Industrial customers' organizational readiness for new advanced services

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Abstract

Purpose – Manufacturing firms delivering complex products and systems are increasingly offering advanced data-based services. Customers, however, are not always willing to adopt manufacturers' advanced services, so manufacturers need knowledge of how to promote customers' service readiness. The purpose of this paper is to further develop the concept of service readiness by proposing a framework for industrial customers' organizational dimension of service readiness and by increasing the understanding of the conditions underpinning that service readiness.

Design/methodology/approach – This case study explores service readiness among customers of a manufacturer delivering complex systems and related services. Interviews were conducted within the company and among key customers as the potential users of those services.

Findings – Customers use versatile processes, engage multiple people and use different evaluation criteria when considering adoption of data-based services. The organizational component of service readiness involves requirements in the service context, supplier relations and organizational habits and culture. Actions are proposed for manufacturers to promote customers' readiness for new services.

Research limitations/implications – The research is limited through its qualitative design and case selection. Mapping of the organizational dimension of service readiness further develops the concept of service readiness and offers a framework for further research. This research offers novel understanding of organization-level service adoption to complement individual-centric technology adoption.

Practical implications – New knowledge is offered to manufacturing firms about customers' challenges and requirements in adopting advanced services. This knowledge will help manufacturers to support customers and develop the activities of their own salespeople when introducing advanced services.

Originality/value – The findings expose the contents of the organizational dimension of customers' service readiness. The study provides a more complete picture of service readiness and shows it to be a multilayered concept with interdependencies between its levels, between individuals in customer organizations and even between the manufacturer and the customer organization.

Keywords Servitization, Customer relations, Customer requirements

Paper type Research paper

1. Introduction

Industrial manufacturers are increasingly considering servitization – broadening their offerings with services and changing their business logic to differentiate themselves from the competition and gain economic benefits (Baines and Lightfoot, 2013; Kindström and Kowalkowski, 2009; Oliva and Kallenberg, 2003). This transformation has primarily been considered from manufacturers' perspectives, but customer views are also relevant (Brax and Jonsson, 2009). Previous research has often assumed that the customer was ready and willing to procure the services, but this is not always so. New services are innovations, and innovation adoption is not straightforward, as illustrated by decades of research

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(Davis, 1986; Fishbein and Ajzen, 1975; Planing, 2014; Parasuraman, 2000; Rogers, 1983). In the servitization context, for example, Martinez *et al.* (2010) noted that, even if the service-providing company recognizes added value for the customer from the company's offering, the customer may not. Therefore, some level of service readiness seems to be required for customers to adopt services. Service readiness deals with "the inclination to embrace, and the ability to use, relevant new services in the organization" (Vaittinen *et al.*, 2018), following Vize *et al.*'s (2013) technology readiness definition. To promote service adoption, manufacturers need to understand customers' readiness for the new services before the customer decides whether to purchase. This paper focuses on industrial customers' readiness to adopt new services.

Industrial services are traditionally considered in terms of spare parts, maintenance services and service agreements, but more advanced technology-enabled services are gaining attention. According to Baines and Lightfoot (2013), advanced industrial services mean "capability, availability or performance contracts where the manufacturer delivers services (coupled with incentivized contracting mechanism) that are critical to their customer's core business processes." New technologies, such as remote-monitoring technology, have been recognized as important enablers for new services and servitization (Grubic and Peppard, 2016; Porter and Heppelman, 2014). Manufacturers' servitization implies changes to customers' processes, especially in cases of advanced services (Story *et al.*, 2017), where customer personnel are actively involved in defining, designing and using the manufacturer's services, as well as in charge of providing the context and suitable circumstances for service delivery.

The focus of existing servitization research has been on changes required within the manufacturing firm, leaving the customer perspective in a minor role (Brax and Jonsson, 2009), even if that role has been acknowledged to be important (Matthyssens and Vandenbempt, 2008; Valtakoski, 2017). Previous research suggests that adopting, for example, remote technologies and related services may be challenging (Westergren, 2011). At the same time, the use of such technologies may be quite necessary for manufacturing firms to access relevant customer information (Momeni and Martinsuo, 2018), and manufacturers may need to develop new ways of interacting with customers (Baines and Lightfoot, 2013). Manufacturers must therefore understand their customers' readiness for adopting new advanced services. Only when manufacturers understand customer readiness for new services will they be able to seek to influence it and, thus, improve the chance of their services being adopted.

This paper concerns industrial customers' service readiness and adoption and the conditions surrounding it. Research on new service adoption is lacking, especially outside of technology-intensive consumer services, such as internet banking (e.g. Pikkarainen *et al.*, 2004). Previous research has focused mainly on individuals as technology adopters (Asare *et al.*, 2016; Vize *et al.*, 2013) and insufficiently covers industrial business customers' readiness (Vize *et al.*, 2013), particularly for advanced data-based services, such as e-maintenance (Aboelmaged, 2014). In an industrial context, especially, the customer organization's service adoption decision making may involve both multiple individuals (e.g. initiator and influencer) (Johnston and Bonoma, 1981) and the organization's overall willingness to outsource activities they had previously done themselves (Vaittinen *et al.*, 2018). The context is therefore clearly different from that of consumer-centric technology adoption. Empirical research is needed, as customers' intent to procure a service precedes the service adoption, and thus service demand, and previous research has not sufficiently covered the organizational perspective on new service adoption.

This study investigates the organizational dimension of industrial customers' readiness for new services offered by a manufacturing firm. The goal is to develop a framework of customer firms' organizational dimension of service readiness and, thereby, complement the current understanding of the service readiness concept and incorporate knowledge from the innovation-adoption literature into the industrial service context. From a practical point of

view, this research offers customer-centric information so that manufacturers can better target their practices of customer cooperation and service selling appropriately, when introducing new services. The main research questions are:

RQ1. How is organizational readiness for new services manifested in customer companies?

RQ2. How can a manufacturing firm consider customers' organizational readiness when introducing new services?

The focus is on a business-to-business context, so consumer services are purposely excluded. This study uses a qualitative embedded single case approach as the intent is to develop knowledge of the core phenomenon of industrial customers' organizational readiness for new services, using an illustrative example. By covering both the manufacturing firm's internal perspective to advanced services and the experiences of five of its important service customers, the study offers an in-depth contextual understanding of customers' service readiness. Consequently, the study identifies the key aspects of service readiness from both these perspectives and points out ways in which manufacturing firms can promote their customers' service readiness.

2. Literature review

2.1 Customers' view of new industrial services

Manufacturing companies servitize – shift from selling goods to selling goods and services combined (Baines *et al.*, 2009) – to attract new customers, differentiate themselves from competition and develop deeper customer relationships (Baines *et al.*, 2009; Wise and Baumgartner, 1999). Adding new services to manufacturing firms' offering portfolios has attracted broad attention (Bigdeli *et al.*, 2017; Kowalkowski *et al.*, 2017). Some new services that manufacturing firms are increasingly concerned with involve advanced technology-enabled and data-based services (Momeni and Martinsuo, 2018). Advanced industrial services are contracts with a long-term orientation, in which manufacturing firms deliver the capability, capacity, availability or performance the customer needs as part of its core business processes (Baines and Lightfoot, 2013). A manufacturer may offer, for example, performance-optimizing analytics or preventive services, or may even operate the customer's processes on the customer's behalf (Oliva and Kallenberg, 2003).

