

STRATEGY, BUSINESS MODELS OR TACTICS – WHAT IS PRODUCT-SERVICE SYSTEMS (PSS) LITERATURE TALKING ABOUT?

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ABSTRACT

Product- Service Systems (PSS) and business model share the emphasis on value creation. Still PSS literature uses the term business models vaguely without being clearly understood. Therefore, the purpose of the study is to develop a framework that structures and integrates the various ways the term business model is used in PSS literature by pointing out the connection to strategy and tactics. This is done by conducting a systematic literature review. The findings are aggregated in a framework that proposes that a business model is chosen based on the strategy and that tactics are the residual choice after the business model is chosen. Four tactical sets, contract, marketing, network and product design, have been identified from the literature to be most relevant for PSS business models. The analysis of the tactics relates them to the PSS categories.

Keywords: product-service systems, product lifecycle management, business models, functional products

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1 INTRODUCTION

The integration of products and services by companies is a growing trend in today's global competitive business environment. Positive effects of providing integrated offers can be reached through efficiency improvements that are related to a more intensive use of the product which at the same time could lead to quicker replacement by newer more efficient and innovative products. To achieve this, the product design needs to change towards better functionality and durability. By doing this the potential benefits of offering integrated product and service solutions can have economic, social and environmental impacts as companies improve their resource utilization (Mont et al., 2006).

Fundamental research on this phenomenon has been largely discussed under the label product-service systems (PSS) (Baines et al., 2007). PSS is here defined as a marketable set of products and services capable of jointly fulfilling customers' needs in an economical and sustainable manner (Goedkoop et al., 1999; Tukker, 2004). Although a promising research stream has begun to emerge, the knowledge about PSS adoption and implementation is still very limited (Baines et al. 2007). This is due to the fact that the application of PSS imposes challenges and requires radical transformation at company, value chain and industrial levels. While a strategic shift is central to product versus product-service offers there is variation in how PSS strategies are pursued by companies. Thus, in an attempt at understanding and bringing clarity regarding PSS strategy implementation, we have focused our research on business models as this may represent the diffracting factor between successful and unsuccessful PSS application. Essentially, business model explains how the company works, by focusing on the value creation and revenue generation including organizational arrangements among the firm and its partners and customers (Magretta, 2002). This means every company, explicitly or implicitly, employs a particular business model (Teece, 2010). Hence, implementation of PSS strategy in a company's operations goes along with business model modifications (Schuh et al., 2008). Still, the notion of business model is not well defined and used vaguely to a large extent within PSS literature (Kindström, 2010).

Besides strategy and business models, companies also need to employ different operational practices to maximize the value and revenue creation through the chosen business model. These practices can be identified as tactics or tactical sets, defined as the residual choices that can be adapted after choosing a business model or during the business model application and have to fit to the company's operations (Casadesus-Masanell and Ricart, 2010; Evans et al., 2007). So a structured aggregation of tactical sets assists and facilitates companies during the integration of PSS application into their operations. Taken together, in this study, we focus on developing a synthesis of PSS by doing a systematic literature review to examining the current status of research conducted about PSS business models and establish its relation to strategy and tactics as well as to identify future research areas.

2 METHODOLOGY

The purpose of a systematic literature review is to identify the existing body of literature within a specific area and to analyze and interpret the collected information. The phenomenon of interest in this case is the increased service provision of manufacturing firms. To find the relevant articles, the keywords for the literature search were based on the various literature streams evolved around this topic. Besides Product Service Systems/PSS the terms Industrial Product Service Systems (IPSS), service-dominant logic, servitization, servicification, functional products, functional product development, integrated product service engineering, functional sales, service infusion, integrated product service offering and service transition have been used as keywords. The databases Scopus and Web of Science have been used and the search has been limited to journal articles because they can be considered validated knowledge. The abstracts of 482 articles that resulted from the search have been read to check their relevance. After a review of all abstracts, the articles that were related explicit or implicit to business models have been selected for the literature review. Implicitly refers to describing a specific business model or cover aspects of business models. Reduced by four articles where the fulltext was not available online, 41 papers were selected for complete review.

