

An entrepreneurial framework for value co-creation in servitization[☆]

Man Yang^{a,*}, Tiina Leposky^b

^a Department of Management and Organisation, Hanken School of Economics, P.O. Box 287, FI-65101 Vaasa, Finland

^b International Business, School of Marketing and Communication, University of Vaasa, P.O. Box 700, FI-65101 Vaasa, Finland

ARTICLE INFO

Keywords:

Value co-creation
Servitization
Entrepreneurship
Middle managers

ABSTRACT

The importance of value co-creation in servitization is increasingly emphasized but remains largely unexplored from the entrepreneurship theoretical perspective. This study develops an entrepreneurial framework for value co-creation in servitization by conducting a qualitative case study with middle managers from a multinational industrial company. The empirical findings suggest that value co-creation facilitates the discovery and creation of service opportunities through middle managers' entrepreneurial actions, that is, boundary spanning and bricolage. We also find that servitization reinforces value co-creation through middle managers' exploitation or exploration of service opportunities. The study not only offers new knowledge on the mutual influence between value co-creation and servitization, but also discusses the importance of middle managers as individual level actors in value co-creation. In addition, this study acts as a call for entrepreneurship frameworks for research on servitization.

1. Introduction

Industrial companies have long recognized the need to offer advanced services to customers, in order to remain competitive in markets with declining hardware margins (Baines et al., 2017; Kowalkowski, Gebauer, Kamp, & Parry, 2017; Kowalkowski, Gebauer, & Oliva, 2017). One important stream of research on this topic is servitization, where manufacturing firms integrate services into their core products to increase value for stakeholders and customers, consequently increasing the manufacturer's profitability through new revenue streams (Huikkola, Rabetino, Kohtamäki, & Gebauer, 2020; Raddats, Kowalkowski, Benedettini, Burton, & Gebauer, 2019; Vandermerwe & Rada, 1988). Scholars have emphasized the crucial role of value co-creation in servitization. For instance, in co-creating product-service solutions in provider-customer relationships (Sjödin, Parida, & Wincent, 2016), and in manufacturing firms and their customers co-creating digital service innovations (Sjödin, Parida, Kohtamäki, & Wincent, 2020).

Although prior literature provides insights on value co-creation in servitization, the majority of previous studies tend to focus on organizational level actors, such as the role of providers, customers, and other economic actors in value co-creation (e.g., Breidbach & Maglio, 2016;

Sjödin et al., 2016; Story, Raddats, Burton, Zolkiewski, & Baines, 2016). Therefore, the extant research provides little knowledge on the role of individual level actors in co-creating value, and how this influences servitization (Lenka, Parida, Sjödin, & Wincent, 2018). Focusing on an individual perspective is important because individuals play an essential role in achieving organizational goals; it is individuals who seek and identify valuable opportunities for new services, advocate their development, and apply them in the firm (Lenka et al., 2018). We consider studying the role of *middle managers* a research priority, since previous literature has recognized that committed managers are vital resources when manufacturing firms develop services (Alghisi & Saccani, 2015). Moreover, those firms need management practices that can explore or exploit new services, especially middle managers who are skilled in understanding and interpreting customer needs (Raddats et al., 2019), and operate at a key intersection between the firm and its environment (Heyden, Wilden, & Wise, 2020).

Earlier research has introduced middle managers as political entrepreneurs (see Key account managers in Wilson & Millman, 2003; Supply chain managers in Wilson & Barbat, 2015) or intrapreneurs (see Marketing managers in Yang, 2018), because they bridge internal and external activities, thus acting as boundary spanners across the organization to foster innovation (Perrone, Zaheer, & McEvily, 2003). Scholars

Abbreviations: KAM, Key account manager.

[☆] This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

* Corresponding author.

E-mail addresses: man.yang@hanken.fi (M. Yang), tiina.leposky@uwasa.fi (T. Leposky).

<https://doi.org/10.1016/j.indmarman.2022.11.002>

Received 1 August 2021; Received in revised form 26 August 2022; Accepted 1 November 2022

Available online 8 November 2022

0019-8501/© 2022 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

suggest that middle managers may “endorse, refine, and shepherd” entrepreneurial opportunities and “identify, acquire, and deploy” the resources to pursue them (Kuratko, Ireland, Covin, & Hornsby, 2005, p. 705). Middle managers’ entrepreneurial behavior is critical to the effective implementation of corporate entrepreneurship where a group of individuals instigate strategy renewal or innovation within an existing organization (Kuratko et al., 2005; Sharma & Chrisman, 1999). Previous research suggests that an entrepreneurial culture can be a pathway to service innovation success in manufacturing firms (Ettlie & Rosenthal, 2012). Hence, an entrepreneurial approach to servitization has great potential, but extant literature provides little further insights, especially into the microfoundations of managerial actions.

Inspired by the above, this research considers middle managers as entrepreneurs¹ and service opportunities as being entrepreneurial, and aims at developing an entrepreneurial framework for value co-creation in servitization by focusing on middle managers. The two research questions we seek to answer in this study are: (1) How do middle managers co-create value in servitization? (2) How do middle managers engage in entrepreneurship for servitization? In line with the exploratory nature of our research, we conducted a qualitative case study with middle managers from a multinational industrial company undergoing servitization.

In integrating servitization and entrepreneurship theory, this study makes several contributions. First, we contribute to the servitization research by introducing entrepreneurial opportunity theory as a new theoretical perspective. Applying this theory is useful because when adopting an entrepreneurship lens (Shane & Venkataraman, 2000), servitization can be considered as the examination of how, by whom, and with what effect service opportunities can come into existence in a product-centric company. Our findings add to the servitization research (Kowalkowski, Gebauer, Kamp, & Parry, 2017; Kowalkowski, Gebauer, & Oliva, 2017; Raddats et al., 2019), by suggesting that managers can create or discover service opportunities through their entrepreneurial actions. This provides novel insights on the microfoundations of servitization research. Second, the study contributes to the value co-creation literature (Chen, Tsou, & Ching, 2011; Sjödin et al., 2016; Sjödin et al., 2020), not only recognizing the importance of value co-creation to servitization, but also discovering the influence of servitization on value-in-use and value co-production. Third, this study adds new knowledge to exploration and exploitation literature in servitization research by revealing how value is co-created through exploration and exploitation by individuals, an under examined area in current literature. Finally, this study acts as a specific call for entrepreneurship frameworks for research on servitization.

2. Theoretical background

2.1. Value co-creation in servitization

Scholars view servitization as the organizational transformation of a firm from product-centric to service-centric (Kowalkowski, Gebauer, Kamp, & Parry, 2017; Raddats et al., 2019). It involves the addition of services to core product offerings to create new customer value (Vandermerwe & Rada, 1988), and the process of tailoring value propositions to enable customers’ greater efficacy in achieving their desired outcomes (Green, Davies, & Ng, 2017). An important aspect of servitization is, therefore, using relationships to understand customer processes and objectives, and thereby balancing the customer’s unique situation with what the servitizing company can offer (Helander & Möller, 2007; Huikkola et al., 2020). Moving away from a goods-based logic towards a service-dominant paradigm that places value at the forefront of the

customer interaction, it is a process that entails customer involvement in creating customized solutions (Kowalkowski, 2010). Thus, understanding servitization requires understanding how individuals at the customer frontline act to facilitate customers’ experience of value.

In practice, servitization often necessitates structural and organizational changes in the servitizing company, to align back-end and front-line operations for service provision (Reinartz & Ulaga, 2008). From the customer perspective, the company’s service provision is manifest in their ability to offer solutions, the value of which lies in the company’s ability to integrate resources in a unified offering (Brax & Jonsson, 2009). Thus, servitization requires customer-facing staff to exhibit new capabilities in developing, selling and delivering services, and in creating solutions (Paiola, Saccani, Perona, & Gebauer, 2013) that focus on identifying and responding to customer needs.

Value co-creation is typically seen as a process, which involves the provider as a value facilitator and the customer as a value co-creator (Grönroos & Gummerus, 2014). While the broad approach of the service-dominant logic indicates that offerings are imbued with value co-creation, and can be relayed without interaction (Vargo & Lusch, 2004, 2008), the nature of servitization emphasizes customer-centricity through a consultative approach. Essentially, value co-creation in servitization implies that the provider and customer both play an active role in creating value through direct interaction (Sjödin et al., 2016). Value co-creation occurs when the provider and customer, and perhaps also other parties, influence each other through interactions, and mutual value is extended together (Grönroos & Voima, 2013; Ramaswamy, 2011).

Based on the conceptual development in the value co-creation literature, we consider value co-creation to comprise two distinctive elements: value-in-use and value co-production (Ranjan & Read, 2016). *Value-in-use* means that value is co-created through utilization, based on the customer’s assessment of the product/service and the users’ actions and competences (Edvardsson, Tronvoll, & Gruber, 2011). Grönroos and Voima (2013) argued that value-in-use is created by the customer but value itself is “socially constructed through experiences” (p. 137), exemplified as a family vacation with multiple service providers influencing the overall value of the holiday event. In an industrial setting, such experiences involve a constant provider-customer back-and-forth process, as customer-facing sales and service staff cooperate continuously onsite (Friend, Malshe, & Fisher, 2020), thus blurring the customer and provider spheres.

A recent study on managing value-in-use in business markets reports that value-in-use management comprises monitoring the delivery of the promised value, and enhancing customer value-in-use throughout the entire lifecycle of a complex product-service offering (Prohl & Kleinaltenkamp, 2020). Furthermore, as servitization typically aims to create long-standing customer relationships (Neely, 2008), it allows for multiple dynamic interactions that can change over time (Kuijken, Gemser and Wijnberg, 2017), both enhancing and detracting from value (Echeverri & Skålen, 2011). We therefore examine value-in-use from a customer value perspective derived from usage, but with the boundary condition, that usage never occurs in isolation, and thus the customer’s experiences of the provider’s actions and the continuing customer-provider relationship influence the socially constructed definition of value.

Value co-production refers to the activities undertaken by actors within networks through collaboration and dialogue, to configure value by integrating mutual resources (Ballantyne & Varey, 2008; Grönroos, 2012; Vargo & Lusch, 2017). There are three common views that support co-production. The first is constructive participation, which contends that the customer helps the provider create services by advancing suggestions to improve processes, services or products, and proactively communicates problems to the provider (Gruen, Summers, & Acito, 2000). The second is the resource-based view, where the customer makes resources or capabilities available to the provider in the form of information or knowledge, in order to accelerate value co-creation

¹ Entrepreneurs in this study refers to people who discover, evaluate and exploit opportunities to create future goods and services, based on the definition of entrepreneurship by Shane and Venkataraman (2000).