Advanced services are one type of innovation – new offering taken into use – and, particularly with advanced services, the processes of the manufacturing firm and the customers may become intertwined (Kowalkowski and Brehmer, 2008), and new capabilities may be needed (Story *et al.*, 2017). Trust between the partners is emphasized (Brax and Jonsson, 2009), and a need for cooperation on multiple levels during the sales process is highlighted (Kindström *et al.*, 2015). Services also require more proactive and relationship-oriented customer cooperation (Storbacka, 2011; Tuli *et al.*, 2007), create interdependencies between the customer and the supplier (Windahl and Lakemond, 2010) and demand long-term relationships, especially when the service under consideration is complex or close to the customer's core competences (Lindberg and Nordin, 2008).

The focus of previous servitization research has been on the changes servitization requires from the servitizing manufacturers (Brax and Jonsson, 2009; Nudurupati *et al.*, 2016). In relation to customers, manufacturers' salespeople, for example, must interact with more customer representatives in different organizational positions and understand their customers' businesses and processes more widely (Kindström *et al.*, 2015; Martinez *et al.*, 2010; Ulaga and Loveland, 2014). They also need a clear, well-packaged service offering (e.g. Groß *et al.*, 2017; Raja *et al.*, 2013); must understand customer demands and define their services to fit customer needs, despite possibly ill-defined customer specifications

(Ulaga and Loveland, 2014); and convince customers of the value of the service (Penttinen and Palmer, 2007) and related remote technologies (Momeni and Martinsuo, 2018). Customer focus is also needed in research and development (R&D) processes, as customer involvement and co-creation are considered key ingredients in developing new services (Alam, 2006; Brax and Jonsson, 2009; Westergren, 2011) and a high degree of co-creation in intermediate and advanced services has been found to have a positive effect on servitization (Ruiz-Alba *et al.*, 2018). Manufacturing firms need a strong understanding of, or even a presence in, the customer's processes to gain timely information to offer new, improved services (Ambroise *et al.*, 2018; Mathieu, 2001; Neu and Brown, 2005; Kindström *et al.*, 2015), and capabilities need to be interactively developed between the customer and the manufacturer (Raddats *et al.*, 2017; Valtakoski, 2018). However, customer involvement in service innovations or operations does not guarantee either the customer's intent to procure and use a service or the success of the new service. In fact, failures and mismatches in knowledge exchange between the manufacturer and the customer can even lead to the manufacturer's servitization failure or deservitization (Valtakoski, 2017).

New advanced services are innovations, and their adoption by customers has a critical role during the service launch. Even though previous servitization research has not dealt directly with customers' intent to procure services in detail, it has recognized that the manufacturer's servitization also implies changes to customers' activities and processes (Wise and Baumgartner, 1999; Oliva and Kallenberg, 2003; Story *et al.*, 2017). In addition, it has recognized customer acceptance as a relevant future research opportunity (Baines *et al.*, 2017; Fliess and Lexutt, 2019). Particularly with advanced services, customers' interests and service readiness likely become critical for the service's success (Brax and Jonsson, 2009; Westergren, 2011).

Valtakoski (2017) has suggested conceptual explanations for servitization failures and manufacturers' deservitization particularly in terms of knowledge exchange between the manufacturer and the customers and customers' own capabilities (making services redundant). It is not self-evident that customers are ready to utilize the manufacturer's new services without adaptation (Vaittinen *et al.*, 2018; Valtakoski, 2017). For example, customers may feel they are losing control over their tasks or data (Vaittinen *et al.*, 2018; Westergren, 2011), and customers may need new knowledge, capabilities and adaptation to their systems and processes (Story *et al.*, 2017; Westergren, 2011). It is also not self-evident that the services under development will be worth adopting for all customers. Customers have divergent needs and different levels of service readiness and, therefore, the benefits they may receive from services will also vary, making some services uninteresting or unsuitable for some customers. Understanding each customer's perspective is therefore extremely important for the manufacturing firm (Brax and Jonsson, 2009); for example, understanding the customer's IT resources and remote technology acceptance can be a key consideration for the manufacturer's service transition strategies (Momeni and Martinsuo, 2018; Sakyi-Gyinae and Holmlund, 2018). Therefore, the firm should be concerned with customers' readiness for new services and their intent to adopt them.

Previous research has revealed various challenges and requirements when industrial customers adopt new services. Table I presents some key aspects that challenge or support customers' adoption and use of new services, identified in previous servitization research. Clearly, most existing research highlights the manufacturing firm's point of view, e.g. the need for enough resources to support customers (Brax and Jonsson, 2009) and for processes to support service delivery (Baines and Lightfoot, 2013). Customer cultures, mindsets and habits have been identified as relevant issues in promoting services both from the manufacturer's and customer's perspectives, and previous studies have pointed out the overall need for a better mutual understanding between them (Baines and Lightfoot, 2013; Brax and Jonsson, 2009; Vaittinen *et al.*, 2018; Westergren, 2011).

Source	Method and context	Challenges and drivers of customer adoption and use of (advanced) services
Baines and Lightfoot (2013)	Multiple-case study with four manufacturers successful in servitization	Defining principles and processes to support effective delivery of services/solutions Different cultures and mindsets among customers – different perceptions of acceptable service
Baines *et al.* (2013)	Multiple-case study with four cases	Flexibility, relationship building, service-centricity, authenticity, technically adept and resilience were perceived as characteristics in service delivery leading to positive customer experience
Brax and Jonsson (2009)	Comparative two-case study with two manufacturers entering condition-based maintenance	Technical problems Technicians not using the new systems; laborious and expensive software Lack of resourcing to customer support Sales personnel not proactively selling the solution No tools for managing the maintenance business Lack of trust between manufacturer and customers (protectiveness)
Raja *et al.* (2013)	Embedded case study with four customers of one manufacturer	Customers need knowledge about the offered solutions Customers want the supplier to understand their business, help them improve its performance Good relational dynamics and access to help when needed, important for customer satisfaction Also, range of product & service offerings, delivery, price and locality important attributes of value-in-use
Vaittinen *et al.* (2018)	Embedded case study with three customers of one servitizing manufacturer	Insecurity, distrust that the services would work and concern over security of their information Discomfort in the form of fear about lacking control over service implementation Habits of doing things oneself and goods-centric culture
Westergren (2011)	Case study with one system manufacturer and its three industrial customers using its remote monitoring system (RMS)	Need to create value for the supplier and the customer Increased need for mutual understanding and cooperation New knowledge and skills required for using the RMS; need to exchange this knowledge between the firms Complexity in the partner network – different systems for control across firms Customer's risk of losing hands-on knowledge and, thereby, control over maintenance processes

Table I.
Examples of empirical studies revealing aspects challenging or supporting customer adoption and use of advanced industrial services

Customer adoption of new services is therefore not inevitable, but a strategic issue to be considered as part of manufacturing firms' servitization. A framework for understanding the customer perspective on adopting new service innovations is required to complement and combine the findings from previous studies. The innovation-adoption perspective is presented next to provide the necessary background for studying the customer perspective.