The cited references in the articles were used as a secondary source of literature. This results in additional 15 articles that have been included because they added valuable knowledge around the topic

of interest. The focus while reading the in total 56 articles was on the aspects of business models they included as well as on which main themes were covered¹.

3 TOWARDS A CONCEPTUAL FRAMEWORK

In order to structure the research about PSS business models we adopt the generic competitive process framework as proposed by Casadesus-Masanell and Ricart (2010) when reporting the literature review results. In the framework, based on the company's strategy, a decision is made which of the potential business model the company will apply (Casadesus-Masanell and Ricart, 2010). But even when the firm has decided which business model to employ not all choices have been made. Casadesus-Masanell and Ricart's model propose that these choices are incorporated in tactics or tactical sets defined as the residual choices open to a firm after choosing its business model. Tactics play an important role in how much value the company will create and capture.

This model is very suitable to be applied to structure and integrate the various ways business model is used within PSS literature. In doing this we acknowledge a hierarchical relation between strategy, business model, and tactics which can be used to capture firm competitiveness (strategy) by modeling value creation (business model) and maximum value extraction (tactics). Manufacturing companies that consider applying PSS use to have a developed strategy but notice that they would benefit from an increased service provision. This will open up for several possible business models and based on their strategy and operational environment a decision on the most suitable business model will be made. This choice is individual to each firm but in order to get out the most value from the chosen business model tactics or tactical sets need to be applied in the best possible way. Based on the systematic literature review four tactical sets with major impact on PSS business models have been identified: contracts, marketing, networks and product design. The three central concepts are visualized in figure 1 and explained in detail in the following.

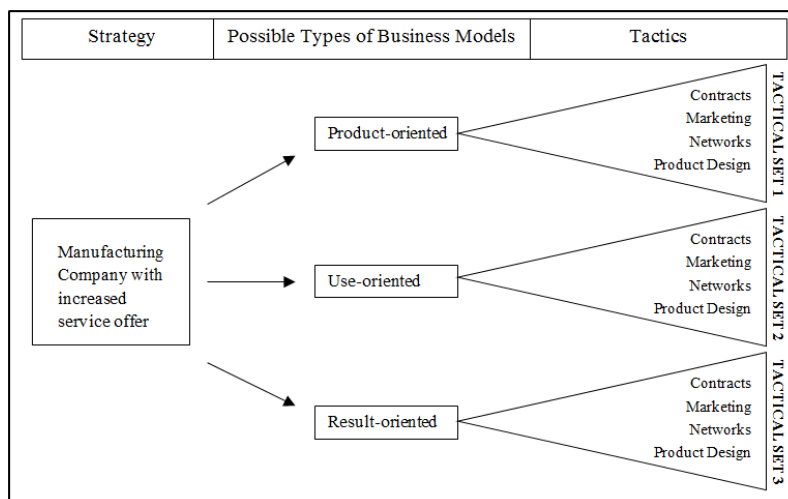


Figure 1. Strategy, business model and tactics, (Casadesus Masanell and Ricart, 2010)

3.1 Strategy

The field of strategy research is vast and contains several different and distinct perspectives, all of which in some way or another relate to the competitiveness of the firm. We define strategy as the firm's theory of how to compete and achieve superior performance vis-à-vis their competitors. In this respect, we treat strategy as a higher-order choice that has profound implications on competitive outcomes (Porter, 1985). In the setting of the study we treat strategy as the higher order choice of integrating more services into product offers such that firm strategy is largely related to the adoption of a PSS competitive logic.

However, while strategy is considered a higher-order choice determining a firms competitive posture we also realize that strategic actions manifest in several of the firms activities and processes. In the studied settings, as said before, the companies that plan to increase their service offer used to have developed strategy that is supposed to include the increased service focus and that will open up for

¹ A summary and the full reference list of the included articles can be obtained from the authors upon request

several different business models that fit this strategy. The next section will focus on the possible business models that can be chosen to support the fulfillment of the firm's strategy.

