Servitization: A State-of-the-Art Overview and Future Directions

Wolfgang Ulaga and Christian Kowalkowski

1 Introduction

Servitization has emerged as a powerful engine for firms looking to grow beyond their traditional product core. The concept refers to the transformational shift from a product-centric to a service-centric business model and logic (Kowalkowski et al., 2017). Across industry sectors, firms increasingly pursue servitization strategies, including traditional manufacturers bundling services with their core product offerings and software firms moving to cloud-based subscription models rather than selling software products. The concept of servitization was coined by Vandermerwe and Rada (1988) to describe a market strategy based on the integration of products and services into innovative offerings, with services in the lead role. This phenomenon is by no means new; for example, Schmenner (2009) showed that the antecedents of servitization stretch back more than 150 years. However, digital technologies afford new opportunities for value creation and revenue generation that have further accelerated service growth.

W. Ulaga (✉)
INSEAD Europe, Fontainebleau, France
e-mail: wolfgang.ulaga@insead.edu

C. Kowalkowski
CBMI – Centre for Business Model Innovation, Department of Management and Engineering, Linköping University, Linköping, Sweden
e-mail: christian.kowalkowski@liu.se

© The Author(s), under exclusive license to Springer Nature Switzerland AG 2022

B. Edvardsson, B. Tronvoll (eds.), *The Palgrave Handbook of Service Management*,
https://doi.org/10.1007/978-3-030-91828-6_10

Servitization is now among the most active domains in service research, attracting interest from multiple disciplines that include marketing, operations, engineering management, service management, and general management. This trend is evidenced by a sharp accompanying rise in publications, special issues, and dedicated conferences and conference tracks over the last decade (Kowalkowski et al., 2017). However, this growing interest in servitization as a theoretical construct and empirical phenomenon points to issues of conceptual ambiguity (Kowalkowski et al., 2017; Raddats et al., 2019) and limited knowledge diffusion across diverse research communities (Rabetino et al., 2018).

Against this backdrop, the purpose of the chapter is threefold. First, we provide a historic account of servitization as empirical phenomenon and theoretical construct, discuss the conceptual underpinnings of service strategies, and review the main drivers. We then provide an overview of the servitization literature and discuss key insights from this prolific research domain. Finally, we discuss key trends that will accelerate servitization in years to come and suggest avenues for promising future research in this domain.

2 A Brief History of Servitization

Servitization has been a powerful growth engine in most industries. Its antecedents date back to the mid-to-late 1800s, when the completion of nationwide transportation and communications networks in the US (railroads and the telegraph system, respectively) accelerated the trend of combining manufacturing and service activities within the same organization (Schmenner, 2009). Faster and more reliable networks enabled the extensive geographic spread of marketing, sales, repair, financing, and purchasing activities controlled by supply chain innovators such as Singer, the sewing machine manufacturer. Schmenner (2009) argues that the reasons for servitization were essentially the same then as now: to grow and maintain profits and to erect barriers to market entry by tying the customer to the firm in new and more effective ways. By engaging in this type of vertical integration to control their supply chains and to bundle goods and services—including new services like product demonstrations, in-field repairs by factory mechanics, and financing—many manufacturers would come to dominate their industries for decades.

During the Great Depression in the 1930s, many service business models like leasing and rental of products ranging from railroad cars to household floor waxes proved more resilient than traditional models based on product

sales (McNeil, 1944). In 1932, for example, US automotive manufacturers faced by low passenger car sales offered their cars on a rental basis to the taxi industry. Making the case for leasing as a marketing tool, McNeil (1944) contended that these servitization models benefited manufacturers by enabling them to target customers who could not commit to large-scale capital expenditure. In times of uncertainty, these service models also allowed the customer to hedge business risk. In 1932, for example, well over half of IBM's income derived from leasing electromechanical tabulating machines and other equipment, earning almost as much as in 1929, when the US stock market collapsed. According to Spohrer (2017), services were an integral part of IBM's business long before the recent sales of its hardware divisions and the move into cognitive computing and cloud-based services: "IBM's hardware became so advanced so rapidly, that without field service engineers, the business managers and employees would not be able to effectively use IBM hardware to save time, labor, and money."

As another case in point, Xerox's rapid growth in the 1960s was founded on its disruptive service business model for the 914 office copier. Instead of selling the equipment, Xerox offered customers a lease costing $95 per month, including all required service and support. This business model imposed most of the risk on the small vendor, as the customer would pay 4¢ per copy only beyond the first 2000 copies each month. Despite the skepticism of competitors and industry analysts, it proved to be a smart bet; demand was intense, as users averaged 2000 copies *per day*, generating revenues beyond even the most optimistic expectations. The new business model powered compound growth, turning the $30-million firm into a global enterprise with $2.5 billion in revenues by 1972 (Chesbrough & Rosenbloom, 2002).

Despite these early examples of successful servitization initiatives, research in this area is relatively recent, dating back to the mid-1980s and only really taking off in the 2000s. Kowalkowski et al. (2017) identified two distinct phases in the evolution of servitization research. The first phase addressed the boundaries—*why* product firms should focus on service growth—while the second phase (from the early 2000s onward) has focused more on *how* service growth is actually achieved. Influential early research emphasized that services were more than a "necessary evil" (Lele, 1997) or a basic add-on to products. Instead, service provision came to be seen as a means of sustaining competitive advantage (Matthyssens & Vandenbempt, 1998) and as a pivotal part of the buyer-seller relationship (e.g., Martin & Horne, 1992). Bowen et al. (1989) suggested that an emphasis on service-oriented goals such as customer responsiveness and high customer contact would require manufacturers to introduce organizational and resource allocation arrangements appropriate to

a service-oriented manufacturing configuration as described in the service literature.

Servitization is by now almost synonymous with service growth in product firms (e.g., Baines et al., 2017; Fliess & Lexutt, 2019; Tukker, 2004). However, when introducing the term *servitization of business*, Vandermerwe and Rada (1988) envisaged it as a competitive tool for firms in every industry. According to Levitt (1972), "Everybody is in service. Often the less there seems, the more there is" (p. 42). Echoing this idea, Vandermerwe and Rada argued that the traditional, simplistic distinction between goods and services was outdated: "Most firms today, are to a lesser or greater extent, in both. Much of this is due to managers looking at their customers' needs as a whole, moving from the old and outdated focus on goods or services to integrated 'bundles' or systems, as they are sometimes referred to, with services in the lead role" (p. 314).

Servitization research can also be traced back to the early literature on "systems selling" (Kowalkowski et al., 2015). According to Mattsson (1973, p. 108), systems selling is "a fulfilment of a more extensive customer need" that extends beyond product sales to bundled products and services. Hannaford (1976) argued that firms should design such product-service combinations to perform "a complete function for a buyer" (p. 139). At that time, emphasis was placed on the importance of balancing the standardization of product and service components with the development of tailor-made systems rather than on the transition from one type of business (product) to another (service) (Kowalkowski et al., 2015). Building on the work of Mattsson and Hannaford, Page and Siemplenski (1983) discussed "systems marketing," arguing that product firms "are turning to the marketing of systems to satisfy the more extended and complex needs of their customers" (p. 89). While these concerns are echoed in more recent studies, the discussion has moved beyond solving customers' operational problems to include more strategic forms of marketing based on "solution selling" (Davies et al., 2007; Helander & Möller, 2008; Ulaga & Kohli, 2018).

3 Key Concepts and Dimensions

Decades of research on service growth in product firms and a growing body of related literature have generated a plethora of terms, and the central concept of servitization has been variously interpreted and defined. In this regard, Kowalkowski et al. (2017a) noted that "the servitization community seems to lack a common lexicon and analytical tools that might structure scholarly or

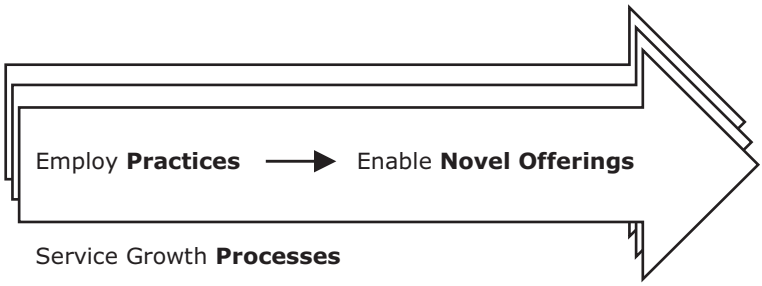

Fig. 1 Key service concepts

Table 1 Key service concepts

Facet of service growth	Key concepts and references
Process	Servitization (Baines et al., 2009; Neely, 2009; Vandermerwe & Rada, 1988) Service infusion (Brax, 2005; Kowalkowski et al., 2012) Service transition (Fang et al., 2008; Gebauer & Friedli, 2005; Oliva & Kallenberg, 2003) Servicizing (Agrawal & Bellos, 2017; Plepys et al., 2015; Toffel, 2008)
Offering	Product-service systems (PSS) (Mont, 2002; Tukker, 2004) Industrial product-service systems (IPS²) (Meier et al., 2010) Solutions (Davies, 2004; Sawhney, 2006; Tuli et al., 2007) Hybrid offerings (Shankar et al., 2009; Ulaga & Reinartz, 2011) Advanced services (Baines & Lightfoot, 2014; Bigdeli et al., 2018)
Practice	Systems selling (Hannaford, 1976; Mattsson, 1973) Solutions selling (Doster & Roegner, 2000; Ulaga & Kohli, 2018) Systems integration (Hobday et al., 2005; Prencipe et al., 2003) Service (business) development (Fischer et al., 2010; Kindström & Kowalkowski, 2009) Service innovation (Eggert et al., 2015; Kindström & Kowalkowski, 2014)

practice-led debate" (p. 6). As Fig. 1 and Table 1 show, these diverse service concepts refer essentially to processes, offerings, or practices.

