

INTERNAL LEVERS FOR SERVITIZATION

Enhancing hybrid offerings by small and medium-sized manufacturers

Work-in-progress paper

ABSTRACT

This work-in-progress paper aims to develop insight in the organizational levers for servitization by small and medium-sized manufacturers. After a general introduction to servitization, its drivers and challenges, we pinpoint and discuss four potential internal levers for manufacturers: network capabilities, digital systems, service climate and organizational structure. Next, we offer a brief explanation of our current research project, the involved stakeholders and planned research methodology for the coming twelve months. Finally, we present the findings of two workshops with eight case companies and several service innovation experts. It was discussed servitization strategies are dependent on the companies' context, industry and size, that a misfit in organizational culture may disrupt servitization efforts, and that success may be determined by the development of service-specific capabilities and systems, particularly regarding networking and selling.

KEYWORDS

Servitization
Network capabilities
Digitization
Service climate
Organizational structure
Manufacturing SMEs

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INTRODUCTION

Over the past three decades, research in innovation has increasingly drawn attention towards services (Carlborg, Kindström, & Kowalkowski, 2013). In a manufacturing context, the process of combining goods with services in order to provide greater value for the customer has been referred to as “servitization” (Baines & Lightfoot, 2014; Vandermerwe & Rada, 1988). Although servitization seems to hold benefits for both providers and customers, companies often face negative financial return and after a while seem to abandon their service strategies (Parida, Ronnberg-Sjodin, Wincent, & Kohtamäki, 2014; Visnjic, Wiengarten, & Neely, 2014). The lack of experience, resources and a service-oriented culture are considered among the barriers towards successful servitization (Gebauer et al., 2005; Kowalkowski, Witell, & Gustafsson, 2013).

Today we have reached a stage where servitization is studied from a multidimensional, all-encompassing perspective that entails several domains within the company (Carlborg et al., 2013). We find recent research efforts are increasingly focused on finding how companies may organize themselves within and in relation to customers and stakeholders in order to enhance on servitization. For instance, Raddats, Burton and Ashman (2015) investigated the impact of six different resource configurations on servitization success, ranging from “leaders and services personnel” to companies’ “collaborative approach” and “service methods and tools”; Storbacka, Windahl, Nenonen and Salonen (2013) identified four continua when transforming toward solution business models, including “operational adaptiveness” and “organizational networkedness”; also, Storbacka (2011) identified sixty-four capabilities divided over twelve categories for the effective management of business solutions.

Based on a preliminary review of the literature, we indicate four potential enablers, which we refer to as organizational or internal levers, that contribute to servitization success; they are network capabilities (Wassmer, 2010), digital systems (Gago & Rubalcaba, 2007; Hsu, 2007), service climate (Bowen & Schneider, 2014; Gebauer, Edvardsson, & Bjurko, 2010) and organizational structure (Gebauer & Kowalkowski, 2012). We consider these levers as enablers that support companies, particularly manufacturing small and medium-sized enterprises (SMEs), in creating successful hybrid offerings.

The aim of this research is to understand how manufacturing SMEs can enhance on servitization by “pulling” several specific levers. This paper pertains a work-in-progress paper following a research project that started in early 2015. First, we provide the reader with a preliminary literature review on servitization, its drivers and barriers. Second, we offer a brief description of four potential levers: network capabilities, digital systems, service climate and organizational structure. Third, we introduce the reader to the different stakeholders involved in our study and offer insight in the foreseen research methodology for the coming twelve months, which will consist of both semi-structured, in-depth interviews and workshops. Fourth, we summarize the findings of the first two workshops with eight case companies and several experts on service innovation regarding servitization strategies, drivers, barriers and levers. Finally, we draw inspiration from these two workshops in order to confirm or adjust our focus towards potential internal levers for servitization.

LITERATURE REVIEW

Servitization

Academic literature is increasingly paying attention to the topic of servitization (Beuren, Gomes Ferreira, & Cauchick Miguel, 2013). Servitization was first introduced by

Vandermerwe and Rada (1988) as the process of “moving from the old and outdated focus on goods or services to integrated ‘bundles’ or systems with services in the lead role”. More recently, servitization is described as “the strategy employed by product providers to add accompanying services to their product range” (Visnjic et al., 2014), or is said to occur “when a company creates value by adding services to products” (Beuren et al., 2013).