3.2 Business Models

The concept business model has been part of the business jargon for a long time but only been pursued in business research during the last decade. To date there is no widely accepted definition of the concept and business models are often studied without explicitly defining the concept (Zott et al., 2011, Halme et al. 2007). However, most of the discussions related to the concept argue that the concept business model refers to the logic of the firm, how it operates and how it creates value for stakeholders. This is also clearly visible in the business model definitions that can be found in the literature review even if only a view authors provide a definition. In the article we adopt Teece's (2010) definition that combines the common notions of business models that business models describe the design or architecture of the value creation, delivery and capture mechanisms it employs.

Baden-Fuller and Morgan (2010) argue that business models very suitable to classify businesses and to use it to arrange business models with similar characteristics in separate categories. Business models have to be framed individually by each company to fit to their strategy and operations. This leads to many different business models in use that can be regarded as applying PSS. In the literature review of PSS studies three different categories of business models can be distinguished and where reoccurring. As done before by other researchers like Tukker (2004) and Azarenko (2009) we distinguish between PSS that are product-, use-, and result-oriented. This is suitable because these categories are different from each other at business model level in terms of value creation, delivery and capture.

Tonelli et al. (2009) conducted a case study about a health-care equipment supplier that made agreements with the hospitals in which they were going to take back the equipment after use in order to recycle or dispose the equipment. The company extends their part of the supply chain and therefore also gets paid for an additional service besides the provision of the product, and this is a typical example of the *product-oriented (PO)* business model category. The value that is created for the hospital is related to the reduced work they have to handle themselves and the reduced number of suppliers. As characteristicly for this category, the focus is still mainly on selling a product but with the addition of extra services (Tukker, 2004; Baines et al., 2007). The property rights for the product will go over to the customer and the provider has the responsibility to fulfill the agreed services (Azarenko et al., 2009).

A typical case study that represents the *use-oriented (UO)* business model category is presented by Sundin et al. (2005). The studied company offered forklift trucks for long-term rental where the provider company retains the ownership of the forklift truck and is responsible for the usability of the product. This case illustrates clearly that the product is still central but not sold to the customer anymore. Instead the use or availability is guaranteed during a certain period of time and the provider gets paid for that periodically (Baines et al., 2007; Meier et al., 2010). The ownership of the product will not go over to the customer and the risks and responsibilities for the provider will increase.

An example of the *result-oriented (RO)* business model category is presented by Stoughton and Votta (2003). They conducted a case study where chemical suppliers get paid for chemical services rather than the volume of the chemical provided. In this case no specific product is involved and the supplier gets paid for the result for which the supplier is totally responsible. The property rights stay with the provider and the customer pays only for the provision of the agreed result (Baines et al., 2007). The complete responsibility will lie on the provider's side and a close customer relation is necessary (Meier et al., 2010).

3.3 Tactics

Tactics are the residual choices the company has after deciding which business model to apply. In that way the firm's business model will determine the range of tactics available to it and this will be different for each business model (Casadesus-Masanell and Ricart, 2010). In contrast to business models that describe how the value is created, tactics are central in how much value is create and captured. Besides the model presented earlier also other authors use the term tactics to relate to decisions that improve the amount of value created after choosing a particular business model as tactics in PSS (Evans et al., 2007, Meier, 2004). In the following text, we will present four tactics which have been widely discussed in literature for PSS business models. Moreover, the manner in

which these tactics are employed by companies can differ based on the PSS business model and this is illustrated with regard to the previously described PSS business model categories.

