

Servitization as reinforcement, not transformation

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To cite this work, please refer to:

<https://doi.org/10.1108/JOSM-05-2016-0121>

Abstract:

Purpose: This study explains why product-centric manufacturers utilize advanced services not as vehicles of transformation, but of reinforcement, to strengthen their established business model logic based on selling products and basic product-related services.

Design/methodology/approach: The empirical basis of this study relies on an in-depth case study of a globally operating manufacturer of industrial pumps and related services. The data includes 31 interviews conducted over several years of in-depth collaboration with the studied firm.

Findings: Product-centric manufacturers utilize advanced services as engagement platforms to facilitate the external and internal engagement of the actors and the resources controlled by them. Externally, advanced services facilitate access to customer decision makers and insights into their latent needs. Internally, advanced services help the manufacturer to more effectively leverage resources that reside within its different organizational units. Ultimately, in leveraging advanced services as engagement platforms, the manufacturer seeks to boost activities with the greatest immediate impact on its market performance: the sale of products and basic product-related services.

Practical implications: The study explains why managers should invest into development of advanced services even if such services contribute only marginally to the manufacturer's direct revenues and profits.

Originality/value: This study contributes to development of an alternative explanation of servitization that departs from the current paradigmatic assumptions in the field.

Keywords: Advanced services, servitization, business model, case study

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1 INTRODUCTION

The idea that manufacturing firms need to defend their competitive edge against the increasing commoditization of their underlying product businesses by making use of service-led growth is well-established (e.g. Wise and Baumgartner, 1999; Fang *et al.*, 2008; Ostrom *et al.*, 2010). Accordingly, manufacturers have introduced services of an increasingly advanced nature, for instance, in the form of integrated solutions (e.g. Brax and Jonsson, 2010).

At the same time, it is well recognized that advanced services remain persistently difficult for manufacturers to implement successfully. Furthermore, it is not even entirely clear to what extent manufacturers seek to fully exploit the transformative potential of advanced services. Instead, such services may act merely as tools to enhance the competitiveness of the manufacturer's core product business (Salonen, 2011; Kindström and Kowalkowski, 2014).

Reflective of the apparent contradictions between established theoretical assumptions and the observed outcomes of servitization, recent contributions in the field have suggested a need to develop alternative explanations (e.g. Finne *et al.*, 2013; Kowalkowski *et al.*, 2015; Luoto *et al.*, 2017; Kowalkowski *et al.*, 2017). To contribute to this emerging discussion, the purpose of this study is to develop an understanding of servitization as a means of reinforcement rather than transformation. The servitization as reinforcement logic is grounded in the empirical observation that, while the provision of advanced services is prevalent among manufacturers, these services have been shown to contribute only marginally to independent service sales (Antioco *et al.*, 2008). Instead, advanced services appear to have a reinforcing role by facilitating the sale of products and the basic services related to them (Antioco *et al.*, 2008;

Eggert *et al.*, 2014). However, the specific mechanisms that produce these outcomes are not well understood.

To develop a better understanding of the firm-level mechanisms that contribute to these observed outcomes, this study relies on an in-depth case study of a large, technology-intensive industrial engineering and manufacturing firm based in central Europe. The firm is engaged in the provision of an advanced service called Retrofit which, on the surface, appears of marginal importance for the firm. It is a professional service that is costly to provide and offers a low possibility for scalability. However, on closer examination, Retrofit plays a strategic role for the case firm with implications that extend beyond the revenues and profits directly attributable to the service provided.

The primary contribution of this study is to facilitate an emerging understanding of servitization as a process characterized by alternative transition paths and associated firm-level outcomes (Finne *et al.*, 2013; Kowalkowski *et al.*, 2015; Kowalkowski *et al.*, 2016; Luoto *et al.*, 2017). To do so, this study explains 1) *why* product-centric manufacturers frame advanced services as reinforcing rather than transformative of the product-centric logic and 2) *how* they seek to derive value from advanced services under this entrenched logic.

The findings from this study suggest that the manufacturer utilizes advanced services as engagement platforms (Storbacka *et al.*, 2016) to facilitate the external and internal engagement of the actors and the resources controlled by them. Through external engagement with customers, the focal firm gains access to customer decision makers and insights into their latent needs. Through internal engagement, the manufacturer can more effectively leverage resources that reside within its different organizational units. In leveraging advanced services as engagement platforms, the manufacturer seeks to boost activities with the greatest immediate

impact on its market performance: the sale of products and basic product-related services. In doing so, it seeks to reduce uncertainty related to the outcomes of servitization efforts.

This paper is structured as follows: first, the conceptual background of the study is presented, followed by the methods used. This is followed by an analysis of the findings from the in-depth case study. These findings are then discussed in light of prior theory, followed by a concluding section.

2 CONCEPTUAL BACKGROUND

This section provides an overview of the current understanding in the field regarding the nature of advanced services and their role in the manufacturer's servitization process. The section concludes with the analytical framework that is applied to better understand why advanced services appear to perform a reinforcing rather than a transformative role in servitization.

2.1 The role of advanced services in servitization

It is well recognized that managing the servitization process is difficult and many manufacturers struggle with an apparent paradox whereby investments into service provision do not generate the expected returns (Gebauer *et al.*, 2005; Neely, 2008). Partly, the observed difficulties stem from a lack of experience and the capabilities related to servitization. For instance, the development of a comprehensive service offering, sufficient service volume, and appropriate organizational capabilities have been shown to improve the manufacturer's ability to derive value from servitization (Fang *et al.*, 2008; Kohtamäki *et al.*, 2013).

Furthermore, it appears that when servitizing, manufacturers leverage the differential value effects of basic and advanced services (Antioco *et al.*, 2008; Salonen, 2011; Eggert *et al.*, 2014). More specifically, basic product-related services have been shown to generate service volume, while services of a more advanced nature mainly boost sales of the underlying product business (Antioco *et al.*, 2008; Salonen, 2011). Eggert *et al.* (2014) also demonstrate that the impact of basic services on revenues and profits is mediated by advanced services. These observations (Antioco *et al.*, 2008; Salonen, 2011; Eggert *et al.*, 2014) can be interpreted as indicative of a tendency to utilize advanced services as reinforcing, not transformative of, the manufacturer's established product-centric business logic based on selling products and basic, product-related services. However, such an interpretation runs somewhat counter to existing understanding of servitization.

As argued by Luoto *et al.*, (2017), servitization as a field of research is characterized by strong paradigmatic assumptions about the nature of the servitization process and the outcomes associated with it. These paradigmatic assumptions have been strongly influenced by Oliva and Kallenberg's (2003) seminal contribution depicting servitization as a deliberate and unidirectional transformation process during which the manufacturer gradually transforms itself into a service provider through the introduction of services that are increasingly more advanced in nature (see also Kowalkowski *et al.*, 2015). Deviations from expected patterns tend to be dismissed as indicative of managerial resistance or incompetence (Luoto *et al.*, 2017). However, recent contributions in the field have emphasized the need to generate an understanding of servitization as a process that is characterized by diverse transition paths and associated firm-level outcomes (Finne *et al.*, 2013; Kowalkowski *et al.*, 2015; Kowalkowski *et al.*, 2017). Doing so arguably requires a more careful consideration of the nature of advanced services, which forms the basis for the development of an alternative explanation of their role in the manufacturer's servitization process.

2.2 Conceptualization of advanced services

As noted by Kowalkowski *et al.*, (2017), given its interdisciplinary nature and openness to a variety of conceptualizations, the study of service growth in product firms lacks clear theoretical foundations. For this reason, it remains somewhat unclear when a service becomes advanced and what the defining characteristics of such services are. However, many of the developed conceptualizations (e.g. Oliva and Kallenberg, 2003; Raddats and Easingwood, 2010; Windahl and Lakemond, 2010; Ulaga and Reinartz, 2011; Kindström and Kowalkowski, 2014) trace back to Mathieu's (2001) distinction between a service in support of the supplier's product (SSP) and a service in support of the customer's process (SSC). This distinction has also been applied to studies that assess the value outcomes of servitization (e.g. Fang *et al.*, 2008; Antioco *et al.*, 2008; Eggert *et al.*, 2014). As defined by Mathieu (2001), SSPs are standardized services demanding low relational intensity with typical examples including product maintenance, installation, monitoring, and repair. SSCs, on the other hand, are "services as a product" with examples including process-oriented training and business-oriented consulting. Such services entail a high level of customization and relationship intensity between the seller and buyer, thus providing a strong means of differentiation for the provider.

