

MASTER THESIS

Servitization and ecosystem strategy formulation

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Abstract

This research explores what a viable ecosystem strategy is for a manufacturing firm to introduce a PSS offering next to an existing product offering. A single case study has been performed at a Confidential high-tech company, which is currently planning to introduce a PSS offering next to an existing product offering. As first step an ecosystem analysis is performed of both ecosystems based on an adapted value blueprint. This adapted value blueprint is centred around the value proposition and takes only non-generic complementarities which are contributed by partners into account. As second step, the ecosystem tensions are analysed that arise when introducing a PSS offering next to an existing product offering. As last step the vision of experts is used to identify practices to overcome these tensions and successfully introduce a new PSS offering next to an existing product offering. Based on the results of research and the underlying literature the following strategy is suggested: start completely separate from the existing product offering in terms of the ecosystem (including partners), market segment and internal setup. This strategy avoids dominant routines and existing path dependencies at the product offering and prevents cannibalisation of the product offering in the initial phase. In this new ecosystem, the focal should provide an attractive ecosystem which can be established through, for example, monetary incentives and training.

Anonymisation

In order to protect the human subjects of this study and to ensure confidentiality for the hosting firm, the names of respondents and firm are anonymised. The researcher has chosen to anonymise based on a nature analogy this provides an understanding of how the different entities are related. The following anonymisations are used in this study:

- *The Company*: A multinational firm consisting of several divisions.
- *The business unit*: The business unit which is currently servitizing.
- *The product offering*: The current goods-centric offering of the business unit.
- *The PSS offering*: The future service-centric offering of the business unit.
- *The research group*: A research group established to develop a servitized offering for the business unit.

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1. Introduction

1.1 General background

In a world where regular production becomes increasingly commoditised, manufacturing firms are seeking for new methods to keep up their competitive advantage and thereby their profitability (Baines, Lightfoot, Benedettini, & Kay, 2009). One of these new methods is adding services to the core product, in the literature often referred to as servitization (Brax & Jonsson, 2009; Davies, Brady, & Hobday, 2006; Vandermerwe & Rada, 1988). A well-known example can be found at the turbine manufacturer Rolls-Royce. Their “Power-by-the-hour” offering provides customers with an integrated combination of a product and a service that focusses on the outcome of this integral combination, i.e. flying hours. In order to guarantee the best possible uptime of the turbines for its customers, Rolls-Royce carries out configuration optimisation and the associated operations. In order to create an optimal configuration with the highest possible uptime and efficiency, the firm makes use of product data to predict, plan and provide maintenance (Baines et al., 2009; Cohen & Agrawal, 2006). Because customers pay for the outcome of the product-service combination, the risks in terms of uptime and efficiency shifts to Rolls-Royce. The better Rolls-Royce manages these factors, the greater the business performance of the firm will be. The case of Rolls-Royce provides an example of a Product-Service System (PSS) by providing an integrated solution consisting of a combination of products and services into one offering (Tukker, 2004).

For manufacturers and society as a whole servitization is regarded as important for sustainability reasons in three fields, namely environmental, economic and social (Yang & Evans, 2019). In the area of environmental sustainability, PSS’s lead, among others to more sustainable and longer-lasting products (Baines et al., 2007), more efficient use of resources and energy (Byers, Groth, & Sakao, 2015; Tukker, 2004, 2015) and potentially more recycling (Guidat, Barquet, Wiedera, Rozenfeld, & Seliger, 2014; Ijomah, McMahon, Hammond, & Newman, 2007; Li, Ji, Li, Yang, & Evens, 2018; Sundin & Bras, 2005; Sundin, Lindahl, & Ijomah, 2009). With respect to economic sustainability, PSS’s enable companies, to respond better to customer needs (Baines et al., 2007; Tan, Matzen, McAloone, & Evans, 2010), create stronger customer relations (Baines et al., 2007; Neely, 2008; Tan et al., 2010; UNEP, 2009), increased revenues (Mathieu, 2001; Tan et al., 2010; Wise & Baumgartner, 1999) and provide options for differentiation (Baines et al., 2007; Cavalieri & Pezzotta, 2012; Gebauer, Friedli, & Fleisch, 2006; Neely, 2008; Wise & Baumgartner, 1999). Regarding the social sustainability aspect, PSS’s could lead to improved employment as service-related jobs tend to be more labour intensive (Beuren, Gomes Ferreira, & Cauchick Miguel, 2013). Crozet and Milet (2017) researched manufacturing firms in France, and they concluded that servitization led to significantly higher profits and a rise in employment.