Several of these concepts denote the *processes* of service growth. While the operations- and systems-led concept of *servitization* tends to focus on business models, structural transformation processes, and supporting digital technologies, the marketing-led concept of *service infusion* emphasizes how a firm's offering can be extended by adding services (Ostrom et al., 2015). *Service transition* again describes the deliberate shift from products to services, and *servicizing* emphasizes the sustainability of "green" business models that sell a product's functionality or use rather than the product itself.

A second cluster of concepts describes innovative combined *offerings* of goods and services. Within engineering management, *product-service systems* and *industrial product-service systems* are the most commonly used terms. Complex offerings that combine supplier and customer resources to create value-in-use are frequently referred to in the marketing and management literatures as *integrated*, *business*, or *customer solutions* or as *hybrid offerings*. More recently, the operations-led concept of *advanced services* has been used to denote a firm's most sophisticated offerings in the move to servitization.

Firms are also discussed in terms of the *practices* they employ to grow their service business. In particular, where service or solution offerings are based on high-technology and high-value goods or on complex product systems (CoPS) (Davies & Brady, 2000), success in the marketplace is seen to depend on *systems selling* and *solutions selling* practices. *Systems integration* is also seen as a core activity for high-technology firms, where system design and integration and management of supplier networks enable selective movement up- and downstream in the marketplace through vertical integration or disintegration (Hobday et al., 2005). Finally, *service business development* and *service innovation* are seen as key activities in bringing competitive offerings to market.

In general, the extant literature discusses servitization mainly as an outcome. In practice, however, many firms continuously pursue both service addition and reduction initiatives, as demonstrated by the evolution of the computer industry (Cusumano et al., 2015). According to Kowalkowski et al. (2017), these processes can be described on two continua that reflect a firm's strategy and modus operandi, where *servitization* and *service infusion* refer to service growth dynamics, and *deservitization* and *service dilution* refer to service reduction. This framework is shown in Fig. 2.

While the concepts of *servitization* and *service infusion* are often used interchangeably to denote service growth strategies and processes (e.g., Eloranta & Turunen, 2015), the above framework draws a distinction between them in the interests of conceptual clarity. As defined by Kowalkowski et al. (2017), service infusion is "the process whereby the relative importance of service

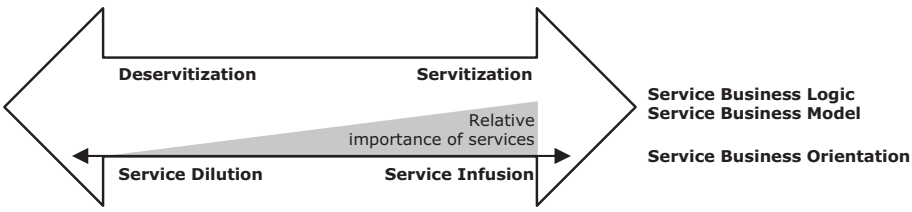

Fig. 2 Service growth and reduction processes: two continua (Kowalkowski et al., 2017)

offerings to a company or business unit increases, so augmenting its service business orientation (SBO)" (p. 7). In line with Homburg et al. (2002), they operationalize SBO as a three-dimensional construct comprising *number of services offered*, *number of customers to whom services are offered*, and *relative emphasis on services*. All three dimensions are positively associated with service infusion and relate to Shostack's (1977) product-service continuum, in which a firm's service orientation increases as more intangible service elements become central to its offering. While service infusion is generally characterized as an incremental process (Kowalkowski et al., 2012), either as part of a deliberate strategy or in more emergent form (Brax & Visintin, 2017), a firm may also expand its service business through major acquisitions. Furthermore, while firms are generally seen to move from basic, product-oriented services toward more complex process-oriented services and solutions (e.g., Oliva & Kallenberg, 2003; Raddats & Easingwood, 2010; Ulaga & Reinartz, 2011), they may in some cases increase their SBO by shifting the emphasis from more advanced to more standardized service offerings (Finne et al., 2013; Kowalkowski et al., 2015).

As an overarching concept, servitization encompasses the transformational processes involved in the shift from a product-centric to a service-centric business model and logic beyond service infusion (Kowalkowski et al., 2017). To varying degrees, servitization involves the reconfiguration of a firm's resources, capabilities, and organizational structures (Baines et al., 2009), including the development of a service culture and redefinition of the firm's mission (Kowalkowski & Ulaga, 2017). In the first place, a service-centric business model differs from a product-centric, transaction-based model by assuming greater responsibility for the customer's overall value-creating process (Kowalkowski et al., 2017). In this context, success is not dependent on the number of products, spare parts, or billable hours sold but on the outputs of the value-creating process—for example, guaranteeing a specified level of availability or achieving an expected level of performance.

Second, this service logic encompasses the firm's *raison d'être* and managers' mental models (or theories-in-use). Whereas the role of service in a product-centric firm is to protect and consolidate the core product business, service-centricity requires a change of mentality and approach, from reactive order-taking to proactive service management, including where necessary a willingness to cannibalize product sales (Kowalkowski & Ulaga, 2017). It is worth noting that, in line with Vandermerwe and Rada's (1988) account of servitization, pure service firms may also maintain a product-centric mindset and business logic. For example, many financial services firms still retain a product logic (e.g., maximizing the sale of standard "financial products")

while employing automation and digitization to create a distance from their customers. Similarly, as Grönroos (2006) observed, a manufacturing firm may adopt a service logic that focuses not on products but on the processes in which those products are integrated, where customer value is created. In short, a predominantly service-based firm with high SBO may pursue a product-centric logic, and vice versa (Kowalkowski et al., 2017).

While research to date has focused almost entirely on servitization as a beneficial or necessary process or strategy, less has been said about deservitization and service dilution, which Valtakoski (2017) characterized as a special case of industry evolution. As the opposites of servitization and service infusion, these refer to deliberate or emergent processes that increase product-centricity; for example, a firm may decide to curtail service provision if it proves unprofitable. The dynamics of servitization and deservitization are not confined to upstream or downstream service flows from one actor to another but may also depend on such factors as innovation, maturity, and competence (Kowalkowski et al., 2017). Here again, Xerox serves as a case in point. Hailed by many as a posterchild for servitization, Xerox pursued wide-ranging service transformation in the early 2000s. However, although the chairman and CEO told investors in 2013 that the shift to a services-led growth portfolio was paying off, the firm decided less than three years later to separate its service business. A lack of positive spillover effects between the hardware and service businesses forced the firm to take "further affirmative steps to drive shareholder value" by sharpening the management focus and differentiating value propositions for customers and investors (Kowalkowski & Ulaga, 2017).

4 Key Drivers of Servitization

Why should product-centric firms pursue service growth? Essentially, there are two fundamental reasons for extending the product business to include related services: to maintain or gain competitive advantage. The more common strategy is to pursue servitization as a defensive stance—that is, to protect or enhance an existing core product business. The second strategy is to acquire new customers and build a service business that exists in its own right (Kowalkowski & Ulaga, 2017). While market and differentiation potential may be enhanced by focusing on services as the primary value driver, this strategy can also diminish positive product-service spillover effects or create additional tensions between the two businesses, impacting negatively on product sales. For example, when Xerox moved into business process outsourcing, it found that its industrial clients purchased fewer products.

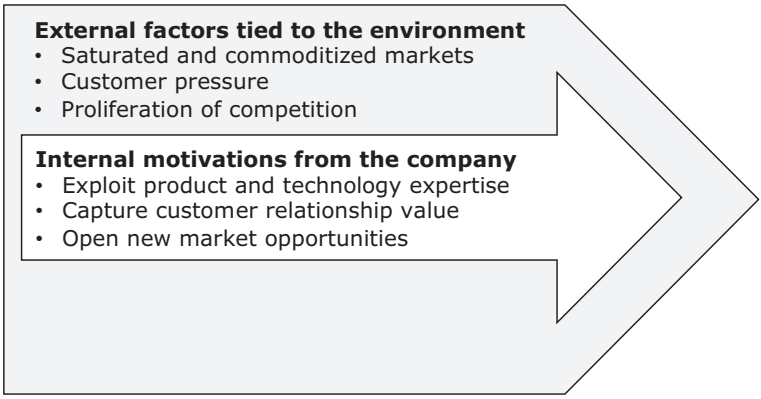

Fig. 3 Key drivers of servitization (adapted from Kowalkowski & Ulaga, 2017, p. 7)

According to Kowalkowski and Ulaga (2017), these moves are fueled by external environmental factors as well as company motivations (see Fig. 3). First, as a growing number of product markets become saturated or commoditized, profit margins are eroded, and there are limited opportunities for growth in the product domain. Services may then be seen as a means of escaping the product commoditization trap (Rangan & Bowman, 1992). In the elevator industry, for example, Otis has achieved higher growth and significantly higher margins in the service business; while 57% of the firm's sales relate to maintenance and other services, these account for 80% of its operating profit. Similarly, margins on new equipment are about 7%, but Otis' service business enjoys margins of more than 21% (Otis, 2020).