Servitization studies typically take an implementation view or analyze the different strategic options available to manufacturers in the development of new service-based offerings (see e.g. Luoto *et al.*, 2017; Kowalkowski *et al.*, 2017). Thus, a plethora of matrices exist to describe the discrete offerings and transition paths available to the manufacturer as it incorporates service offerings of an increasingly advanced nature. Examples of service typologies that extend beyond basic, product-oriented services include operations services (Raddats and Easingwood, 2010), process support services (Ulaga & Reinartz, 2011), process delegation services (*ibid*), and integrated solutions (Brax & Jonsson, 2010).

Solutions are typically characterized in extant research as the most advanced form of service provision (e.g. Penttinen and Palmer 2007; Brax & Jonsson, 2010; Matthyssens and Vandenbempt, 2010; Kindström and Kowalkowski, 2014). Solution provision is thought to require longitudinal, relational processes between the buyer and seller that precede and follow the integration of products and/or services into functional solutions (Tuli *et al.*, 2007). Some authors place emphasis on a systems integration logic, whereby technical application integration is required to integrate solution components into complex product systems (e.g. Davies *et al.*, 2007; Matthyssens and Vandenbempt, 2008). Often a transition to a solution business is thought to necessitate a shift in the provider's revenue generation logic toward output-based offerings (e.g. Ulaga and Reinartz, 2011; Storbacka, 2011; Storbacka *et al.*, 2013; Kindström and Kowalkowski, 2014).

Building on the relational view of customer solutions, recent contributions have increasingly paid attention to the nature of value creation that occurs through the provision of advanced services, such as customer solutions. For instance, MacDonald *et al.* (2016) argue that solution provision is characterized by a “combining of supplier and customer processes and resources through a joint resource integration process.” Similarly, drawing on the context of knowledge-intensive business services, Aarikka-Stenroos and Jaakkola (2012) highlight the importance of dyadic problem-solving processes that occur in the process of value co-creation as the buyer and seller engage in “diagnosing needs, designing and producing the solution, organizing the process and resources, managing value conflicts, and implementing the solution.” Furthermore, Storbacka *et al.* (2016) note that actor engagement, defined as the actors' disposition to engage in an interactive process of resource integration, forms the micro-foundation for value co-creation processes. Such engagement is contingent upon the presence of a platform that brings together the actors and the resources controlled by them, thus providing

the needed infrastructure for value co-creation processes to occur during service provision (Storbacka *et al.*, 2016).

In summary, while the specific characteristics and terminology associated with advanced forms of service provision vary by author, recent contributions in the field nevertheless suggest that from a value creation perspective, it is not *what* is provided, but rather *how* it is provided that matters (e.g. Tuli *et al.*, 2007; Aarikka-Stenroos and Jaakkola, 2012; MacDonald *et al.*, 2016). Thus, in this study, advanced services are conceptualized as customer process-oriented services that provide a platform for engaging suppliers and customers in joint resource integration processes for the purpose of enhancing the customer's value-in-use (Storbacka *et al.*, 2016; MacDonald *et al.*, 2016). This conceptualization of advanced services, thus, places emphasis on the activities that advanced services as platforms enable for the manufacturer. On the offering level, such services can take many forms, for instance, through the provision of integrated solutions (Brax & Jonsson, 2010), process support services (Ulaga and Reinartz, 2011), and process availability services (Kindström & Kowalkowski, 2014). The literature that grounds the conceptualization of advanced services and their role in the manufacturer's servitization process is summarized in Table 1.

Insert table 1 about here

2.2 *Deriving value from advanced services*

To better understand why advanced services appear to reinforce rather than transform the manufacturer's established product-centric business logic, this study draws on Schmidt and Keil's (2013) resource value framework. The framework is grounded in the resource-based

view of the firm (Barney, 1991), which is the most prevalent strategic management theory applied to extant servitization research (Eloranta and Turunen, 2015). It seeks to understand how managers evaluate the value potential of a new resource in light of the established base of resources. Thus, unlike other established frameworks based on the resource-based view, the resource value framework places emphasis on analyzing initial conditions as predictive of subsequent outcomes. (Schmidt and Keil, 2013)

To mitigate the problems associated with the tendency of prior research to impose strong paradigmatic assumptions about the nature of the servitization process (Luoto *et al.*, 2017), an application of a framework that places emphasis on understanding how managers evaluate investments in advanced services from their established basis in products and product-related services is likely to generate a better understanding of the earlier observed outcomes of servitization (e.g. Antioco *et al.*, 2008; Eggert *et al.*, 2014).

According to the resource value framework, the value of a resource is defined as the willingness of a firm to pay for a resource or to invest in building a resource internally. This willingness is then determined by an idiosyncratic evaluation of the product market value that is possible with a resource. The authors argue that four parameters help to explain the conditions and mechanisms that determine this evaluation: (1) the firm's prior knowledge and experience that drive managerial judgment, (2) the strength of the firm's market position that allows it to apply the resource to a larger output, (3) the firm's position in interorganizational networks enabling privileged access to information, and (4) its resource base allowing for complementarities. (Schmidt and Keil, 2013)

In applying the framework, the starting basis for the analysis is the observation that in moving toward advanced forms of service provision, manufacturers face considerable uncertainty about the outcomes of these investments. For instance, service transitions have been

shown to increase the provider's risks (Josephson *et al.*, 2016) and investments in services pay off only after a critical mass is achieved (Fang *et al.*, 2008). Service relatedness, or the extent to which the manufacturer's service business links to its core product business, mitigates the service transition-risk relationship (Josephson *et al.*, 2016). This is because when offering basic services closely tied to the product, manufacturers can more easily draw on their existing competences, while having to develop fewer service-specific capabilities (Kowalkowski *et al.*, 2009). Accordingly, manufacturers have been widely successful in establishing business models based on selling products and product-related life-cycle services (see e.g. Salonen, 2011; Storbacka *et al.*, 2013).

Transitioning to advanced services is seen as more risky and difficult, given that they take the manufacturer beyond its existing competences (Markides and Williamson, 1996; Antioco *et al.*, 2008). At the same time, advanced services are thought to be critical to maintain the manufacturer's long-term competitive viability. Thus, from a managerial decision-making point of view, it becomes critical to understand how investments in advanced services, which are deemed as necessary, can be made in such a way that increases the likelihood of favorable product market value outcomes. The four analytical lenses of Schmidt and Keil's (2013) framework are applied to better understand this evaluation logic, so as to explain 1) *why* product-centric manufacturers frame advanced services as reinforcing rather than transformative of the product-centric logic and 2) *how* they derive value from advanced services under this entrenched logic. Figure 1 summarizes the analytical frame of this study.

Insert figure 1 about here

3 METHOD AND DATA

3.1 Research approach

The empirical basis of this study relies on an in-depth case study methodology. Case studies are a widely accepted methodology for theory-building research (Eisenhardt and Graebner, 2007) and are well suited to answering ‘how’ and ‘why’ types of questions seeking to explain phenomena in context (Yin, 2009). More specifically, in this study, the case study method is utilized for the purpose of developing an explanation for why advanced services appear to have a reinforcing rather than a transformative role in manufacturers’ servitization processes (e.g. Antioco *et al.*, 2008; Eggert *et al.*, 2014). Such an observed outcome runs counter to established paradigmatic assumptions about the nature of servitization (see e.g. Luoto *et al.*, 2017; Kowalkowski *et al.*, 2017). However, given that the studies examining the value outcomes of servitization are largely quantitative, the firm-level mechanisms that drive the observed effects are not well understood.

To develop such an understanding, this research follows the guidelines of abductive research (Locke, 2010; Dubois and Gadde, 2002), in that the research was guided by some initial frameworks which were adjusted, as directed by empirical findings, through the process of systematic combining. Furthermore, in this study, the choice was made to rely on a single in-depth case for empirical observations. Single case studies can richly describe the existence of a phenomenon (Siggelkow, 2007) and are fruitful when the research focus is more on the depth rather than breadth of cases (Dubois and Gadde, 2002). Single case studies have been utilized in prior studies relying on the abductive approach (e.g. Aaboen *et al.*, 2012). The strength of a single case study design in abductive research is that it allows for the collection of rich data through an extended period of interaction with the case firm. This interaction and iteration allows the researcher to constantly compare an emerging understanding of the

empirical phenomenon against available theoretical frameworks, so as to gradually arrive at a plausible explanation of the phenomenon under study (Dubois and Gadde, 2002).