The servitization process requires a fundamental change in the business model of an organisation. These changes in the business model have major implications for the external and internal environment of a firm (Kowalkowski, Witell, & Gustafsson, 2013). The external environment includes the companies network and the broader external context in which a firm operates. When servitizing a firm’s value chain is becoming more integrated with the customer’s processes compared to a linear product-oriented value chain (Brax, 2005). This increased degree of integration with customer’s processes leads to more frequent interactions between supplier and customer (Ferreira, Proença, Spencer, & Cova, 2013). The internal environment of a firm is defined by the firm’s resources, processes and culture (G. A. Moore, 2014). These implications for the internal environment include a culture change from a product to service-driven culture (Gebauer, Edvardsson, & Bjurko, 2010), this requires different capabilities of employees (Gebauer & Putz, 2009) and leads to more emphasis on long term customer relationships (Visnjic Kastalli, Wiengarten, & Neely, 2016).

In the literature, on servitization, two main servitization journeys can be described. The most well-known one is that a servitizing firm is moving along a unidirectional product service continuum from products to services. This perspective assumes that manufactures transform by first offering only basic services and extending this to advanced services (Matthyssens & Vandenbempt, 2010; Oliva & Kallenberg, 2003). The second method of servitization is servitizing through a parallel development of a new servitized offering (Kowalkowski, Windahl, Kindström, & Gebauer, 2015; Storbacka, Windahl, Nenonen, & Salonen, 2013) besides existing product offerings. One type of service offering is a PSS offering which is the central servitization concept in this study because PSS related studies are practically oriented and are often used in illustrative cases studies (Rabetino, Harmsen, Kohtamäki, & Sihvonen, 2018).

Managing the business network, with more integrated supply chains, is regarded as a success factor for servitization (Ellram, Tate, & Billington, 2004; Johnson & Templar, 2011). Whereas traditional supply networks focus on reducing costs, servitized offerings focus on the creation of value (Gulati & Kletter, 2005; Windahl & Lakemond, 2006). This implies that the network configuration of both offerings has to be different. According to Windahl and Lakemond (2006), it is of high importance for servitizing firms to “focus on the value-creating system where different actors (suppliers, business partners, allies, customers) work together and co-produce value” (p. 809). In such a value-creating system the cooperation between supplier, customer and other actors become increasingly important compared to product-based offerings because this constellation of actors collectively produce the value. This in contrast with a product offering where the value is only created at the supplier (Windahl & Lakemond, 2006). According to Norman & Ramirez (1993), reconfiguration of roles and relationships is needed to create value in new ways and a dynamic fit between capabilities of network actors and customer needs will become essential.

Ecosystems can be used to conceptualise a firm’s external environment. In the current literature, two main streams on ecosystems can be identified. Adner (2017) defines these two streams as ecosystem-as-affiliation and ecosystem-as-structure. The ecosystem-as-affiliation perspective views from a macro perspective, meaning that the analysis focusses on the network level. This includes aspects like network externalities and network density. The ecosystem-as-structure perspective is activity-centric and focusses on the activities that need to be in place in order to bring a value proposition to the end customer. Due to its activity-centric focus, the ecosystem-as-structure approach provides more actionable results for strategy making. Adner (2017) defines ecosystems as: *“the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialise”* (p. 42). In other words, more than two actors need to cooperate to bring a value proposition to the market.

In addition to Adner’s (2017) ecosystem-as-structure approach, Jacobides, Cennamo, & Gawer Jacobides developed an integrated theory on the ecosystem construct in 2018. They focus on the aspect of non-generic complementarities in an ecosystem. This element complements Adner’s (2017) approach, in his approach also the generic aspects in the materialization of the value proposition are included. Because these aspects are freely available in the market and therefore require no attention in performing an ecosystem analysis and formulating an ecosystem strategy. As far as the structure and strategy component of the ecosystem is concerned, this study follows Adner’s (2017) approach because his approach is more concrete than that of Jacobides et al. (2018).

1.2 Research gap, objective and question

From the theory highlighted in the previous paragraph, there can be concluded that as a consequence of servitization the relationship between a focal firm and partners in the external environment is subject to change. The ecosystem-as-structure lens offers therefore a suitable lens to conceptualise this external environment with the value proposition as central point of the analysis. In this research, the focus is stressed on the servitization trajectory with the development of a parallel PSS offering in addition to an existing product offering. Up till now, there has been a lack of research on what a viable ecosystem strategy is to successfully servitize through the introduction of such a parallel PSS offering. In the ecosystem literature gaps are acknowledged regarding the coordination of activities between actors, through the search of a viable ecosystem strategy this research can also contribute to this request (Adner, 2017).