A second external driver of servitization is that as customers become more professional, they commonly reduce their supplier base and expect their remaining suppliers to offer a more complete product-service portfolio. Many also prefer to pay for performance rather than for product and service components. A third external factor that challenges product companies is the proliferation of competition, not only from other industry incumbents but from emerging markets, pure service companies, and software firms that operate beyond traditional industry boundaries. For example, Amazon's cloud arm AWS looks to boost its presence in the industrial sector by offering machine learning-based services.

Fourth, servitization enables companies to capture more customer relationship value, as services like long-term preventive maintenance contracts facilitate closer and potentially more strategic relationships throughout the product life cycle. In addition, services may provide a more stable source of income, as they are more resistant to economic cycles that affect product investment and

to disruptive events such as the global recession of 2009 or the COVID-19 pandemic (Rapaccini et al., 2020). Fifth, by exploiting their unique engineering and technology expertise, firms can offer novel services for restoring or enhancing product functionality. Based on product usage and customer process data, firms can create a virtuous cycle with feedback loops to both product development and service operations. Finally, servitization affords opportunities for new and potentially disruptive "anything-as-a-service" business models. For example, the earthmover manufacturer Caterpillar aims to transform the construction industry by supplying smart machines and subscription-based connectivity services.

5 Overview of Servitization Research

Since the early 2000s, a second phase of servitization research has focused on how companies can exploit opportunities for profitable service growth. Research trends have evolved significantly in recent years and have become increasingly diverse, centering on five main themes: (1) service offerings; (2) strategy and structure; (3) motivations and performance; (4) resources and capabilities; and (5) service development, sales, and delivery (Raddats et al., 2019).

Service Offerings

In marketing research, there is a long tradition of developing frameworks to define and classify services (e.g., Lovelock, 1983; Rathmell, 1966; Zeithaml et al., 1985). While this research stream addresses how and why services differ from physical goods, servitization scholars have focused more on the relationship between the two domains (Raddats et al., 2019). In a servitization context, services are most commonly characterized as product complements that facilitate the sale and use of physical goods (services supporting the product/SSPs) or as process-oriented offerings that are not linked to specific products (services supporting the customer's process/SSCs) (Mathieu, 2001). Typical SSPs include maintenance, repair, and provision of spare parts; examples of SSCs include process optimization, energy-efficiency auditing, and R&D services. Mathieu's (2001) study is conceptual, but its relevance has been empirically validated in subsequent research (e.g., Antioco et al., 2008).

Taking the SSP-SSC dichotomy as one dimension, Ulaga and Reinartz (2011) developed a taxonomy of industrial services. A second dimension

captured the extent to which a service is grounded in a promise to perform some action (i.e., input-based) or to achieve a certain performance (i.e., output-based). Combining these two dimensions produces four distinct combined offerings of goods and services, each affording different growth opportunities (see Fig. 4). *Product life cycle services* are product-oriented, input-based services that facilitate access to a product and ensure proper functioning throughout its life cycle. Often regarded as "must-haves," these services provide a platform for more advanced services. *Asset productivity services* are output-based offerings that help customers to achieve improved gains by turning investments into assets. While these too are product-oriented services, their purpose is to achieve a specified level of availability or performance. *Process optimization services* help customers to improve their own business processes (e.g., manufacturing operations, and transportation).

Finally, process-oriented, output-based *customer solutions* perform specified activities on behalf of the customer. This most complex type of offering is highly customized to meet customer-specific needs and requires operational integration beyond the sum of the solution's individual components to deliver enhanced outcomes (Sawhney, 2006). Effective implementation of these solutions depends on high levels of customer involvement throughout the relationship (Tuli et al., 2007) and strong alignment of interests between the parties (Kowalkowski & Ulaga, 2017). Solutions frequently involve complex gain-sharing agreements that require the supplier to assume some or all of the outcome risk (Ulaga & Reinartz, 2011), including issues related to knowledge transfer, intellectual property, data management, and outcome guarantees of various kinds (Nordin et al., 2011).

The engineering management literature typically refers to different combinations of goods and services as product-service systems (PSS). Tukker's (2004) widely used taxonomy of PSS specifies three main categories: *product-oriented* PSS, which are generally standardized, transactional, and input-oriented; *use-oriented* PSS, which focus on ensuring equipment availability (e.g., uptime), with an output-based revenue model (Ulaga & Reinartz, 2011); and *result-oriented* PSS, which are the most complex offerings or solutions and require the closest customer-supplier relationships. The existing body of research serves to highlight the great heterogeneity of services and the consequent diversity of business models. While some firms focus on providing one type of service or solution, different offerings and business models may also coexist, especially in larger firms, and must be managed in parallel (Kowalkowski et al., 2015).

Strategy and Structure

Servitization is frequently discussed in terms of a transition from products to services (e.g., Oliva & Kallenberg, 2003), and the evolution of service strategy can be likened to a process of maturation as manufacturers' increasing emphasis on services alters their offerings, capabilities, and processes (Raddats et al., 2019). However, servitization and a service-centric business orientation may arrive by different paths. First, this change may occur gradually or in more sudden leaps. Although most research to date has focused on organic growth opportunities (Kowalkowski et al., 2017), mergers and acquisitions (M&As) play a key role in service growth for many firms (e.g., as in the case of Xerox). Second, while some firms transition *from* products *to* services (e.g., IBM), servitization more often involves service expansion, extending the firm's offering rather than moving definitively from product to service sales. For example, companies like Apple have built an extensive service business alongside traditional hardware sales.

For a firm that seeks to become a solution provider, the unidirectional incremental view of servitization would imply a strategic change of emphasis from life cycle services (see Fig. 4) to process optimization and/or asset productivity services, leading ultimately to the broader role of solution provider. While most of the extant research supports this assumption (e.g., Ulaga & Reinartz, 2011), some studies have reported evidence of other service growth trajectories, including standardization and downscaling of customized solutions to promote repeatability in pursuit of a potentially larger customer base (Kowalkowski et al., 2015). It is also commonly assumed that firms choose to provide advanced services and solutions only in response to industry maturity or product commoditization. However, Araujo and Spring (2006) and Cusumano et al. (2015) have noted that opportunities for service growth may also arise from product innovations that create a gap between producer and user capabilities.

When pursuing servitization, a firm must also design an appropriate strategy-structure configuration (Raddats & Burton, 2011). In this regard, one key decision is whether to integrate or separate product and service strategic business units (SBUs). In order to focus more effectively on their service business, many firms create a separate service unit with responsibility for profits and losses. This can have a positive effect on financial performance by ensuring greater accountability and facilitating the development of services that are independent of the company's products (Oliva et al., 2012). On the other hand, integration can enhance cooperation between product and service units (Neu & Brown, 2005). Studies of organizational change patterns in the manufacturing sector suggest that separation may be a necessary first step in building

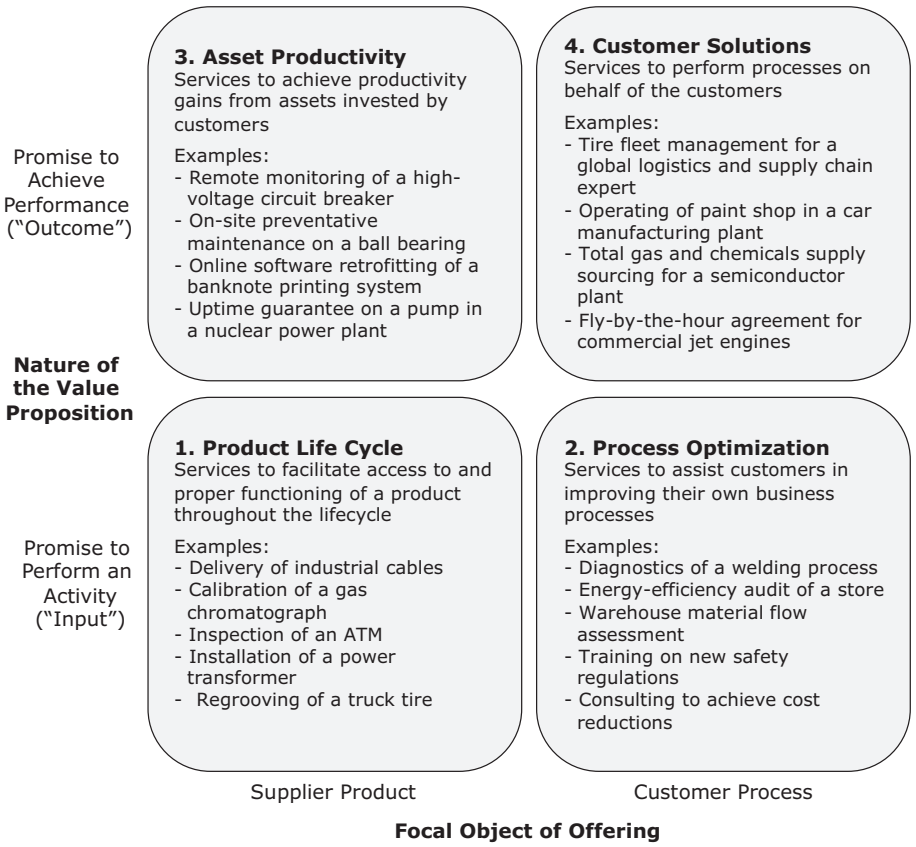

Fig. 4 Industrial service classification framework (adapted from Ulaga & Reinartz, 2011, p. 17)