The offer that is ultimately provided by companies has been given many names, such as “product-service systems” (Baines et al., 2007; Tukker, 2004), “hybrid offerings” (Dotzel, Shankar, & Berry, 2013; Ulaga & Reinartz, 2011), “integrated solutions” (Storbacka, 2011; Windahl & Lakemond, 2010), “value offerings” and “value added-added solutions” (Matthyssens & Vandenbempt, 2008; Matthyssens, Vandenbempt, & Weyns, 2009). The term “product-service system” (PSS) seems to be most often referred to in academic literature when describing servitization (Beuren et al., 2013). Yet, PSS is considered a special case of servitization where the use or final result is considered more important by the customer than obtaining ownership over the product (Tukker, 2004). PSSs are mostly described in the context of large-sized original equipment manufacturers such as Rolls-Royce, Caterpillar, MAN Truck and Xerox (Baines & Lightfoot, 2013). Alternatively, the term “hybrid offering” is more broadly used as “a combination of one or more goods and one or more services, creating more customer benefits than if the good and service were available separately” (Shankar, Berry, & Dotzel, 2009). The ultimate choice of offering depends largely on the business logic of the industry in which the company is active. More specifically, a distinction is often made between installed-base vs. input-to-process manufacturers (Storbacka et al., 2013) and large-sized enterprises (LSEs) vs. SMEs (Kowalkowski et al., 2013).

Based on a review of the literature, we detect mainly four drivers of servitization. First, servitization is considered a strategic alternative for traditional companies that are challenged by commoditization (Matthyssens & Vandenbempt, 2008) or by international competitors from countries with a low-cost labor base (Baines et al., 2007). Second, customers have a better bargaining base and are observed demanding more services and possibilities for customization (Vandermerwe & Rada, 1988). Third, digital technologies are increasingly used for connecting products and services, and they enable firms to provide services more efficiently (Hsu, 2007; Vandermerwe & Rada, 1988). Finally, firms anticipate the impact of future environmental legislation, and PSSs in particular are considered to achieve the same level of performance with a lower environmental burden (Mont, 2002). In sum, servitization is considered to hold benefits for providers, customers as well as the environment (Goedkoop, van Halen, te Riele, & Rommens, 1999; Mont, 2002).

However, companies are observed finding it difficult to exploit the potential of extending into services. Increasing costs in providing services often lack a sufficient return in growth or revenue; this has been referred to as “the servitization paradox” (Gebauer et al., 2005). We distinguish a number of possible explanations described in academic literature. First, the relationship between industrial services and financial performance are considered complex, and growth through servitization is considered dependent on the type of services offered by the company, favoring advanced services over mere add-on customer services (Parida et al., 2014). Second, firms may lack certain service-specific capabilities or experience, such as in pricing or how to structure an organization to design, make and deliver new offerings (Baines et al., 2007). Third, firms may lack a service-oriented culture, for instance managers may overemphasize tangible rather than intangible features, be skeptic of the economic potential of services and fear to absorb risks beyond the point of sale (Gebauer et al., 2005). Fourth, customers may not accept hybrid offerings for fear of losing valuable information (Porter & Heppelman, 2014) or because they are unwilling to pay for additional services (Kowalkowski, Kindström, & Witell, 2011; Witell & Löfgren, 2013). Furthermore, SMEs compared to LSEs suffer from a number of additional obstacles: they often sell and deliver

through a network of distributors and installers (Oliva & Kallenberg, 2003) and lack the resources to investigate and provide additional services (Kowalkowski et al., 2013).

How can manufacturing SMEs overcome these barriers? Previous literature has hinted at the influence of a number of potential enablers for companies to create successful hybrid offerings, such as network capabilities (Wassmer, 2010), digital systems (Gago & Rubalcaba, 2007; Hsu, 2007), service climate (Bowen & Schneider, 2014; Gebauer et al., 2010) and organizational structure (Gebauer & Kowalkowski, 2012). In the following paragraph, we will discuss these items as potential levers for servitization.