3.2.1 Contract

Contracts define the responsibilities both parties have during a specific contractual period, such as between PSS provider and its customer. A PSS contract is designed to cover all aspects that are related to the service provision and to clearly state the rights and liabilities of everyone involved. In contrast to selling pure products, the complexity of the contract increases significantly and the terms of agreement must be adapted accordingly (Richter and Steven, 2009). The formulation of the contract has a major impact on the value creation and revenue generation of the specific business model. It is important to establish incentives in order to reduce adverse behavior (Azarenko et al., 2009). PSS literature also indicates the importance of a careful risk assessment and compensating the risk-bearing party in a suitable way. In order to maximize the captured value of the PSS offer it is essential to align the different business model categories to contract-related aspects, such as responsibility and terms of agreement, formalization and complexity, as well as incentives and risk level. These aspects are derived from the literature review and elaborated in the following.

The first aspect, responsibility and terms of agreement, considers how tasks are divided between the contract parties and which terms are necessary to clarify rights and liabilities also from a legal perspective. When using PO business models, the customer will own the product and the provider only has the responsibility to carry out the agreed services related to the product. This means the contract has to clearly establish and state the level of the service delivery. Schuh et al. (2011) emphasize that another part of the contract should cover how information sharing and data from the service provision are handled. For UO business models Azarenko et al. (2009) list important contract terms that need to be covered, like the level of availability, price, control of the machine's use and responsibility for downtime. Because the ownership is not transferred to the customer, the allocation of decision rights has to be done very carefully (Richter et al., 2010). The responsibility of the provider increases as they offer a UO contract, but in RO business models the provider will have complete responsibility for delivering the agreed result (Meier et al., 2010). Because of this high responsibility, the terms of agreement become extremely important and the focus should be on carefully and accurately developed terms. This implies not only increased responsibility, but also a greater need for information exchange. Because this information can be sensitive it is important to agree upon how information will be handled and the contract is very suitable for stating what is agreed upon.

The level of formalization and complexity will in general be affected as the service component increases. Formalization is highest in contracts for PO business models because the number of customers can be quite high and the offers are fairly standardized. The lowest level of formalization can be expected in RO business model contracts because the offers have to be individually adapted to the specific customer and that makes formalization not feasible (Meier et al., 2010). Complexity will increase with the level of responsibility that the provider has. Agreeing upon the services that are conducted by the provider in PO business models is still not that complicated and it is easy to control whether the agreement was fulfilled or not. For RO business models the level of complexity is highest because results need to be delivered with their own specifications. Also, the closer the relationship the provider has with the customer, the higher the complexity (Azarenko et al., 2009).

The third aspect is related to incentives and risk level in contracts. Generally, incentives are included in the contract to ensure contract fulfillment, but this is also dependent on which risks are related to the contract and who is bearing those risks. Contracts usually have the purpose of mitigating risks. This is similar to insurance as a risk premium is given to the risk-bearing party (Meier et al., 2010; Tukker, 2004). In PO business models, risks are mainly related to those cases where more effort than expected is needed to fulfill the agreement. But also adverse behavior by the customer is a risk which, for example, can be mitigated through terms in the agreement that, e.g., reduce the warranty when customers do not follow the agreement (Azarenko et al., 2009). The risk of adverse behavior even increases in the case of UO business models because the ownership of the product remains with the provider. This makes it necessary to clearly agree upon responsibilities and decision rights such as which expenses the customer will be charged for based on the usage of the product (Richter et al., 2010; Richter and Steven, 2009). For the provider the main incentive to offer this type of contract is the additional revenue that is to be expected from the services offered, but the provider also needs to have certain mechanisms in place that allow for controlling that the product is used appropriately

(Azarenko et al., 2009). In the case of RO business models where the contract is based on the provision of the result, risks are mainly based on the delivery of the result following the terms of agreement. The provider has total responsibility and therefore also bears higher risks related to the result completion. The customer benefits from the reduced effort required to reach a certain result.