3.2 *Sample selection*

As for sample selection, this study relied on purposeful sampling with the objective of identifying a case firm that was willing to commit to a multi-year research project involving in-depth interviews and managerial workshops. Furthermore, the researchers sought to identify what was deemed as a representative case of a typical servitized manufacturer. The selected case firm MachineCo was deemed to fit this profile. It is a large Europe-based, technology-intensive industrial engineering and manufacturing firm. At the time of the study, MachineCo employed over 15,000 people and was active globally. It has a well-established product business, being one of the largest providers in its respective industry. MachineCo provides different types of rotating equipment with industrial pumps as its largest product group. The firm has also undertaken major efforts to develop its service business with services contributing to more than 40% of MachineCo's total revenues.

MachineCo has a typical product-centric business model of a servitized manufacturer: it sells products and life-cycle services oriented around maintenance and repair. The revenues and profits attributable to these activities account for most of the firm's revenues and profits. However, MachineCo also provides more advanced services aimed at supporting the customer's process, which are based on the application of its professional skills and expertise. The firm was interested to initiate collaboration with the researchers because managers at MachineCo felt the firm lacked a clear shared internal understanding of the role of service-based growth and innovation in a firm that is highly product-centric.

3.3 Research process

After initiating the collaboration, the researchers noticed that MachineCo internally divides its services according to two main categories that conform to distinct value logics: scale-based and skill-based services. Scale-based services were viewed as the key revenue and profit drivers for MachineCo. These are basic product-oriented services (i.e. field service to the installed base of equipment). Skill-based services are services that rely on highly skilled professionals who work in close interaction with customers. As the name suggests, these services are difficult to scale, so the case firm felt that these services would not become an important revenue generator for the firm. However, they were nevertheless considered strategically important.

In the next phase of the research process, the focus was on developing a better understanding of the strategic role of these so-called skill-based services and the researchers drew on various frameworks grounded in the resource-based view of the firm. These included frameworks grounded in the knowledge-based view of the firm (e.g. Kogut and Zander, 1992; Grant, 1996). Furthermore, the empirical focus shifted to an in-depth analysis of a particular type of skill-based service "Retrofit," considered as strategic by the case firm MachineCo. At this point, the head of the Retrofit business unit became the key informant in the study. When speaking with various informants at the case firm, the researchers paid attention to how the informants often framed the strategic importance of Retrofit through a logic that reflected its role as supporting the activities of MachineCo's other units dedicated to the sale of products and basic product-related services. Schmidt and Keil's (2013) Resource Value Framework was adopted as the final analytical framework to facilitate an explanation of servitization as reinforcement, not transformation. The abductive nature of the research process is summarized in Figure 2.

Insert figure 2 about here

3.4 Data collection and analysis

This study relies on data gathered between July 2012 and March 2015. Data was collected through interviews, observation, archival data, company documentation, and informal discussions. The researchers had access to the leading manager in charge of Retrofit at MachineCo who acted as the main contact person. The researchers conducted 31 formal interviews with 22 different managers and engineers at various levels of the organization and in various regions. Of the 31 formal interviews, 17 were conducted face-to-face and 14 by telephone/video conference due to geographical and time limitations (see Appendix 1 for details). The formal interviews were conducted in a semi-structured manner and were accompanied by an interview protocol (Eisenhardt, 1989; Yin, 2009). An overview of the data collected during this study is provided in Table 2.

Place table 2 about here

In terms of the research process, the data collection proceeded in stages. At the initiation phase, six exploratory interviews were conducted with the broad purpose of understanding how MachineCo derives value from services. At the end of this phase, Retrofit was identified as an interesting type of service to be investigated further and contact was established with the key informant: the manager responsible for Retrofit.

As a next step, archival data and descriptive company documents were studied and the key informant was interviewed on multiple occasions. Based on the archival documents and discussions with the key informant and one additional informant within Retrofit, an interview protocol was designed for semi-structured interviews and relevant informants identified. Seven formal interviews were conducted to understand the Retrofit business in detail, including its processes, enablers, operating model, organizational challenges, and strategic role within MachineCo's overall operations. In addition, one full-day participant observation study was conducted in MachineCo's leading Retrofit facility to see Retrofit in action at an operational level. As the theme of interaction between service and product business emerged, the interview protocol was further adjusted and 18 more formal interviews were conducted.

Extensive notes were taken and all recorded interviews were transcribed (over 300 pages, single-spaced, font size 12). All the interviews were conducted in English and the duration of the interviews was between 40 and 130 minutes. The data collection that proceeded in phases is summarized in Figure 3.

Insert figure 3 about here

In analyzing the data, a thematic analysis method was followed (Lee, 1999). Following this method, data is analyzed and reported according to predetermined themes (for the themes, please refer to Figure 4). The data analysis was combined with further reviews of existing theory to formulate an evolving understanding of the empirical phenomenon. During the study, three knowledge-sharing workshops were also held with representatives from MachineCo, managers from other firms, industry experts, and academics to discuss the emerging insights, which helped to validate the findings from this study. Emerging findings were also regularly

discussed with the key informant. Based on these discussions, the case was revisited to conduct additional interviews, allowing continuous iteration between theory and observations (Eisenhardt, 1989; Miles & Huberman, 1994; Yin, 2009).

To further enhance the validity of the study, the occurrence of subjective biases was minimized by relying on multiple key informants from different levels and functions of the firm studied. A clear chain of evidence was maintained and careful attention paid to building links to established theory. Drawing on the four analytical lenses proposed by Schmidt and Keil (2013) enabled the analysis and interpretation of the data from multiple perspectives (Jick, 1979), while at the same time a well-established, generic, and exhaustive structural framework was followed. To support the interpretations and to establish a clear chain of evidence from the empirical data, the findings were enhanced by a rich set of direct quotations from the managers interviewed (Yin, 2009). Moreover, beyond drawing on the framework proposed by Schmidt and Keil (2013) and the four related resource value dimensions as the main analytical framework, the emerging findings were closely examined by reflecting on prior servitization literature (the process of enfolding) (Eisenhardt, 1989). To facilitate reliability, detailed information on the research process and data collection was presented. Finally, the emerging insights were discussed with the key informant at the case firm and he was asked to validate the findings from this study to ensure that the interpretations resonate with managerial practice.

4 FINDINGS

This section presents findings from the case study. The section begins with a brief description of the nature and role of Retrofit within MachineCo. Building on this background, the findings are then presented as per the analytical lenses grounded in Schmidt and Keil's (2013) resource value framework.

4.1 Overview of Retrofit as a type of advanced service

Within Retrofit, MachineCo offers conversions, modifications, upgrades, or revamps to existing customer infrastructure, with the aim of technically and economically overhauling an existing product installation. Once a retrofit is performed on equipment, the expected lifetime is prolonged by an average of 20 years and the reliability as well as the efficiency of the equipment is improved significantly. A typical outcome also includes cost reduction in the operation of the existing product through its improved condition (e.g. lowered energy consumption).

Being a traditionally product- and engineering-centric corporation, MachineCo has organizationally positioned Retrofit within the product-based unit. The idea here is that Retrofit can better draw on the company's engineering competences. Basic services that support the product life cycle (e.g. maintenance and repair) are housed within a separate service unit. Thus, while Retrofit is a service, it is not part of the service business unit. Retrofits are customized solutions that are costly to produce, cannot easily be scaled, and depend on the technical expertise of highly qualified professionals who are in charge of the projects delivered. The majority of MachineCo's service sales come from scale-based services oriented around maintenance and repair. Yet, as one informant from MachineCo reflects:

*“Retrofit is an important part of our business—more on a strategic level than it is on a financial level. On a strategic level, to have this capability is very significant because it's an important way to differentiate us. Retrofit is not a somewhat standardized service that we offer, it's very much a capability.” –
Managing Director, Europe*

In other words, Retrofit is regarded as a strategic activity that encapsulates important capabilities of MachineCo. In the next section, this strategic role is investigated in more detail

by drawing on the four lenses provided by the analytical framework, which provide the guiding themes through which to analyze the data. These themes are summarized in Figure 4.

Insert figure 4 about here

4.2 *The prior knowledge and experience of MachineCo reflects that of a product-centric engineering firm*

First, Schmidt and Keil (2013) argue that firms are better equipped to evaluate the value potential of new resources that leverage their *prior knowledge and experience*. This is explained by the importance of *managerial judgment* in assessing the potential value outcomes attributable to particular resources.

MachineCo has long-standing experience as an engineering firm involved in the manufacturing of rotating equipment, with industrial pumps the largest product group. Over the years, this has led it to develop capabilities that are tied to technological excellence and know-how. Thus, the core differentiator of the firm is seen to reside in its technological know-how. This underlying technological competence then forms the basis from which to build advanced services, such as Retrofit, that enable it to showcase and apply deep, product-oriented expertise through service provision. While the role of a service provider is important for MachineCo, the informants emphasized that these services are offered by a company that identifies itself as a product manufacturer:

“We are still not a service company, we are an equipment company. Part of the reason is history. The equipment business has traditionally been the premium

business. The best people in the company worked in the equipment department.