Internal levers

Recent research on servitization is focused towards finding how manufacturing companies should transform themselves as an organization in order to move from delivering basic products to hybrid offerings. Some papers, for instance by Ulaga and Reinartz (2011) and Storbacka (2011) investigated critical resources and capabilities for servitization success. Other papers, such as by Raddats et al. (2015) and Matthyssens et al. (2009), examined different resource and competence configurations that companies need to develop in order to upgrade their value offering. Depending on the type of hybrid offering, these configurations consist of specific assets, knowledge and capabilities, processes and systems, culture and organization (Matthyssens et al., 2009). Based on a review of the literature, we discuss four different research streams that we consider as potential internal levers for servitization.

The first lever is the development of network capabilities, which refer to the ability to handle business relationships with customers and stakeholders (Wassmer, 2010). Inter-organizational networks and interactive collaboration with strategic partners strengthen companies in creating new economic value (Gadde, Hjelmgren, & Skarp, 2012; Möller, Rajala, & Svahn, 2005). Particularly SMEs, which lack the resources to provide the services that their customers require, need to involve different actors in the business network for servitization purposes (Kowalkowski et al., 2013; Pawar, Beltagui, & Riedel, 2009). The success of such value networks depends largely on the ability to handle business relationships (Oliva & Kallenberg, 2003; Storbacka et al., 2013). This includes among others identifying new business opportunities (“sense-making”), selecting the right partners, moving them in the desired direction (“agenda-setting”) and coordinating development and delivery activities (Möller & Svahn, 2009; Morelli, 2006). Furthermore, on a personal level, building trusting relationships that allow for open and efficient communication enhance inter-firm cooperation (Lundberg & Andresen, 2012). Without the necessary network capabilities, the potential that is present in the stock of companies’ networks, will not be fully realized. The role of network managers and how managers go about developing relationships, specifically in the case of servitization, offers opportunities for future research (Popp, MacKean, Casebeer, Milward, & Lindstrom, 2013).

Digitization, the second proposed lever, is the increasing use of digital technologies for connecting people, systems, companies, products and services (Hsu, 2007). Ray, Muhanna and Barney (2005) say delivering quality service is increasingly tied to a firm’s information technology (IT) resources and the manner how these resources are deployed in a firm-specific manner (Ray et al., 2005). Digitization in manufacturing firms can be viewed from mainly two perspectives: a “back-end” and “front-end” perspective (Pawar et al., 2009; Storbacka, 2011). Back-end digitization enables higher service quality through more accurate information sharing systems and better knowledge management among employees (Kindström & Kowalkowski, 2014; Sher & Lee, 2004). Front-end digitization allows for new types of customer interactions and possibilities to achieve deeper customer understanding, for instance through new types of digital interfaces (Gago & Rubalcaba, 2007; Hsu, 2007; MIT

Center for Digital Business & Capgemini Consulting, 2011). Besides front and back-end digitization, manufacturers today are also observed to augment current physical offerings with digital components, for instance by adding online monitoring devices for preventive maintenance purposes (Porter & Heppelman, 2014; Weill & Woerner, 2013), or add new digital products that complement traditional ones (MIT Center for Digital Business & Capgemini Consulting, 2011).

Service climate, the third potential lever, has been highlighted as a potentially interesting research field that impacts servitization (Bowen & Schneider, 2014). A service climate refers to employees' shared sense of the service quality focused policies, the practices and procedures they experience and the service quality emphasis they observe in behaviors that are rewarded, supported and expected (Schneider, White, & Paul, 1998). Service *climate* is linked to but not the same as service *culture*, which is more related to the basic underlying assumptions and values that guide organizational action towards services (Bowen & Schneider, 2014). Service climate so far has been mostly studied in a B2C context. More recently we see a growing body of work in a manufacturing context (see for instance Gebauer, Edvardsson, & Bjurko, 2010; Gebauer et al., 2005). Service orientation in corporate culture is considered to have an important impact on business performance (Gebauer et al., 2010). Therefore, it is important for manufacturing companies to pay attention to the antecedents of service climate; they include leadership, service-focused HRM practices and support from other functions within the company such as operations and IT (Bowen & Schneider, 2014).