3.2.2 Marketing

The differentiation strategy that is pursued with a PSS application will have important implications for the marketing activities performed by the company (Kindström, 2010; Kowalkowski, 2011; Schuh et al., 2008). While competing with low-cost producers the service offer is a very important method of non-price marketing to attract customers (Gao et al., 2011; Schuh et al., 2008). Besides the importance of the service offer many authors stress that the long-term relationship that is related to PSS application has a significant impact on customer loyalty (Sundin et al., 2010). This tighter relationship ensures increased insight into the customer's operations as well as their needs and preferences. Such customer insights are extremely valuable for the development of new PSS offers (Azarenko et al., 2009; Tukker, 2004). The increased level of customer interaction means that PSS-related marketing activities are very different from traditional marketing. We have identified three aspects from the literature that are essential in PSS application. These aspects have different characteristics and implications for the three business model categories, and through a strategic application they can ensure maximized value creation.

The first aspect is the communication of value, which refers to the path through which the PSS provider chooses to differentiate their product from those of competitors. For PO business models the increased value will be related to ensuring functionality and durability at the point of sale (Azarenko et al., 2009) and making the customer feel confident about buying the product with the added service. Because the amount of target customers is usually quite large when applying PO business models, different offers need to be developed for different customer bases. For UO business models it is very important to positively influence customers' attitude and behavior towards ownerless consumption because this represents a significant transition for customers to not own the product (Baines et al., 2007). Therefore promotion campaigns are crucial and the success will depend on the importance of ownership in the customer's specific socio-cultural context (Mont, 2004). Through such marketing activities, a new customer segment can be attracted because customers with lower financial capacity will be able to use the specific product and the provider should make use of this (Mont et al., 2006). Moreover, promotional activities for UO business models should communicate that the PSS offer leads to a positive effect on the environment and society (Mont, 2002). For RO business models communication of value is based on the fact that customers will have fewer tasks to perform on their own and will rather get the results delivered.

The second aspect is the extent of interaction with the customers, which is generally increased with the PSS offer. For PO business models regular or on-demand interaction will occur, e.g. maintenances or consulting activities, and their extent will be stated in the contract (Tukker, 2004). For UO business models the interaction has to increase because the provider ensures usability and to fulfill this responsibility a closer relation with the customer is required. The level of interaction is highest for RO business models due to continuous contact between PSS provider and its customers. As the provider becomes fully responsible for the delivery of the result, any divergence from the expected result needs to be immediately mitigated. This requires close relationships, where trust between the actors involved is necessary for this specific business model to work (Kindström, 2010).

The third aspect, customer and market insights, considers the increased possibility of collecting customer data through the increased interaction with the customer. This implies that the insights will increase with the level of interaction, explained in the previous section. For the PO business models, insights are mainly related to the functionality and durability of the sold product. Valuable insights are also gathered from the customer's operations to identify possible needs from the customer side that can be improved in the future (Azarenko et al., 2009; Sundin et al., 2010). For UO business models additional information about the habits of using the product provided, for example through leasing, is available. This is crucial in order to adapt the product characteristics, but also the contracting terms, to create benefits for both sides (Tukker, 2004). But the major benefits can be gained through RO business models where the speed of innovation increases radically due to the comprehensive data available as a result of the close interaction with the customer (Azarenko et al., 2009).

3.2.3 Network

The provision of services adds several new tasks to the operations of the manufacturing company. These tasks cannot be performed by the company independently and therefore it is necessary to develop networks and infrastructures (Baines et al., 2007; Gao et al., 2011; Kuo, 2011). Network in this setting describes the relation and interaction with all stakeholders, e.g. customers, dealers and suppliers. This new situation of closer collaboration makes the partner selection very important and the company needs to deal with the new challenges as the business model is transformed towards PSS (Mont, 2002; Tonelli et al., 2009). But it is not only about whom to collaborate with but also about the type of collaboration, which can differ significantly based on the services offered (Schuh et al., 2008). After having chosen the partners for collaboration and the level of interaction, a lot of effort is needed in order to develop ways to coordinate activities and to share the right information efficiently in the network (Schuh et al., 2009). In such networks, service provision takes a central role and close collaboration with various partners will raise new requirements for the company. From the literature review, three common aspects – namely, type of partner, type of relationship and sharing and coordination activities – are identified as the most deterministic part of discussion on PSS networks. In the following paragraphs we present how these aspects need to be adapted based on the identified business model categories to improve the value creation and generation.