However, recognizing the importance of services is crucial.” – Senior Corporate

Development Manager

The informants frequently emphasized that increases in the breadth and scope of services is not meant as indicative of a desire to mark a departure from the firm’s product base. Thus, the firm does not think that, for instance, the path followed by IBM reflects a benchmark that it seeks to follow. Reflective of this product-centric view, the company has decided to formally locate Retrofit as an independent unit within the product organization of MachineCo, as this service ties in closely with the underlying capabilities of the firm’s product business. In addition to closely associating the capabilities of Retrofit with the product-based unit, the informants also discussed Retrofit as a service that supports the sales of new products. In sum, it seems that the development of advanced services, such as Retrofit, that build on the provider’s professional expertise is closely aligned with the underlying product business and help to support it.

4.3 The total market value creation potential of Retrofit is evaluated through the lens of MachineCo’s established product-centric business model

As argued by Schmidt and Keil (2013), the *strength of the firm’s market position* determines the total market value creation that is possible with a resource through *application of the resource to a larger output*. Thus, investments that allow better leveraging of an already well-established market position tend to be viewed more positively by managers.

Analyzing the data through this lens, attention was paid to the fact that when informants spoke of the importance of Retrofit, they frequently emphasized that Retrofit can be used to boost activities that are of primary importance to the firm in terms of revenues and profit

generated. More specifically, the business model of Retrofit depends crucially on its ability to build and leverage an installed base of equipment through the sale of products and basic product-related services, such as maintenance and repair. Since it is seen that Retrofit can contribute to these activities, its impact on the firm extends significantly beyond the direct revenues and profit it generates. Mainly, Retrofit helps to facilitate the primary activities of MachineCo by 1) helping it to sell products 2) through extending the life cycles of previously installed MachineCo equipment, and 3) converting competitor equipment into ‘MachineCo products.’ For instance, as stated by an informant:

“The big push of Retrofit, why it was interesting, was that 50% of all equipment in our region is third-party equipment. That means we re-badge a lot of this installed base, we sell the machines, build our relationship with customers, we supply the spare parts to those machines.” – Retrofit Sales Manager

4.4 Retrofits enable MachineCo to engage more closely with customers through joint problem solving

As argued by Schmidt and Keil (2013), the firm’s *position in interorganizational networks* determines the extent to which it has *privileged access to information*. These informational advantages then influence the firm’s ability to derive value from investments in resources. This dynamic was explored by paying attention to how the informants at MachineCo described the firm’s position in interorganizational networks, particularly in relation to its customers, and how the firm seeks to better leverage this position through Retrofit.

The informants at MachineCo pointed out that, due to the firm’s long history as a major manufacturer, it is well-positioned in terms of customer networks. Furthermore, through operative maintenance, it maintains ongoing customer relationships. At the same time, it seems

that through Retrofit, MachineCo wants to better leverage these existing relationships through increasing the depth of its customer interactions. For instance, as part of developing retrofits, MachineCo is in direct and intense contact with the end user of the equipment, which allows it to learn a great deal about its customers and how they utilize the equipment provided by MachineCo.

To explain in more detail, retrofits are highly engineered, project-based solutions. Only 5% of the projects fall into the category of ‘pre-engineered solutions.’ A typical project takes 1-2 years to be booked by the client and afterwards takes about a year to deliver. The sales and delivery phases include intensive interaction with the customer with multiple stakeholders involved, enabling enhanced access to underlying customer needs:

“Retrofits enable a much closer relationship to our customers than other services because of the need to iterate continuously. We get to know more about their processes and especially about their challenges, which puts us in a preferred position to sell new products.” – Global Retrofit Manager, MachineCo

The informants reported that access to information enabled by the operations of the Retrofit business gave them a better overall understanding of the customer, their processes, and challenges. This diversity of information sourced from a multitude of hierarchical levels at the client’s premises leads to additional business opportunities for MachineCo—both in additional services and products:

“A good example is that we retrofitted client equipment in the North Sea and in the next 3-4 years, we did 16 spare-parts services on them. As we provided the spare parts, we also did the repairs for them and after that we moved into maintenance contracts with the client.” – Retrofit Sales Director, MachineCo

The discussions with different customer stakeholders often allow MachineCo to discover the latent needs of the customer. This might occur, for instance, through identifying problems that customers are experiencing with current installations that provide a basis for suggesting new products or modifications in maintenance programs. Through engagement with customers, MachineCo is also better able to gain knowledge of investment projects that are not yet at the stage where customers would have contacted suppliers for tenders. This provides an opportunity to influence customers before requests for tenders are put out, which can be very helpful in increasing MachineCo's chances of eventually winning the contract. In sum, it seems that Retrofit allows MachineCo to better leverage its existing networks by engaging its customers on a much deeper level than what is often possible through the sale of products and basic product-related services. This is explained by the problem-solving nature of Retrofit that requires access to customer's usage situations and needs, enabling MachineCo to gain better insights into latent product and service needs.

4.5 Retrofits allow MachineCo to better coordinate and leverage resources residing in different organizational units

As argued by Schmidt and Keil (2013), investing in resources that display *complementarities with the existing resource base* offers benefits in leveraging such complementarities for the purpose of market value creation. Analyzing the study's findings through this lens, attention was paid to how Retrofit interacts with other existing businesses of MachineCo based on products and life-cycle services, so as to optimize the operations of these units.

As described by the informants, Retrofit seems to act as an independent third-party unit that assesses how the firm's existing resources and capabilities can be used more effectively for the benefit of the customer. If it is unclear whether the customer would benefit from a

retrofit, new equipment installation, or a change in the maintenance program of existing equipment, Retrofit can undertake an analysis to see which option would result in the best result for the customer.

Hence, beyond the mere operational process of performing a retrofit, this unit assesses the relative merits of selling the customer a new product vs. attempting to prolong the life cycle of the existing installation. In this sense, Retrofit fulfills a strategic function within the parent firm that enables it to balance the conflicting objectives of its established business units focused on selling products and services that prolong the product's life cycle. Between these conflicting objectives, the managers recognize that the firm should seek a solution that most benefits its customers:

“The traditional service business is like a goose with a golden egg. The equipment breaks down every 6 months in this world. However, we should not be afraid to kill the goose and think what could be done to make the customer's life easier? If we do that, customers will trust you...then they will come back with the next project and that's what we've seen.” – Manager, Retrofit Solutions

Thus, from the perspective of creating value in a service-oriented setting, managers throughout MachineCo reported various challenges that related to the conflict of aligning product and service sales. Yet, at the same time, Retrofit was seen as an expert organization that can help to mitigate these conflicts by supporting and optimizing the balance between product versus service sales:

“Retrofit has the best overview to see what is best for the customer. Is it a repair, a retrofit, or new equipment and then we refer this to our relevant service or product division.” – Global Retrofit Leader, MachineCo

The findings are summarized in Table 3

Insert table 3 about here-

5 DISCUSSION

The purpose of this study has been to develop a better understanding of servitization as a means of reinforcement rather than transformation. In doing so, the following questions have been posed: 1) why do product-centric manufacturers frame advanced services as reinforcing rather than transformative of the product-centric logic and 2) how do they seek to derive value from advanced services under this entrenched logic.

To address these questions, the findings from the in-depth case study are discussed in light of Schmidt and Keil's (2013) resource value framework. The discussion is organized around four propositions, each reflecting one of the analytical lenses provided by the framework (ibid). The first two propositions explain the inertial forces that prompt the framing of advanced services as reinforcing instead of transformative of the manufacturer's established product-centric business model logic. The remaining two suggest mechanisms through which the manufacturer seeks to benefit from advanced services under this entrenched logic.