2.2 Customers' organizational readiness for new services

The discussion of customers' readiness to adopt new technologies and services is one stream in the general innovation-adoption literature, with long traditions leaning on the perceived characteristics of an innovation (Rogers, 1983), the theory of reasoned action (Fishbein and Ajzen, 1975) and the model of technology acceptance (Davis, 1986), among others. These models have been widely used to explain human behavior and the adoption of innovations such as information technologies (Oke *et al.*, 2014).

Adoption has been defined as the initial decision to use an innovation (Planing, 2014). One concept relevant for adoption, proposed by more recent studies is technology readiness,

based on Rogers' idea that more technology-ready customers are more willing to adopt new technologies (Parasuraman, 2000; Parasuraman and Colby, 2015). Technology readiness consists of four dimensions – optimism, innovativeness, insecurity and discomfort – where the first two are drivers of readiness and the latter two hinder it (Parasuraman, 2000; Tsikriktsis, 2004). Technology readiness describes the inclination to embrace and use relevant new technological assets (Vize *et al.*, 2013), while service readiness concerns the inclination to embrace and use new services (Vaittinen *et al.*, 2018). The concept of readiness is therefore suitable for a situation where the actual adoption of a technology or service is aspired to, but is not yet possible or timely.

Most studies on technology readiness, like those on technology adoption in general (Asare *et al.*, 2016), have focused on individuals, and only occasional studies have considered technology readiness among business customers (Vize *et al.*, 2013). Some have focused on employees' readiness to adopt services for use in their work, such as Walczuch *et al.* (2007), who found that optimism, innovativeness and insecurity significantly affected employees' perceptions of the usefulness and ease of use of software. Only a few studies have discussed readiness at the organizational level in business-to-business settings. Among these, Richey *et al.* (2007) found that the technological readiness of retailers and manufacturing firms was relevant to their perception of logistics services' quality. Highly technology-ready manufacturers saw technology as a way to enhance efficiency, and retailers valued how technology enabled both better responses to customer needs and innovativeness (Richey *et al.*, 2007). Vize *et al.* (2013) further extended this research to examine the effect of technology readiness on retailers' satisfaction with a service. Based on these studies, the relationship between technology adoption and readiness cannot be strictly pinpointed, but there are indications that service readiness could act as a precursor to service adoption (Vaittinen *et al.*, 2018), as illustrated in Figure 1, which illustrates the relationships between readiness and other adoption-related terms.

Only one recent explorative study has stepped outside the technology focus and recognized readiness for new services as a relevant factor in customers' service adoption, finding that Parasuraman's (2000) existing readiness dimensions were relevant to adoption of new services (Vaittinen *et al.*, 2018). This study also revealed organizational culture and habits as relevant organization-level dimensions of service readiness, complementing individual-level readiness factors – the customer firms studied had established habits of doing things by themselves, and a goods-centric culture guided their service-purchasing decisions (Vaittinen *et al.*, 2018). There is a need to understand this organizational dimension of service readiness more deeply, particularly in the context of advanced services that are clearly innovations requiring intense cooperation between manufacturer and customer.

There are clear indications of the importance of customers' organizational readiness in both the technology adoption and servitization literature. Yet the industrial customer's viewpoint is insufficiently understood in terms of readiness for adopting advanced services. This highlights the need to clarify the organizational dimension of customers' service readiness, and thereby to develop new knowledge for promoting customer adoption of new advanced services. For this purpose, there is also a need to consider how manufacturers can influence their customers.

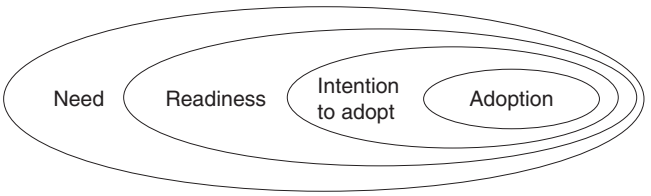

Figure 1.
Relationship between key concepts related to service readiness

2.3 Manufacturers' approaches to influencing customers' service readiness

Some studies in the innovation-adoption literature have touched upon the means to enhance service adoption while focusing on the antecedents of acceptance (Frambach, 1993). Several studies have stated that suppliers can have an important role in enhancing customer adoption (Deeter-Schmelz *et al.*, 2001; Gatignon and Robertson, 1989). Suppliers can use, for example, incentives, like trial periods and discounts, to decrease the risks that adopting a new service can pose for customers (Frambach, 1993; Gatignon and Robertson, 1989). Suppliers also need to provide sufficient information to customers and educate them about the use, benefits and convenience of their systems (Deeter-Schmelz *et al.*, 2001; Gatignon and Robertson, 1989). Still, in the innovation-adoption and diffusion literature, studies on the suppliers' role are scarce (Deeter-Schmelz *et al.*, 2001).

Several other streams of literature have discussed the suppliers' or manufacturers' perspective on customers and customer relationships in service sales, development and delivery. For example, discussions on service innovation and new service development have revealed how, through co-creation, manufacturers are able to influence their customers, and consequently some authors have even criticized co-creation as a way to manipulate or exploit customers (Cova *et al.*, 2011). Hakanen *et al.* (2017) emphasized the need to adapt and adjust service offerings and processes in manufacturing firm's global distribution, to serve local customers' needs.

These literature streams have also shown the importance of customer involvement (Alam, 2006; Matthing *et al.*, 2004), although it is acknowledged that detailed information about how customer involvement is carried out – even in the more widely covered area of product development – has been scarce (La Rocca *et al.*, 2016). This research also embeds the assumption that a good customer experience can lead to loyalty and future purchases, and many studies have emphasized how co-creation and customer involvement may lead to better customer experiences (Galvagno and Dalli, 2014; Hakanen and Jaakkola, 2012).

Similarly, the customer-orientation literature suggests that customer orientation leads to more positive customer perceptions (Brady and Cronin, 2001). A customer orientation has also been identified as important for the development of buyer–seller relationships (Williams and Attaway, 1996) and can create trust between the actors, as it is characterized by non-opportunistic behavior and mutual benefits (Morgan and Hunt, 1994; Williams and Attaway, 1996). This literature has highlighted the importance of collecting customer information and taking recovery actions after customer complaints (Brady and Cronin, 2001). Customer orientation can be seen as part of a firm's market orientation (Narver and Slater, 1990); the market-orientation literature highlights the need for a manufacturer to understand its customers better, identify their latent needs and anticipate the future (Slater and Narver, 1998).

Market orientation has been linked to customer satisfaction (Kohli and Jaworski, 1990), and this literature has also identified the need to find lead users and work closely with them to refine the solution for larger groups (Moore, 1991; in Slater and Narver, 1998). Suppliers need to be able to differentiate between visionaries and pragmatists, and to show the economic value of the solution to their more pragmatic customers (Slater and Narver, 1998). Several streams of literature have thus contributed to our understanding of influencing customers. However, these often are not considered in the context of service adoption and, therefore, there is a need to study this in more detail.

3. Research method

3.1 Research design

This study employs an in-depth single case-study strategy, exploring service readiness within an industrial manufacturing firm and its industrial customers. The qualitative explorative research approach is especially fitting in such circumstances, where the aim is to provide new holistic understanding about phenomena in a real-life context, and where earlier literature is rare (Creswell, 2009; Yin, 2009), such as on the issue of industrial

customers' service readiness. We chose a single case study with embedded units (customers) as this is especially suitable for research studying a phenomenon in a specific context (Baxter and Jack, 2008). Further, we chose a typical case as this is one of rationales for the single case-study design and can provide relevant information concerning other typical cases (Yin, 2009). A case company with a strategy of broadening their service offering with advanced services and an interest in increasing the importance of service business was sought. Through an ongoing research project, such a firm was found, which will hereafter be referred to as ManuCo. ManuCo is a large, successful, international manufacturer of systems and solutions, and a representative example of manufacturing firms undergoing servitization. It provides equipment and systems to its customers in several industries.