From servitization literature it is known that both types of offerings, product and PSS offerings have very contradictory characteristics. Product offerings tend to be focussed on transactions and the short term, whereas service offerings focus on the relational aspects and the long term. It is relevant to know what a viable way for a firm is to deal with these contradictory interests with an ecosystem perspective because a growing number of firms is servitizing these days.

Summarising, this research aims to assess the effects of servitization with the introduction of a parallel PSS offering on the ecosystem and to define what a viable ecosystem strategy for manufacturing firms is.

The research question, based on the research objective is:

“What is a viable ecosystem strategy for a servitizing manufacturing firm to introduce a PSS next to an existing product offering?”

This research does not include sub-questions due to the case study design (Creswell, 2012). The following help-questions guide the empirical analysis of the results:

- Change: what is the effect of a PSS introduction on the ecosystem of the product offering?
- Tensions: what tensions in the ecosystem (product & PSS) occur when introducing a PSS offering in addition to an existing product offering?
- Practices: what do experts say on the strategy to following concerning the ecosystem in this setting?

1.3 Research relevance

The relevance of this research can be split into theoretical and practical relevance.

Theoretical – In the first place, this research proposes new methods on the alignment ecosystem actors. Second, it demonstrates an adapted version of Adner’s (2017) value print and how to apply this blueprint in practice. At last, it proposes strategic actions for manufacturing firms to deal with the contradictory characteristics of service and product offerings.

Practical – This research presents useful insights from a servitizing firm when introducing a newly developed PSS offering aside of an existing product offering. These insights provide a good practice for managers and other business developers for implementing a comparable servitization strategy. The phases of this process, namely change, tensions and implementation, provide a clear example for other practitioners.

1.4 Thesis structure

The structure of this thesis is as follows. In Chapter 2, a literature review is presented where the scientific background of the servitization and ecosystems are presented. This chapter ends with a theoretical framework. The model developed in the theoretical framework serves as guidance in structuring the interviews and data analysis. Chapter 3 discusses the qualitative research methods that is used in this study, it also elaborates on the context being adopted in the single case study setup. Chapter 4 offers results on proposed help-questions, including the current and future ecosystem position(s), tensions and practices. Chapter 5 gives an interpretation of the results to provide a concluding answer to the research question. Chapter 6 provides a discussion of the conclusion in comparison with existing literature. Chapter 7 describes the practical contributions. Chapter 8, provides the research limitations and finishing in Chapter 9, the recommendations for future research are given.

2. Literature review

The objective of this literature review was to create an appropriate theoretical foundation for the constructs that are subject of this research. In the following paragraphs, the review method, servitization, ecosystems and theoretical framework are discussed. The theoretical framework forms the basis for the performed case study research.

2.1 Review method

In this chapter, the outcomes of the literature review process are presented which aim to create a theoretical foundation for the performed study (Hart, 2018; Levy & Ellis, 2006). Most of the literature used in this review is obtained using the snowball technique (Krackhardt & Porter, 1986). Hereby highly frequently quoted articles on the different topics served as a starting point to look for further relevant literature. The constructs covered in this literature review are servitization and ecosystems. The advantage of this method is that it enables the researcher to select recent and high-quality literature in a relatively short time frame. Disadvantages of this method are that not the whole scope of scientific knowledge available is captured. The reasoning behind this is that the study covers two constructs, namely servitization and ecosystems which are described in the literature in various ways and descriptions. This makes constructing a real structured literature review not possible in the timeframe, that was available for this study. By using expert reviews, using their selection base and keywords, an effort has been made to create a literature review of high quality in the relatively short amount of time that was available.

2.2 Servitization

Globally there is a shift at manufacturing firms from a product-based offering to a combination of products and services. This trend is described in the literature as servitization (Lay, Copani, Jäger, & Biege, 2010). In traditional manufacturing firms, the product is seen as the growth base for firms, when servitizing this base is shifting to services (Raddats, Kowalkowski, Benedettini, Burton, & Gebauer, 2019). To achieve such a shift, firms have to reshape their business model and company culture (Raddats et al., 2019).

In a world in which the production of goods becomes more standardised, and margins in this field are decreasing, services (in combination with products) allow firms to differentiate (Baines et al., 2009) and keep up their profitability. At the same time, servitized customer offerings allow firms to generate revenues through the whole life-cycle of the product (Vandermerwe & Rada, 1988). Other drivers of servitization are the better understanding of customers' needs that enable firms to raise customer satisfaction (Bustinza, Parry, & Vendrell-Herrero, 2013; Raja, Bourne, Goffin, Çakkol, & Martinez, 2013), low imitability factor of services (Vandermerwe & Rada, 1988) and more stable recurring revenue streams (Fang, Palmatier, & Steenkamp, 2008; Gebauer & Friedli, 2005). Bustinza, Bigdeli, Baines, and Elliot, (2015) suggest that the previously mentioned drivers lead to improved market positions and enhanced financial performance.