A fourth and final proposed lever is organizational structure. When moving towards hybrid offerings, the current way in which companies are organized may no longer be adequate to handle customers' long term needs. For capital goods manufacturers, earlier literature has emphasized the importance of either integrating product and service organizations (Neu & Brown, 2005) or starting a separate service organization (Oliva & Kallenberg, 2003). Gebauer and Kowalkowski (2012) extended on this stream of research and investigated four patterns for companies to move from being product-focused to service-focused, and from geographically-focused to customer-focused. These authors rather follow the argumentation of Neu & Brown (2005), meaning companies should initially integrate services into the product organization. This is in line with the work by Kowalkowski et al. (2013), whom say manufacturing SMEs do not have the resources to build new organizational units. Gebauer and Kowalkowski (2012) also reveal that companies do not move to pure customer-focused business units, but rather choose hybrid organizational forms that combine both service and customer orientations. Finally, Gebauer and Kowalkowski (2012) emphasize the importance of stimulating close internal collaboration between organizational units to improve customer and service orientation.

When moving towards hybrid offerings, we do not consider the four proposed levers – network capabilities, digital systems, service climate and organizational structure – as being unrelated to each other. The reviewed literature often shows clear links between these different fields of study. For instance, Raddats et al. (2015) demonstrate that HRM practices such as employing the right personnel, and tools such as service-based IT applications make significant contributions to services success; Carlborg et al. (2013) call to gain a better understanding of interactions between service ecosystem stakeholders, organizational design as well as digital information systems; in their study on organizational structures, Gebauer and Kowalkowski (2012) indicate an extension to corporate culture and HRM; and Storbacka et al. (2013) highlight the importance of both managing organizational networks and developing effective digital knowledge management systems. In our research, we aim to combine these different research streams into one multidimensional framework to develop a better understanding of how manufacturing SMEs may enhance on servitization.

METHODOLOGY

At the start of 2015 we initiated a new research project funded by the Flemish regional government of Belgium to study internal levers for servitization. We sent out invitations for participating in this project to companies potentially interested in this topic, advisors in service innovation, intermediary organizations as well as academics from various institutions. So far eight mostly small and medium-sized manufacturing companies have agreed to participate, with the exception of one large multinational company for which a specific business unit is also involved in this study (see table 1). Furthermore, we may count on the input of five service design agencies and two intermediary organizations representing the manufacturing industry and SMEs respectively. Finally, we count on a network of researchers focused on service-related topics such as product-service design, service climate, organization and management.

Table 1: company cases

Company	Main products	Size
1. Alpha	Functional insoles & feet scanner	Small
2. Beta	Security systems	Small
3. Gamma	Office furniture	Medium
4. Delta	Fuel cell systems & hydrogen generators	Medium
5. Epsilon	Electric switchboards	Medium
6. Kapa	Stainless steel pumps & components	Medium
7. Lamba	Vinyl cutters, printer cutters & contour cutting plotters	Medium
8. Mu	Air compressors	Large

At the moment of writing this paper (mid July, 2015), we choose using a case study methodology for investigating potential levers for servitization. Qualitative case studies are increasingly used for building new business marketing theory (Beverland & Lindgreen, 2010). This approach is preferred when relevant behaviors cannot be manipulated and the boundaries between the phenomenon of interest and context are not clear (Yin, 2009, 2011). All the more, we are interested in how internal levers for servitization are linked to the context in which companies operate. Through a multiple case study approach we are able to draw evidence from more than one unit of analysis to add both breadth and depth to data collection (Kindström, 2010).

In the course of the coming twelve months, we plan to conduct our research using two main methods as the use of different methods permits triangulation and allows for internal validity (Jack & Raturi, 2006; Yin, 2009). First, we will organize semi-structured, in-depth interviews with each of the eight companies involved. Interviewees will be decision makers such as owners, CEOs, divisional managers, product and service managers. The first round of interviews will take place in the summer of 2015 and serve to gain a general understanding of these companies and their different servitization strategies. The second round in autumn-winter 2015 will focus on the companies' position regarding potential internal levers for servitization. The third round in spring 2016 is for gathering additional data and discussing new findings, possibly with the manufacturers' employees and/or clients. In addition, we will have individual expert discussions throughout the project with five service design agencies and two intermediary organizations on current thoughts and findings.

Second, we will organize four workshops with all stakeholders involved in this study at different stages of the project. During these workshops we will present and discuss general findings in order to accept or adjust new ideas on internal levers for servitization. The first

and second workshop took place in March and June 2015 during which we introduced and discussed a number of service strategies and potential levers for servitization; the third workshop will take place in December after the first round of in-depth interviews, and fourth workshop in the first half of 2016.