5.1 The management's prior knowledge and experience influences the evaluation of advanced services

Schmidt and Keil (2013) argue that firms are better equipped to evaluate the value potential of a new resource if it leverages their *prior knowledge and experience*. This is explained by the importance of *managerial judgment* in assessing the potential value outcomes

attributable to particular resources. The prior knowledge and experience of the firm and its managers are key factors when making judgements under uncertainty. This is because experience of a particular context allows managers to evaluate a resource better within that context as appropriate knowledge structures based on cognitive categories and mental models exist to process information. Thus, judgement is an inherently subjective process, where the identity of the person making the judgement matters. The firm as a whole may also have so-called institutional judgement. In other words, it may have in-built processes and capabilities that influence how it evaluates resource investment decisions. (Schmidt and Keil, 2014; Foss *et al.*, 2008; Teece, 2007)

The managers' prior knowledge and experience at the case firm MachineCo reflect its history as a product manufacturer. The firm's competitiveness rests on product-based excellence and related technological competences. As a reflection of this, the top talent in the firm works in the product unit, which also provides the best career development opportunities within the firm. The cognitive framing of MachineCo as a product company is reflected in how the informants at MachineCo discussed the role of the service business. More specifically, despite about half of the firm's revenues currently coming from services, managers at MachineCo took great care to emphasize that the company is first and foremost a product company, not a service company. This was reflected, for instance, in the negative attitudes expressed by managers to drawing parallels to servitized manufacturers, such as IBM. This shared cognitive framing as a product company then shapes how managers evaluate the value of advanced services such as Retrofit. In effect, the value of Retrofit is framed in the context of how it can enhance MachineCo's position as a product-based company. For instance, managers spoke of Retrofit as a service that enables MachineCo to showcase its engineering competences. These observations lead to proposing the following:

Proposition 1: Established cognitive framings favor the positioning of advanced services as reinforcing instead of transformative of the product business.

This observation suggests that when the manufacturer is servitizing, it is not necessarily seeking to transform. Even if the services offered are increasingly advanced in nature, the manufacturer may retain a cognitive framing that is consistent with a product-dominant logic (Vargo and Lusch, 2004) and a business model that supports it based on selling products and related basic life-cycle services.

The tendency of manufacturers to resist changes to product-centric mindsets and related practices during servitization is well noted in prior research (e.g. Gebauer *et al.*, 2005; Matthyssens and Vandembemt, 2008; Kowalkowski and Kindström, 2014). This resistance likely reflects the implementation-related hurdles that are not easy to overcome, for instance, in terms of managing a shift in the firm's identity (Windahl and Lakemond, 2010; Salonen and Jaakkola, 2015), culture (Gebauer *et al.*, 2005), structures (Galbraith, 2002), and capabilities (Brady *et al.*, 2005).

However, the findings from this study suggest that the discursive strategy of invalidation that is frequently evoked by servitization scholars to refer to such managerial resistance (Luoto *et al.*, 2017) inhibits the development of alternative explanations. Thus, rather than presenting such resistance as problematic or as a sign of managerial incompetence, a more conducive approach could be to note that the servitization as reinforcement logic (e.g. Antioco *et al.*, 2015; Eggert *et al.*, 2014; Salonen, 2011; Kowalkowski *et al.*, 2014) is a reflection of managerial judgement that seeks to reduce the risks related to servitization. More specifically, through introducing services of an increasingly advanced nature, the manufacturer assumes more risks as the degree of service relatedness is lower (Josephson *et al.*, 2016). To manage these risks, a logical managerial response is to frame advanced services in a cognitive context that reflects

the prior knowledge and experience of its managers (Schmidt and Keil, 2013). In the case of product-centric manufacturers, this would entail conceptualizing advanced services as supportive of the established product business and related services.

5.2 The application of service-based resources is constrained by the manufacturer's established market position

Secondly, as argued by Schmidt and Keil (2013), the *strength of the firm's market position* determines the total market value creation that is possible with a resource through the *application of the resource to a larger output*. Thus, investments that allow better leveraging of an already well-established market position tend to be viewed more positively by managers. In the case studied, MachineCo has an established market position in its main product category of industrial pumps and it has also made substantial investments in building a global service infrastructure to provide what the company calls scale-based services. As the name indicates, these are services that the firm sells on a large scale, mostly consisting of basic field maintenance offered in transactional form. The overall market performance of MachineCo is critically dependent on a sustained ability to sell products and scale-based services. Retrofit, on the other hand, contributes a small proportion of the firm's overall revenues. As a skill-intensive professional service that depends on highly qualified personnel, it would be difficult to grow this share substantially. Thus, in isolation, the total market value creation potential of Retrofit is marginal, perhaps not even worth the investments made in the resources required. However, as emphasized by the informants, the activities performed by the Retrofit unit support the sales of products and scale-based services, thus substantially growing the potential value impact of Retrofit. These observations lead to the following proposition:

Proposition 2: Manufacturers amplify the total market value creation potential of advanced services by leveraging them to boost the product-centric business model based on selling products and basic product-related services.

This finding reflects the need to better assess the ‘problem state’ faced by the manufacturer, so as to better understand what the manufacturer expects to gain from its servitization efforts (Luoto *et al.*, 2017). Prior research has tended to assume that manufacturers introduce advanced services, such as customer solutions, to move beyond the established business model based on selling products and product-related services to the installed base (e.g. Storbacka *et al.*, 2013). This implies changes, for instance, to the revenue generation mechanism by turning the manufacturer’s discrete cash flows into continuous ones through replacing product sales with sales of performance (Uлага and Reinartz, 2011; Storbacka, 2011; Storbacka *et al.*, 2013; Kindström and Kowalkowski, 2014). However, for the studied case, we observe no such transformation efforts. On the contrary, the manufacturer may purposefully leverage advanced services to reinforce its established business model logic because doing so amplifies the immediate total market value creation potential of advanced services.

This finding is consistent with Rabetino *et al.* (2015) who note that even among large global manufacturers known for their extensive service offerings, it remains difficult to observe fundamental changes to existing business logics or models. Basic services for the installed base remain the most important generator of service-based revenues with spare parts often comprising 50% of the total. Services that challenge existing revenue-generating logics were rare (*ibid*). Similarly, Uлага and Reinartz (2011) note that only half of the firms in their studied sample shifted into services that required changes on both transformation axes (shift from SSPs to SSCs; shift of value proposition from input- to output-based). These observations may reflect a managerial unwillingness to drive changes in the manufacturer’s business model, which stems from the rational observation that firms are better at leveraging existing market positions (Schmidt and Keil, 2013) than creating fundamentally new ones.

5.3 The provision of advanced services leverages the manufacturer's established network position to facilitate access to information

Thirdly, as argued by Schmidt and Keil (2013), the firm's *position in interorganizational networks* determines the extent to which it has *privileged access to information*. These informational advantages then influence the firm's ability to derive value from investments in resources. This dynamic can be observed at MachineCo by analyzing its established position. As one of the leading manufacturers of products in its respective field, MachineCo is well-positioned in customer networks and, through operative maintenance of the installed base, maintains constant contact with its customers. However, a central concern for the firm is that the activities of its established product and service business do not always provide the desired level of access to the customer's decision makers and insights into their needs.

Retrofits, on the other hand, are customized solutions with a typical project taking 1-2 years to be booked by the client and afterwards taking about a year to deliver. They require engaging with the customer at various levels of the customer organization in order to define customer needs and to integrate the relevant resources. As a byproduct of this process, MachineCo learns a great deal about latent customer needs. The customer may not yet have actively sought input from potential suppliers for certain product and/or service needs or maybe does not even recognize that a better solution exists to current problems. In other words, through engaging with customers through Retrofit, MachineCo has an opportunity to access various customer stakeholders to gain important information on customers' latent needs, which can then be leveraged to facilitate sales of products and product-related services. Based on these insights, the following is proposed:

Proposition 3: Advanced services facilitate access to customers and insights into their latent product and service needs.

Reflecting upon this finding, it seems the ‘problem state’ (Luoto *et al.*’s., 2017) that the manufacturer addresses through the provision of advanced services is the lack of customer engagement opportunities provided by the established product-centric business model. More specifically, installed base manufacturers operate in markets characterized by lengthy product life cycles which can create challenges in how they interact with customers (Cova and Salle, 2007; Kastalli *et al.*, 2013). More specifically, while customer engagement can be relatively deep during the purchase process of investment-grade equipment, these purchases are made infrequently. At the same time, while basic product-related services are offered on a continuous basis, such services are transactional in orientation.

However, by strategically exploiting advanced services as engagement platforms (Storbacka *et al.*, 2016), the manufacturer gains a valuable means through which to engage customers in joint resource integration processes (Aarikka-Stenroos and Jaakkola, 2012; MacDonald *et al.*, 2016). As a by-product of this engagement, the manufacturer gains important information on customers’ latent needs that it can address with its existing portfolio of products and services, thus boosting the activities with the greatest impact on its market performance: sales of products and basic product-related services. In so doing, it ensures that the beneficial outcomes of advanced services extend beyond the value that is co-created between the seller and the buyer through service delivery (Aarikka-Stenroos and Jaakkola, 2012).

5.4 Manufacturers leverage the benefits of resource complementarities through the provision of advanced services

In terms of the final dimension proposed by Schmidt and Keil (2013), the authors argue that investing in resources that display *complementarities with the existing resource base* offers *benefits in leveraging* such complementarities for the purpose of market value creation. As noted previously, MachineCo is structurally divided into two main business units dedicated to new product sales and sales of basic product-related services. While these units perform

activities that are complementary, MachineCo cannot fully leverage this complementarity without a coordinating mechanism that Retrofit as an independent expert unit provides.