(Blazevic & Lievens, 2008; Kelly, Donnelly, & Skinner, 1990). The third view is external innovation, where the customer becomes a primary source of creative ideas for new products and services (Desouza et al., 2008). In such cases, the customer is involved in the service production process and, thus, value creation separate from value-in-use can occur (Grönroos & Voima, 2013), even when the co-productive interactions take place during usage.

Earlier research has found that co-production influences service innovation positively to a degree that depends on the collaborative partners' compatibility and history of business relations, affective commitment, and expertise (Chen et al., 2011). In order for co-production to be successful for both parties, however, the provider must have sufficiently flexible systems in place to respond to the customer's needs (Van den Broeke & Paparoidamis, 2021), indicating that the provider's organizational processes influence the co-production experience. Furthermore, individuals come together, interpret their organizational goals, combine prior experiences, and co-produce new knowledge (Blazevic and Lievens, 2008) that is influenced by their personal characteristics and attributes (Ranjan & Read, 2019), and the social context (Edvardsson et al., 2011). Ultimately, therefore, co-production depends on human actors operating under the constraints of their organizational mandate, and within their own limitations as active participants.

2.2. A theory of entrepreneurial opportunity in servitization

Scholars consider the field of entrepreneurship “the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited” (Shane & Venkataraman, 2000, p. 218). As such, entrepreneurial opportunities are defined as “situations in which new goods, services, raw materials, and organizing methods can be introduced and sold at greater than their costs of production” (Shane & Venkataraman, 2000, p. 220). Hence, using the entrepreneurship theoretical lens, servitization can be considered the examination of how, by whom, and with what effects service opportunities can appear in a product-centric company. Service opportunities here refers to the formulation of service strategies in systems integration, operational services, and business consulting (Fischer, Gebauer, Gregory, Ren, & Fleisch, 2010). Seizing such opportunities requires the supplier to focus on customer solutions and match external opportunities at the customer site with internal opportunities borne from the supplier's own capabilities (Saul & Gebauer, 2018).

Scholars debate fundamental questions about the epistemological and ontological nature of entrepreneurial opportunities—whether they exist as objective empirical gaps in the ‘real’ world waiting to be discovered (Shane, 2000), or arise out of the actions of entrepreneurs themselves (Alvarez & Barney, 2007). This debate results in two main perspectives on the origins of entrepreneurial opportunities. The first is the opportunity discovery perspective. Discovery theorists view the world as ‘real’, and consider entrepreneurs ‘scientists’ who discover opportunities in the same way that Newton revealed *the nature of gravity* (Suddaby, Bruton, & Si, 2015). Accordingly, entrepreneurial opportunities are, due the unique capability of entrepreneurs, discovered as objective realities that already exist in the environment (Shane, 2012). The second is the opportunity creation perspective. Creation theorists view the world as ‘socially constructed’ and consider entrepreneurs ‘artists’ who create opportunities in the same way that Hemingway wrote *The Old Man and the Sea* (Suddaby et al., 2015). Hence, entrepreneurial opportunities are iterative acts of creation in which entrepreneurs socially construct the opportunity (Alvarez & Barney, 2007).

We see reconciliation between the discovery and creation perspectives of entrepreneurial opportunity, in line with scholars such as Sarvasathy (2001), who provided causal and effectual explanations of entrepreneurial opportunity associating with the distinction between discovery and creation (Suddaby et al., 2015). Similarly, Garud and Giuliani (2013) acknowledged the possibility that discovery and

creation can occur simultaneously but under different social and temporal conditions. Discovery and creation can form a virtuous cycle of opportunity recognition (Zahra, 2008). Therefore, we adopt both the discovery and creation perspectives to study how service opportunities come into existence in a large product-centric company undergoing servitization. Regarding the question of *by whom*, we focus on middle managers, inspired by earlier studies that report middle managers as entrepreneurs or intrapreneurs in large multinational companies (Wilson & Barbat, 2015; Wilson & Millman, 2003; Yang, 2018). Scholars recognize that middle managers may engage in entrepreneurial opportunities and utilize the resources to pursue them (Kuratko et al., 2005). We believe that their role in servitization has been largely overlooked in the current literature.

2.3. Exploration and exploitation in servitization

Exploration is defined as “experimentation with new alternatives that have returns that are uncertain” (March, 1991, p. 85). Exploration broadens the firm's knowledge base by seeking beyond the currently possessed domains and it is necessary for renewal and survival in highly dynamic environments (Valtakoski, 2017). Scholars have identified three phases in the exploration of service business development: first integrating basic services into the product price, then creating new value combinations, and finally using service expansion along the adjacent customer activity chain (Fischer et al., 2010). As competition increases, exploration is more likely to orient firms towards servitization (Corneynen, Matthyssens, Vanderstraeten, & van Witteloostuijn, 2020). In a manufacturing firm's transformation to servitization, the firm will firstly focus on exploration by searching and finding out about the concept and the implications of competing through advanced services (Baines, Bigdeli, Sousa, & Schroeder, 2020). According to the recent study by Chen, Liu and Xu (2020), information technology exploration is positively related to both radical and incremental service innovation in manufacturing firms.

Exploitation is defined as “the refinement and extension of existing competencies, technologies, and paradigms” (March, 1991, p. 85). Exploitation leverages current knowledge by making improvement or increasing the depth of knowledge in one or more domains (Valtakoski, 2017). The three phases in the exploitation of service business development found by Fischer et al. (2010) consists of integrating basic services into the product price, then separating product and service businesses to extend service profit and revenue, and finally utilizing service expansion along the primary customer activity chain. According to Baines et al. (2020), a manufacturing firm will lastly focus on exploitation by seeking to optimize innovation and delivery of an advanced service portfolio in the transformation to servitize. However, scholars also argue servitization as reinforcement rather than transformation (Salonen, Saglam, & Hacklin, 2017). For instance, by strategically exploiting advanced services as engagement platforms, a manufacturing firm gains valuable resources through joint resource integration with customers (Storbacka, Brodie, Böhmman, Maglio, & Nenonen, 2016). Based on Chen et al. (2020), information technology exploitation is only positively related to radical service innovation among manufacturing firms.

Scholars suggest that exploration and exploitation are equally important in product-service innovation (Bustinza, Vendrell-Herrero, & Gomes, 2020). For instance, a manufacturing firm should explore the development of customized solutions and the overall solution business model while maintaining the incremental development of its product manufacturing and product-service delivery (Kohtamäki, Einola, & Rabetino, 2020). However, it seems that how value is co-created in exploration and/or exploitation by individuals remains unexplored in current servitization literature. Zimmermann, Raisch, and Cardinal (2018) argue that frontline managers who actively shape organizational processes are required to integrate exploration and exploitation. Thus, our empirical study will investigate the role and actions of middle

managers who explore and/or exploit in servitization.

3. Method

Because the nature of the research question in this study is exploratory, we adopt a qualitative single case study method to interpret the research context and develop an in-depth understanding of the managerial role in value co-creation and servitization (Edmondson & McManus, 2007; Siggelkow, 2007; Yin, 2014). A single case study is justified by scholars as an appropriate strategy to understand dynamics and relationships within a shared context (Eisenhardt, 1989; Stake, 2000; Yin, 2014). In this section, we provide further details on case selection and background, data collection and analysis.

3.1. Case selection and background

Following the theoretical sampling approach (Eisenhardt & Graebner, 2007), we selected a multinational technology manufacturer called Valmet's service business unit in the paper industry as our case. Our selection was motivated as follows. First, Valmet had chosen to adopt a servitization strategy to transform its business and develop a stronger market presence. Second, the paper industry is a traditional manufacturing industry with few radical innovations over the past few decades. Third, this study is derived from multi-year research with Valmet as the industry partner. Selecting such a case provides fruitful ground for servitization research to investigate our research questions and achieve our research aim. Next, we describe the case background to present our research context.

Formerly owned by the Finnish state, Valmet has more than 200 years of industrial history behind it, though its current configuration was established in 2013 with the demerger of the pulp, paper and power business from Metso Corporation. It is a multinational technology manufacturer with some 14,000 personnel (Valmet, 2021a). The company operates globally with four business units: services, pulp and energy, paper, and automation. This research is focused on the services business unit, which serves more than 2000 pulp and paper mills across the world. While the company provides services for other industries, the paper industry is the primary focus of its servitization initiative. Valmet positions itself as a full system provider, supplying complete paper machine and technology infrastructure solutions for paper mills.

The paper industry itself is characterized by a reliance on heavy machinery, which has largely been the case for several decades. While machines are constantly becoming more sophisticated and more able to integrate data applications, there have been no disruptive innovations in the basic functions of papermaking, and some customers may still be operating machinery that is four or five decades old. Since investments are expected to provide an especially long return, they are generally made carefully, giving the industry a risk-avoidant approach to renewal.

Valmet's servitization initiative is titled *Shared Journey Forward*, and it is focused both internally and externally. The servitization initiative has been communicated to customers from the start as it attempts to enhance the way customers are served. This entails four core commitments: prioritizing safety, collaborating closely, developing solutions, and engendering trust, as well as a renewed service categorization into reliability, performance, and new technology services (Valmet, 2021b).

The servitization initiative aims at building on existing relationships and improving the service experience, thus leading to longer and deeper customer relationships. This is important because in the paper industry, customers typically deal with multiple vendors simultaneously, and therefore competitive advantage is gained through constant presence and integration. The internal changes of the servitization initiative are, however, more tangible and ground-breaking than what has been communicated to the customer, and this is because the customer does not need to know nor should be expected to care about the internal processes of the supplier in order to enjoy the benefits of the transformation. Yet, structurally the initiative is considered revolutionary

within the company. The magnitude of the change from product focus to customer value focus is expected to meet some level of resistance and requires work in terms of structures, processes, support systems, and capability competence.

Therefore, the servitization initiative is focused on making Valmet a more service-oriented organization placing customer value in the strategic center in a manner that influences structures, processes, and systems. This is in line with servitization literature (Rabetino, Kohtamäki, & Gebauer, 2017), whilst also implying that the servitization initiative is delivered to the customer sphere through the field operations and thus requires middle managers' input and actions.

3.2. Data collection

Data were collected between 2016 and 2018, mainly through in-depth semi-structured interviews with key informants from the case company and representative customers. Table 1 provides detailed information on the interview informants. First, we interviewed 13 middle managers who have active and important roles in the case company's servitization initiative. They were divided into two task groups—key account managers (KAMs) and product development managers (PDMs). The interviews mainly concerned their value co-creating activities, and actions related to the company's servitization initiative.