The first aspect, type of partner, can vary significantly based on the service that is provided, but some general reflections can be proposed based on the different business model categories. PO business models are likely to offer maintenance, supply consumables or take-back agreements. The service provision in these offers is usually conducted by a provider or dealer that has a partnership with the manufacturing company (Azarenko et al., 2009; Sundin et al., 2010; Tukker, 2004). This also implies that the manufacturer has no direct interaction with the customer, due to the presence of the provider. For UO business models the service tasks are not usually performed by the manufacturer itself either and it is common that third-party providers carry out the services like leasing, sharing and pooling as well as manage the reverse logistics (Gao et al., 2011; Tukker, 2004). But the major difference in UO business models is that revenues will not occur at the point of sale but are divided over the contracting periods and therefore financial institutions will be crucial to provide access to the money to invest in the required assets (Azarenko et al., 2009; Mont et al., 2006). In RO business models the network structure changes significantly. This type of service provision is quite close to vertical integration and direct contact with the customer is crucial. Besides the close collaboration with the customer, other stakeholders can be involved to handle required tasks like financial institutions, or recycling or transportation companies (Azarenko et al., 2009).

The second aspect is about the type of relationship. This needs to be carefully considered because the interaction with partners can have different intensities, but for the service provision it is important to find the most suitable level of interaction. For PO and UO business models the service is usually offered to a broad range of customers and it is therefore suitable that the dealers and providers handle the direct customer contact. But this makes it necessary for the manufacturing company to keep a very close interaction with the dealers and providers to receive insights about customer demands from them (Tukker, 2004). PSS literature emphasizes that it is very important to be clear about who is responsible for what and how the partners get compensated for their efforts and risk bearing. For RO business models the main focus is on the direct interaction with the customers. These services should only be offered to trusted and key customers that have existing relations with the company. This also limits the number of potential customers for such offers and makes close collaboration feasible (Halme et al., 2007). Because such business models are result-oriented, the individual systems of both partners need to be adapted to each other to reduce ineffectiveness and the connection to the customer's value chain needs to be well managed (Ng et al., 2009; Schuh et al., 2008). In order to maximize the value creation from the partnership the customer should be treated as an innovator by emphasizing the co-creation process (Baines et al., 2007).

The third aspect about sharing and coordination activities deals with the importance of efficient information sharing between the network partners. As usually a large amount of customers are offered PO and UO services, it becomes necessary to establish methods for coordinating tasks and sharing information. Several authors propose web-based collaboration platforms as a tool to link partners and customers. These online portals are good for reducing information asymmetries. However, legal considerations like access rights and privacy are also important to consider during the implementation of such systems (Schuh et al., 2009; Schuh et al., 2011; Sundin et al., 2010). As the number of

customers decreases in the case of RO business models the communication between the partners will be more personal in nature. This may lead to trust building on the one hand, but it also creates additional requirements for task coordination on the other. The new working routines have to be communicated proactively and responsibilities need to be clarified. This solution-oriented partnership integrates two different operational systems and therefore communication and coordination need to be handled very carefully (Kindström, 2010; Mont, 2002; Stoughton and Votta, 2003).

3.2.4 Product Design

The product requirements change along with the various types of service provision as companies offer PSS solutions. To meet these new requirements, product design needs special emphasis to meet the service offer characteristics. Several preferable product properties, like easy to maintain, upgrade and reuse, can be identified which will increase the value creation of the PSS business model (Sundin and Bras, 2005). A closer and long-term relationship with customers may also favor or require a product design that is adapted to special customer needs, which adds further complexity to the service provision (Azarenko et al., 2009). In the literature on PSS business models several case studies, but also conceptual papers, highlight the importance of an adapted product design where the whole life cycle of the product is considered (Aurich et al., 2006; Sundin and Bras, 2005). From this literature two major aspects can be identified that place different requirements on the product based on the business model applied, namely functionality and customization.