For instance, in interacting with the product unit, a customer would be offered a new product as a solution to problems encountered with existing equipment. However, the customer's problem could perhaps be solved more economically through a change in the maintenance program of the existing equipment and/or modernization of the existing equipment. From the customer's perspective, this represents a potential value conflict that can be addressed by the seller developing an organizational coordination mechanism that allows for a customer-oriented resource integration logic. With the help of Retrofit, MachineCo can better engage its internal actors working across different units to integrate a solution that best addresses the problems experienced by customers, regardless of where those resources lie within the firm's internal organizational structures. Following these insights, the following is proposed:

Proposition 4: Advanced services enable manufacturers to resolve value conflicts through more effectively leveraging resources that reside within different organizational units

This finding points to a second 'problem state' (Luoto *et al.*'s., 2017) that advanced services as engagement platforms (Storbacka *et al.*, 2016) help to address. More specifically, installed base manufacturers have long been advised to separate their service business from the product business to support the development of distinct service offerings and the capabilities and mindsets that support them (e.g. Oliva and Kallenberg, 2003). However, separating the service organization bears negative side effects in terms of the manufacturer's ability to develop offerings that take the optimization of the customer's life-cycle benefits and costs as the starting point for the resource integration process (Rabetino *et al.*, 2015). The development of such

offerings requires better coordination between product- and service-based units, which in practice seems difficult to achieve (ibid).

Thus, manufacturers have been encouraged to develop coordinating mechanisms to ensure that the relationship between product and service operations is reinforcing rather than substitutive (Kastalli *et al.*, 2013). Arguably, as engagement platforms (Storbacka *et al.*, 2016), advanced services function as such a coordinative mechanism, helping to bring together internal organizational actors and the resources controlled by them for the purpose of enhancing the customer's value-in-use, while mitigating the potential value conflicts that stem from the manufacturer's internal organizing logic (Aarikka-Stenroos and Jaakkola, 2012; Storbacka *et al.*, 2016; MacDonald *et al.*, 2016). While the provision of such services may account for a relatively minor share of the manufacturer's operations, the development of the coordinative capabilities that underlie such service provision are arguably nevertheless important to maintain the customer's quality perception of the manufacturer (MacDonald *et al.*, 2016). Figure 5 summarizes the arguments presented here, providing a basis for explicating the servitization as reinforcement logic.

Insert figure 5 about here

6 CONCLUSION

While prior research suggests that product-centric manufacturers may utilize advanced services not as vehicles of transformation, but as of reinforcement, (Antioco *et al.*, 2008; Salonen, 2011; Eggert *et al.*, 2014; Kowalkowski and Kindström, 2014), the specific mechanisms that explain such outcomes of servitization are not well understood. To contribute to this gap in existing understanding, this study has sought to understand 1) why product-centric

manufacturers frame advanced services as reinforcing rather than transformative of the product-centric logic and 2) how they seek to derive value from advanced services under this entrenched logic. In doing so, this study contributes to an emerging understanding of servitization as a process that is characterized by multiple possible transition paths and associated firm-level outcomes (e.g. Finne *et al.*, 2013; Kowalkowski *et al.*, 2015; Luoto *et al.*, 2017; Kowalkowski *et al.*, 2017).

The findings of this study suggest that product-centric manufacturers conceptualize advanced services as reinforcing instead of transformative because such a cognitive framing allows managers to better evaluate the outcomes of investments in advanced service provision. It is simply less risky to amplify the total market value creation potential of advanced services by leveraging them to boost an already well-established business model logic based on sales of products and basic product-related services.

Within the confines of this entrenched product-centric business model logic, advanced services act as engagement platforms (Storbacka *et al.*, 2016) that facilitate the external and internal engagement of the actors and the resources controlled by them. Externally, advanced services facilitate access to customer decision makers and insights into their latent needs, thus facilitating sales of products and basic product-related services. Internally, advanced services perform an internal coordination function. As such, they help to bring together internal organizational actors and the resources controlled by them for the purpose of enhancing the customer's value-in-use, while mitigating the potential value conflicts that stem from the manufacturer's internal organizing logic (Aarikka-Stenroos and Jaakkola, 2012; Kastalli *et al.*, 2013; Storbacka *et al.*, 2016; MacDonald *et al.*, 2016).

6.1 Limitations and suggestions for further research

The usual limitations of qualitative, single-case based research aside, it should be noted that the interpretations put forward in this study are influenced by the choice of the analytical framework. More specifically, the reliance on Schmidt and Keil's (2013) resource value framework has directed attention toward understanding how the focal firm's starting basis influences the way in which it evaluates new resources. Thus, the viewpoint adopted in this study emphasizes continuity rather than radical change.

However, as inferred from the findings of prior studies (e.g. Antioco *et al.*, 2008; Ulaga and Reinartz, 2011; Kindström and Kowalkowski, 2014; Eggert *et al.*, 2014), manufacturers often seem unwilling or unable to introduce radical shifts. Given the risks associated with servitization (e.g. Josephson *et al.*, 2016) and the dramatic failure rates reported in prior studies concerning attempts to transition to advanced forms of service provision (Baveja *et al.*, 2004; Stanley and Wojcik, 2005), this reluctance is understandable. For these reasons, it is likely that practicing managers would benefit from more studies that seek to explain how manufacturers can benefit from advanced forms of service provision without having to introduce radical changes into their underlying business logics and models.

Furthermore, in line with Luoto *et al.*, (2017), the findings from this study suggest that future servitization research would benefit from more critical studies that acknowledge and challenge the prevalent paradigmatic assumptions. Undoubtedly, commonly held paradigmatic assumptions have helped to mitigate the challenges that stem from the theoretical plurality that characterizes servitization research (see e.g. Kowalkowski *et al.*, 2017). However, the incorporation of more studies that are open to alternative forms of explanation is likely to enhance the understanding of servitization as a process that is characterized by multiple possible transition paths and associated firm-level outcomes. In particular, the findings from this study suggest that the prevalent rhetorical practice of invalidation (Luoto *et al.*, 2017) that is often

evoked to refer to managerial resistance towards transformative efforts may be counterproductive.

6.2 *Implications for practice*

This study suggests that advanced services have strategic importance beyond the revenues and profits generated directly through such services. This strategic potential is realized through positioning advanced services as tools through which to enhance the competitiveness of the established business units dedicated to sales of products and basic field maintenance. More specifically, as the provision of advanced services facilitates close engagement with customers, the manufacturer has the opportunity to gain important customer insights and to build contacts with various stakeholders in the customer's organization. This is helpful in identifying further sales opportunities beyond the service provided. Furthermore, advanced services can be leveraged to overcome the problems caused by the manufacturer's internal organizing logic that typically leads to dividing its activities into two units: product business and service business with relatively little coordination occurring in between. Positioned as independent experts, units in charge of providing advanced services can more easily adopt the customer's total life-cycle costs and benefits as the basis for developing market offerings.

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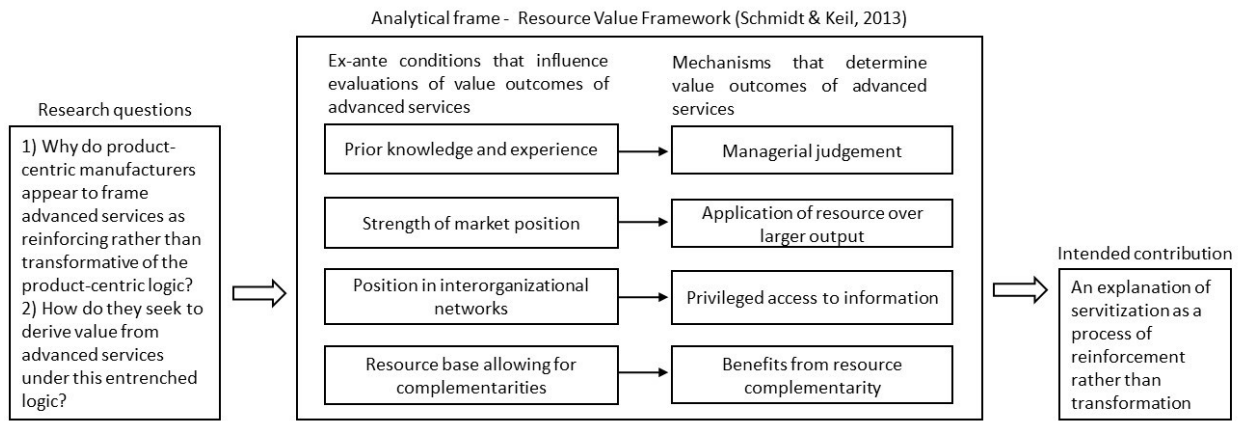