Follow-up interviews with key KAM informants were conducted one-and-a-half to two years from the beginning of the servitization initiative at the organization. During the first round of interviews, the KAMs had heard about the servitization initiative but they were not yet familiar with its contents, nor had they attended any of the trainings. At the time of the follow-up, each had undergone online courses and the servitization initiative had been discussed in detail in local information events and in digital materials. These follow-up interviews were deemed necessary for the key KAM informants due to the early stage of the servitization initiative during the first round. As the PDM's were interviewed later, they were able to provide information on the progress of the servitization initiative during the initial interview.

Second, to provide complementary information, we interviewed an additional 10 middle managers from the company's headquarters, occupying various positions involved in implementing the servitization initiative. The interviews sought to clarify what the company wanted to achieve with the servitization initiative and why it was launched. Third, we interviewed 7 customer informants to verify the case company's value co-creating activities and servitization actions. These interviews mainly interrogated customers' evaluations of Valmet products and services, and the company's middle-management actions.

In total, 37 interviews were conducted with 30 informants (see Table 1). The interviews were recorded and transcribed, producing 407 pages (193,930 words) of transcript. To ensure data triangulation, besides the primary interview data we also utilized secondary archival data such as the company website, public press releases and newsletters, and internal documents to reflect the interview narratives against the greater change process taking place in the company. Thus, we could see where the middle managers' narratives on their value-creating activities aligned with the organizational objectives for the case company's servitization initiative.

3.3. Data analysis

During data collection and analysis, we adopted the idea of systematic combining, and constantly compared empirical data with theory (Dubois & Gadde, 2002). We uploaded the interview transcripts and secondary archival data to NVivo 12 and conducted content analysis (Sinkovics, Penz, & Ghauri, 2008). We first coded the data, deriving three theme codes from the theoretical background of this research: (1) value co-creation, comprising two sub-codes: value-in-use and value co-production (Ranjan & Read, 2016), (2) entrepreneurial opportunities, again comprising two sub-codes: service opportunity discovery (Shane,

Table 1
Description of interview informants and interview data.

Category	Interviewees	Job role/location	Date of interview	Method/length of interview	Transcription of interviews
Valmet Middle Managers	KAM 1	Key account manager/Canada	March 2017	Face-to-face/1 h and 5 min	11 pages/6963 words
			December 2018	Phone/27 min	4 pages/2368 words
	KAM 2	Key account manager/USA	March 2017	Face-to-face/1 h and 32 min	19 pages/8971 words
			November 2018	Phone/30 min	5 pages/2602 words
	KAM 3	Key account manager/USA	March 2017	Face-to-face/53 min	15 pages/6870 words
			November 2018	Phone/31 min	5 pages/2559 words
	KAM 4	Key account manager/UK	November 2016	Face-to-face/1 h and 27 min	14 pages/7688 words
			December 2018	Phone/34 min	5 pages/2892 words
	KAM 5	Key account manager/Chile	November 2016	Face-to-face/1 h and 14 min	12 pages/5743 words
			November 2018	Phone/32 min	5 pages/2504 words
	KAM 6	Key account manager/Chile	November 2016	Face-to-face/59 min	8 pages/2781 words
			November 2018	Phone/29 min	4 pages/1574 words
	KAM 7	Key account manager/Poland	October 2016	Face-to-face/1 h and 25 min	15 pages/7443 words
			December 2018	Phone/31 min	5 pages/2839 words
	PDM 1	Product development manager/Finland	May 2018	Phone/1 h and 6 min	12 pages/6088 words
	PDM 2	Product development manager/Finland	April 2018	Phone/1 h and 20 min	8 pages/3204 words
	PDM 3	Product development manager/Finland	April 2018	Phone/1 h and 30 min	15 pages/7653 words
	PDM 4	Product development manager/Finland	April 2018	Phone/57 min	9 pages/3981 words
	PDM 5	Product development manager/Finland	January 2017	Face-to-face/1 h and 32 min	16 pages/9269 words
	PDM 6	Product development manager/Finland	January 2017	Face-to-face/1 h and 30 min	15 pages/6550 words
	HQ 1	Business Development Director/Finland	January 2017	Face-to-face/1 h and 20 min	10 pages/4456 words
	HQ 2	Marketing Director/Finland	January 2017	Face-to-face/1 h and 45 min	19 pages/5929 words
	HQ 3	Business Development Director/Finland	January 2017	Face-to-face/1 h and 15 min	11 pages/4323 words
	HQ 4	Sales Director/Finland	January 2017	Face-to-face/1 h and 28 min	11 pages/4987 words
	HQ 5	Business Development Director/Finland	January 2017	Face-to-face/1 h and 20 min	7 pages/2823 words
	HQ 6	Service Director/Finland	January 2017	Face-to-face/1 h and 14 min	11 pages/5732 words
	HQ 7	Service Director/Finland	January 2017	Face-to-face/1 h and 38 min	14 pages/6248 words
	HQ 8	Service Director/Finland	January 2017	Face-to-face/1 h and 30 min	12 pages/5967 words
	HQ 9	Business Development Director/Finland	January 2017	Face-to-face/2 h and 1 min	17 pages/8193 words
	HQ 10	Sales Director/Finland	January 2017	Face-to-face/1 h and 32 min	18 pages/9909 words
Customers	Customer 1	Mill Manager/Canada	March 2017	Face-to-face/57 min	8 pages/4051 words
	Customer 2	Mill Manager/USA	March 2017	Face-to-face/58 min	16 pages/6901 words
	Customer 3	Mill Manager/USA	March 2017	Face-to-face/57 min	14 pages/7058 words
	Customer 4	Mill Manager/UK	November 2016	Face-to-face/1 h and 8 min	11 pages/4760 words
	Customer 5	Procurement Manager/Chile	November 2016	Face-to-face/44 min	5 pages/1711 words
	Customer 6	Procurement Manager/Chile	November 2016	Face-to-face/53 min	7 pages/2687 words
	Customer 7	Mill Manager/Poland	October 2016	Face-to-face/1 h and 29 min	14 pages/7653 words

2012), and service opportunity creation (Alvarez & Barney, 2007), and (3) ambidextrous servitization, also comprising two sub-codes: exploitation and exploration. We consider ambidextrous servitization to involve both *exploitation* in terms of employing current assets and capabilities to modify current service offerings, and *exploration* referring to developing new assets and capabilities to offer new solutions (Koh-tamäki et al., 2020; March, 1991).

During the data analysis, we identified one emergent theme code that was not considered earlier in our theoretical background. This emergent theme code is entrepreneurial actions, comprising two sub-codes: boundary spanning and bricolage. We iteratively returned to theory and used existing literature to define these two sub-codes. *Boundary spanning* refers to the integration of cross-boundary functions, both within the provider organization and between it and the customer organization, which define, create and deliver customer value (Piercy, 2009; Prior, 2016). *Bricolage* refers to “making do by applying combinations of the resources at hand to new problems and opportunities” (Baker & Nelson, 2005, p. 333).

Our data structure with the theme codes, sub-codes, and findings with data excerpts are presented in the Appendix. We interpreted the empirical results in the context of the interview narratives, and examples of value co-creating activities in which the middle managers had been involved during the case company’s servitization. This is in line with Van Maanen (1979) assertion that qualitative research should seek for meaning rather than frequency, and positions this study in the critical realist paradigm, where the phenomenon is viewed through the lenses of the people participating therein (Welch & Piekkari, 2017). We present and discuss the findings in the next section.

4. Findings

This section details the findings related to the value co-creating activities that middle managers were undertaking during Valmet’s servitization. In terms of how middle managers co-create value and engage in entrepreneurship in servitization, we found that the middle managers in two task groups have roles in different value-creating activities with different entrepreneurial actions. Specifically, the key account managers’ (KAMs) responsibilities and involvement in value-creating activities was focused through their boundary spanning on supporting customers’ value-in-use, but their approach widened as the servitization process advanced. Similarly, the product development managers’ (PDMs) ability to focus on value co-production through bricolage was enhanced by the servitization initiative. Fig. 1 presents servitization as an ambidextrous phenomenon consisting of exploitation and exploration in two iterative processes. That is to say, the servitization initiative aims to enable KAMs to be more proficient and able in exploiting service opportunities and improving the customer’s service experience, and, simultaneously, to provide more possibilities for PDMs to co-operate with customers to develop service opportunities that are completely new and outside the current portfolio. Next, we will connect our empirical findings with Fig. 1 in accordance with the two iterative processes, and demonstrate our propositions.

4.1. Value-in-use, boundary spanning, and service opportunity discovery

The KAMs work intensively with their customers and become familiar with their operations in order to provide support and development ideas. The KAMs define their mandated role as supporting the customer’s value creating activities, mainly through the day-to-day

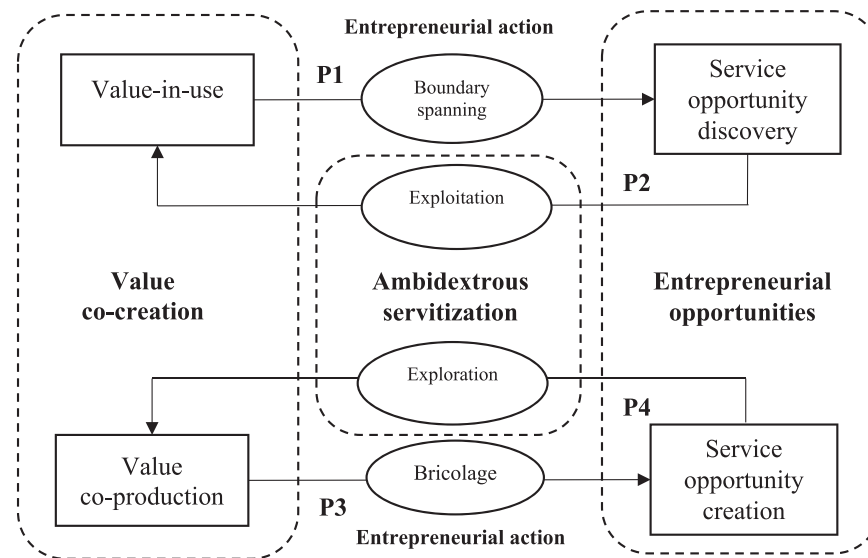


Fig. 1. An entrepreneurial framework for value co-creation in servitization.

support they are able to offer, their immersion in the customer's business and understanding thereof, and the reciprocal relationship they share. The KAMs see themselves as part of the mill team, responsible for ensuring the customer's equipment is operating smoothly and business objectives are being met. In order for the customer to experience value, the KAMs work to improve the existing infrastructure and provide quality improvements. In this role, they hold regular meetings and maintain a presence at the mill, to be aware and approachable.