The intent of this study is to explore customers' organizational dimension of service readiness. To gain a more comprehensive understanding of ManuCo, its offerings and its relationship with customers, the firm's internal personnel were also interviewed. A pre-study was therefore first implemented at ManuCo, regarding certain products and their associated services, both within the R&D department and with a range of salespeople. These internal interviews were used to gain understanding of how the manufacturer's personnel dealt with customers and how they perceived the new advanced data-based services. As R&D interviewees were less knowledgeable of customers, their interviews were used more as a support and to gain understanding about ManuCo's internal context.

Customer contacts were requested from ManuCo's contact person to enable the collection of expert information on the customers' intent and interest in adopting advanced services. Large, important customers of ManuCo were selected; they were therefore extreme and exemplary, instead of "average" (Yin, 2009), and would have a significant role in determining whether ManuCo's new products and services would be adopted, because of their size and demand, and would pave the way for smaller customer companies. Large companies have also been found to be more likely to adopt new technologies than small companies, since they usually have more of the financial resources, skills and strategic management needed for adopting new technologies (Kamaruddin and Udin, 2009). The selected companies were from different industries, to ensure a variety of experience, including the food and beverage, oil and gas, energy, forestry and metal industries. For consistency, the customer interviewees in this study represented one specific location for each company.

3.2 Data collection

The data collection was done in two phases. First, interviews were conducted with personnel in the R&D department, related to the development of certain products and their associated services, and with salespeople related to wider range of products and services. During the interviews, the company was still developing the data-based services. Internal data were collected using two different thematic interview outlines, one for each target group (R&D and sales). Both outlines had similar topics, but the salespeople themes were more in-depth about customers, due to their direct involvement with customers. Information about the internal interviews and interview themes are summarized in the first two columns of Table II.

Second, customer data were collected through thematic interviews when many data-based services were already on the market. Some of these services had been successfully used or at least piloted with some customers, thereby indicating that the services themselves could be relevant and beneficial for customers. Customer interviewees were selected who were actively dealing with ManuCo, i.e. they were informants with knowledge of ManuCo's offerings and activities. The thematic interview outline was prepared in cooperation with ManuCo's contact person to ensure its suitability for the context. It also utilized some themes from earlier interview outlines (e.g. Vaittinen *et al.*, 2018). Summaries of the customer interviewees and interview themes are shown in the right-hand column in Table II. All interviews were recorded and transcribed for analysis.

	Internal R&D	Internal sales	Customers
Interviews/ interviewees	7/7	7/7	9/10
Duration, avg. range	38 min, 20–52 min	52 min 33–68 min	59 min, 43–92 min
Interviewees' job positions	Related to one product type: e.g. managers of development, line, technology center, product	Throughout the company: e.g. sales managers, local service division manager	In five companies: e.g. maintenance managers, purchasers, technical managers
Themes of interview outlines (examples, key themes for this paper)	Current service offering Customer expectations and ways of collecting them Data-enabled services	Current service offering What is important for customers and their role in service delivery Data-enabled services and their challenges	Current and intended service use Experiences and opinions about ManuCo's services Needs for knowledge and for new services Opinions about ManuCo's example services New service adoption process

Table II. Information about interviews, interviewees and interview outlines

3.3 Data analysis

Data analysis was carried out in two phases using Atlas.ti software. First, key themes were identified from literature concerning manufacturing firms' salespeople activities when servitizing to form a framework for coding the internal data (shown in Table III, left and middle columns). The internal interview data were analyzed to see how the current case followed earlier patterns of servitization among salespeople.

In the second phase, customer interview data were inductively coded. General aspects of service adoption were coded and analyzed, particularly the adoption process and multi-actor decision making, and criteria for decision making were identified and considered as relevant conditions for service readiness and adoption. Three components of organizational readiness for service adoption were identified and coded; they are described in Table III (right-hand column), depicting the analysis framework and how the phenomena manifested in the data. The identified service conditions and aspects of the organizational dimension of service readiness were clearly also related to the themes relevant for salespeople.

The components of organizational service readiness include the types of tasks required for service adoption, attitudes and organizational orientation to those tasks, and

Literature	Manufacturer, internal	Manufacturer's customers
Service offering and packaging (e.g. Groß *et al.*, 2017; Raja *et al.*, 2013)	Service offering, different ways with different customers	Service conditions: Varying service processes, multiple and varying decision makers, decision criteria
Need to understand and define the service need (e.g. Kindström *et al.*, 2015; Ulaga and Loveland, 2014)	Gaining information about customer needs	Service context: Preparatory work needed to make service usable
Importance of relational dynamics, increased customer communication (e.g. Raja *et al.*, 2013; Ulaga and Loveland, 2014)	Customers' role in service sales and implementation	Supplier relations: Supplier management work needed
Need to understand customers' business and processes to adapt the service to their need (e.g. Kindström *et al.*, 2015; Neu and Brown, 2005)	Needed knowledge about customer processes	Organizational habits and culture: Need for deeper changes in the way of working and in the organizational mindset; current habits showing some readiness

Table III. Literature-based salesperson analysis framework and inductively created customer analysis framework for needed service adoption and readiness aspects

interviewees' attitudes toward the workload of the tasks (whether they feel the tasks are laborious and "extra" or an ordinary part of basic work). In the end, to keep the focus of the paper sharp, codes were excluded that clearly related to other dimensions of readiness for service adoption than those concerning the organizational level. For example, the individual-level insecurity-related code (individual does not believe that the service would work) was not included in the analysis.

The results of the analysis were validated through presentation to ManuCo's representatives and through discussion to ensure the context was understood properly and that the results were in line with their experiences with customers.

4. Results

Initially, during the internal interviews, ManuCo primarily offered traditional services such as spare parts, maintenance and technical support. ManuCo also offered some more advanced services such as maintenance contracts and remote diagnostics. Later, during the customer interviews, many more advanced services were already developed and in use. The new advanced services required ManuCo's in-depth knowledge about the customer's installed base of equipment, processes and practices and often some degree of customers' proactiveness or remote connections to customers' equipment.

Results present the internal view to customers' service adoption first and after that discusses the customer perspective. Especially, it shows the context of service adoption (i.e. varying processes of service adoption, multi-person decision making and criteria for adoption-related decisions) and the components of organizational service readiness (i.e. service context, supplier relations, organizational habits and culture).

4.1 Manufacturer's internal perspective related to customers' service adoption

The relationship between R&D and customers was mediated by other departments, according to the interviewees. They described discovering customer expectations through their sales or service people or product management. Two interviewees from R&D highlighted this as a challenge, since without unfiltered feedback from customers, one cannot actually be sure whether the expectations one hears are the correct ones, as one interviewee mentioned: "That may be the challenge: uncertainty. As long as we have some requirements and needs on how to make the products, then at least I have collected something. But are those [needs] the correct ones? That I cannot know."