Servitization in an existing (manufacturing) organisation requires changes all over the organisation from strategy building to the recruitment of new staff. From the managerial perspective, commitment is regarded as a success factor in building a servitized organisation (Lay et al., 2010). The first aspect which is regarded as important when servitizing is a culture change, from a product-oriented to a service-oriented organisation (Gebauer et al., 2010). This culture change is of high importance because a service mindset is regarded as opposed to a product-oriented mindset. In practice, this culture change affects aspects like the recruitment process of new staff (Gebauer & Putz, 2009), the type of customer relation (e.g. Matthyssens & Vandenbempt, 2010; Matthyssens,

Vandenbempt, & Weyns, 2009; Oliva & Kallenberg, 2003) and the time horizon orientation, which shifts from short to long term (Visnjic Kastalli & Van Looy, 2013; Visnjic Kastalli et al., 2016). Töytäri et al. (2018) point in their study that this culture change is often hindered through cognitive and normative limitations. According to them, the implementation of a service innovation demands a simultaneous change of mindset and capabilities. The second important aspect is the organisational structure for the service-oriented organisation, namely, separation or integration of the service business unit. There are distinct views on this. Where Oliva and Kallenberg (2003) argue for separation, other researchers like Neu and Brown (2005) opt for integration. The last important aspect is the impact on the value chain. The position and range within the value chain are stated as important factors for the success of servitization by Bustinza, Bigdeli, Baines, & Elliot (2015).

Challenges for servitizing firms can be seen internally and externally. Internal aspects like the change of employee orientation, alignment of management focus and customer service structures have to be dealt with. Nevertheless, external aspects, like customer relationship management (from supplier to strategic partner) and interaction with other third parties, also have to be dealt with (Witell & Löfgren, 2013). These interactions with other third parties become more relevant when a firm is moving from the manufacturing of goods to a servitized environment (Gebauer, Paiola, & Saccani, 2013). Firms undergoing this shift will not be able to orchestrate all relevant services activities by themselves, which is also not viable from an economic perspective. Therefore firms which are servitizing need to rely more and more on service networks with other third parties involved. The firm needs to be able to identify, select and manage other organisations across different supply chains to contribute in providing services like installation, maintenance or education (Johnson & Mena, 2008; Pawar, Beltagui, & Riedel, 2009). What can be recognized in the field is that other companies in the network provide service components for certain solutions due to the fact that a servitizing firm is not able to orchestrate all service activities themselves.

The integration of products and services into one offering results in a change in the value chain. In the past, this was often a (long) linear value chain, whereas it is now becoming more integrated with the customer's processes (Brax, 2005). As described in the previous paragraphs, servitization leads to more and diverse network interactions within the strategic network of the organisation.

2.3 Background ecosystems

Moore (1993) was the first author who introduced the concept of ecosystems in business. Moore (1993) draws a parallel between natural and business ecosystems. In business ecosystems, a diverse group of organisations contribute to one innovation and together have a shared goal. Moore (1993) sketches four life stages for ecosystems, namely birth, expansion, leadership and self-renewal or decline. Every stage has an impact on managerial actions. An important difference between the two before mentioned ecosystems is that in business ecosystems, decisions, that ultimately impact the development of the ecosystem are made by people. Moore (1993) recognises that, for ecosystem leaders, it is key to have control over a central component of the ecosystem, in order to capture and share a part of the generated value. For the economy and society, it is not problematic when an ecosystem dies as long as it is replaced by a more vital one.

Iansiti and Levien (2004), who built further on the vision of Moore (1993), acknowledge the importance of owning a central part (keystone) of the ecosystem, with the value capture and share function as a core element. Iansiti and Levien (2004) define three critical elements for ecosystem performance, namely productivity, robustness and niche creation. Productivity focusses on the fact of how effective the ecosystem is in transforming inputs into outputs. Robustness focusses on the resilience of the ecosystem, in terms of how capable it is in dealing with external shocks like the rise

of disruptive innovations. Niche creation focusses on the diversity of the ecosystem. These niches are needed to generate productivity innovations and enable the ecosystem to deal with external shocks.