The servitization initiative aims to lower the threshold for customer-facing staff to broaden the scope of conversations. In practice, this means training the KAMs to be proactive in analyzing the customer's business and raising improvement ideas. This is in line with customers' stated need for a closer, relationship-focused approach to doing business: "I invite [Valmet] to work together with us, not in the spot sale or purchasing, we need to work in long-term." (Customer 3).

Value-in-use focuses on the customer's utilization of the equipment and therefore, from the KAM perspective, on the support they can offer through understanding the customers better and to a greater detail. Being closely aligned with the customer's goals and business development enables them to discover service opportunities based on real needs. By utilizing their knowledge assets, they can create combinations of solutions that are tailored to customer needs:

"We try to understand, what is the real problem, what is the real pain point [the customers] have. Then, we try to analyze and understand the solution to bring added value to the customer." (KAM 6)

Co-creating value-in-use therefore requires KAM's to immerse themselves in the customer business in order to provide analysis of what is required and how they can have a role in improving the situation. By understanding the value that is provided through utilization of the products based on how the users act and what is their level of operational competence, KAMs can be proactive in offering service improvements. This is also appreciated by customers, who actively seek more and closer co-operation based on increased value-in-use rather than just better machinery:

"I think they've got a good product there; it's just the matter of providing that day-to-day type service where they come to the machine and do rounds and look at things and give you a report and some recommendations and stuff."

(Customer 7)

However, the KAMs have a dual role, acting at the organization-customer interface. Their presence at the mill allows them to discover

service opportunities but following up on those requires more support from the internal organization. Thus, the KAM must be an active boundary spanner, to advocate internally for the customer and realize the opportunity solutions, as the internal organization lacks the customer knowledge: "The guys in Finland or Sweden, they don't have the feel for what's happening here." (KAM 4).

The KAMs are instrumental in boundary spanning to bring in the right people to design service solutions, because they see the full picture in the field, even if they lack the requisite technical expertise to find the right solution. The KAMs identify as facilitators, first responders, or coordinators who can add value for the customer through boundary-spanning behaviors.

"We can bring more value to the customer and also to us. We are trying to create some synergies between services and mill improvements and other business units in a unique offer to the customer."

(KAM 5)

The above empirical evidence shows that KAMs engagement in co-creating value-in-use enhances the discovery of service opportunities that exist in the business operation between Valmet and its customers, but requires boundary spanning behavior from the KAM both in being part of the customer environment and by providing internal resources. Research has found that the interaction between customer boundary-spanning and within-firm coordination activities influences perceived customer satisfaction (Sleep, Bharadwaj, & Lam, 2015). Moreover, boundary spanning and cross-boundary integration are important to the implementation of business solutions and managing complex market networks (Piercy, 2009; Prior, 2016). Prior literature has suggested that boundary-spanning middle managers can act as knowledge integrators (Hakanen, 2014). Our empirical findings provide new insights that KAMs as boundary-spanning middle managers co-create value-in-use within their external relationships with the customers and internal networks in the organization, thus discovering more service opportunities. Although the empirical evidence in this study specifies KAMs as the focused middle managers, the theorizing of our findings may be applied to middle managers as a wider group in servitizing firms, because the servitization initiative aims at transforming the entire organization. Therefore, we propose that:

Proposition 1. Co-creating value-in-use facilitates service opportunity discovery through middle managers' boundary spanning.

4.2. Exploitation in ambidextrous servitization

The servitization initiative has launched an operational transformation in the company along a cultural shift of how services are approached.

“We’re in a state of transformation. (...) We have to think about our service offering from a new perspective.” (Middle manager, Headquarters, HQ 2).

“We are developing our concept of full service. During this, the customer is more open to some new process solutions and services with us.” (KAM 5)

The servitization initiative affects the KAMs’ daily work in that they are expected to engage with customers earlier in the decision-making process, create higher-level contacts, and advocate a partnership approach to working. Through these actions, KAMs get deeper ingrained in the customer’s business:

“I think we’ve always had the connection with the maintenance guys and the engineering guys, but now, working with [the servitization initiative], I believe we are having meetings with the upper management.”

(KAM 3)

“In the past the discussion was just that, okay, I need this device, I need this equipment. Now it looks a bit different: Customers start to discuss with us like partners, not just a supplier.”

(KAM 7)

“We have to be close to our customers to be part of early conversations when issues begin, (...) and we are, and I think that has changed with our [servitization initiative].” (KAM 2).

The KAMs are integrating the servitization approach in their daily work, enhancing the value-in-use experience for the customer as service opportunities are exploited. In the following two excerpts from KAM 4, exploitation has created a positive cycle of approaching opportunities on a continuous basis:

“What you soon realize is that you’re going through [servitization] without thinking about it. It’s in the way you approach things at the mill, the way you approach people at the mills.”

(KAM 4)

“By selling solutions and not just trying to drive products, we got a performance agreement which is still running today. That has caused me some benefits with respect that when we go in and present, we never just present products and say here is XYZ because XYZ could come from anywhere. We present a solution to a problem.”

(KAM 4)

Exploiting service opportunities requires modifying current assets and capabilities to provide increased value for customer, and this requires harmonizing solutions offerings across the company. The servitization initiative’s focus on solutions requires drawing expertise from different sides of the company, resulting in new kinds of configurations:

“I think in the past we were very siloed; one business division wouldn’t really talk to another one, they wouldn’t work together. But I guess [the servitization initiative] put more emphasis on [co-operation in solutions], it was more publicly known and throughout the corporation that this is the way to go now.”

(KAM 1)

Harnessing the competence base of the whole company was generally regarded among the respondents as a positive outcome of the servitization initiative, as it helped the KAMs provide broader-scale solutions. They were trained to seek out opportunities where multiple business units could cooperate and, thus, build solutions on a larger scale to exploit those service opportunities. In addition, the initiative has provided tools and the competence to engage in long-term solutions

planning, which enabled solutions to be better aligned with the customer’s operational environment:

“Now we go speak with the leaders of the mill, and we find out what they are looking to do for the year and that’s a great opportunity to connect with the mill and show them that we are going to be pushing in the same direction that they are going to work.”

(KAM 3)

“With you as the customer, we want to do it together, we want to develop the process, we want to develop our processes to mirror yours, get on your annual clock and make sure we are in the discussion early enough to be developing the solutions.”

(KAM 2)

“I think one of the strongest [benefits] is ownership from a company like Valmet and having a stake in the operations of [our] company. In other words, they feel like they’re a part of the team and they’re contributing, they own the process.”

(Customer 2)

While the KAMs’ responsibilities or mandate has not changed as a result of the servitization initiative, the scale to which they operate in exploiting service opportunities has widened due to the tools and support they receive from the internal organization. Being part of the customer’s annual planning cycle at the strategy level affords them a greater level of exposure, which in turn allows them to engage in further value co-creating activities in the day-to-day business.

The prior literature has suggested that exploitation is associated with leveraging existing organizational capabilities (Hjelmgren & Dubois, 2013; Tu, 2010; Zimmermann et al., 2018), and involves efficiency, control, refinement, and execution (March, 1991). Our findings offer novel insights that middle managers’ exploitation of service opportunities plays an essential role in refining and executing the case company’s servitization initiative to co-create more value-in-use. Based on the above, we propose:

Proposition 2. Servitization reinforces co-creating value-in-use through middle managers’ exploitation of service opportunities.

4.3. Value co-production, bricolage, and service opportunity creation

The PDMs interviewed for this study did not have a uniform mandate, and the term PDM here encompasses a number of roles at the mid-managerial level, combined for convenience. What unites these individuals is their role under the umbrella of product development, technical expertise, some level of access to a budget that can be allocated to customer projects, and the possibility to engage customers widely rather than having a set list of named accounts.

Four of the interviewed PDMs discussed specific, named projects as examples of value co-production with customers, which they had been able to launch as a consequence of the servitization initiative’s increased focus on customer engagement (Valmet, 2017). The push to co-produce value and secure early customer involvement in product development was introduced as a part of the initiative. The aim was to make the product development process successful faster by a) providing customers with value-added products earlier in the process as a minimum viable product, and b) weeding out non-viable products at an early stage through constant customer feedback (Valmet, 2018).

The co-production projects were initiated by either PDMs or customers, but the common thread was that they were all focused on specific customer needs rather than being technology-led. This is a hallmark of the servitization initiative, which places the focus on the customer’s business rather than the supplier’s own production and sales priorities. In some cases, the PDMs were deliberately looking for customers willing to consider new, loosely defined ideas with whom to launch a project. Shaping such ideas into service opportunities as the projects advance requires customer input, which can influence the direction of the

project:

“We might not have all the tools at the beginning, but [customer engagement] guides product development in the right direction.” (PDM 4).

However, in cases where the customer provides less input in terms of suggestions and discussions, being integrated into the customer’s systems with access to real-time data proves crucial. Digitalization and access to data provide the supplier with the potential to engage with the customer in new ways through digital applications. This creates and constructs new service opportunities through deeper integration into the customer’s core business and multiple points of shared cooperation. Analyzing the data, whether on energy, hardware, or consumables expended, reveals areas where improvements can be made, and often this includes how people operate the machinery. Bringing this data to the fore provides the supplier with an opportunity to offer advice on the use of the machines, benefitting the customer:

“My service is information; it’s knowledge rather than product.”
(Customer 5)

“We gathered data and started analyzing it as a proof of concept. The most promising – or valuable to the customer – target ended up being forecasting vibrations which lead to a predictive model and therefore better understanding [of how to operate the machine].”
(PDM 1)

“We can see when the utilization parameters have been good and we can guide the customer to more energy efficient operations based on the machine data.”
(PDM 4)

In order to create these new kinds of service opportunities, which were based on influencing behavior rather than equipment, and seeking customer involvement and data, PDMs’ proactive involvement was crucial in project initiation. As one interviewee puts it: *“We’re doing this out of love for the sport”* (PDM 1). In another case, the PDM used to work for the customer and changed jobs to move onto the supplier side; both parties were spurred on by the knowledge of the issues they had experienced: *“When I left, I brought with me the motivation to start building this strategy and these solutions”* (PDM 3).

The need for innovation underlies the PDM’s accounts of value co-production, since they were trying to create services and service opportunities in areas that were unfamiliar both for the company and for the industry at large. Even though a large multinational company such as Valmet has more resources available than a start-up, the way these PDMs were approaching the service opportunities lead to many of them feeling like they were venturing into something new where they were restricted in their access to vital resources such as budgets, personnel, or capabilities.