The salespeople interviewed were naturally much more in contact with customers and could describe what was important for the customer, in their opinion, and what the customer's role was in service delivery. A majority of interviewees highlighted customers' need to feel safe, so they could be sure their operations would run smoothly, or the need to create trust so the customer could rely on the service provider and trust it would keep its promises. As one interviewee stated, "Well, of course, the most important thing is that it [the customer] can get a good night's sleep."

The interviewees described how the customer can have different roles in service delivery, depending on the customer or the service. For example, with spare parts, customers may just order a part, pay for it and receive it. But with more complex services, the customer's active involvement is needed in specifying the service and defining its scope as well as in developing it and keeping service people up-to-date. Similarly, some customers are more keen on just watching the clock, waiting for the service person to get things done, while others prefer observing the service work and learning at the same time.

Thus, the interviewed salespeople to some extent recognized that differences exist in demands that different services place on customers and in different customers' preferred ways of working. But they perceive that customers share the need to feel safe about their processes running smoothly and to get immediate help if something goes wrong.

The interviewed salespeople had different perspectives on data-enabled services, likely due to their different sales responsibilities. Some were responsible for products or systems and some for services. Some interviewees responsible for product sales did not think they collected data or utilized data-based services. Others talked deeply about a certain remote diagnostic service they used with some customers who needed help.

Some interviewed salespeople saw that they were moving in the right direction and that advanced data-based services were important for the future. Some interviewees in R&D also highlighted the future potential of data-enabled services. But the majority in both sales and R&D also saw challenges in the new services. The biggest was the worry about cybersecurity, as their customers are rather strict with security requirements, especially where cyberattacks could have significant negative consequences, e.g. concerning nuclear power. Further challenges identified by the salespeople and R&D related to data ownership, how customers' old installed bases would need updating, existing attitudes and ways of working in customer firms, worry about employee safety, e.g. with remote services, and just being able to provide enough benefits for customers to justify sharing data.

4.2 Customers' service adoption conditions enabling customer service readiness

The respondents in customer firms all saw service purchasing as something their firms did quite commonly, and all already utilized some ManuCo services. The customers had a good relationship with ManuCo and experienced getting help from this manufacturer when needed. They commonly utilized spare part services, maintenance services, updates and upgrades and installation services. Slightly more than half the interviewees mentioned that they also used somewhat more advanced services from ManuCo or other suppliers, for example, remote monitoring, process monitoring, monitoring-based controlling and service optimization. Almost half the respondents also mentioned how careful they were with their data and how they did not easily agree, for instance, to remote connections for partners outside their company.

The above summary shows that the interviewees were used to services but with emphasis on basic services. However, they experienced data-based advanced services as a future possibility while also worrying about the safety of their data and processes. In some instances, interviewees' opinions about services varied widely even in one company location, depending on personal preferences and responsibilities.

Three topics describing conditions for service adoption in customer companies were evident in the interviews. These were the varying processes of service adoption, multi-person decision making and criteria for service procurement and supplier decisions.

The interviewees who were ready to describe the service adoption process reported very versatile experiences. Some characterized rather simple processes where the new service was quickly put into use, whereas others described experiences with highly complex processes requiring considerable preparation and time. Some interviewees even recognized this versatility in their responses, for example, "It affects an awful lot how big a thing it [the adopted service] is" (C6). As an example of a simple process, one interviewee described an episode where they had a service provider handling software issues in air conditioning. As the data transfer was somewhat challenging, the provider suggested a new service where the provider would also handle data collection to make the customer's work easier. Adopting this service for use was easy for the customer, as it was clearly needed, and the service provider was already known and involved in a related service.

In a more complex example, one customer interviewee mentioned adopting a service related to their current installed base of equipment and availability of the equipment if something malfunctioned. He described the process, from recognizing the importance of equipment availability and analyzing the need, then continuing with mapping and developing possible solutions with several suppliers. Even after selecting one supplier,

considerable preparatory work was needed. There was a need to analyze the company's installed base of equipment, decide about the scope of the service and determine working methods and processes. After agreeing on the service and adopting it, it still took time to adjust processes and establish the service use. It took about two years to get the service to a point where it was starting to be business as usual.

Interviewees also described multi-person decision making in the new service adoption process. Most interviewees mentioned that the idea for the new service usually originated from the people responsible for tasks related to service use, e.g. technical experts and maintenance teams. Also, the importance of other actors was recognized; for example, many interviewees mentioned the purchasing unit's role in supporting the experts, bringing their input to supplier selection and handling the contracts and the bidding when they were topical. Similarly, some interviewees mentioned the need to discuss the new service purchases with their supervisors and noted that if the purchase was really strategic and expensive, it needed to be decided much higher in the organizational hierarchy. Other colleagues and experts also contributed to decision making. The number of people involved in new service adoption decisions can grow large, and people may have varying aims, depending on their background and job position. One interviewee described the different aims between the purchasing department and experts needing the service: "Our purchasing unit wants to buy as much as possible from only a few suppliers. They of course want to make their own work easier […] but we usually try to fight against that, try to get the best resources to use for these tasks" (C5).

When asked what factors affected the customer's new service adoption decision, the interviewees described traditional factors. The most commonly mentioned factor was the price, in terms of the cost of the purchase, the costs over time and the price compared to the service benefits, discussed by almost all interviewees. Lack of their own resources (e.g. employees, skills or space) or access to good external resources was the second-most mentioned factor. Aspects steering companies toward purchasing services from an external supplier included the needed special competences or a task beyond the customer's core competences, too small an amount of work for hiring new employees or hiring being too high-level a decision (compared to a small service purchase) and supplier's better functionality or quality contrasted with internal implementation of the task. Related to supplier selection, the most commonly mentioned decision criteria were earlier experiences with a service supplier and the need to retain the same supplier when building on something acquired earlier. One interviewee emphasized the benefits of relationships in terms of easiness: "There are those certain [people] who we use. It is easy that way. They know the places and already know some things" (C5). Other important factors in supplier selection for the interviewees included good service availability, good delivery times, a suitable length of contract (so customers did not have to tie themselves to one service/one supplier for too long) and the size of the supplier (so the service would not fail if one person were sick).

4.3 Customers' organizational readiness for new services

The interviewees discussed some services they had turned down, some potential services they might consider and possible factors that could encourage them to adopt new services. Factors repeatedly relevant to customers' organizational service readiness were mapped systematically. Three themes clearly related to the interviewees' organizational readiness for new services: service context, supplier relations and organizational habits and culture. These were primarily discussed through related tasks and issues hindering the customer's willingness to adopt new services.

4.3.1 Service context. Customer perspectives varied regarding what was an advanced service. Some thought of contract-based services as advanced (when compared to one-time purchases), whereas others saw technically demanding services as advanced. For customers

to be ready for advanced services, they themselves need a clear idea of the current state of their equipment and operations and what kinds of system changes would be required to purchase a service and realize its benefits.

Service context, a key component of customers' organizational readiness for new services, deals with preparation activities necessary before the service is functional for the customer. Almost half the interviewees described the need to go carefully through their company's existing situation to provide basic knowledge upon which the service could be built. Some interviewees noticed the need to create systems to support the service, for example, related to reliable data collection and sharing with the supplier. Such tasks take time and effort and can be onerous when everyone is already overloaded with work. One interviewee explained how much time the preparatory work for one service had taken: "We have had one person doing this [preparatory work] […] for almost a year, and before that, two people did it alongside their ordinary duties, so practically, we have had one person for two years working on this" (C2).