Figure 1: Analytical framework

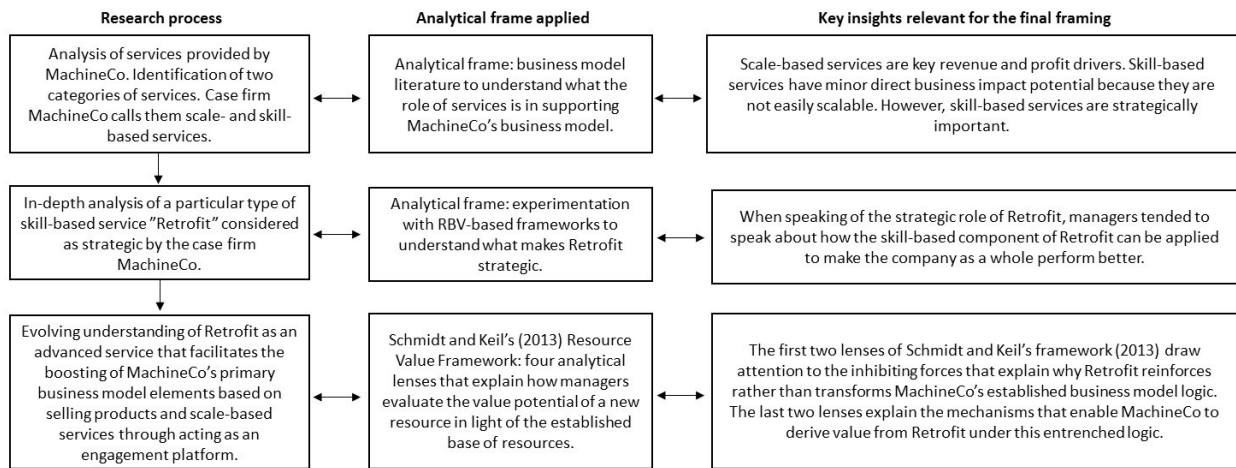


Figure 2: Abductive research process

Phase 1

- Objective: To understand the strategic role of services at case firm MachineCo
- 6 formal interviews



- Identification of Retrofit as an interesting advanced service to be studied further
- Discussions with manager responsible for Retrofit
 - Studying archival data to better understand Retrofit
 - First workshop with company participants, experts, and academics
 - Sharpening research themes and designing interview protocol for next stage of data collection



Phase 2

- Objective: To understand the strategic role of Retrofit
- 7 formal interviews
 - 1 full-day field visit in a Retrofit facility



- Emergence of the theme of interaction between product- and service-based resources
- Further development of interview protocol



Phase 3

- Objective: To understand how Retrofit interacts with MachineCo's product-based business to create value
- 18 formal interviews



- Deep insights on antecedents of value creation through Retrofit business and value-driving mechanisms:
- Workshops with company participants to discuss and validate emerging findings