the commitment and managerial focus needed for service-led growth. However, to avoid the risk of confining expertise to organizational silos and undermining coordination between product and service units serving the same customer, firms may need to create a customer-focused structure (Gebauer & Kowalkowski, 2012). This is especially important for solutions provision (Davies et al., 2006) and should include the establishment of a centralized strategic unit to coordinate back- and front-office activities (Gulati, 2007).

Motivations and Performance

While early servitization research discussed drivers, more recent studies have focused more on performance and the strategies and structures that best support profitable growth. The various measures of service performance include

revenue (Antioco et al., 2008), profitability (Eggert et al., 2015), and firm value (Fang et al., 2008). However, single measures may provide an incomplete picture; for example, a firm may increase revenue by adding services without necessarily improving profitability (Eggert et al., 2011; Suarez et al., 2013). A range of firm- and industry-level contingency factors also influence financial performance, including how closely a firm's goods and service offering are linked (Fang et al., 2008; Josephson et al., 2016). Solutions are more profitable than other types of service, but this positive effect depends on factors such as the supplier's sales capabilities and the buyer's relative strength (Worm et al., 2017). Research on probability of bankruptcy indicates that a higher service ratio (i.e., the ratio of service revenue to total sales revenue) reduces the likelihood of survival for new manufacturing ventures (Patel et al., 2019); on the other hand, offering more product-related services (SSPs) reduces bankruptcy likelihood for firms with a sufficiently diversified product business (Benedettini et al., 2017).

Service performance is more likely to be weak in the early stages of servitization (Benedettini et al., 2015), and new resources, capabilities, organizational structures, and a service culture must be developed to reap the benefits of the process (Kowalkowski & Ulaga, 2017). To ensure a positive impact on firm performance, firms may need to reach a critical service ratio (Kohtamäki et al., 2013). For example, Fang et al. (2008) found that the impact of servitization on firm value is slightly negative until the firm reaches a service ratio of 20–30%, after which there is an accelerating positive effect. However, it is less clear whether investing in product-oriented (SSP) or process-oriented services (SSC) is more likely to improve profitability (Raddats et al., 2019). Eggert et al. (2014) reported that firms can maximize performance by first investing in SSP as necessary groundwork before developing an SSC portfolio to address a wider range of customer needs. In contrast, Antioco et al. (2008) argued that firms should develop SSC first to leverage product sales before deploying SSP to increase service volume. According to Kowalkowski and Ulaga (2017), basic product-oriented services are generally the "low-hanging fruit" that should be picked first before moving on to more complex offerings. In addition, firms can improve their profitability by making the most of existing services—for instance, by capturing more value through better pricing practices—rather than focusing exclusively on service portfolio growth.

Resources and Capabilities

In general, firms can achieve competitive advantage by developing and deploying unique resources and distinctive capabilities. According to Ulaga and Reinartz (2011), "Resources are productive assets the firm owns; capabilities

are what the firm can do. Resources per se do not confer competitive advantage but must be transformed into capabilities to do so" (p. 6). Among several extensive studies of the key resources or capabilities for successful servitization, Ulaga and Reinartz's (2011) framework is one of the most influential and comprehensive, showing how four overarching resources can be leveraged to build five distinctive capabilities that in turn produce competitive advantage. Turning first to their account of resources, the installed base of product sold represents a unique asset for manufacturing firms, and access to *installed base product usage and process data* affords a significant advantage over both direct competitors and third-party service providers. Second, by exploiting synergies between manufacturing and services, firms can leverage their *product development and manufacturing assets* to develop innovative product-service combinations. Third, *the product salesforce and distribution network* is another resource that firms can leverage to expand their service business. Finally, an in-house *field service organization* is both a key resource for cost-effective SSP provision and facilitates initiatives related to more complex solutions offerings.

As well as acquiring unique resources, firms must be able to develop distinctive capabilities by assembling those resources into specific configurations that can transform inputs into more valuable outputs (Amit & Schoemaker, 1993). First, firms need *service-related data processing and interpretation capability*, using advanced technologies to translate those data into new offerings and more efficient service provision. A second key requirement is *execution risk assessment and mitigation capability*, especially when moving into more extensive long-term service agreements involving various forms of outcome guarantee. This includes the capacity to evaluate uncertainty and to implement the necessary safeguarding mechanisms. Third, a servitizing firm needs *design-to-service capability* to ensure operational integration (Sawhney, 2006), allowing tangible and intangible elements of its offering to interact synergistically. Fourth, *service sales capability* is needed to reach key decision makers in the customer organization, to coordinate key contacts in the customer and supplier firms, to engage in value-based selling, and to align the salesforce with both the field service organization and channel partners. Finally, firms need *service deployment capability* in order to standardize back-office service processes while simultaneously implementing front-office customization (Ulaga & Reinartz, 2011).

Among other studies, Storbacka's (2011) extensive solutions capabilities framework addresses the resources and capabilities needed for offerings of a particular type. According to Matthyssens and Vandenbempt (2008), firms may not be able to develop all of the requisite capabilities internally and must therefore build relationships with other actors. In this regard, relationships

with customers (Tuli et al., 2007) and other actors such as channel partners (Kowalkowski & Ulaga, 2017) are key resources. Finally, Story et al. (2017) highlighted the need to align the service capabilities of customer and manufacturer.

Service Development, Sales, and Delivery

Service development, sales, and delivery are critical processes for the successful implementation of servitization initiatives (Kindström & Kowalkowski, 2014). While product and service innovation often compete for limited resources within the same firm, manufacturers can generally outperform their competitors by combining product and service innovation (Eggert et al., 2015). Several authors have argued that manufacturers should adopt a structured and formalized New Service Development (NSD) approach similar to New Product Development (NPD). However, Kindström and Kowalkowski (2009) caution against off-the-shelf NPD models that fail to capture unique service characteristics and the specific conditions for service development in a product-centric setting.

While NPD projects are generally back-heavy (in terms of time and other resources spent on R&D, prototyping, etc.), NSD projects are front-heavy, allocating more time and resources to pilot testing and the infrastructures and capabilities needed for rollout. This challenge becomes especially clear where a firm relies on channel partners for sales and delivery, as the commitment and competence of these external actors must also be ensured before launching the service (Kowalkowski & Ulaga, 2017). Additionally, while product development is likely to be managed centrally and driven by technology, service development often occurs locally through interaction with key customers (Kindström & Kowalkowski, 2014). These factors must be taken into account when designing NSD projects, along with support for cross-functional collaboration and an iterative and flexible process. As service innovation is more often ad hoc (Gallouj & Weinstein, 1997), it may be difficult for central management (especially in large firms) to gain a comprehensive view of all local service activities. This renders many services "invisible," in the sense that they are neither formalized nor measured (Kindström & Kowalkowski, 2009). The ability to formalize and standardize services while exploiting what Davies and Brady (2000) called "economies of repetition" is a key aspect of successful NSD (Kindström & Kowalkowski, 2014).

A further major hurdle, especially for product-centric firms, is selling novel services. A study of more than 500 NSD projects reported that the rate of new

services brought to market and then withdrawn because of low sales was as high as 43% (Edvardsson et al., 2013). To promote service sales and to change the behavior of a product-centric salesforce, firms must align incentive systems with strategic service objectives (Reinartz & Ulaga, 2008). In this regard, many traditional industrial salespeople do not fit the required competence profile; as a general rule of thumb, only a third transition easily from selling products to selling complex services and solutions while a further third need significant management support to master the service sales process, only the remaining third switch easily to selling both services and products (Ulaga & Reinartz, 2011).

As services become more important, the salesperson must take on a clearer role as a customer resource and problem solver, working closely with the customer (Kindström et al., 2015). Value-based pricing and selling become critical competencies, requiring interrelated knowledge of marketing, sales, and field service units (Raja et al., 2020). To be successful, salespeople must develop a deep understanding of their customers' business models and key performance metrics. While the sales process is not necessarily more complex, it is longer and involves more interactions with decision makers at different levels in the customer organization. In addition, it becomes more important to be able to manage customer expectations, ensure success, and demonstrate tangible value outcomes (Ulaga & Loveland, 2014).