“Because there are no named persons, there’s also no resources. It’s been a project alongside my day job, and I’ve done it when I’ve had the time, to have something interesting on the side.”
(PDM 1)

“When we finally got the agreement, we realized we don’t have people to do it. We don’t have resources ready for a solution this different.”
(PDM 4)

This felt experience of having to source new kinds of resources or find new ways of funding projects with customers combined with the innate motivation to create something novel from the current portfolio suggests the PDMs are employing combinations of the resources at hand to new problems (i.e., bricolage) as a means of creating service opportunities. The period of ‘muddling through’ can last throughout the product life-cycle, as the interactive nature of service opportunities means that the offering has room to grow continuously, and consequently, resources continue to be combined from wherever necessary.

“A year ago, this project looked very different to how it does today. (...) As we’re getting new customers, we’re growing our own capabilities and we can bring more features to the product.”
(PDM 3)

“We have to make an abrupt personnel investment to have the resources. (...) Somehow the KAM system needs to be linked with the Performance Centers.”
(PDM 2)

Thus, value co-production projects start from ideas that are loosely defined and, consequently, the PDMs are free to create service opportunities based on what they know, what their strengths are, and what kinds of expertise they have access to internally and externally. Rather than seeking to identify spot sales or replacement opportunities, the co-production projects create ways for Valmet to operate in new types of partnerships through digital connections, or offer new types of information on how to use equipment rather than simply providing hardware. While prior literature suggests critical bricolage capabilities influence service innovation outcomes (Witell et al., 2017), our study offers new insights into middle managers using bricolage in situations where they cannot justify large investments upfront and are therefore limited to their own efforts, expertise and networks in order to transfer co-production to new solution opportunities. Based on the above, we propose that:

Proposition 3. Value co-production facilitates service opportunity creation through middle managers’ bricolage.

4.4. Exploration in ambidextrous servitization

The organizational change to a more customer-focused approach did not aim to change the PDMs’ way of working fundamentally, but it did give them the potential to explore service opportunities by developing new kinds of solutions if and when the situation required (Valmet, 2017). PDM 5 managing the servitization initiative described the process as *“revolutionary”* in the history of the company, as the aim is to move to value-based selling. PDM 6 pointed out that the servitization initiative has influenced the company’s business model, and the new models would be *“different to what this firm is used to. For example, services provided through a portal operate on a non-traditional model.”* It was generally agreed that fundamental changes were taking place in how the company engages with customers and operates internally. This could potentially lead to challenges in finding people capable of exploring new kinds of opportunities.

“For the older crew, it’s going to take some effort to start using new kinds of methods, new thought patterns.” (PDM 4).

One particular transformational co-production project saw the development of a customer platform connecting the company and customer organizations at multiple levels (Valmet, 2018). While the product was based on customer data, it was built combining new assets and capabilities on existing product foundations:

“We had a core product for what the customer needs and I could see that in principle, with the technologies at hand, we could build on top of that the product that the customer ultimately needs. So first we had a basic level design period to see what kinds of technologies we have, what is the customer need, and we decided that together we can do it.”
(PDM 3)

The project was special in that the PDM and the team worked closely with the customer, and let the product grow organically based on customer needs. Employing an agile development style and resourcing assets as needed allowed the product to grow in unexpected directions, but also built a flexible platform that could easily be applied in different situations.

“We didn’t have a product like this when we started to develop it and we realized it was a risk (...) So while we’re building it, we should also turn it into a product we can sell globally.”

(PDM 3)

The product allows Valmet access to the customer’s core data and administrative processes, creating security ramifications and hence bringing the partners closer together. It represents an exploratory approach to development and is distinctly different to traditional in-house development processes.

Another example from PDM 2 secured customer engagement using historical data from a customer’s mill, and then provided the customer with real-time data and visualizations on the customer’s operational efficiency, but the commercialization opportunities may ultimately be much wider than initially presumed. Analysis and data can lead to exploration in service provision, by adding monitoring and optimization in use, while the development of digital products can result in new product configurations that may become useful on a larger scale when transported to different settings. Both methods represent unintended consequences with the potential to result in successful commercialization, and realigning product development away from machine efficiency and towards offering service products in monitoring, analyzing, and consulting opens new revenue streams for the supplier.

“This [analytics app] takes us to a higher level of earning logic, closer to the customer’s value chain. (...) It’ll never be a stand-alone business, but it keeps our main business alive.”

(PDM 2)

However, to complete the circle and fully reap the benefits of exploration, organizational mechanisms were required to enable continued co-production. Most respondents noted that the lack of follow-up is a resourcing issue, due to insufficient in-house expertise along with organizational constraints, meaning the project owner may not be able to hand over the results:

“I don’t want to get stuck running the application forever.”

(PDM 1)

The PDM’s own interest is once again highlighted as a factor in the development project, juxtaposed with the organization’s ability to successfully commercialize the product. This further shows that individual managers’ exploration of service opportunities is crucial in moving servitization towards successful co-production, but those actors operate within the confines of the organization. Scholars have reported that exploration requires creating new organizational capabilities (Hjelmgren & Dubois, 2013; Tu, 2010; Zimmermann et al., 2018), and involves experimentation in pursuing innovation that is new in terms of the firm’s existing knowledge base (He & Wong, 2004). Our empirical findings provide new knowledge that middle managers’ exploration of service opportunities is critical in bringing the case company’s servitization initiative to fruition in the form of more co-production activities. Thus, we propose that:

Proposition 4. Servitization reinforces value co-production through middle managers’ exploration of service opportunities.

4.5. An entrepreneurial framework for value co-creation in servitization

The above empirical findings suggest an entrepreneurial framework (see Fig. 1) of how middle managers co-create value and engage in entrepreneurship for servitization. Servitization requires middle managers’ entrepreneurial actions—boundary spanning and bricolage—to discover or create entrepreneurial opportunities in the form of services. Boundary spanning is both external whereby the KAMs become increasingly integrated in the customer environment through long-term relationships, higher-level contacts, and participation in annual clock planning; and internal bringing together expertise in different areas of

the company to create solutions. Bricolage is required by PDMs who initiate customer-led projects with undefined profit plans, who therefore need to secure their own resources and budgets for the projects, often requiring new kinds of expertise in utilizing data to benefit the customer.

Our framework shows two iterative processes. The first, co-creating value-in-use, results in service opportunity discovery and eventually leads to exploitive servitization; in turn, exploiting the discovered service opportunity enhances the co-creation of value-in-use. For example, KAM 2 recaps the servitization initiative for KAMs as delivering the Shared Journey Forward commitments and service offerings to the customers through the daily operations of business-as-usual. They maintain that being part of the customer’s planning processes is integral in understanding customer needs and therefore discovering the real service opportunities. However, as the nature of solutions has undergone a transformation as a result of the servitization initiative, the KAM has had to do more boundary spanning within the company’s different functions as they take on a larger coordination role for solutions development.

Getting in early in the conversations and taking a consultative role along with a widened mandate for solutions, KAMs span existing boundaries or “silos” internally and externally, leading to a deeper understanding of customer processes. One of the Shared Journey Forward’s stated commitments is being “close to you”, echoed in KAM 2’s statement that the value they bring to the customer is in being able to solve issues and thus provide a better service in everyday use. Thus, exploiting service opportunities discovered from close co-operation leads to enhanced value-in-use for the customer.

The second process, value co-production, results in service opportunity creation and eventually leads to explorative servitization; in turn, new service opportunity exploration facilitates value co-production. PDM 2’s account provides insight on how the servitization initiative enhances exploration. Together with the customer, they embarked on a development process which had no existing framework, no direct mandate, and did not have a set goal but aimed to create something new in software app development based on customer data. Because the approach and subject area at the time were both new to the company, the pool for existing resources was limited. PDM 2 tried to overcome this by seeking synergy with the customer, utilizing his own development team, involving internal talent laterally, and hiring an external developer.

Though mixing and matching resources like this has been time-consuming and taken a toll on PDM2’s own time, they feel the effort and dedication put into the project has not been wasted because ultimately the benefits are greater than the costs. Creating new service opportunities is not just improving the current sales but it enables the company to explore new earnings avenues, which in the long term are crucial for survival. Concurrently, getting into the customer data and building scalable custom services from it has opened up multiple new lines of enquiry where the company and customer can start exploring opportunities in the future, thus enhancing continued value co-production.

Using these two contrasting accounts as examples allows us to illustrate the two ways in which servitization is taking place in an ambidextrous manner in the company but also how middle managers are involved in different ways in the processes. KAMs, through their job role, are focused on sales but the servitization initiative is driving them to be more collaborative with the customer, focusing on early involvement and integration leading to discovering service opportunities beyond maintenance or like-for-like replacements. PDM’s, on the other hand, are enabled to move towards a development style where they can explore new service opportunities in areas that are beyond the scope of the traditional machine development. They can do it in ways where the returns are undefined at start, there is no clear business plan, and resources are sourced from a mix of internal and external sources, leading to new earning logics and meeting customer demand. This provides new knowledge to our current understanding of the one-directional influence

of value co-creation towards servitization (see for example [Chen et al., 2011](#); [Kowalkowski, Gebauer, Kamp, & Parry, 2017](#); [Rabetino, Harmen, Kohtamäki, & Sihvonen, 2018](#)).

In terms of being ambidextrous, our framework indicates that servitization can involve both exploitation and exploration simultaneously. This is supported by earlier research that views servitization as a firm renewal strategy, requiring firms to either exploit or explore opportunities in terms of service business development ([Fischer et al., 2010](#)). Our framework on ambidextrous servitization also brings new insights to the earlier literature that highlights the need for balance between exploitation and exploration in high-tech firms ([Tu, 2010](#)), and their interplay in technological solution development ([Hjelmgren & Dubois, 2013](#)).

5. Discussion and conclusion

5.1. Theoretical contribution

This study develops an entrepreneurial framework for value co-creation in servitization, and explores how middle managers influence that value co-creation. By integrating servitization and entrepreneurship theory, our study makes several contributions. First, we make a contribution in the servitization research, considering servitization as entrepreneurial and applying entrepreneurial opportunity theory to reveal the micro-level dynamics of middle managers as entrepreneurs and service opportunities in servitization. Prior literature has only taken the organization-level perspective and found that entrepreneurial culture can trigger new innovation concepts and R&D excellence to achieve service innovation success ([Ettlie & Rosenthal, 2012](#)). Our research findings add to the microfoundations of servitization research (cf. [Cui, Su, Feng, & Hertz, 2019](#); [Lenka et al., 2018](#)), showing servitization as a driver for middle managers' entrepreneurial actions. However, middle managers' entrepreneurial actions require top management and organizational support to facilitate corporate entrepreneurship (cf. [Hornsby, Kuratko, Shepherd, & Bott, 2009](#)), such as training, resources, and authority. Conversely, lacking such support could hinder individuals from taking entrepreneurial actions. This study frames services as entrepreneurial opportunities for middle managers in different task roles to discover or create through their entrepreneurial actions. Specifically, we find key account managers' boundary spanning benefits service opportunity discovery, whereas product development managers' bricolage is crucial to service opportunity creation.