The functionality aspect considers how the product should be designed to fit the offered service in the best way. For PO business models this means mainly that it is favorable if the product is easy to maintain when a maintenance contract is agreed or that the parts are easy to reuse when a take-back agreement is made (Sundin and Bras, 2005). The manufacturer also benefits from improved reliability and supportability of the products (Meier et al., 2010). In UO business models, the provider is responsible for the usability of the product and it is therefore even more important that the product is easy to maintain (Azarenko et al., 2009). In addition, the frequent use of the products that is aimed at such business models favors a design that is more durable (Evans et al., 2007). The fact that the provider will remain the owner of the product and that users change during the lifetime of the product leads to the fact that easy upgrading and remanufacturing enable a longer lifetime for the product which is beneficial for the provider and partners (Aurich et al., 2006; Kuo, 2011; Mont et al., 2006). The opportunities for functionality are unlimited in the case of RO business models because no specific product is related to the service and any product can be designed that best fits the requirements of the agreed service (Azarenko et al., 2009; Meier et al., 2010).

The second aspect, customization, describes how much the products will be adapted to the needs of the individual customers. For PO and UO business models the number of customers is quite high. For the PO services in particular, no major changes are made to the products, therefore there is limited customization (Azarenko et al., 2009). When UO services are offered it is possible to offer customization for large customers, for example to enable sharing and pooling activities. In contrast, RO business models will always require a higher degree of customization because the service is integrated with the customer's operations. Therefore, the product design has to be adapted to their special needs. This leaves room for innovations which would benefit not only the provider and the customer but even the society (Tukker, 2004).

4 CONCLUSION

PSS and business models both focus on value creation and that makes it suitable to use these two jointly to achieve economic, environmental and social benefits. PSS integration gets along with a business model change or innovation and this view is beneficial because the company has to revise their current concept of selling products in the light of maximum value creation and to utilize the whole potential PSS application offers.

The initial results from the review shows that it is suitable to divide business models into three generic categories of product oriented, use oriented and result oriented business models. These categories represent distinctive characteristics and progression from being product centric to service centric. Furthermore, four tactical sets, contracts, marketing, network and product design, have been identified from the literature to be most critical for PSS application and are analyzed in relation to the three business model categories. The contract tactic deals with how the more advanced relationship between provider and customer is incorporated in a formal agreement to balance mutual interests. Marketing is

concerned with increasing the service level that is offered through the manufacturer and enhancing the way information about customers is collected. Generally a single company can't independently perform PSS tasks, which means that the role of network tactics becomes central for PSS implementation. The product design tactic is related to how the higher usability requirements of the product can be handled most appropriately.

While we believe that the systematization of the literature on PSS business models and tactics makes significant contributions to the emerging research field, we also acknowledge potential paths for future research. We summarize these under the following points:

1. The effect of the proposed tactics on different business models can vary based on industrial variance. Meaning that there can be differences between how companies from the manufacturing industry employ or create business models as compared to the process industry or high-tech industry. Thus, future studies are suggested to expand the focus beyond the manufacturing industry, which is predominantly addressed in PSS literature towards undertaking cross-industry analysis.
2. Our study has grouped business models into three well-established categories. However, with maturity regarding PSS implementation other new business models may emerge. This could mean revising and potentially expanding the proposed business model categories. Thus, we welcome research efforts that can conceptually and empirically contribute to the development of new PSS business model categories.
3. Similarly, the identified tactics are not a complete list of tactics but rather prominent tactics identified based on the undertaken systematic literature review. We encourage future research efforts to address which tactics influence business model implementation by composing a comprehensive list of tactics that organizations evaluate.
4. Our study proposes a critical link between business models and tactics which links strategic-level decisions to operational-level actions. Tactics are frequently mentioned in literature but their impact on how much value is created is rarely discussed. We encourage future research efforts to undertake qualitative case studies with the aim of providing better understanding regarding the complex relationship between business models and tactics.

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