A field service network is a final prerequisite for successful servitization. In many cases, this includes both internal service units and external service partners. To ensure the profitability of service operations, firms should adopt a lean service production approach (Kowalkowski & Ulaga, 2017), which includes understanding (and influencing) customer expectations in terms of the desired quality and value potential. As recruiting and maintaining skilled employees can prove challenging, especially in remote locations (Kindström & Kowalkowski, 2014), firms must exploit digital opportunities as well as investing in human resources to reduce costs and enhance performance. To optimize service delivery, firms can also influence customer behavior. Because many services involve frequent (or ongoing) interactions and active value co-creation, cost-cutting initiatives should target non-value-added activities, including processes that can be automated or eliminated. Capacity utilization and demand fluctuations can be managed by designing effective internal-external arrangements for service operations—for example, by relying on external partners during peak periods or in regions with low service demand (Kowalkowski & Ulaga, 2017).

6 Servitization in a Digital Economy: Future Directions

Digital transformation will continue to affect industries and accelerate servitization for years to come. Against this backdrop, four major trends will fuel the servitization movement in the future: the growing role of platform-based business models across many service industries; the fast-paced adoption of innovative recurring revenue models; the shift from frontline-heavy field service to back office-heavy software-based services; and the growing emphasis on embedding sustainability goals into corporate strategies, accelerating growth through circular business models, and fostering the sharing economy. Taken together, these four trends will also lead to major organizational changes in the way companies engage with customers, including new customer-facing functions, such as customer success management.

Platform-Based Business Models Driving Service Growth

For more than two decades now, disruptive platform-based business models have accelerated servitization even further. Consider the example of Salesforce.com. More than 20 years ago, the company's founder, Chairman, and CEO Marc Benioff became an early proponent of the *Software-as-a-service (SaaS)* model in an industry dominated by software sales and licensing. With a market capitalization of more than $ 216 billion in the first quarter of 2021,[1] Salesforce.com today relies on an impressive platform and ecosystem of partners that serves as a powerful competitive advantage in its industry.

Likewise, innovative platform-based business models have also gained traction in traditional service industries. For example, in the United States, Arizona-based Vixxo disrupted the facility management industry with an innovative business model built around data and analytics (Ulaga et al., 2020). The company initially created a two-sided platform model connecting over 150 Fortune 500 customers with distributed real estate portfolios in the retail, supermarket, convenience store, and restaurant sectors with local service providers deploying over 150,000 technicians across the US and Canada, in addition to its own field organization. Vixxo provides a "one-stop shop" solution for over 100 services, including electricity, heating, ventilation, and air conditioning (HVAC), lighting, plumbing, refrigeration, and waste

[1] Financial Data accessed on 22 March 2021 at https://finance.yahoo.com/quote/CRM?p=CRM&.tsrc=fin-srch.

management, among many others, and maintains over 1.1 million dispersed revenue-generating critical assets across over 65,000 sites, representing over $1 billion in facility management spend. The company also works in close cooperation with service providers, that is, often small, privately owned local businesses, to improve performance and gain more revenues. Over time, Vixxo grew its model into a three-sided platform, including equipment manufacturers in the equation, and bringing all parties together for unleashing new value creation opportunities. Taken together, the two illustrations of Salesforce.com and Vixxo exemplify how the growing role of platform-based business models fuels many of the trends discussed next.

Fast-Paced Growth of Recurring Service Revenue Models

Along with the trend toward new platform-based business models, a growing number of companies explore new recurring revenue models which further accelerate the servitization movement. For example, subscription models have been described by many as the next "business tsunami" (Mehta et al., 2016). Consider Netflix, the subscription-based streaming platform and service provider. The company added 15.8 million subscribers during the first quarter of 2020 to its customer base. Likewise, videoconferencing service provider Zoom's revenue grew 169% year-over-year in Q1 2020 (Ulaga & Mansard, 2020). Interestingly, subscription models have proven resilience in difficult economic times. During the COVID-19 pandemic, half of the US subscription businesses, continuously monitored by global subscription platform provider Zuora, were still growing and had not seen a significant impact to their subscriber acquisition rates in May 2020. Thirty-five percent of companies experienced growth, and only 14% of companies were contracting.

Subscription models represent a formidable lever for motivating firms to grow beyond their goods-centric core and move deeper into services. McCarthy et al. (2017, p. 17) define subscription-based business models as "businesses whose customers pay a periodically recurring fee for access to a product or service." While subscription-based pricing has long dominated selected industries, such as newspapers, magazines, or telecommunications, this trend now gains traction among new business ventures, start-ups in the digital economy, and long-standing industry leaders (e.g., Microsoft Office 365). Hence, subscription-based models are adopted not only in Business-to-Consumer domains but also in traditional Business-to-Business domains. For example, in addition to selling point-of-sale hardware and software to small restaurants, retailers, or business owners, enterprise technology provider NCR now also

promotes a 36-month subscription package, including hardware, software, concierge services, upgrades, training, and device warranties, for an all-inclusive monthly fee.[2]

Shift from Frontline-Heavy Field Service to Back Office-Heavy Software-Based Services

The faced-paced adoption of digital technologies and rapidly progressing recurring revenue models in service industries also shift firms' focus from frontline-heavy field service to back office-heavy automation and software-based services. This evolution affects all industries, and especially those traditionally relying to a large extent on frontline interactions.

Consider the example of InsurTech start-up Lemonade's disruptive new business model aimed at creating and delivering a "shockingly great user experience" around a "lovable brand," in a service industry plagued by low customer satisfaction (Heeley et al., 2020). The digital disruptor leverages principles of behavioral economics to address conflicts of interest and mistrust which prevail in the existing industry. It uses digital technologies to automate, accelerate, and manage an impressive amount of work—with few employees—thereby reducing customer effort and increasing customer satisfaction to achieve cost-effective service excellence through automation of customer interaction and internal processes. The effortless experience is aggressively priced and relies on an innovative and flexible subscription-based pricing model. Artificial intelligence (AI), data, and machine learning are key in the race to achieving data parity with incumbents in the insurance industry.

Focus on Sustainability, Circular Economy Business Models, and Sharing Economy

Digitalization and software-based services also provide major opportunities for firms to improve their environmental impact. Consider the example of Schneider-Electric, the global provider of energy distribution and industrial automation offerings. On a global basis, a tremendous amount of energy is lost due to inefficient energy distribution infrastructures and resources. As the company's clients seek support in achieving their own environmental and social sustainability goals, Schneider has substantially grown its portfolio of offerings combining energy technologies, real-time automation, software, and

[2] See NCR Silver; accessed on 3 June 2021 at: https://www.ncr.com/silver.

services. Changes to traditional field service activities can also have a substantial environmental impact. During 2020, as travel restrictions were imposed due to the COVID-19 pandemic, climate systems provider Munters launched remote assist—a service which gives customers on-demand access to service expertise through mobile phone or tablet. Not only can Munters provide instant diagnosis and resolution, while increasing the utilization rate of its expert technicians; the service also lessens the environmental impact due to the elimination of travel. Overall, servitization provides several entrepreneurial opportunities for both increased economic and environmental performance.

While a linear "take-make-dispose" model of production and consumption has been dominant since the early days of industrialization, increased environmental and climate concerns have spurred the development of service business models based on circular economy principles. A circular economy "is one that is restorative by design, and which aims to keep products, components and materials at their highest utility and value at all times" (Webster, 2017). As sustainability has become a more mainstream corporate concern, the aims and practices of the economically inspired notion of servitization and the ecologically inspired circular economy are rapidly converging. Hence, firms and circular economy networks that can guarantee supply in reverse cycles of reuse, remanufacturing, and recycling can gain a competitive advantage over those who are less able to seize these opportunities (Spring & Araujo, 2017). Signify's circular lighting service is a case in point; instead of buying the luminaire, customers such as Schiphol airport in the Netherlands pay for the light. Signify ensures agreed-upon energy improvements and reuse or recycle the luminaires at the end of their lifespan, helping the airport on its mission to become the most sustainable airport in the world.

The emergence of the sharing economy has provided additional opportunities for servitization, such as peer-to-peer lending and mobility-as-a-service. Sharing economy offerings, such as BlaBlaCar's long-distance carpooling, have five definitional characteristics: they are temporarily accessed rather than permanently owned; this access involves economic transactions or quid-pro-quo exchanges; the offerings rely on a (digital) matching platform; the customer role is enhanced; and supply is being crowdsourced (Eckhardt et al., 2019). However, not all such servitization models are environmentally superior; for example, they may lead to larger production quantity or drive increased usage (Agrawal & Bellos, 2017). Overall, manufacturers may have to think about how to manage and organize for the combination of sustainability initiatives, manufacturing, software development, service delivery network, and data capture and use (Spring & Araujo, 2017).