Second, we contribute to the value co-creation literature ([Chen et al., 2011](#); [Sjödin et al., 2016](#); [Sjödin et al., 2020](#)), providing a micro level understanding from the middle-management perspective. The majority of the previous literature has studied value co-creation at the organizational level, for example, focusing on the resources and capabilities required from different economic actors (e.g., manufacturers, intermediaries, customers) in B2B service systems for value co-creation ([Breibach & Maglio, 2016](#); [Kohtamäki & Rajala, 2016](#); [Story et al., 2016](#)). This research provides insights into value-in-use and value co-production from an individual-level perspective within an organization, which are still lacking from the extant literature. Focusing on an individual-level perspective is important because it is individuals who seek and identify valuable opportunities for new services, advocate their development, and apply them in the firm ([Lenka et al., 2018](#)). The study shows through middle managers' boundary spanning, co-creating value-in-use enhances the discovery of service opportunities whereas through middle managers' bricolage, value co-production enhances the proactive creation of service opportunities.

Third, this study adds new knowledge to exploration and exploitation literature in servitization research ([Baines et al., 2020](#); [Bustinza et al., 2020](#); [Kohtamäki et al., 2020](#)). Our research shows that PDMs' exploration is the means for servitization to enhance value co-production whereas KAMs' exploitation is the means for servitization to enhance value-in-use. Thus, this study reveals how value is co-created

in servitization through exploration and exploitation by individuals, an under examined area in current literature. The entrepreneurial framework for value co-creation in servitization (see [Fig. 1](#)) not only recognizes the importance of value co-creation towards ambidextrous servitization, but also unveils the influence of the latter on the former. In particular, we identify two separate iterative processes: co-creating value-in-use, service opportunity discovery, and exploitive servitization; and, value co-production, service opportunity creation, and explorative servitization. Moreover, although reconciling both exploitation and exploration can be challenging ([March, 1991](#)), this study shows that exploitation and exploration can be simultaneously achieved by implementing them with different middle managerial role tasks.

Finally, this study acts as a specific call for entrepreneurship frameworks for research on servitization. Earlier research has only provided evidence that entrepreneurial culture can lead to successful service innovation ([Ettlie & Rosenthal, 2012](#)). Recent literature started to apply effectuation theory to investigate servitization ([Cui et al., 2019](#)). This study further enriches the entrepreneurship perspective on servitization by using entrepreneurial opportunity theory to explain individual behavior within industrial manufacturing firms undergoing servitization. The study offers new theoretical insights that middle managers (KAMs and PDMs) can be considered as entrepreneurs who discover and create solutions as service opportunities during the entrepreneurial journey of servitization.

5.2. Managerial implications

The key insight arising from this study is that middle managers can be entrepreneurial when engaging in value-creation activities during servitization. Such endeavors would ensure value co-creation within the current operation of the existing infrastructure, and in developing solutions that enable the customer to grow their profitability going forward. The first managerial implication is that customer-facing personnel involved in day-to-day activities with the customer must have the requisite authority and training to operate entrepreneurially. In practice, this means their targets should encourage maintaining long-term business relationships, seeking contractual agreements rather than spot sales, and that they are not unduly penalized for risk-taking behaviors. Furthermore, the back-office function should be organized to support the flexibility required to operate with a customer-focused, value-based selling approach. Individual value-creating activities are only converted to value offers through the involvement of the organization as a whole, indicating an interplay between the micro and meso levels of servitization. In managing a servitization initiative, it is necessary to ensure individual actions are in line with organizational development to prevent value destruction.

The second managerial implication is that it is important for middle managers to find novel approaches to collaboration and value co-production with customers at the strategic level. Recognizing individuals with the drive and commitment to take on new and untested projects that can lead to new commercial offers is as important as providing them with the space to pursue their interests. However, the internal organization must also be prepared to offer training and support on how to engage in co-production with the customer, including guidelines on operating models and third-party development. Finally, individuals should not be driven into the ground by their own inventions. Mechanisms enabling a smooth handover of innovative projects to be administered as business-as-usual will allow entrepreneurial individuals' talents to be freed up for new ventures, while the company can benefit from the replication and commercialization of successful projects.

5.3. Limitations and future research suggestions

One limitation of our research is its qualitative method in a single-case context, which was chosen to ensure clarity in the core concepts

of “value” and “service” across the respondents. Consequently, we should consider this study contextual rather than universal. The limited data set allowed us to find connections between managerial behaviors and servitization, but a full-scale model for servitization, incorporating the entrepreneurial opportunity view, is not within the scope of this study. We suggest future research could conduct qualitative studies in other contexts, and that quantitative studies could test our propositions. Further, future studies based on our model could build an understanding of servitization as an actor-led phenomenon, which may in turn spark more research adopting a practice-based viewpoint on the literature. Future research could also investigate the organizational barriers and

resistance to servitization. Moreover, ensuing studies utilizing our approach to servitization as an entrepreneurial phenomenon may also shed more light on the recognized service paradox, where financial gains are not realized in line with the investments made in structural changes, on the understanding that servitization revenues need to be accrued from both the exploitation and exploration of opportunities. Future studies could also investigate organizational practices that assimilate middle managers’ knowledge, and transform customer learning into best practices in servitization. Last, we encourage research to integrate other entrepreneurship theoretical lenses to study servitization, and provide a more fruitful understanding of its microfoundations.

Appendix. Data structure of the study

Theme code	Sub-code	Findings with data excerpts
Value co-creation	Value-in-use	<p>- Value-creating activities are defined as support and after-sales in a partnership “Value is the extra you bring that you can’t put a price tag on. It’s not the equipment you change but the support around it.” (KAM 1) “[Value is being a] leader in technology. Good communication with [the customer]. Easy cooperate with both parties. Quality. A partnership with [the customer] to achieve their goals. For example, [the customer] has a production target for each year to keep their budgeted costs under control. They want Valmet as a partner in order to help them reach these targets.” (KAM 6) “I’d say the core value comes not from delivering products and production lines but from our outstanding ability to share responsibility and help the customer succeed.” (HQ 5)</p> <p>- Provider activities affecting usage increase or decrease value experience “Basically I see Valmet service as good support for me. Because I’m the man on the shop floor, I’m with the customer all the time, so if I need support, any kind of support, I see that as a service coming from Valmet. I offer the customer a service and I expect my company to support me. We’re all service people at the end of the day.” (KAM 4) “If we have a problem, [value is] whether [the supplier] acts immediately or says the whole team is unavailable. If there are three to four situations like this, we say: ‘Don’t call, it doesn’t make any sense.’ So the main expectation, the first thing, is daily operations. If we have problems, we need to solve them immediately.” (Customer 6)</p> <p>- Value is embedded in relationships and is socially constructed through trust “Value to me is about responding quickly. Providing equipment that actually helps them improve, not just selling something. Being trusted.” (KAM 3) “I think that the value [customers] get, and I hear this a lot from customers, is that they trust us.” (KAM 5) “I shouldn’t say this but there is also the impact of the personal relationship of working with someone you trust. I think that’s very important and I do trust [the KAM].” (Customer 2)</p>
	Value co-production	<p>- Involving the customer in the development process to align the solution with a real problem “I’ve noticed before that if we just think about what we ourselves would want to find from the data, it’s too easy to stay at a general level. This is why developing together [with the customer] is natural and normal.” (PDM 2) “This case was born out of the customer providing the need. Then we started developing it, and we already had the elements in place so we could proceed quickly. What’s interesting about the product is that while we were developing it, another customer bought it as a service. (...) Now we’ve applied it to multiple contract customer cases because it was such a ridiculously good idea. But it wasn’t us who came up with it, it came from the customer.” (PDM 6)</p> <p>- Involving active customers as partners “I think the customer needs to be development-positive. It’s always easier to start moving when you have someone who gets excited and is open to new but vague ideas. The person needs to be that way to start developing things together, but even if you can find someone like that, there also needs to be a personal relationship. Knowing the person you’re selling the idea to influences its success.” (PDM 2) “We involved the customer by asking them to tell us how they would use it [the user interface] and what it should contain. As technocrats, we often make really great systems but then don’t spend much time on developing the user interface, and ultimately the system isn’t used the way the customer wanted it to be.” (PDM 6)</p>
Entrepreneurial opportunities	Service opportunity discovery	<p>- Discovering service opportunities through integration with the mill team and the customer organization “I never have appointments at the mill. I just go in and walk around. (...) So, I’ll be honest, I do very little in the way of after-sales, because they see me so much and there are always inquiries [for improvements].” (KAM 4). “The daily work is really important. You have to trust the people you work with, you have to create relationships every single day with different people, including end-users, mill managers, and people in different positions. That’s very important for getting projects.” (KAM 5)</p> <p>- Discovering service opportunities through reaching customers’ targets in existing operations “You have to know the general but very important information about the customer, so that you know how best to work with them. If they have production targets for the mill or if they’ve lost time in some area, you have to find a way to help them, find a solution you can offer so that they will reach their targets, or help with their energy or chemical consumption.” (KAM 6) “There are really two aspects to it. There’s maintaining the existing equipment and making sure that it’s up-to-date (...). But then you’re looking to the future as well, thinking how you can challenge the norms of papermaking.” (Customer 5)</p>
	Service opportunity creation	<p>- Creating service opportunities through generating new ideas based on customers’ unmet needs “It became a case for proof of concept as much by coincidence as anything else. We had a few hypotheses on the problem and started unravelling it from the angle of finding someone as an internal sponsor who’s excited about doing this kind of data mining.” (PDM 1) “When the customer sees that you’re there and the application is working, it starts generating new development ideas now that you’re integrated into the customer’s value chain. Your presence is increased when it’s half digital, and then a contact center or performance center can start making the development suggestions.” (PDM 2) “We can collect data with our existing technology and then build a user interface on top of it. (...) There’s years of work ahead in this. I think we can use the term platform that will develop over time. It’s being developed directly to meet the customer’s needs to plug the holes they’ve been struggling with for years.” (PDM 3)</p> <p>- Creating service opportunities through creating new solutions beyond existing operations. “At the beginning, we had to test the idea, which was pretty peculiar because we’re building a model that would be able to tell the future (...). We have a short history and limited resources for this type of business.” (PDM 2)</p>

(continued on next page)

(continued)

