity and integration of vocabularies, currently, much conceptual variety still exists. Similarly, "structure" in the context of servitization is operationalized in many ways with an overall emphasis on the customer.	Research Gap 1: The extant research demonstrates great variety in the definition of servitization strategy as well as structure, thereby producing a large number of heterogeneous configurations that do not allow for sufficient integration within the servitization literature.	Research Direction 1: (More) coherent definitions and operationalizations regarding servitization strategy and servitization structure should be developed in future configurational research on servitization.
In the servitization context, we see poor use and conceptualization of the business environment (7 out of 52 studies), which indicates general disregard of the embedding macroenvironment. This leads to a lack of identification of contextual contingencies and lack of boundary conditions for servitization success.	Research Gap 2: The extant research tends to neglect the characteristics of the business environment when studying servitization, thereby hampering the development of contingency explanations.	Research Direction 2: The business environment and ecosystem levels should be acknowledged (or at least controlled for) in future configurational research on servitization. Studies explicitly including ecosystem-level considerations are needed.
Mechanisms of interplay among servitization domains are generally unresolved. General focus is on configurations emerging among structural characteristics—specifically, capabilities—instead of focusing on one domain to embrace more holistic configurational considerations.	Research Gap 3: The current configurational research on servitization lacks a specific discussion of the mechanism of the interplay within and among the relevant driver domains of servitization.	Research Direction 3: The interplay within and among the domains of strategy, structure, and business environment (and possibly other domains), as well as the related microlevel mechanisms, should be included in future (configurational) research on servitization.
Whereas many studies consider the linear effects of strategies or structural characteristics on outcomes, only a few configurational studies have analyzed the effects strategic configurations on outcomes.	Research Gap 4: There is a limited understanding of the equifinal effects of strategy–structure–environment configurations on different performance outcomes.	Research Direction 4: The interplay between the domains of servitization and their equifinal effects on different servitization outcomes, as well as final focal company outcomes (i.e., understanding servitization success and failure), should be included in future (configurational) research on servitization.
A general lack of empirical research exists on the interplay among the domains at the level of the customer company or the manufacturer–customer relationship. Only a few servitization studies use the manufacturer–customer relationship, interorganizational network, or ecosystem as a unit of analysis.	Research Gap 5: Servitization outcomes are neglected at the level of the customer company as well as at relational, interorganizational network, or ecosystem levels.	Research Direction 5: The domain interplay, as well as the outcomes of servitization at the level of the customer company, manufacturer–customer relationship, interorganizational network, and ecosystem, should be included in future (configurational) research on servitization.

5. Conclusions

The present study approached the servitization literature from a configurational perspective, proffering this enquiry logic as a potentially important angle from which to understand the complexity of equifinal configurations resulting from the interplay within and among a variety of servitization domains. The starting point for this study was the assumption, and our observation, of servitization as a complex set of processes and practices that could be grasped by a configurational approach. The present study aimed to take stock of the servitization literature by utilizing the contingency theory of strategy as our foundation—in particular, using the strategy–structure–environment approach as our primary framework—to review and analyse the extant research and to identify commonalities and particular gaps that motivate directions for future research.

We extended the existing literature on servitization by analysing the extant servitization literature from a configurational perspective. We encountered a large variety of approaches that are currently being utilized, with a considerable spread of frameworks, dimensions, and operationalizations. Our review enabled us to identify gaps in the extant literature. Currently, the servitization field is somewhat underdeveloped regarding configurational studies, suggesting that further research (e.g., based on a strategy–structure–environment approach) is needed. We described future research directions based on the gaps we identified; however, any configurational research requires a specific research design, which challenges some of the existing (implicit or explicit) assumptions (e.g., the direct impact of servitization on company performance) in the extant research to develop better concepts for servitization. We should challenge the sometimes overly simplistic expectations of the direct effects of servitization on company performance and search for equifinal configurations that may lead to various performance outcomes. For this task, methods such as fsQCA provide great opportunities (Forkmann et al. 2017a, Sjödin et al. 2019). Broadly based on contingency theory as a foundation, creating configurational conceptualizations for servitization provides us with the motivation to develop five research directions.

We identified an opportunity to develop improved conceptual definitions of servitization strategy and structures and more precise operationalizations. The great heterogeneity of the used concepts and measures certainly provides richness but also inhibits the effective development of a common body of knowledge. Furthermore, we encourage researchers to design empirical studies using a configurational enquiry system with an appropriate research design. In this context, not only quantitative but also qualitative studies are required to delve more deeply into the interplay within and among domains at the micro level. Here, an understanding of the (processes underlying the) interplay of capabilities, routines, and practices provides an important future avenue for research. Moreover, additional studies are needed to produce better theorizing on the outcomes of servitization not only for the manufacturer but also for the customer company as well as the manufacturer–customer relationship.

For managers of manufacturing companies planning servitization, the review of configurational studies may not provide any simple answers. Instead, the review highlights that the complex interplay of coexisting domains represents an important way to understand (and manage) outcomes for manufacturers, customers, and their respective relationships. However, equifinal configurations creating servitization success do exist; in other words, managers have a choice regarding how to go about servitizing their business model. No "one-size-fits-all" solution to servitization is likely to exist; instead, a manufacturing company should find the equifinal configuration that best fits the company. A practical way to begin analysing potential configurations can be obtained using the strategy–structure–environment framework identified in the present study. A business model canvas (Osterwalder and Pigneur 2010) or specific sets of capabilities (Ulaga and Reinartz 2011, Kindström et al. 2013, Raddats and Burton 2014, Huikkola and Kohtamäki 2017) can provide fruitful approaches based on, as well as through the utilization of, this framework. Thus, a manufacturer aiming for a servitized business model should accept some complexity embedded in servitization and should acknowledge some paradoxical tensions among domains that are not simple to resolve but rather persist and coexist and with which managers must learn to live, similar to the way in which products and services also must coexist after servitization.

As with every study, the present study has some limitations. First, as "important concepts rarely have edges that are entirely sharp" (Helfat and Winter 2011, p. 1244), in this work, we shy away from clear-cut conceptualizations and direct-effect models and instead focus on a configurational logic. Therefore, we do not include some empirical studies or theoretical models that consider multiple dimensions but not in the spirit of configurational logic. Moreover, the criteria for the literature search followed two types of logics—namely, servitization and that of configurational research. Thus, the assumption is that configurational studies are accordingly signposted using appropriate wording in the title, abstract, or keywords of the articles. If this were not the case, it is

likely that we did not find the articles through our search criteria, despite secondary searches by snowballing based on the reference lists of the selected articles. Despite these limitations, the present study provides motivation for future avenues of research based on a configurational enquiry system.

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Endnote

[1] We use the term "servitization" (Vandermerwe and Rada 1988, Neely 2008) throughout the manuscript. Similar or identical phenomena are also known by other names in the literature—for example, "service infusion" (Brax 2005, Forkmann et al. 2017b) or "service transition" (Fang et al. 2008, Böhm et al. 2017). Ostrom et al. (2015) argue that the term "service infusion" is usually related to the market-led literature, whereas the term "servitization" is related to the operations-led school. Although we use consistent terminology, we do not imply a distinction between such "schools."

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