Servitization and Organizational Change: The Growing Role of Customer Success

Collectively, the above-mentioned trends explain major organizational changes firms implement today with respect to customer-facing roles and responsibilities. For example, a growing number of companies today establish dedicated customer success structures, processes, and job function in their organizations. In line with the heightened interest in customer success, emerging professional organizations attempt to provide content and shape to a nascent organizational function and its roles and responsibilities (see, e.g., the Customer Success Association, claiming over 36,000 members worldwide since 2012). End of August 2020, on the professional social network LinkedIn alone, almost 100,000 professionals described themselves as working in a Customer Success function (Hochstein et al., 2021).

What is Customer Success? Initially confined to the software industry, the concept today increasingly gains momentum elsewhere, especially as information ubiquity and digital transformation affect a wide cross-section of industries and markets. Nonetheless, academic research on Customer Success is still at an early stage. Ulaga et al. (2020) and Eggert et al. (2020) provide a more fine-grained perspective based on an explorative analysis of more than 300 job descriptions of Customer Success Managers of a social professional network. Drawing on Grönroos and Voima's (2013) value sphere concept, the authors distinguish between Customer Success (CS), the organizational process of Customer Success Management (CSM), and the job function of Customer Success Managers (CSMR). First, they conceptualize CS as a subjective, customer-perceived construct that resides in the customers' and the joint value creation sphere; it is the customer-perceived achievement of desired outcomes by using the supplier's offering (Ulaga et al., 2020). Second, they define CSM as a joint management process that spans the customers' and the suppliers' value creation spheres, comprising all of the firms' activities aiming at aligning their goal achievement. Finally, Ulaga et al. (2020) refer to CSMR as an organizational function operating in the suppliers' and the joint value creation sphere. As a supplier-based position, Customer Success Managers orchestrate CSM activities and integrate tasks from marketing, sales, training, and support during the customer acquisition, retention, and expansion phases (see Fig. 5).

The nascent domain of customer success research opens promising opportunities for future research. For example, Hochstein et al. (2020) identify

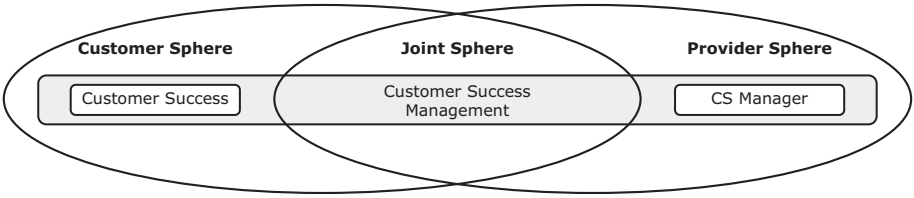

Fig. 5 CS, CS Management, and CS Managers in the value creation spheres framework (Eggert et al., 2020; Ulaga et al., 2020)

three main research priorities, that is, (1) organizational leadership, (2) customer health scores, and (3) performance benefits of Customer Success. Similarly, Ulaga et al. (2020) highlight three particularly promising research directions.

First, from a firm strategy perspective, platform-based businesses and recurring revenue models deeply rely on effectively minimizing churn among all parties involved, and especially customers. Hence, customer success increasingly emerges as a critical success factor for creating and maintaining competitive advantage in these business models (Ulaga et al., 2020). Yet, growing new capabilities in customer success management requires considerable investments that may come to the detriment of other resources. Executives need to know whether, when, and how investment in customer success structures, processes, and people can (and will) achieve a return on investment. Therefore, there is a need to investigate the relationship between customer success initiatives and firm performance. Further, there is a need to understand key moderators and mediators of this relationship. Second, from an organizational perspective, more knowledge is needed to understand how the customer success function relates other functions, such as customer experience management, key account management, service operations, or sales. While servitization research has started to acknowledge the importance of customer experience management—across functions, touchpoints, and the customer's journey (Witell et al., 2020)—research should investigate the interplay between the different customer-facing functions. We also need to understand where and how this recent function is best located in the organization, under what conditions, and how it interacts best with other functions that touch customers. Finally, from an individual employee-level perspective, we are only at the beginning of understanding how to set up this new function for success and help those who take on its role and responsibilities excel in their position.

Bright Future? Servitization in a Post-COVID-19 World

The recent coronavirus pandemic shed new light on servitization challenges and opportunities. Around the globe, firms struggled to protect employees, prevent supply chain disruptions, maintain operations and cash flows, and continue to serve customers. Customer solutions providers were particularly impacted. Consider the example of British aero-engine group Rolls-Royce. The firm pioneered service contracts in the aircraft industry and trademarked "power-by-the-hour" contracts. The concept was invented in 1962, and after signing a long-term contract with American Airlines in 1997, it transformed the aircraft engine services landscape. With a payment mechanism under which it is paid for the number of hours its engines fly, risks are transferred back to Rolls-Royce, and reliability becomes a profit driver for both the manufacturer and its customers (Macdonald et al., 2016). However, the unprecedented halt in flying because of the COVID-19 pandemic meant most of its income dried up, and the firm reported a major loss for 2020.

Clearly, while outcome-based contracting and performance-based solutions have been touted as the next service growth engine, such strategies can seriously backfire in times of crises when customer operations stand idle.

Against this backdrop, Bond et al. (2020) discuss six major downsides of customer solutions that the recent pandemic brought to the forefront. First, the interdependence among solution components greatly magnified supply chain disruptions as the COVID-19 pandemic evolved. Second, customers were unable to quickly acquire solutions from alternative sources, and providers were unable to swiftly redeploy offerings tailored to individual customers in one area to customers in other areas. Third, the COVID-19 crisis often left suppliers with excessive risks, costs, and sharply lower revenues. Fourth, solution agreements lacked the flexibility and responsiveness needed in a crisis to adequately respond to fast-changing customer needs during the pandemic. Fifth, it became apparent that providers and customers at times lost sight of their mutual goals and objectives and relapsed into a self-interest focus driven by as "us-versus-them" mindset. Sixth, the COVID-19 pandemic prevented in-person meetings and interactions which greatly hindered coordination and co-creation by providers and customers. Finally, the crisis also dramatically exposed the negative consequences of lacking or inadequate solution governance structures, processes, and people.

Mirroring the seven downsides noted above, Bond et al. (2020) identify seven promising research directions. A first research avenue refers to questions evolving around the design of customer solutions with an emphasis on how to

build greater agility and flexibility into such offerings. A second research direction relates to balancing the benefits of customization against the costs of non-retrievable investments. A third research avenue discusses how solution providers and customers might better mitigate risk in the aftermath of an unforeseeable widespread shock. Fourth, Bond et al. (2020) discuss the need for envisioning new performance metrics, evaluation processes, and gain-sharing mechanisms that allow parties involved to adapt to rapidly changing customer requirements in a timely manner. A fifth research direction refers to developing a better understanding of how exactly customers' (and providers') goals evolve during a crisis, especially when such changes occur in a very short time window and force parties to swiftly re-assess and realign goals and objectives. Sixth, Bond et al. (2020) invite researchers to investigate how the deployment of remote technology in the solution process—from identifying new solution sales opportunities to automated identification of deviations from targets and post-deployment support processes—can restore and redirect co-creation processes. Finally, a seventh research direction relates to governance structures, processes, and people for a better understanding of how to foster coordination among providers and customers in order to gain greater flexibility and responsiveness in case of unforeseeable widespread shocks.

In conclusion, the above-mentioned trends, and the related organizational changes, collectively illustrate that scholarly inquiry of servitization continues to remain a promising research domain. We hope that this chapter contributes to motivate scholars to explore the avenues discussed and continue the lively debate.

References

Agrawal, V. V., & Bellos, I. (2017). The potential of servicizing as a green business model. *Management Science, 63*(5), 1545–1562.

Amit, R., & Schoemaker, P. J. (1993). Strategic assets and organizational rent. *Strategic Management Journal, 14*(1), 33–46.

Antioco, M., Moenaert, R. K., Lindgreen, A., & Wetzels, M. G. M. (2008). Organizational antecedents to and consequences of service business orientations in manufacturing companies. *Journal of the Academy of Marketing Science, 36*, 337–358.

Araujo, L., & Spring, M. (2006). Services, products, and the institutional structure of production. *Industrial Marketing Management, 35*(7), 797–805.

Baines, T., Bigdeli, A. Z., Bustinza, O. F., Shi, V. G., Baldwin, J., & Ridgway, K. (2017). Servitization: Revisiting the state-of-the-art and research priorities. *International Journal of Operations & Production Management, 37*, 256–278.

Baines, T., & Lightfoot, H. W. (2014). Servitization of the manufacturing firm. *International Journal of Operations & Production Management, 34*(1), 2–35.

Baines, T. S., Lightfoot, H. W., Benedettini, O., & Kay, J. M. (2009). The servitization of manufacturing: A review of literature and reflection on future challenges. *Journal of Manufacturing Technology Management, 20*(5), 547–567.

Benedettini, O., Neely, A., & Swink, M. (2015). Why do servitized firms fail? A risk-based explanation. *International Journal of Operations & Production Management, 35*, 946–979.