Figure 3: Data collection phases

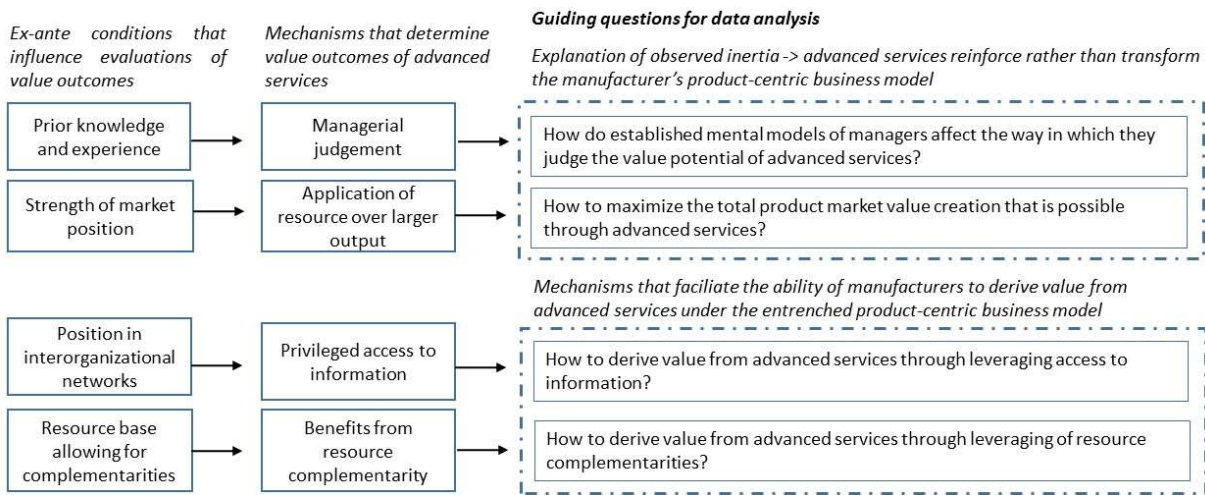


Figure 4: Themes for data analysis

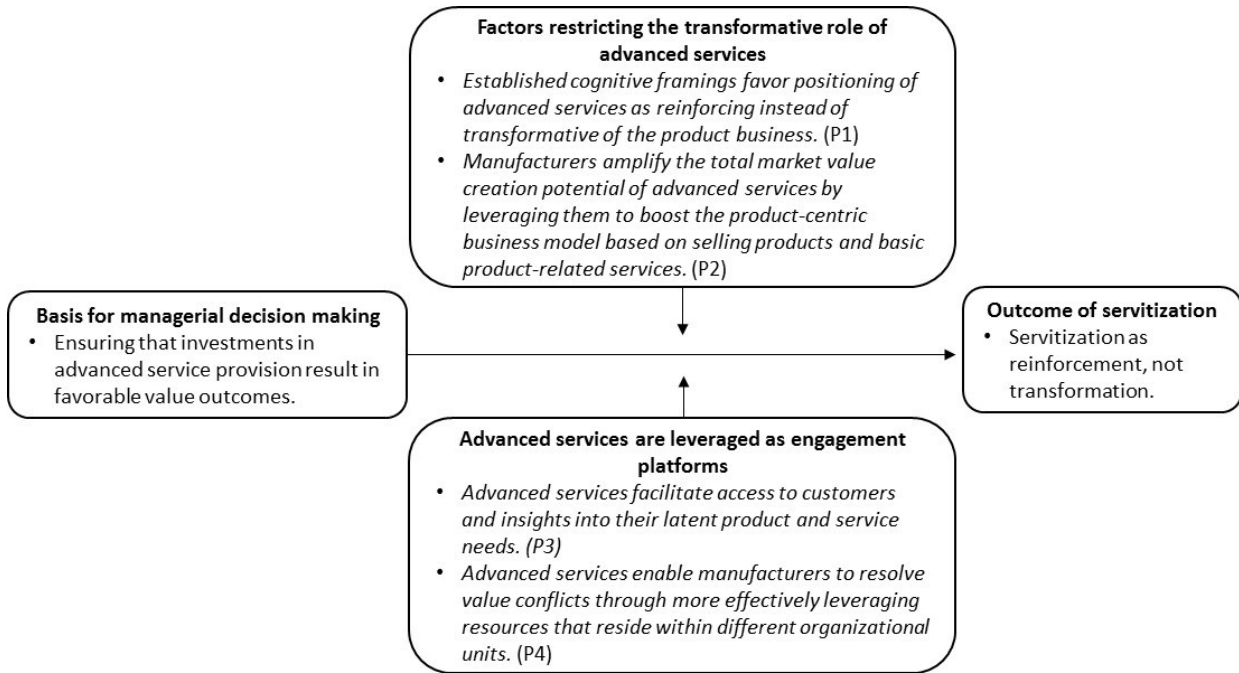


Figure 5: Servitization as reinforcement logic

Key articles	Servitization as reinforcement logic: advanced services appear to reinforce, not transform the established product-centric business model logic
Gebauer et al. (2005)	Investments into extending the service offering often do not translate to better profitability for the manufacturer resulting in an apparent service paradox.
Neely (2008)	Servitized manufacturers have higher sales revenues, but generate lower profits than nonservitized manufacturers.
Josephson et al. (2016)	Service transitions increase firm idiosyncratic risks. Service relatedness, or the extent to which the manufacturer's service business links to its core product business, mitigates the service transition-risk relationship.
Fang et al. (2008)	Investment into service provision pays off only after a critical mass is achieved.
Kohtamäki et al. (2013)	The non-linear effect of the service offering on sales growth is moderated by the focal firm's network capabilities.
Antioco et al. (2008)	SSP generate service volume while SSC boost sales of manufacturer's product business.
Salonen (2011)	SSP drive growth in sales and profits. SSC are introduced strategically to safeguard the competitiveness of the manufacturer's product business.
Eggert et al. (2014)	The positive impact of SSP on firm revenues and profits is mediated by SSC.
	<i>Servitization is risky and often unprofitable for the manufacturer. Partly, the observed difficulties stem from a lack of experience and capabilities related to servitization. However, leveraging of the differential value effects of basic and advanced services seems to facilitate the manufacturer's ability to derive value from servitization. As such, advanced services appear to serve primarily as a means of boosting the sale of products and product-related services, thereby reinforcing the manufacturer's established product-centric business model logic.</i>
	Conceptualization of advanced services
Mathieu (2001)	Most frequently used classification of industrial services. Distinguishes basic services in support of the supplier's product (SSP) and advanced services in support of the customer's process (SSC).
Ulaga & Reinartz (2011)	Widely cited 2x2 matrix typology of hybrid offerings that extends Mathieu (2011): services oriented toward the product vs. customer's process; input vs. output-based services.
Kindström & Kowalkowski (2014)	Further refinement of Ulaga and Reinartz's (2011) matrix. Customer solutions (services that target the customer's process and change the provider's revenue model to output-based) conceptualized as the most advanced form of service provision.
Matthyssens & Vandenbempt (2008)	Manufacturers transition to advanced forms of service provision via two development trajectories: 1) technical application integration of product systems; 2) business process integration through development of service concepts. Some transition along both dimensions.
Tuli et al. (2007)	Solution provision consists of longitudinal, relational processes between the buyer and seller that precede and follow the integration of products and/or services into functional solutions.
Aarikka-Stenroos & Jaakkola (2012)	Value co-creation during service delivery occurs through a dyadic problem-solving process between the supplier and customer.
Macdonald et al. (2016)	Customer solutions require combining supplier and customer processes and resources through a joint resource integration process for the purpose of enhancing the customer's value-in-use.
Storbacka et al. (2016)	Actor engagement is the microfoundation of value co-creation. Engagement is contingent on the presence of a platform that brings together actors and the resources controlled by them.
	<i>Advanced services are customer process-oriented services that provide a platform for engaging suppliers and customers in joint resource integration processes for the purpose of enhancing the customer's value-in-use</i>

Table 1: Role of advanced services in servitization

Data collection method	Amount of observations	Information source
Formal interviews (accompanied with interview protocol, extensive note-taking)	31 (of which 22 audio recorded and transcribed)	Top management, middle management, operational level; multiple functional backgrounds
Participant observation	1 full-day field visit in a Retrofit facility	Middle management and operational level
Participant observation	3 workshops approximately 150 minutes each	Key informant (leading manager of the Global Retrofit Business) & other participants
Email exchange	51 emails	Key informant (leading manager of the Global Retrofit Business)
Archival data	44 document files	Various internal, confidential company documents, such as presentations, statistics, other related documents, and external
Informal discussions (no interview protocol, not tape-recorded, extensive note-taking)	9 discussions	Top management, middle management, operational level; multiple functional backgrounds
Table 2: Summary of data collected		

Ex-ante conditions that influence evaluations of value outcomes related to investing in advanced services	Mechanisms that determine the value outcomes of advanced services
<p><i>Prior knowledge and experience</i></p> <ul style="list-style-type: none"> • Product excellence and technological competences are seen to form the “core” of the firm. • About half of the revenues come from service sales, mostly of basic field service to installed base. • MachineCo has no intention of “becoming an IBM” 	<p><i>Managerial judgement</i></p> <ul style="list-style-type: none"> • Shared cognitive framing as a product company shapes how managers evaluate the role and value of advanced services such as Retrofit. • Value of Retrofit is framed in the context of how it can enhance MachineCo’s position as a product-based company.
<p><i>Strength of market position</i></p> <ul style="list-style-type: none"> • MachineCo has an established market presence in its main product group of industrial pumps and has made substantial investments into a global service infrastructure that provides basic field maintenance to the installed base. 	<p><i>Application of resource over larger output</i></p> <ul style="list-style-type: none"> • MachineCo’s market performance depends on its ability to sell products and basic product-related services. • The value outcomes of Retrofit depend on the ability of this service to boost these primary profit drivers.
<p><i>Position in interorganizational networks</i></p> <ul style="list-style-type: none"> • MachineCo has an established position in customer networks through long-term market presence. However, given that products have long life cycles, customer interaction through product sales is relatively infrequent. • Through field maintenance, MachineCo maintains ongoing customer interactions, but these interactions are transactional and occur at lower levels of the customer organization. 	<p><i>Privileged access to information</i></p> <ul style="list-style-type: none"> • Retrofits are customized solutions that necessitate an in-depth process of customer engagement, which allows MachineCo to uncover opportunities for selling products and product-related services that it otherwise would not have had.
<p><i>Resource base allowing for complementarities</i></p> <ul style="list-style-type: none"> • MachineCo is structured into product- and service-based units. • These units are complimentary in function, but operate according to distinct value logics with few coordinating mechanisms in between. 	<p><i>Benefits from resource complementarities</i></p> <ul style="list-style-type: none"> • Retrofit is less bound by the value logics of the established business units. This facilitates the process of diagnosing needs, designing and producing the solution, organizing the process and resources, managing value conflicts, and implementing the solution into the customer’s process.

Table 3: Summary of the findings

Appendix: List of interviews

Nr	Informant	Type	Mode	Duration
1	1) CTO MachineCo, 2) Head of Innovation Management, 3) Junior Innovation Manager	Formal - No recording	Telephone	45 minutes
2	1) CTO MachineCo, 2) Head of Innovation Management	Formal - No recording	Face-to-face	60 minutes
3	1) Head of Innovation Management, 2) Global Retrofit Leader	Formal - No recording	Telephone	60 minutes
4	Head of Innovation Management	Formal - No recording	Face-to-face	60 minutes
5	1) CTO MachineCo, 2) Global Retrofit Leader	Formal - No recording	Face-to-face	60 minutes
6	1) Global Retrofit Leader, 2) Senior Corporate Development Manager	Formal - No recording	Face-to-face	60 minutes
7	Global Retrofit Leader	Formal - Audio recorded	Face-to-face	50 minutes
8	Managing Director - Continental Europe	Formal - Audio recorded	Face-to-face	45 minutes
9	Head of Customer Support Services	Formal - Audio recorded	Face-to-face	50 minutes
10	General Manager Sales Support	Formal - Audio recorded	Video conference	45 minutes
11	Senior Corporate Development Manager	Formal - Audio recorded	Face-to-face	60 minutes
12	Project Engineer	Formal - No recording	Face-to-face	45 minutes
13	General Manager Sales Support	Formal - No recording	Face-to-face	60 minutes

14	1) Head of Global Projects, 2) Head of Sales	Formal - Audio recorded	Face-to-face	130 minutes
15	Vice President	Formal - Audio recorded	Face-to-face	75 minutes
16	Senior Development Engineer	Formal - Audio recorded	Face-to-face	75 minutes
17	General Manager Sales Support	Formal - Audio recorded	Telephone	70 minutes
18	Manager Group Strategy	Formal - Audio recorded	Face-to-face	60 minutes
19	Global Retrofit Leader	Formal - Audio recorded	Telephone	90 minutes
20	Manager - Retrofit Solutions	Formal - Audio recorded	Telephone	80 minutes
21	Retrofit Sales Director	Formal - Audio recorded	Telephone	85 minutes
22	Head of customer support services - Asia Pacific	Formal - Audio recorded	Telephone	45 minutes
23	Retrofit Sales Manager - UK	Formal - Audio recorded	Telephone	70 minutes
24	Strategic Business Manager - North America	Formal - Audio recorded	Telephone	60 minutes
25	President, MachineCo Division	Formal - Audio recorded*	Face-to-face	60 minutes
26	Senior Corporate Development Manager	Formal - Audio recorded	Face-to-face	65 minutes
27	Head of Business Development	Formal - Audio recorded	Face-to-face	50 minutes
28	Global Retrofit Leader	Formal - Audio recorded	Telephone	60 minutes
29	Global Retrofit Leader	Formal - Audio recorded	Telephone	90 minutes
30	Global Retrofit Leader	Formal - Audio recorded	Telephone	85 minutes
31	Global Retrofit Leader	Formal - Audio recorded	Telephone	40 minutes
*Only first 30 minutes were recorded due to a technical problem				