Theme code	Sub-code	Findings with data excerpts
Entrepreneurial actions	Boundary spanning	<p>“We’ve made quick decisions and both ourselves and the customer have taken certain risks. (...) In practice, we’ve started to approach it even though we never had a product for it. But we haven’t promised to deliver a perfect system, just that we’ll develop in this timeframe the elements that are important. Later, we can develop a full energy optimization system, if we decide together that it’s the reasonable course of action. (...) This is a new way of running a project for me, too.” (PDM 3)</p> <p>“Offering optimization is one thing but we should also offer services to monitor and ensure that the customer keeps to the optimal level.” (PDM 4)</p> <p>- Integration within your own organization to define, create and deliver customer value</p> <p>“Customer value is the connection between [the servitization initiative] and agreement-based business. In both, we aim to emphasize customer value and maximize our capability [as one organization] to offer solutions.” (HQ 3)</p> <p>“[Changes due to the servitization initiative include] having conversations early [in the buying process] with a customer is a gain. Another is having a common language within the Valmet organization. It seems that we’re able to discuss key players and where the customer is in their buying process, and the key components. (...) So the first change is external. We’re having early conversations with the customers. The second change is internal. We have a unified approach.” (KAM 2)</p> <p>- Liaison identity between the customer and the company</p> <p>“That’s probably the main part of our job, to achieve contact between the mill, our customers, and the specialists.” (KAM 4)</p> <p>“A lot of the time they just tell us the problem and my mission is to find the right person in Finland to work on it. Or the person who knows the right person to come up with a solution or a plan.” (KAM 7)</p> <p>- Identifying needs through higher-level integration and long-lasting relationships with the customer organization</p> <p>“I explained to the mill that by finding out what their plans are we can put our plans together to match theirs, and they seem very positive about it. (...) I believe the important part is that we’re getting closer to the decision makers, the upper management. I think we’ve always had a connection with the maintenance guys and the engineering guys, but now, working with [the servitization initiative], I believe we’re having meetings with the upper level management.” (KAM 3)</p> <p>“Previously we just said “This is what we are going to do, blah blah blah.” I think we approach it now in a more logical way. And I think the benefits [for the customer] are that we’re more of a partnership now. Instead of just saying “Valmet, get on with it,” they’re saying “Valmet, work with us.” (KAM 4)</p> <p>“I believe some of the [customers] talk a little bit more openly about what kind of support they’d like to get from us. In the past, the discussion was just like ‘I need this device, I need this equipment.’ Now it feels a bit different ... ‘I have a problem here, let’s talk about which solution could be best.’ (...) It takes a little more planning, customers know what they want and start to discuss it with us like we’re partners, not like we’re just a supplier.” (KAM 6)</p>
	Bricolage	<p>- Using resources at hand when facing new technology development</p> <p>“It’s not like there was an official process chart to follow or applying for a permit and getting the resources from somewhere with instructions on how to do it. That’s not how it went. [The development project] has been a curious creature living in the organizational flow.” (PDM 1)</p> <p>“I got my hands on some documents to figure out that we had a basic premise for it. We had a core product for what the customer needs and I could see that in principle, with the technologies at hand, we could build on top of that the product that the customer ultimately needs.” (PDM 3)</p> <p>- Addressing resource scarcity through innovation and learning</p> <p>“You need to be able to concentrate on your work and have the necessary resources to create something big. Now we’re bringing this new component of the industrial Internet or digitalization (...) I see that’s where this is going, to a remote presence.” (PDM 2)</p> <p>“The way I see digitalization we can do a lot with our current staff. It just means we need to teach them new ways of doing things. Previously you went onsite to check meters and dials but now you have to do the same thing from your desktop. When I talk of transformation, I think it’s important we use all our tools but more efficiently, with experts.” (PDM 4)</p> <p>- Recombining resources from third parties</p> <p>“When we talk about services on the [external third-party] platform, we may need completely new know-how on how the data is brought in, and how the platforms are constructed. (...) We’re in a hurry to get young people in.” (PDM 4)</p> <p>“We’ve built an application for follow-up and had a partner organization deliver the tracking devices. We’ve integrated their software in the package and the reason the customer doesn’t go straight to our partner is that it’s just one piece of it. (...) We’ve designed the product to be as simple as possible so it doesn’t have anything unnecessary. Everything that’s there is important to the customer.” (PDM 3)</p>
Ambidextrous servitization	Exploitation	<p>- Continued improvement and development of service offers</p> <p>“One thing we have to do on the service side is have enough people to handle what the mills need. They need more and more from us because there are fewer and fewer people at the mills due to staff turnover with people retiring.” (KAM 3)</p> <p>“I think the main difference [with the servitization initiative] is that we’re increasing services for our customers. We’re training our people, and in some cases also our subcontractors so that we have a good view not only of the services but on the safety issues, too.” (KAM 5)</p> <p>- Leveraging existing organizational capabilities to offer unified solutions</p> <p>“[The servitization initiative] does show in the way we approach a total solution, as opposed to product-based sales. Instead of saying we have three individual products, we approach the customer with one solution. We’re seeing more of that.” (KAM 2)</p> <p>“In terms of the process, I could say that we’re working in a more integrated way across the different units. For instance, we’re trying to combine solutions in different areas, not just including the service perspective, but also trying to bring the automation point of view to our solutions. We’re trying to combine different solutions from all the different areas to have a stronger proposal, to bring more value to the customer in our solutions. I think we’re doing things differently nowadays, compared to two or three years ago.” (KAM 6)</p>
	Exploration	<p>- Experimenting with new digital offers for commercial use</p> <p>“Actually, I’ve been quite surprised because I thought I’d have to change the parameters often but they’ve proven quite stable. (...) They’re a lot more valuable than I initially thought.” (PDM 1)</p> <p>“We’re talking about a digital transformation, about how we’re changing to utilize new digital technologies. We need new kinds of know-how, and new kinds of operating model.” (PDM 4)</p> <p>“I like [the servitization initiative] because for once we’re moving towards the customer perspective. (...) When the customer asks what’s new about the concept, we can say we’re utilizing the Industrial Internet and digitalization.” (PDM 6)</p> <p>- Developing new organizational capabilities to offer new solutions</p> <p>“[A solution] isn’t a package. Customer processes are all different; there are different kinds of automation systems. You need to involve experts as early as the sales phase, to determine how to get the customer data [to develop new solutions].” (PDM 4)</p> <p>“Valmet’s Industrial Internet services are based upon a meaningful dialogue with data. With our know-how in process technology, automation and services, you can turn your data into a valuable asset. Our systems and measurements with your other mill and plant systems provide an enormous amount of data. Our experts know which data to analyze, and how to utilize it. Together we can make tangible improvements to the performance of your mill or plant.” (Valmet website*)</p>

* Source: Dialogue with data. Available from <https://www.valmet.com/campaign/dialogue-with-data/>.