In 2006, Adner made a fundamental contribution to the research on business ecosystems, which is still relevant today. In his research on innovation ecosystems, Adner (2006) supports the statements of Iansiti and Levien (2004) and Moore (1993) that ecosystems have to be able to deal with external shocks and thus have to reinvent themselves constantly. Adner (2006) contributes to the afore-mentioned statement by examining the risk component within strategy making on innovations. In his research, Adner (2006) identifies three types of risks related to the success of an innovation, namely initiative, interdependence and integration risks. The first, initiative risks focus on the product itself. Examples are the distinctiveness of the product, the strength of competition, possible supply chain and the quality of the R&D team. The second, interdependence risks focus on the complementors that must be in place to make your innovation valuable. Finally, integration risks focus on the adoption chain of the innovative product. It is key that all players in the adoption chain, like intermediaries, have to benefit to bring the innovative product successfully to the market. In short, the papers of Moore (1993), Iansiti and Levien (2004), and Adner (2006) create a basic understanding of the ecosystem construct and its dimensions.

2.4 Ecosystem-affiliation versus Ecosystem-as-structure

In 2017 Adner presented two perspectives on ecosystems, namely ecosystem-as-affiliation and ecosystem-as-structure. This paragraph describes both approaches and compares them with other literature streams.

The ecosystem-as-affiliation perspective uses an actor centric approach that is in line with the visions of Moore (1993) and Iansiti and Levien (2004). In this perspective complementors in an ecosystem affiliate to a focal actor, technology or platform. The focus within this perspective is stressed on aspects like access and openness, demonstrate numbers of partners, network density and actor centrality in larger networks (Adner, 2017). In strategy formulation, this perspective tends to focus on increasing the number of links to the central actor in order to enhance its central position and thereby its power. By the enhancement of the number of links from participants to the focal actor, the focal actor enhances its bargaining power (Brandenburger & Nalebuff, 1996; Jacobides, Knudsen & Augier, 2006) and this leads to a more valuable network through the enhancement of network externalities (Parker, Van Alstyne, & Chouday, 2016). Other approaches that can be grouped under this perspective are business and platform ecosystems (Jacobides et al., 2018). The perspective of Moore (1993) and Iansiti and Levien (2004) is strongly reflected in the business ecosystem perspective while platform ecosystems have a strong focus on network externalities.

Ecosystem-as-affiliation brings up a compelling metaphor for ecosystems and a useful tool to describe macro-level interactions. An important side note of the ecosystem-as-affiliation perspective is the fact that it focusses on macro-level therefore it has its limitations in concrete aspects like interdependence. The lack of concreteness makes it difficult to make detailed recommendations. Because of this, the ecosystem-as-affiliation approach has its limitations for practical relevance (Adner, 2017).

Contrasting to the ecosystem-as-affiliation perspective, Adner presented in 2017 the ecosystem-as-structure perspective. This perspective is activity-centric and views an ecosystem as a group of actors that together contribute to a central value proposition or innovation. Adner (2017) defines ecosystems as: *“The alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialise”* (p. 42). In this context “Alignment”

means to which extent there is agreement among partners within an ecosystem, considering their positions, function and flows. “Multilateral” means that this set of partners is not decomposable into separate two-sided interactions. If this were the case, an ecosystem approach would not be required. The “*set of partners*” are the participating actors in an ecosystem that have joint value creation as shared goal. The last aspect of the definition: “*for a focal value proposition to materialise*” captures all aspects that ecosystem participants have to bring in, in order to create the complete value proposition (Adner, 2017). This definition of Adner (2017) on ecosystems offers practical guidance for researching a company case on a micro-level. This perspective is also described in literature as innovation ecosystems which strongly depends on the innovations that need to take place in the value chain.

After Adner introduced its ecosystem-as-structure approach in 2017, Jacobides et al. (2018) published a general review in 2018 in which the prevailing ecosystem concepts were put into perspective and from which a theory on ecosystems has been developed. The rationale behind the development of this theory is that up till now the research on ecosystems is relatively blurred and in this theory Jacobides et al. (2018) aims to create a solid theoretical foundation. Based on the definition developed by Jacobides et al. (2018), the key points of Jacobides et al.’ vision are subsequently explained. Finally, the most important differences and similarities with Adner’s (2017) vision identified and the perspective adopted in this research is explained.

Starting from the definition, Jacobides et al. describe ecosystems as: “*An ecosystem is a set of actors with varying degrees of multilateral, non-generic complementarities that are not fully hierarchically controlled*” (2018, p. 2264). In this definition, non-generic multilateral complementarities and the limited degree of hierarchical control can be considered as core aspects.