RESULTS

As this is a work-in-progress paper, we offer a brief description of the discussions that have taken place during the first and second workshop regarding different servitization strategies, their drivers, barriers and potential levers, supported by some additional findings of the first (ongoing) round of in-depth interviews.

Servitization strategies

The eight case companies currently offer a wide variety of hybrid offerings, which are based on mainly two dimensions: standard versus customized products, and reactive versus proactive services. This is in line with Matthyssens and Vandembemt (2008, 2010) whom discuss similar dimensions when investigating the commoditized electro-technical and machine building industries. First, the case companies offer either one or several types of standard products to low or highly customized products. For instance, Alpha sells only one type of feet scanner to its client podiatrists; Gamma offers a fixed range of office furniture concepts that can be slightly adjusted, for instance in terms of color and size; and Kapa involves its clients early on in the development process in order to provide them with fully customized stainless steel pumps. Second, the companies can offer either basic, reactive services or more advanced, proactive services. For instance, Beta offers basic after-sales services such as installation, maintenance and a helpdesk; Kapa advises its clients from the food and pharmaceutical industries on how to reduce waste; and Mu provides online monitoring and preventive maintenance services for their air compressors. None of the involved cases offer PSSs, which we described earlier as a special case of servitization where the customer considers the use or the end result of the product more important than ownership (Baines & Lightfoot, 2013; Tukker, 2004). Only Mu, the division of the one LSE involved in this study, has the ability to offer PSS; yet claims this offering currently generates little revenue.

During the discussion with experts and academics, it was mentioned that not all companies should move towards offering highly customized products with advanced services because the result of their servitization processes will be highly dependent on context, industry and type of company. We find support for this statement by Storbacka et al. (2013) whom say solution business models depend on different business logics, such as the installed-base and input-to-process logic. Also it was thought that, in order for companies to move up the servitization ladder, the basic building blocks such as maintenance and helpdesk services should be first in place; this is in line with the findings of Parida et al. (2014), whom say that “focusing on lower value-adding services is a necessary stepping stone to becoming services-oriented companies, but they are not sufficient to drive revenue growth”.

Drivers

As for the drivers of servitization, three topics came up during the workshops among the involved stakeholders. First, companies look to improve their service offering in order to differentiate themselves from the competition. For instance Beta says it cannot compete

solely based on price against cheaper security system products from the Far East; Delta aims to differentiate themselves from heavy competition in the industrial market; and Lamba hopes to persuade dealers to focus on selling their vinyl cutters rather than the competitors'. This is in line with the challenges of competition from low-cost labor countries put forward by Baines et al. (2007) and commoditization by Matthyssens and Vandembemt (2008). Second, companies are drawn to servitization either from a customer "pull" or "push" movement. For instance, Gamma's clients increasingly expect to receive advice on interior design including lighting and office set-up rather than "just buying desks and chairs"; Kapa finds its clients are looking to outsource some activities instead of "just buying steel pumps". This is in line with the findings of Vandermerwe and Rada (1988) on customers' higher demands. Alpha, on the other hand, is rather "pushing" a new service onto the podiatrist market, which at the moment is more traditional in how to manufacture insoles. Most podiatrists (especially the "older" generation) still prefer to hand-make insoles through plaster molding, whereas Alpha provides a service to outsource this manufacturing process through digital scanning and design processes. Third, new emerging technologies increase the possibilities for servitization. For instance Epsilon has invested in the development of a web application to enable client installers to configure their own switchboards; and Mu offers preventive services through distant online monitoring. This is in line with Hsu (2007) on connecting products and services through digital systems. The only topic put forward in the literature review that did not come up in the discussion with the stakeholders was environmental benefits. A possible explanation is that environmental advantages are often linked to PSS, in which case one product can be used by multiple parties, for instance through renting or leasing (Mont, 2002; Tukker, 2004). As discussed earlier, none of the involved companies offers PSSs.