Often these service-context tasks were discussed as laborious and time-consuming, but some differences in attitudes could be noticed. For example, one interviewee described analyzing the existing installed equipment base and spare parts as very difficult and something he clearly considered unnecessary. He maintained that the service requiring this analysis would not be useful for his company. Yet another interviewee in the same company had a more positive attitude toward the service and its benefits. He described the same tasks as something that should be done, despite being laborious, and that preparatory work would be useful for their company whether or not they purchased the service.

4.3.2 Supplier relations. With advanced services, customers are either shifting their current supplier relationship (from merely a system/equipment manufacturer toward a service provider, or from basic services to more advanced services) or are creating a new supplier relationship. Interviewees experienced additional work, related to using an external supplier, as required for them to put the new services to use.

Supplier-relation tasks include practical activities necessary for the customer to be ready for the new services, either jointly with the supplier or within the customer company. For example, interviewees mentioned the need to further specify the service, agree on practicalities and make a contract with the supplier(s). During the early service implementation phase, there is a continuous need to share information, tackle initial problems, inform people and familiarize the supplier's service people with the facilities and customer personnel they will work with. These activities can seem small, but they are necessary in promoting the supplier's capability of offering the desirable service level, and many relational tasks also reflect changes to the customer personnel's current ways of working. One interviewee described what it would require to procure a service from an external supplier: "Of course, we would have to communicate within the department that this service exists. Then the incoming [service] people need to be familiarized with the facility, safety training needs to be given, and they need to be familiarized with our people they will be working with. Then, of course, the contracts need to be done with the purchasing unit […] and billing needs to be agreed. And of course, a place for working needs to be agreed" (C3).

Interviewees discussed supplier-relation tasks in versatile ways. Some mentioned relational tasks as a list of duties that are part of their ordinary work, whereas some mentioned them more hesitantly, as extra work. As the previous quotation shows, some interviewees listed small things that just needed to be done, without too much emphasis on these tasks' challenges, whereas others made even short lists of tasks sound laborious and difficult. Others saw the services as easy to adopt; one interviewee noted, "It would only require that we give the information we are already collecting to someone else for analysis, or give them access to our system" (C6).

4.3.3 Organizational habits and culture. Adopting advanced services usually implies that the customer organization changes its own practices and allows an external service provider to take care of a bigger part of a certain process. This implies organizational adjustments within the customer company, involving deeper changes in ways of working and thinking.

Organizational habits and culture may need adjustment in customer employees' job descriptions, daily duties and attitudes. Interviewees mentioned the challenge of getting people excited about using a new service when it requires their active input and achieving this state would take considerable effort and energy. One interviewee mentioned that they would need to trust that the external service provider could handle the service at least as well as it had been handled in-house. Some interviewees recognized that they were not very open toward new technologies, and if advanced services required new technologies, they would call for more open attitudes from their company.

Sometimes there is even a need to operate against established company traditions. For example, one interviewee described how they did not need a service for spare machine handling, as they had maintained all spare parts and related in-house operations through the company's history and to the present day: "We have operated for 100 years […] there were no such services for spare machines [back then]. […] We have had to keep them by ourselves from the beginning, because they were not necessarily available quickly from elsewhere. That tradition has stuck till this day" (C7).

The generally prevailing attitudes toward services were not always open and positive. Some interviewees believed their own knowledge was sufficient and did not necessarily see potential services in the supply market. One interviewee expressed this in connection with ManuCo's intention to bring advanced data-based services to maintenance: "We have quite a strong maintenance organization ourselves. [We have] a good knowledge about that. So it is a bit difficult to infiltrate new systems into that kind of operation" (C7). Some interviewees were skeptical toward services, for example, after having had bad experiences with other suppliers, which discouraged them from acquiring new services.

Organizational adjustments required for adopting new services were generally experienced as very challenging. However, some interviewees mentioned policies, practices or habits already in place in their organization, guiding them toward acquiring services from external suppliers. Examples included a policy to keep the number of in-house employees low and policies concerning recruitments, i.e. making it more difficult to recruit a new person than to buy a service.

5. Discussion

This study aimed to develop understanding of the organizational dimension of service readiness and the conditions underpinning it by focusing on industrial customers' readiness to adopt new advanced services from an equipment and systems manufacturer. Previous research has focused on technology readiness as an individual's trait (e.g. Parasuraman and Colby, 2015; Son and Han, 2011), while this study examined it as an organization-level phenomenon. We have complemented the earlier picture of service readiness with more detailed understanding of its organizational dimensions and drawn attention to service readiness as a necessary requirement in supporting customer adoption of advanced data-based services. The findings revealed the processual nature of service readiness as it changes alongside the evolution of practices and habits in the customer organization and calls for proactive development efforts from both manufacturer and customers. Below, we discuss the findings in light of previous research, to address the research questions.

5.1 The nature and conditions of customers' organizational service readiness

The study inquired, first, how the organizational dimension of service readiness manifests in a customer company. Previous research primarily investigated technology readiness (Parasuraman, 2000), and this study extended the discussion to business customers' service readiness. As a key contribution, the study identified three relevant components of customers' organizational service readiness: service context, supplier relations and organizational habits and culture. These components are relevant for the customer firm in forming the underlying attitudes and openness to purchasing new services from an external service provider. These components also reflect the interactive and relational nature of services (Edvardsson *et al.*, 2005; Vargo and Lusch, 2004). Similarly, the complexity and importance of the advanced services for the customer's core business (Story *et al.*, 2017) emphasize the relevance of organizational habits and culture for customers' service readiness. Service readiness, as an organization-level concept, is thus clearly differentiated from individual-level technology readiness.

This research allows a better understanding of service readiness as a multilayered phenomenon. Service readiness was studied in an organizational context, which is rarely considered, even concerning technology readiness (Richey *et al.*, 2007; Vize *et al.*, 2013). Based on the work of Parasuraman (2000) and Vaittinen *et al.* (2018), together with the current study, service readiness in an organizational context has been shown to be a multilevel concept consisting of not just individual-level dimensions, but also organization-level factors, as illustrated in Figure 2. These different levels are interdependent and likely to affect each other, since learning in organizations happens through their members (Kim, 1993), and individuals adapt to the beliefs of their organization (March, 1991).

Second, the study revealed some organizational conditions with implications for customers' service adoption. The results suggest that processes for service adoption may vary widely between customer organizations and within a customer organization, depending on the service being adopted. Since more complex, important purchases have a larger number of people involved in decision making (Johnston and Bonoma, 1981), the inherent complexity of advanced services (Story *et al.*, 2017) could explain the number and variety of different managers and departments in the customer firm involved in planning, designing, procuring and implementing the service.