Jacobides et al. (2018) define in their theory two types of multilateral, non-generic complementarities, namely unique and Edgeworth complementarities. Generic complementarities are excluded because these are so generic that coordination happens via the market; here, an ecosystem approach is not required. Unique complementarities can be explained as a pipeline; e.g. strictly: A does not run without B, or more in general A is maximised with B (Hart & Moore, 1990). Unique complementarities can also be two-sided, which means that both maximise each other. As a result, this creates room for co-specialisation (Teece, 1986). The concept of Edgeworth complementarities can be described as “More of A makes B more valuable” (Milgrom and Roberts 1990). So when companies, e.g. in production coordinate their investments, the sum of both would be lower than when their investment was uncoordinated (e.g. Arora & Gambardella, 1990; Cassiman & Veugelers, 2006). A concept that is often related to Edgeworth is super-modularity in consumption. This phenomenon is the fundament of network theory and is recognisable in platform ecosystems. In these types of ecosystems, both (platform owner and developer) benefit from a more extensive network.

Within an ecosystem there is a limited degree of hierarchical control, the key stone firm sets standards and results in a kind of modular architecture. This makes it possible for firms in an ecosystem to coordinate their activities while still having significant autonomy. According to Jacobides et al. (2018), this leads to a different value system, which is shown in Figure 1. This value system can be seen as a kind of ‘ecosystem structure’ compared to Adner (2017). In this structure, non-generic complementarities in combination with a modular architecture form the basis. In this “ecosystem structure” described by Jacobides et al. (2018) as an “Ecosystem-based value system” suppliers and actors that contribute with generic components are excluded. According to Jacobides (2018), the suppliers can be governed by normal vertical supplier relations while generic components are freely available in the market and therefore no coordination is necessary.

Jacobides et al. (2018) describe three types of value systems (see also Figure 1):

1. Hierarchy-based value system: The central firm combines different components and creates one customer offering.
Complementarity: *Non-generic, coordination required*
Example: *Car manufacturer*
2. Ecosystem-based value system: The central firm and complementors create the value proposition.
Complementarity: *Non-generic, coordination required*
Example: *Appstore*
3. Market-based value system: End customer creates a value proposition by combining products from different suppliers.
Complementarity: *Generic, no coordination required*
Example: *Cup of tea*

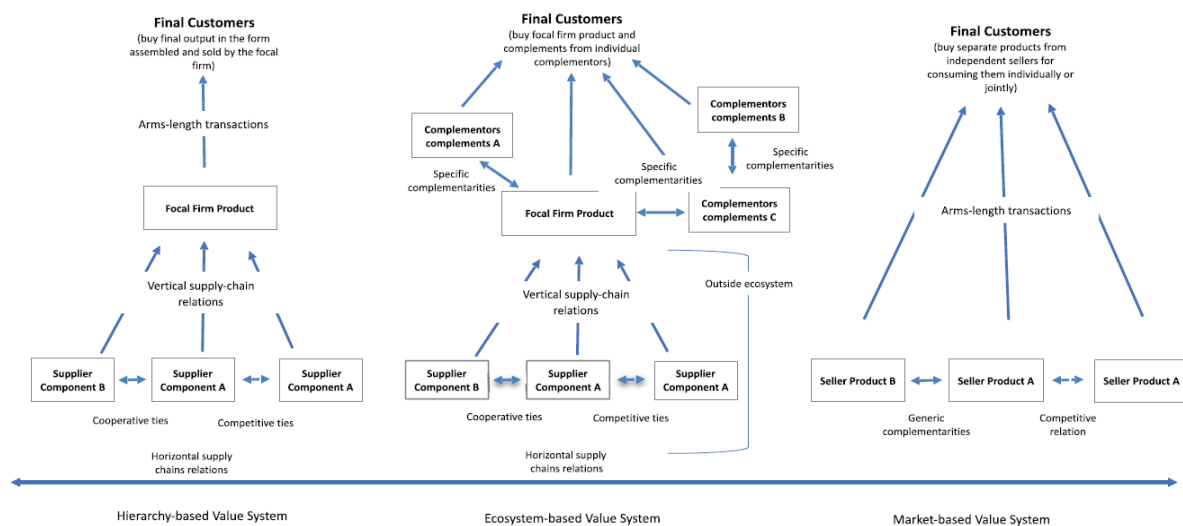


Figure 1: Overview value systems (Jacobides et al., 2018)

When comparing the perspectives of Adner (2017) and Jacobides et al. (2018), it can be stated that Jacobides et al. focus on non-generic complementarities and the related modularity between the inputs of different actors, which together deliver a specific product/service to the end customers. In an analysis of these issues, the focus is mainly on a technical level. In contrast to this, Adner (2017) mainly focuses on the concrete strategic aspects in aligning partners to get a specific value proposition to the market. In addition, Jacobides et al.' (2018) vision of leadership is much more concrete than Adner's (2017), following the directions of Moore (1993) and Iansiti and Levien (2004). Adner (2017) remains vague in this respect and states that a leadership position depends on the ambition of the central company and the agreement of actors where the value proposition relies on. Adner's states in his article: "The ecosystem leader is the firm to whose vision of structure and roles others defer" (2017, p. 48).