Barriers and levers

In this section, we choose to combine barriers and potential levers in servitization as they are closely linked to each other. During the discussions we identified two main areas that companies are confronted with when servitizing. First, companies, especially SMEs, claim to struggle due to limited resources in terms of finance, employees and knowledge on hybrid offerings. For instance, Alpha and Beta only have fifteen and ten employees respectively, and say they have limited means to "find out about servitization"; Gamma sells office furniture yet clients expect advice on interior, lighting and wiring as well; and Delta shows concern to increase their risk level when selling a performance or result rather than a product. This final risk element was also strongly emphasized by the experts during the workshop, along with the difficulty of price setting. These examples are in line with the findings of Gebauer et al. (2005) and Kowalkowski et al. (2013) as described earlier in the literature review. A potential lever considered during the discussions to compensate for this lack of resources is networking. Alpha maintains strong relations with government and knowledge institutions to receive advice or apply for funding; and Gamma works with a number of partners such as interior designers and advisors for lighting and wiring, yet Gamma remains the customer's main contact point and sends out the final total invoice. Baines and Lightfoot (2013) discuss the involvement of a third financial party as a critical enabler for servitization; the financial partner purchases the equipment and then leases it to the final customer. Mu, the only LSE involved in this study, says it has a separate division within the company that serves as an investment partner for potential clients. Another potential lever considered is the rollout of digital systems in order to automatize a number of tasks or make them more efficient. For instance, Epsilon built a web application that can automatically generate a bill of material, pricing list and other documents based on the client's online orders; and Alpha uses software

to take control over the client's computer in order to solve a number of problems related to the digitizer instead of visiting the client onsite.

Second, servitization for most companies entails problems related to a change in organizational culture, particularly in sales. Most case companies offer examples of culture-related difficulties when moving towards offering services; in the case of Gamma it was even said that some people were fired because they could not accept the new ways of selling furniture. One potential lever regarding culture is stimulating the right service climate. For instance, in order to better involve all employees, the new HR manager of Gamma puts up pictures of the end result in their offices; the company also revised its incentive system for sales employees. Another potential lever is the active development of new capabilities. For instance Kapa hired an external consultant to advise them how to sell "peace of mind" rather than steel pumps. This is in line with the paper by Ulaga and Loveland (2014), which discusses a number of traits that industrial sales managers need to have when offering services rather than products, including a customer service and learning orientation.

Finally, it was mentioned during the discussions that support from top management is crucial for companies to succeed in servitization. Mu, the only LSE among the involved cases, says it has all the resources to develop and sell hybrid offerings, yet the support of top management and the structure to explore new ideas is currently not present.

CONCLUSIONS

The aim of this paper is to detect potential levers for servitization by manufacturing SMEs. We set out by introducing servitization as a process of combining products with services in order to offer greater value to the customer, and followed by giving a brief description of its drivers and barriers based on academic literature. Next we discussed four potential enablers for servitizing SMEs; they are network capabilities, digital systems, service climate and organizational structure. We conducted two workshops with eight case companies and several service innovation experts in order to accept previous ideas or adjust our focus regarding potential levers for servitization.

Based on the discussions, we present three preliminary conclusions. First, companies follow a particular servitization strategy depending on the context in which they operate, their industry and size. We noticed PSS, as a special case of servitization described for instance by Baines and Lightfoot (2013) and Tukker (2004), is not offered by the companies involved in this study. Therefore, it might not be the most advantageous strategy for SMEs to pursue in servitization. However, if companies do wish to offer advanced services to customers, the basic building blocks of mere add-on services first need to be in place. Second, SMEs are driven towards servitization for mainly three reasons: increasing competition, complex customer demand and advances in technology. However, environmental benefits, which are a main driver for PSS, were not considered during the discussions. Third, both networking and digitization processes show potential for SMEs that lack the resources to move into servitization. Companies may collaborate with a range of stakeholders, including companies from adjacent industries, government and knowledge institutions, and/or invest in digital systems that increase efficiency and create deeper customer insight. However, a misfit in organizational culture may disrupt servitization efforts. Therefore, attention to the development of the right service climate and new capabilities regarding networking and selling are necessary.

This work-in-progress paper is the first step in our research on internal levers for servitization by manufacturing SMEs. For the coming twelve months, we will construct several case studies based on three rounds of in-depth semi-structured with the eight case companies

involved and two more workshops. Ultimately, we aim to combine several research streams into one multidimensional framework in order to create deeper insight in potential levers for servitization.

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