Benedettini, O., Swink, M., & Neely, A. (2017). Examining the influence of service additions on manufacturing firms' bankruptcy likelihood. *Industrial Marketing Management, 60*, 112–125.

Bigdeli, A. Z., Baines, T., Schroeder, A., Brown, S., Musson, E., Guang Shi, V., & Calabrese, A. (2018). Measuring servitization progress and outcome: The case of 'advanced services'. *Production Planning & Control, 29*(4), 315–332.

Bond, E., de Jong, A., Eggert, A., Houston, M. B., Kleinaltenkamp, M., Kohli, A. K., Ritter, T., & Ulaga, W. (2020). The future of B2B customer solutions in a post-COVID-19 economy: Managerial issues and an agenda for academic inquiry. *Journal of Service Research, 23*(4), 401–408.

Bowen, D. E., Siehl, C., & Schneider, B. (1989). A framework for analyzing customer service orientations in manufacturing. *Academy of Management Review, 14*(1), 75–95.

Brax, S. (2005). A manufacturer becoming service provider – Challenges and a paradox. *Managing Service Quality, 15*(2), 142–155.

Brax, S. A., & Visintin, F. (2017). Meta-model of servitization: The integrative profiling approach. *Industrial Marketing Management, 60*, 17–32.

Chesbrough, H., & Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: Evidence from Xerox Corporation's technology spin-off companies. *Industrial and Corporate Change, 11*(3), 529–555.

Cusumano, M. A., Kahl, S. J., & Suarez, F. F. (2015). Services, industry evolution, and the competitive strategies of product firms. *Strategic Management Journal, 36*(4), 559–575.

Davies, A. (2004). Moving base into high-value integrated solutions: A value stream approach. *Industrial and Corporate Change, 13*(5), 727–756.

Davies, A., & Brady, T. (2000). Organisational capabilities and learning in complex product systems: Towards repeatable solutions. *Research Policy, 29*(7–8), 931–953.

Davies, A., Brady, T., & Hobday, M. (2006). Charting a path toward integrated solutions. *Sloan Management Review, 47*(3), 39–48.

Davies, A., Brady, T., & Hobday, M. (2007). Organizing for solutions: Systems seller vs. systems integrator. *Industrial Marketing Management, 36*(2), 183–193.

Doster, D., & Roegner, E. (2000). Setting the pace with solutions. *Marketing Management, 9*(1), 51–54.

Eckhardt, G. M., Houston, M. B., Jiang, B., Lamberton, C., Rindfleisch, A., & Zervas, G. (2019). Marketing in the sharing economy. *Journal of Marketing, 83*(5), 5–27.

Edvardsson, B., Meiren, T., Schäfer, A., & Witell, L. (2013). Having a strategy for new service development – Does it really matter? *Journal of Service Management, 24*, 25–44.

Eggert, A., Hogreve, J., Ulaga, W., & Muenkhoff, E. (2011). Industrial services, product innovations, and firm profitability: A multiple-group latent growth curve analysis. *Industrial Marketing Management, 40*(5), 661–670.

Eggert, A., Hogreve, J., Ulaga, W., & Muenkhoff, E. (2014). Revenue and profit implications of industrial service strategies. *Journal of Service Research, 17*(1), 23–39.

Eggert, A., Thiesbrummel, C., & Deutscher, C. (2015). Heading for new shores: Do service and hybrid innovations outperform product innovations in industrial companies? *Industrial Marketing Management, 45*, 173–183.

Eggert, A., Ulaga, W., & Gehring, A. (2020). Managing customer success in business markets: Conceptual foundation and practical application. *Journal of Service Management Research, 4*(2–3), 121–132.

Eloranta, V., & Turunen, T. (2015). Seeking competitive advantage with service infusion: A systematic literature review. *Journal of Service Management, 26*(3), 394–425.

Fang, E., Palmatier, R. W., & Steenkamp, J. B. E. M. (2008). Effect of service transition strategies on firm value. *Journal of Marketing, 72*(5), 1–14.

Finne, M., Brax, S., & Holmström, J. (2013). Reversed servitization paths: A case analysis of two manufacturers. *Service Business, 7*(4), 513–537.

Fischer, T., Gebauer, H., Gregory, M., Ren, G., & Fleisch, E. (2010). Exploitation or exploration in service business development?: Insights from a dynamic capabilities perspective. *Journal of Service Management, 21*(5), 591–624.

Fliess, S., & Lexutt, E. (2019). How to be successful with servitization – Guidelines for research and management. *Industrial Marketing Management, 78*, 58–75.

Gallouj, F., & Weinstein, O. (1997). Innovation in services. *Research Policy, 26*(4/5), 537–556.

Gebauer, H., & Friedli, T. (2005). Behavioral implications of the transition process from products to services. *Journal of Business & Industrial Marketing, 20*(2), 70–78.

Gebauer, H., & Kowalkowski, C. (2012). Customer-focused and service-focused orientation in organizational structures. *Journal of Business and Industrial Marketing, 27*(7), 527–537.

Grönroos, C. (2006). Adopting a service logic for marketing. *Marketing Theory, 6*(3), 317–333.

Grönroos, C., & Voima, P. (2013). Critical service logic: Making sense of value creation and co-creation. *Journal of the Academy of Marketing Science, 41*(2), 133–150.

Gulati, R. (2007). Silo busting: How to execute on the promise of customer focus. *Harvard Business Review, 85*(5), 98–108.

Hannaford, W. J. (1976). Systems Selling: Problems and Benefits for Buyers and Sellers. *Industrial Marketing Management, 5*, 139–145.

Heeley, L., Ulaga, W., & Carmon, Z. (2020). Lemonade: Delighting insurance customers with AI and behavioural economics. A disruptive InsurTech business model for outstanding customer experience and cost-effective service excellence. *INSEAD Case Study* 06/2020-6597.

Helander, A., & Möller, K. (2008). How to Become Solution Provider: System Supplier's Strategic bell. *Journal of Business-to-Business Marketing, 15*(3), 247–289.

Hobday, M., Davies, A., & Prencipe, A. (2005). Systems integration: A core capability of the modern corporation. *Industrial and Corporate Change, 14*(6), 1109–1143.

Hochstein, B., Rangarajan, D., Mehta, N., & Kocher, D. (2020). An industry/academic perspective on customer success management. *Journal of Service Research, 23*(1), 3–7.

Hochstein, B., Ulaga, W., Gehring, A., & Eggert, A. (2021). Customer success management: What it is and why it is important to B2B marketing? Proceedings *AMA Winter Academic Conference*, Online, February 17–19.

Homburg, C., Hoyer, W. D., & Fassnacht, M. (2002). Service orientation of a retailer's business strategy: Dimensions, antecedents, and performance outcomes. *Journal of Marketing, 66*(4), 86–101.

Josephson, B. W., Johnson, J. L., Mariadoss, B. J., & Cullen, J. (2016). Service transition strategies in manufacturing: Implications for firm risk. *Journal of Service Research, 19*(2), 142–157.

Kindström, D., & Kowalkowski, C. (2009). Development of industrial service offerings – A process framework. *Journal of Service Management, 20*(2), 156–172.

Kindström, D., & Kowalkowski, C. (2014). Service innovation in product-centric firms: A multidimensional business model perspective. *Journal of Business & Industrial Marketing, 29*(2), 96–111.

Kindström, D., Kowalkowski, C., & Alejandro, T. B. (2015). Adding services to product-based portfolios: An exploration of the implications for the sales function. *Journal of Service Management, 26*(3), 372–393.

Kohtamäki, M., Partanen, J., Parida, V., & Wincent, J. (2013). Non-linear relationship between industrial service offering and sales growth: The moderating role of network capabilities. *Industrial Marketing Management, 42*(8), 1374–1385.

Kowalkowski, C., Gebauer, H., Kamp, B., & Parry, G. (2017). Servitization and deservitization: Overview, concepts, and definitions. *Industrial Marketing Management, 60*, 4–10.

Kowalkowski, C., Gebauer, H., & Oliva, R. (2017). Service growth in product firms: Past, present, and future. *Industrial Marketing Management, 60*, 82–88.

Kowalkowski, C., Kindström, D., Alejandro, T. B., Brege, S., & Biggemann, S. (2012). Service infusion as agile incrementalism in action. *Journal of Business Research, 65*(6), 765–772.

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

Kowalkowski, C., Windahl, C., Kindström, D., & Gebauer, H. (2015). What service transition? Rethinking established assumptions about manufacturers' service-led growth strategies. *Industrial Marketing Management, 45*(2), 59–69.

Lele, M. M. (1997). After-sales service – Necessary evil or strategic opportunity? *Managing Service Quality, 7*(3), 141–145.

Levitt, T. (1972). Production-line approach to service. *Harvard Business Review, 50*(5), 41–52.

Lovelock, C. (1983). Classifying services to gain strategic marketing insights. *Journal of Marketing, 47*(3), 9–20.

Macdonald, E. K., Kleinaltenkamp, M., & Wilson, H. N. (2016). How business customers judge solutions: Solution quality and value in use. *Journal of Marketing, 80*(3), 96–120.