Because the theory of Jacobides et al. (2018) remains relatively vague about the concrete structure of an ecosystem (beyond the technical aspects) and an on-point strategy component, it was decided in this research to use the ecosystem-as-structure perspective. This perspective is complemented with Jacobides et al' (2018) view on non-generic complementarities. The main reason for excluding generic complementarities is that these do not require coordination as they are freely

available in the market. Including these complementarities would make an ecosystem analysis unnecessarily complex.

2.5 Ecosystem structure

Adner (2017) describes in his research the concrete aspects that define the structure and strategy of an ecosystem. These structure and strategy aspects enable to obtain a concrete picture of an ecosystem. Adner (2017) defines four different elements that make up the structure of an ecosystem. Adner (2017) characterises these four as the “value blueprint” which aim to bring a shared value proposition to the end customer.

1. Activities: which functions are needed in the ecosystem to bring the value proposition to the market.
2. Actors: the parties that perform these specific activities. An actor can perform multiple activities, but several actors can also perform an activity.
3. Positions: how are the different entities positioned in the ecosystem.
4. Links: specify the different type of transfers between actors. Adner (2017) provides the following type of links existing in an ecosystem; these do not need to have a connection with the central actor: material, information, funds and influence.

2.6 Ecosystem strategy

Following the structuralist approach of Adner (2017), ecosystem strategy tends to focus fully on the alignment of actors to deliver the end value proposition. Adner (2017) defines ecosystem strategy as: *“the way in which a focal firm approaches the alignment of partners and secures its role in a competitive ecosystem”* (p. 47). From this definition, four key terms can be extracted for strategy making.

A focal firm approaches: In designing an ecosystem strategy, a focal firm should be aware of the fact that every firm in the ecosystem has its strategy independent of the focal firm. The more consistent that these strategies are, the more likely it is that their actions will be convergent.

Alignment of actors: For a focal firm it is necessary to have the ability to align ecosystem actors according to a specific ecosystem strategy. Adner (2017) defines differences in strategy between the focal actor and ecosystem participants as gaps which need to be filled. Gaps can arise from challenges and expectations. Adner (2017) defines two types of challenges in the form of risks, namely: co-innovation risks and adoption chain risks. The first focuses on the challenges partners face when building the capabilities to bring the new value proposition to the market. The second focuses on the actions of partners that need to be performed to bring the value proposition to the market. For the focal firm, it is key to manage and incentivize these partners to undertake these actions.