The diverging goals of the different people involved in such a decision, also evident in this study, may create conflicts (Eisenhardt and Zbaracki, 1992), further complicating the purchase. Each customer purchase may therefore be slightly different from the others, which could make it challenging for the manufacturer to anticipate the process. This echoes the notion in the industrial purchasing literature that "No two buying decisions in any given company are likely to be exactly alike, nor will any two companies follow exactly the same

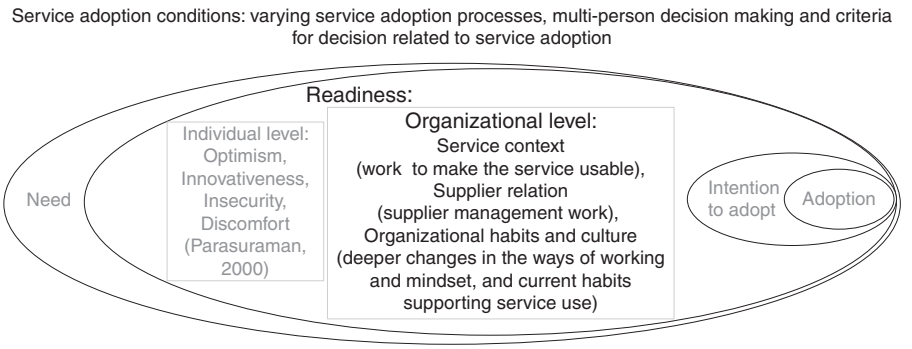

Figure 2.
Service readiness as a multi-level concept

procedures in even highly similar purchase situations" (Johnston and Bonoma, 1981). However, this research further highlights how the complex nature of advanced services may create even wider variations in customers' service adoption, which again can require adaptation by the manufacturer.

Decisions on service adoption involve multiple, varying decision makers and decision criteria, which was evident in the findings. When these multiple decision makers, following divergent criteria in the context of organizational service purchases (Day and Barksdale, 1994; Stremersch *et al.,* 2001), are combined with the service readiness concept, the complexity and layers of service adoption in customer companies become more evident. In organizations, multiple individuals, their individual service readiness and their perspectives on organizational service readiness will influence service adoption decisions. This shows how service readiness is interdependent between its levels and between individuals, and how service readiness and adoption are significantly more complex phenomena in an organizational context than in a consumer context – and possibly even more complex than technology adoption in an organizational context has so far been expected to be (Asare *et al.*, 2016).

Third, this paper contributes to understanding the connection between the customers' organizational service readiness and the servitization-related priorities and challenges among the manufacturer's salespeople. This may indicate that service readiness is not only interdependent between its levels and between individuals participating in the service adoption decisions at the customer companies, but that customers' organizational service readiness may also be linked to the readiness of the manufacturer's salespeople, as illustrated in Figure 3. This is supported by the themes identified in previous literature regarding servitization-related changes among manufacturers' salespeople (those identified, for example, by Groß *et al.*, 2017; Kindström *et al.*, 2015; Raja *et al.*, 2013; Ulaga and Loveland, 2014) that have clear counterparts in the customers' organizational service readiness (illustrated in Table IV). The findings suggest a need to consider jointly both the readiness of a manufacturer's salespeople for services and the customer's readiness to adopt the manufacturer's new services. This recognition reveals how the interactive and relational nature of services (Edvardsson *et al.*, 2005; Vargo and Lusch, 2004) ties together the service readiness of different actors. This suggests a further need for a more complete understanding of different actors during the service adoption process, compared to technology readiness and adoption.

5.2 Manufacturers' methods of adapting to and enhancing customers' service readiness

Previous research has noted various challenges in adopting new, advanced services (Baines and Lightfoot, 2013; Brax and Jonsson, 2009; Westergren, 2011); the second research question therefore focused on how a manufacturing firm can consider customers' organizational readiness when introducing new services. The organizational conditions and

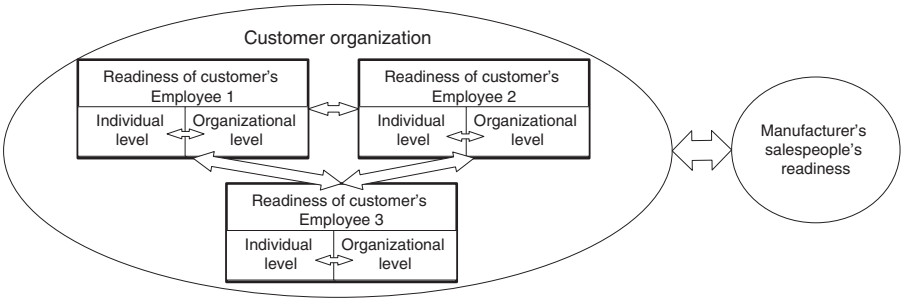

Figure 3.
The complex nature of customer service readiness

Readiness for new services among manufacturer's salespeople	Customer firms' service conditions and organizational readiness to adopt new services
Need to understand and define the service need (e.g. Kindström *et al.*, 2015; Ulaga and Loveland, 2014)	Service context: Work needed to make the service usable E.g. clarifying the current situation, providing knowledge required for the service, updating needed equipment, planning and creating systems for data collection and sharing
Importance of relational dynamics and increased customer communication (e.g. Raja *et al.*, 2013; Ulaga and Loveland, 2014)	Supplier relation: Supplier management work needed E.g. planning contracts, making required supplier checks, specifying service further, agreeing on practicalities
Need to understand customers' business and processes to adapt the service to their need (e.g. Kindström *et al.*, 2015; Neu and Brown, 2005)	Organizational habits and culture: Need for deeper changes in ways of working and in organizational mindset E.g. trusting that the supplier can handle things, getting people excited about using a new service when it needs to be actively used, open attitude to technologies, overcoming long traditions of doing things a certain way Current habits showing some readiness E.g. the practice of keeping the company's own employees to a minimum

Table IV. Readiness for new services in customer companies and its correspondence to requirements for manufacturer's salespeople

service readiness have multiple implications for manufacturers. In a comprehensive overview, Table V shows examples of ways in which manufacturers can prepare for different levels of organizational readiness for new services among customers, based on issues identified in this study.

Customers' operations and readiness	Requirements for manufacturing company as service supplier
Varying customer adoption processes, depending on the service, customer, previous service purchases	Need to understand the service purchase from customer's viewpoint; recognize how big/small, easy/difficult, normal/special the purchase is and act accordingly
Multiple, varying decision makers, depending on service, customer company, previous service purchases	Need to understand who in the customer company are those interested in purchasing this service and how they are deciding; based on this, contacting the right people with the right arguments, specified to fit their interests
The decision criteria (on service procurement and supplier selection) among customers may be product-oriented	Need to understand customer's decision and supplier selection criteria and turn service benefits to match the criteria; alternatively, use time and effort to get customer to understand why some other aspect must be taken into account with a certain service
Cybersecurity: wariness of sharing data and opening connections to customer's facilities (needed for some advanced services)	Need to ensure that security of information and connections are handled extremely carefully; show this to customers and convince them; value customers' trust and act reliably, to fulfill expectations
Laborious tasks: customers perceiving tasks dealing with preparation of service context and supplier relationship as too laborious, challenging	Recognize importance of tasks through which customer prepares service context and manages supplier relationship; must understand current customer situation and changes needed; must consider how customer can be supported in these tasks or how the need for these tasks can be minimized
Adjustment in customer organization: customer organization may need adjustment in processes, cultures, mindset and traditions	Must understand culture and habits of customer and consider how the service can be better aligned with the customer's world. Identify ways to support customers in needed change or offer pilot solution or simplified version of the service, to initiate learning. Start with customers who seem more ready and familiar with the advanced services

Table V. Required manufacturer actions based on challenges customers face

One clear implication for manufacturers is that they need to know the customers, their businesses and their processes very well. This echoes findings in the limited studies concerning the effects of servitization on salespeople, where the increased need for customer understanding is one of the most highlighted requirements (e.g. Kindström *et al.*, 2015; Ulaga and Loveland, 2014), and in the market-orientation literature, which highlights the need to go beyond customers' expressed needs to also understand their latent needs with a long-term focus (e.g. Slater and Narver, 1998). As others have stated, customers may not always even be aware of some of their needs (e.g. Matthing *et al.*, 2004; Narver *et al.*, 2004; Tuli *et al.*, 2007).