References

- Alghisi, A., & Saccani, N. (2015). Internal and external alignment in the servitization journey – overcoming the challenges. *Production Planning and Control*, 26, 1219–1232.
- Alvarez, S. A., & Barney, J. B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, 1, 11–26.
- Baines, T., Bigdeli, A. Z., Sousa, R., & Schroeder, A. (2020). Framing the servitization transformation process: A model to understand and facilitate the servitization journey. *International Journal of Production Economics*, 221, Article 107463.
- Baines, T., Ziaee Bigdeli, A., 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.
- Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative Science Quarterly*, 50, 329–366.
- Ballantyne, D., & Varey, R. J. (2008). The service-dominant logic and the future of marketing. *Journal of the Academy of Marketing Science*, 36, 11–14.
- Blazevic, V., & Lievens, A. (2008). Managing innovation through customer coproduced knowledge in electronic services: An exploratory study. *Journal of the Academy of Marketing Science*, 36, 138–151.
- Brax, S. A., & Jonsson, K. (2009). Developing integrated solution offerings for remote diagnostics: A comparative case study of two manufacturers. *International Journal of Operations & Production Management*, 29, 539–560.
- Breidbach, C. F., & Maglio, P. P. (2016). Technology-enabled value co-creation: An empirical analysis of actors, resources, and practices. *Industrial Marketing Management*, 56, 73–85.
- Bustinza, O. F., Vendrell-Herrero, F., & Gomes, E. (2020). Unpacking the effect of strategic ambidexterity on performance: A cross-country comparison of MMNEs developing product-service innovation. *International Business Review*, 29, Article 101569.
- Chen, J., Tsou, H., & Ching, R. K. H. (2011). Co-production and its effects on service innovation. *Industrial Marketing Management*, 40, 1331–1346.
- Chen, M., Chen, Y., Liu, H., & Xu, H. (2020). Influence of information technology capability on service innovation in manufacturing firms. *Industrial Management & Data Systems*, 121, 173–191.
- Coreynen, W., Matthyssens, P., Vanderstraeten, J., & van Witteloostuijn, A. (2020). Unravelling the internal and external drivers of digital servitization: A dynamic capabilities and contingency perspective on firm strategy. *Industrial Marketing Management*, 89, 265–277.
- Cui, L., Su, S. I., Feng, Y., & Hertz, S. (2019). Causal or effectual? Dynamics of decision making in servitization. *Industrial Marketing Management*, 82, 15–26.
- Desouza, K. C., Awazu, Y., Jha, S., Dombrowski, C., Papagari, S., Baloh, P., & Kim, J. Y. (2008). Customer-driven innovation. *Research-Technology Management*, 51, 35–44.
- Dubois, A., & Gadde, L.-E. (2002). Systematic combining: An abductive approach to case research. *Journal of Business Research*, 55, 553–560.
- Echeverri, P., & Skålen, P. (2011). Co-creation and co-destruction: A practice-theory based study of interactive value formation. *Marketing Theory*, 11, 351–373.
- Edmondson, A. C., & McManus, S. E. (2007). Methodological fit in management field research. *Academy of Management Review*, 32, 1246–1264.
- Edvardsson, B., Tronvoll, B., & Gruber, T. (2011). Expanding understanding of service exchange and value co-creation: A social construction approach. *Journal of the Academy of Marketing Science*, 39, 540–556.
- Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, 14, 532–550.
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases, opportunities and challenges. *The Academy of Management Journal*, 50, 25–32.
- Ettlie, J. E., & Rosenthal, S. R. (2012). Service innovation in manufacturing. *Journal of Service Management*, 23, 440–454.
- 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, 591–624.
- Friend, S. B., Malshe, A., & Fisher, G. J. (2020). What drives customer Re-engagement? The foundational role of the sales-service interplay in episodic value co-creation. *Industrial Marketing Management*, 84, 271–286.
- Garud, R., & Giuliani, A. P. (2013). A narrative perspective on entrepreneurial opportunities. *Academy of Management Review*, 38, 157–160.
- Green, M. H., Davies, P., & Ng, I. C. (2017). Two strands of servitization: A thematic analysis of traditional and customer co-created servitization and future research directions. *International Journal of Production Economics*, 192, 40–53.
- Grönroos, C. (2012). Conceptualising value co-creation: A journey to the 1970s and back to the future. *Journal of Marketing Management*, 28, 1520–1534.
- Grönroos, C., & Gummerus, J. (2014). The service revolution and its marketing implications: Service logic versus service-dominant logic. *Managing Service Quality*, 24, 206–229.
- Grönroos, C., & Voima, P. (2013). Critical service logic: Making sense of value creation and co-creation. *Journal of the Academy of Marketing Science*, 41, 133–150.
- Gruen, T. W., Summers, J. O., & Acito, F. (2000). Relationship marketing activities, commitment, and membership behaviors in professional associations. *Journal of Marketing*, 64, 34–49.
- Hakanen, T. (2014). Co-creating integrated solutions within business networks: The KAM team as knowledge integrator. *Industrial Marketing Management*, 43, 1195–1203.
- He, Z., & Wong, P. (2004). Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis. *Organization Science*, 15, 482–494.
- Helander, A., & Möller, K. (2007). System supplier's customer strategy. *Industrial Marketing Management*, 36, 719–730.
- Heyden, M. L. M., Wilden, R., & Wise, C. (2020). Navigating crisis from the backseat? How top managers can support radical change initiatives by middle managers. *Industrial Marketing Management*, 88, 305–313.
- Hjelmgren, D., & Dubois, A. (2013). Organising the interplay between exploitation and exploration: The case of interactive development of an information system. *Industrial Marketing Management*, 42, 96–105.
- Hornsby, J., Kuratko, D. F., Shepherd, D., & Bott, J. P. (2009). Managers' corporate entrepreneurial actions: Examining perception and position. *Journal of Business Venturing*, 24, 236–247.
- Huikkola, H., Rabetino, R., Kohtamäki, M., & Gebauer, H. (2020). Firm boundaries in servitization: Interplay and repositioning practices. *Industrial Marketing Management*, 90, 90–105.
- Kelly, S. W., Donnelly, J. J., & Skinner, S. (1990). Customer participation in service production and delivery. *Journal of Retailing*, 66, 15–35.
- Kohtamäki, M., Einola, S., & Rabetino, R. (2020). Exploring servitization through the paradox lens: Coping practices in servitization. *International Journal of Production Economics*, 226, Article 107619.
- Kohtamäki, M., & Rajala, R. (2016). Theory and practice of value co-creation in B2B systems. *Industrial Marketing Management*, 56, 4–13.
- Kowalkowski, C. (2010). What does a service-dominant logic really mean for manufacturing firms? *CIRP Journal of Manufacturing Science and Technology*, 3, 285–292.
- 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.
- Kuijken, B., Gemser, G., & Wijnberg, N. (2017). Effective product-service systems: A value-based framework. *Industrial Marketing Management*, 60, 33–41.
- Kuratko, D. F., Ireland, R. D., Covin, J. G., & Hornsby, J. S. (2005). A model of middle level managers' entrepreneurial behaviour. *Entrepreneurship Theory and Practice*, 29, 699–716.
- Lenka, S., Parida, V., Sjödin, D. R., & Wincent, J. (2018). Exploring the microfoundations of servitization: How individual actions overcome organizational resistance. *Journal of Business Research*, 88, 328–336.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2, 71–87.
- Neely, A. (2008). Exploring the financial consequences of the servitization of manufacturing. *Operations Management Research*, 1, 103–118.
- Paiola, M., Saccani, N., Perona, M., & Gebauer, H. (2013). Moving from products to solutions: Strategic approaches for developing capabilities. *European Management Journal*, 31, 390–409.
- Perrone, V., Zaheer, A., & McEvily, B. (2003). Free to be trusted? Organizational constraints on trust in boundary spanners. *Organization Science*, 14, 422–439.
- Piercy, N. F. (2009). Strategic relationships between boundary-spanning functions: Aligning customer relationship management with supplier relationship management. *Industrial Marketing Management*, 38, 857–864.
- Prior, D. D. (2016). Boundary spanning and customer service styles in business solutions implementation. *Industrial Marketing Management*, 56, 120–129.
- Prohl, K., & Kleinaltenkamp, M. (2020). Managing value in use in business markets. *Industrial Marketing Management*, 91, 563–580.
- Rabetino, R., Harmsen, W., Kohtamäki, M., & Sihvonen, J. (2018). Structuring servitization-related research. *International Journal of Operations & Production Management*, 38, 350–371.
- Rabetino, R., Kohtamäki, M., & Gebauer, H. (2017). Strategy map of servitization. *International Journal of Production Economics*, 192, 144–156.
- 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.
- Ramaswamy, V. (2011). It's about human experiences...and beyond, to co-creation. *Industrial Marketing Management*, 40, 195–196.
- Ranjan, K. R., & Read, S. (2016). Value co-creation: Concept and measurement. *Journal of the Academy of Marketing Science*, 44, 290–315.
- Ranjan, K. R., & Read, S. (2019). Bringing the individual into the co-creation of value. *Journal of Services Marketing*, 33, 904–920.
- Reinartz, W., & Ulaga, W. (2008). How to sell services more profitably. *Harvard Business Review*, 86(90–6), 129.
- Salonen, A., Saglam, O., & Hacklin, F. (2017). Servitization as reinforcement, not transformation. *Journal of Service Management*, 28, 662–686.
- Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26, 243–263.
- Saul, C. J., & Gebauer, H. (2018). Born solution providers – Dynamic capabilities for providing solutions. *Industrial Marketing Management*, 73, 31–46.
- Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science*, 11, 448–469.
- Shane, S. (2012). Reflections on the 2010 AMR decade award: Delivering on the promise of entrepreneurship as a field of research. *The Academy of Management Review*, 37, 10–20.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *The Academy of Management Review*, 25, 217–226.
- Sharma, P., & Chrisman, J. J. (1999). Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship. *Entrepreneurship Theory and Practice*, 23, 11–28.
- Siggelkow, N. (2007). Persuasion with case studies. *The Academy of Management Journal*, 50, 20–24.

- Sinkovics, R. R., Penz, E., & Ghauri, P. N. (2008). Enhancing the trustworthiness of qualitative research in international business. *Management International Review*, 48, 689–714.
- Sjödin, D. R., Parida, V., Kohtamäki, M., & Wincent, J. (2020). An agile co-creation process for digital servitization: A micro-service innovation approach. *Journal of Business Research*, 112, 478–491.
- Sjödin, D. R., Parida, V., & Wincent, J. (2016). Value co-creation process of integrated product-services: Effect of role ambiguities and relational coping strategies. *Industrial Marketing Management*, 56, 108–119.
- Sleep, S., Bharadwaj, S., & Lam, S. K. (2015). Walking a tightrope: The joint impact of customer and within-firm boundary spanning activities on perceived customer satisfaction and team performance. *Journal of the Academy of Marketing Science*, 43, 472–489.
- Stake, R. E. (2000). Case studies. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 134–164). Thousand Oaks, CA: Sage Publications, Inc.
- Storbacka, K., Brodie, R. J., Böhmman, T., Maglio, P. P., & Nenonen, S. (2016). Actor engagement as a microfoundation for value co-creation. *Journal of Business Research*, 69(6), 3008–3017.
- Story, V. M., Raddats, C., Burton, J., Zolkiewski, J., & Baines, T. (2016). Capabilities for advanced services: A multi-actor perspective. *Industrial Marketing Management*, 60, 54–68.
- Suddaby, R., Bruton, G. D., & Si, S. X. (2015). Entrepreneurship through a qualitative lens: Insights on the construction and/or discovery of entrepreneurial opportunity. *Journal of Business Venturing*, 30, 1–10.
- Tu, C. (2010). Balancing exploration and exploitation capabilities in high technology firms: A multi-source multi-context examination. *Industrial Marketing Management*, 39, 672–680.
- Valmet. (2017). *Sales and delivery process development presentation*. Internal document.
- Valmet. (2018). *Customer-oriented approach to product development presentation*. Internal document.
- Valmet. (2021a). About us. Available from <https://www.valmet.com/about-us/> Accessed on 8 June 2021a.
- Valmet. (2021b). We invite you on a Shared Journey Forward!. Available from <https://www.valmet.com/media/articles/services/we-invite-you-on-a-shared-journey-forward/> Accessed on 20 December 2021b.
- Valtakoski, A. (2017). Explaining servitization failure and deservitization: A knowledge-based perspective. *Industrial Marketing Management*, 60, 138–150.
- Van den Broeke, M., & Paparoidamis, N. (2021). Engaging in or escaping co-creation? An analytical model. *International Journal of Production Economics*, 231, Article 107917.
- Van Maanen, J. (1979). Reclaiming qualitative methods for organizational research: A preface. *Administrative Science Quarterly*, 24, 520–526.
- Vandermerwe, S., & Rada, J. (1988). Servitization of business: Adding value by adding services. *European Management Journal*, 6, 314–324.
- Vargo, S. L., & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68, 1–17.
- Vargo, S. L., & Lusch, R. F. (2008). Service-dominant logic: Continuing the evolution. *Journal of the Academy of Marketing Science*, 36, 1–10.
- Vargo, S. L., & Lusch, R. F. (2017). Service-dominant logic 2025. *International Journal of Research in Marketing*, 34, 46–67.
- Welch, C., & Piekkari, R. (2017). How should we (not) judge the ‘quality’ of qualitative research? A reassessment of current evaluative criteria in International Business. *Journal of World Business*, 52, 714–725.
- Wilson, K., & Barbat, V. (2015). The supply chain manager as political-entrepreneur? *Industrial Marketing Management*, 49, 67–79.
- Wilson, K., & Millman, T. (2003). The global account manager as political entrepreneur. *Industrial Marketing Management*, 32, 151–158.
- Witell, L., Gebauer, H., Jaakkola, E., Hammedi, W., Ratricio, L., & Perks, H. (2017). A bricolage perspective on service innovation. *Journal of Business Research*, 79, 290–298.
- Yang, M. (2018). International entrepreneurial marketing strategies of MNCs: Bricolage as practiced by marketing managers. *International Business Review*, 27, 1045–1056.
- Yin, R. K. (2014). *Case study research: Design and methods*. Thousand Oaks, CA: Sage.
- Zahra, S. A. (2008). The virtuous cycle of discovery and creation of entrepreneurial opportunities. *Strategic Entrepreneurship Journal*, 2, 243–257.
- Zimmermann, A., Raisch, S., & Cardinal, L. B. (2018). Managing persistent tensions on the frontline: A configurational perspective on ambidexterity. *Journal of Management Studies*, 55, 739–769.