Martin, C. R., Jr., & Horne, D. A. (1992). Restructuring towards a service orientation: The strategic challenges. *International Journal of Service Industry Management, 3*(1), 25–38.

Mathieu, V. (2001). Product services: From a service supporting the product to a service supporting the client. *Journal of Business & Industrial Marketing, 16*(1), 39–61.

Matthyssens, P., & Vandenbempt, K. (1998). Creating competitive advantage in industrial services. *Journal of Business & Industrial Marketing, 13*(4/5), 339–355.

Matthyssens, P., & Vandenbempt, K. (2008). Moving from basic offerings to value-added solutions: Strategies, barriers and alignment. *Industrial Marketing Management, 37*(3), 316–328.

Mattsson, L.-G. (1973). Systems selling as a strategy on industrial markets. *Industrial Marketing Management, 3*, 107–120.

McCarthy, D., Fader, P. S., & Hardie, B. G. S. (2017). Valuing subscription-based businesses using publicly disclosed customer data. *Journal of Marketing, 81*(January), 17–35.

McNeil, R. B. (1944). The lease as a strategic tool. *Harvard Business Review, 22*, 415–430.

Mehta, N., Steinman, D., & Murphy, L. (2016). *Customer success: How innovative companies are reducing churn and growing recurring revenue*. John Wiley and Sons.

Meier, H., Roy, R., & Seliger, G. (2010). Industrial product-service systems – IPS 2. *CIRP Annals-Manufacturing Technology, 59*(2), 607–627.

Mont, O. K. (2002). Clarifying the concept of product–service system. *Journal of Cleaner Production, 10*(3), 237–245.

Neely, A. (2009). Exploring the financial consequences of the servitization of manufacturing. *Operations Management Research, 1*(2), 103–118.

Neu, W. A., & Brown, S. W. (2005). Forming successful business-to-business services in goods-dominant firms. *Journal of Service Research, 8*(1), 3–17.

Nordin, F., Kindström, D., Kowalkowski, C., & Rehme, J. (2011). The risks of providing services: Differential risk effects of the service-development strategies of customisation, bundling, and range. *Journal of Service Management, 22*(3), 390–408.

Oliva, R., Gebauer, H., & Brann, J. M. (2012). Separate or integrate? Assessing the impact of separation between product and service business on service performance

in product manufacturing firms. *Journal of Business-to-Business Marketing, 19*(4), 309–334.

Oliva, R., & Kallenberg, R. (2003). Managing the transition from products to services. *International Journal of Service Industry Management, 14*(2), 160–172.

Ostrom, A. L., Parasuraman, A., Bowen, D. E., Patrício, L., Voss, C. A., & Lemon, K. (2015). Service research priorities in a rapidly changing context. *Journal of Service Research, 18*(2), 127–159.

Otis. (2020). Annual Report.

Page, A. L., & Siemplenski, M. (1983). Product systems marketing. *Industrial Marketing Management, 12*(2), 89–99.

Patel, P. C., Pearce, J. A., & Guedes, M. J. (2019). The survival benefits of service intensity for new manufacturing ventures: A resource-advantage theory perspective. *Journal of Service Research, 22*(4), 352–370.

Plepys, A., Heiskanen, E., & Mont, O. (2015). European policy approaches to promote servicizing. *Journal of Cleaner Production, 97*, 117–123.

Prencipe, A., Davies, A., & Hobday, M. (2003). *The business of systems integration*. Oxford University Press.

Rabetino, R., Harmsen, W., Kohtamäki, M., & Sihvonen, J. (2018). Structuring servitization-related research. *International Journal of Operations & Production Management, 38*, 350–371.

Raddats, C., & Burton, J. (2011). Strategy and structure configurations for services within product-centric businesses. *Journal of Service Management, 22*(4), 522–539.

Raddats, C., & Easingwood, C. (2010). Services growth options for B2B product-centric businesses. *Industrial Marketing Management, 39*(8), 1334–1345.

Raddats, C., Kowalkowski, C., Benedettini, O., Burton, J., & Gebauer, H. (2019). Servitization: A contemporary thematic review of four major research streams. *Industrial Marketing Management, 83*, 207–223.

Raja, J. Z., Frandsen, T., Kowalkowski, C., & Jarmatz, M. (2020). Learning to discover value: Value-based pricing and selling capabilities for services and solutions. *Journal of Business Research, 114*, 142–159.

Rangan, V. K., & Bowman, G. T. (1992). Beating the commodity magnet. *Industrial Marketing Management, 21*(3), 215–224.

Rapaccini, M., Saccani, N., Kowalkowski, C., Paiola, M., & Adrodegari, F. (2020). Navigating disruptive crises through service-led growth: The impact of COVID-19 on Italian manufacturing firms. *Industrial Marketing Management, 88*, 225–237.

Rathmell, J. M. (1966). What is meant by services? *Journal of Marketing, 30*(October), 32–36.

Reinartz, W., & Ulaga, W. (2008). How to sell services MORE profitably. *Harvard Business Review, 86*(5), 90–96.

Sawhney, M. (2006). Going beyond the product: Defining, designing, and delivering customer solutions. In R. F. Lusch & S. L. Vargo (Eds.), *The service-dominant logic of marketing: Dialog, debate, and directions* (1st ed., pp. 365–380). M. E. Shape.

Schmenner, R. W. (2009). Manufacturing, service, and their integration: Some history and theory. *International Journal of Operations & Production Management, 29*(5), 431–443.

Shankar, V., Berry, L. L., & Dotzel, T. (2009). A practical guide to combining products and services. *Harvard Business Review, 87*(11), 94–99.

Shostack, G. L. (1977). Breaking free from product marketing. *Journal of Marketing, 41*(April), 73–80.

Spohrer, J. (2017). IBM's service journey: A summary sketch. *Industrial Marketing Management, 60*, 167–172.

Spring, M., & Araujo, L. (2017). Product biographies in servitization and the circular economy. *Industrial Marketing Management, 60*, 126–137.

Storbacka, K. (2011). A solution business model: Capabilities and management practices for integrated solutions. *Industrial Marketing Management, 40*(1), 699–711.

Story, V. M., Raddats, C., Burton, J., Zolkiewski, J., & Baines, T. (2017). Capabilities for advanced services: A multi-actor perspective. *Industrial Marketing Management, 60*, 54–68.

Suarez, F. F., Cusumano, M. A., & Kahl, S. J. (2013). Services and the business models of product firms: An empirical analysis of the software industry. *Management Science, 59*(2), 420–435.

Toffel, M. W. (2008). Contracting for servicizing. *Harvard Business School Technology & Operations Mgt. Unit Research Paper* (08-063).

Tukker, A. (2004). Eight types of product–service system: Eight ways to sustainability? Experiences from SusProNet. *Business Strategy and the Environment, 13*(4), 246–260.

Tuli, K. R., Kohli, A. K., & Bharadwaj, S. G. (2007). Rethinking customer solutions: From product bundles to relational processes. *Journal of Marketing, 71*(July), 1–17.

Ulaga, W., & Kohli, A. K. (2018). The role of a solutions salesperson: Reducing uncertainty and fostering adaptiveness. *Industrial Marketing Management, 69*, 161–168.

Ulaga, W., & Loveland, J. M. (2014). Transitioning from product to service-led growth in manufacturing firms: Emergent challenges in selecting and managing the industrial sales force. *Industrial Marketing Management, 43*(1), 113–125.

Ulaga, W., & Mansard, M. (2020). Future-proof your business with the subscription business model. *ZUORA Whitepaper*. Retrieved March 22, 2021, from https://www.zuora.com/resource/subscription-resiliency-future-proof-your-business/

Ulaga, W., & Reinartz, W. (2011). Hybrid offerings: How manufacturing firms combine goods and services successfully. *Journal of Marketing, 75*(November), 5–23.

Ulaga, W., Eggert, A., & Gehring, A. (2020). Customer success – The next frontier in business markets? In M. Bruhn, C. Burmann, & M. Kirchgeorg (Eds.), *Marketing Weiterdenken, Zukunftspfade für eine marktorientierte Unternehmensführung* (2nd ed., pp. 357–373). October, Springer-Gabler.

Valtakoski, A. (2017). Explaining servitization failure and deservitization: A knowledge-based perspective. *Industrial Marketing Management, 60*, 138–150.

Vandermerwe, S., & Rada, J. (1988). Servitization of business: Adding value by adding services. *European Management Journal, 6*(4), 314–324.

Webster, K. (2017). *The circular economy: A wealth of flows*. Ellen MacArthur Foundation Publishing.

Witell, L., Kowalkowski, C., Perks, H., Raddats, C., Schwabe, M., Benedettini, O., & Burton, J. (2020). Characterizing customer experience management in business markets. *Journal of Business Research, 116*, 420–430.

Worm, S., Bharadwaj, S. G., Ulaga, W., & Reinartz, W. J. (2017). When and why do customer solutions pay off in business markets? *Journal of the Academy of Marketing Science, 45*(4), 490–512.

Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1985). Problems and strategies in services marketing. *Journal of Marketing, 49*(Spring), 33–46.