Based on the current study, it seems that customers may also not always be aware of all factors affecting their decisions, such as product-focused culture, or may not be ready to divulge the issues affecting their decisions. For example, they may not happily share with a supplier the fact that they do not fully trust the supplier to handle things or keep their secrets safe. It is therefore not only important to understand whether the customer has latent needs, but also to consider service readiness, as not all customers who have a need for services will be ready to purchase them from an external supplier – a finding supported by Vaittinen *et al.* (2018). Manufacturers must therefore understand their customers and either identify those that are ready to use their services or adjust their services to fit their customers' service readiness.

Similarly, all services are not useful for all customers, and some customers may be better off without adopting the new services from the manufacturer due to, for example, their organizational context. Innovation-adoption research acknowledges the variety of innovation adopters, such as early and late adopters (and non-adopters), typically at the individual level (Rogers, 1983). The current study encourages manufacturers to consider customer organizations as innovation adopters at the organizational level, to take the adoption stage into account in new service introductions, and to modify sales activities accordingly. This further highlights the need for the manufacturer to understand customers' specific service readiness to avoid wasting their, and their customers', time with services that are not useful for the customer – a perspective often neglected in many servitization studies.

Another key aspect of the service conditions involved the variety of service adoption processes and decision makers. Previous literature has identified the relevance of different people, goals and values for decision making (e.g. Conrath, 1967), but this paper reveals its implications in the context of new service adoption. This has clear ramifications for manufacturers, as it highlights the need to analyze how different customers adopt services and what kinds of demands different services place on customers' service adoption processes. This can ease sales and service people's work, as they can adjust their processes to match the needs of the customer and service. There is also a need to give salespeople tools and freedom to adapt the service and their selling processes to their customers' needs on the fly, as not all differences can be anticipated. This supports and broadens the discussion by Sakyi-Gyinae and Holmlund (2018), who state that to be truly customer oriented, manufacturers need to deeply understand how customer thinks and acts and grasp the reasons for different customers' diverse reasoning approaches.

This study offers ways to tackle the servitization-related challenges among manufacturers' salespeople identified earlier (e.g. Groß *et al.*, 2017; Kindström *et al.*, 2015; Raja *et al.*, 2013; Ulaga and Loveland, 2014). Through reporting the customer perspective on new service adoption, this study provides more knowledge of where these challenges may originate. It illustrates the need to consider introducing advanced new services and servitization from both the sales and customer perspectives to create a more complete understanding of the phenomenon. Further, it provides more detailed information about the knowledge and understanding the manufacturer needs about customers, the context in which services take place, and customers' unique ways of working.

5.3 Theoretical implications

This study contributes to the servitization research by utilizing and refining tested frameworks from innovation adoption research, particularly the concept of technology readiness by Parasuraman (2000), for industrial service business. It elaborates and broadens earlier ideas of the organizational aspects of service readiness (Vaittinen *et al.*, 2018) and offers novel empirical evidence on service readiness as a relevant factor in customers' service adoption. This study revealed the components of customers' organizational service readiness, namely service context, supplier relations and organizational habits and culture. It shows the relevance of these components in forming the business customer's readiness to adopt new services, and clearly distinguishes organizational service readiness from the individual level of technology readiness.

This study brings more knowledge to servitization research from the customer perspective, which has thus far been under studied (Brax and Jonsson, 2009), may explain servitization failures and deservitization (Valtakoski, 2017), and has been deemed as a relevant future research opportunity (Baines *et al.*, 2017). It shows the complexity of the customer service readiness in the organizational context. The organizational and individual levels of service readiness are shown as interlinked, and also the readiness of different individuals involved in the service adoption decisions become entangled.

Furthermore, the study suggests that the customers' organizational service readiness may be linked with the service readiness of the manufacturer's salespeople. This is illustrated by the evident links of customer service readiness to earlier research on manufacturers' salespeople during servitization (e.g. Groß *et al.*, 2017; Kindström *et al.*, 2015; Raja *et al.*, 2013; Ulaga and Loveland, 2014). Therefore, this research has provided a more comprehensive understanding about service readiness, its nature and complications, as well as shown how the interactive and relational nature of industrial services is reflected in service readiness.

5.4 Practical implications

As a key managerial implication, this study offers practical ideas for managers in industrial firms to promote their business customers' service adoption, many of which are already presented in Table V. It particularly highlights the need to understand customers, their specific service adoption processes and the current contextual circumstances in customer facilities. This study highlights the importance of recognizing tasks that customers must complete to ready their operations for the service being considered and of allocating resources for service-related preparations within the customer firms. Through understanding customers' required changes during service adoption, manufacturers can develop their own means of supporting customers' readiness for new advanced data-based services.

5.5 Limitations

This study is not without limitations. This research was conducted as a single case study, which limits the generalizability of the results. Case studies are not generalizable to wider populations, but they are useful in offering context-specific understanding of the studied phenomenon – in this case, service readiness in customer organizations. We purposely selected a typical case and introduced the case firm background, to enable future comparisons and knowledge transfer. More research with multiple cases and different industrial firms is needed to validate the organizational dimension of service readiness. Interviews were conducted with customers that were very important to the focal manufacturing firm, which was a relevant sample. However, this may have skewed the results, as most of the companies were large and successful, and likely had more experience with advanced services and more resources to handle service purchases than smaller companies.

6. Conclusions

This study developed new knowledge on service adoption in the business-to-business context, particularly concerning the nature of customer firms' organizational readiness for new advanced services. It clarifies the concept of service readiness in an organizational context and shows it to be a multilevel concept covering both individual and organizational levels, which affect each other. It shows the interconnected nature of service readiness between its levels, individuals in the customer company and the manufacturer and its customers, and illustrates how the nature of services is reflected in their adoption. Further, the study complements previous consumer-centric service adoption research and offers new insights regarding the challenges and slowness of servitization, from the customer's perspective. It also shows the consistency of previously identified challenges among manufacturers' salespeople and challenges in customer firms when new services are adopted. This study thereby offers new insights to understanding and developing the manufacturer–customer relationship during servitization.

To become more generalizable and validate the research further future research should test it in different industrial service contexts, to cover various solution and service offerings. Besides future validation studies of the service readiness concept in an organizational context, further research should consider different types of customers in terms of their size, centrality and previous familiarity with services. Further research should also cover service readiness among manufacturers' salespeople, which is hinted at in this customer-focused research. In addition, there is a need for research into manufacturers' means to improve the market launch and timing of new advanced services, and the sequence of introducing new services in light of knowing customers' readiness for new services. Furthermore, as this study focused on customer organizations as innovation adopters, further research could purposely compare different organizations as service innovation adopters, not just in terms of service readiness, but also in terms of scope of service use within the organization.

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