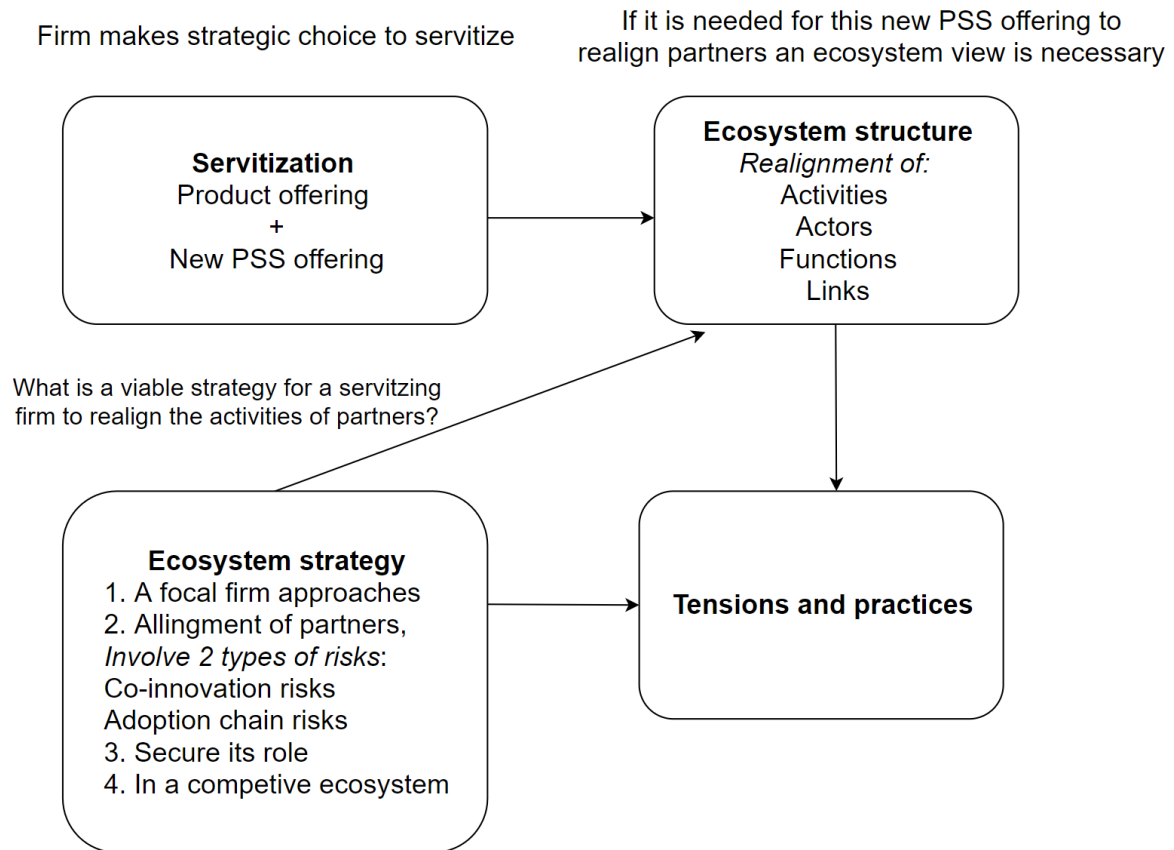
Secures its role: The role or leadership position within an ecosystem depends on the arrangement of actors in the ecosystem and on the aspirations of the leader itself. The leader in an ecosystem can set and enforce rules and often gets the major share of the profit after the ecosystem is aligned. A follower, on the other hand, is: *“a firm that agrees to these terms, and cedes the leadership role”* (Adner, 2017, p. 48). In other words, the success of the leader is dependent on the willingness of others to follow him.

In a competitive ecosystem: In traditional strategy making, competitiveness is focussed on individual firms whereas in an ecosystem this focusses on the set of actors in the ecosystem. The more unique their outcome through the multilateral combination of partners is the more it competitive it is. Whereas in traditional strategy making the focus is laid on competitive advantage, in ecosystem

strategy making this is focused on alignment. The unique set of aligned actors that create the value proposition are the basis van competitive advantage rather than what happens within a firm.

2.7 Theoretical framework

Based on the research question in combination with the theory, the following theoretical framework has been developed:



3. Method

This chapter describes the method that has been used in this research. The following topics are discussed in this chapter: research design, case study company, assessed constructs, data collection methods, sampling and sample size, data collection, ethics and data analysis.

3.1 Research design

In this research, an exploratory qualitative research design, in the form of a single case study, was used. The ecosystem construct has a multilateral character and is very situation dependent. Multilateral means that it is not possible to reduce these relationships to individual relationships. According to Yin (2018), a research design suitable for studying context-specific and providing rich information about a multilateral construct is a case study (Yin, 2018). The servitization construct in this setting can be considered as a strategic move which leads to all kinds of impacts on an ecosystem. As already described in the introduction, the research focusses on a gap in the literature which is not researched yet. Therefore, this research can be regarded as exploratory research, which makes a case study suitable (Yin, 2018). Within the academic community, a case study design is seen as a common method in studying the servitization and ecosystem field (e.g. Ferreira et al., 2013; Ritala, Agouridas, Assimakopoulos, & Gies, 2013).

The goal of a case study: “that it tries to illuminate a decision or set of decisions, how they were implemented and with what result (Schramm, 1971, p. 6)”.

This general goal description of Schramm (1971) fits this case because in the first place it provides the reasoning behind choices. In this study, what are the reasons for a firm to introduce a PSS offering in order to servitize? Second, it stresses focus on the implementation, in this study this is directed to the strategy component. What is a viable strategy concerning the ecosystem in order to successfully introduce a PSS next to a product offering? Third, the outcome focus is also present in this study by putting emphasis on the ecosystems in future, how will the ecosystem structure be in the future and what strategy does a firm has to follow to reach this structure.

3.2 Case study Company

Confidential

Response	Percentage
Do more to protect civil liberties	85%
Do less to protect civil liberties	15%

Confidential

[Redacted text block]

Situation and compilation

Confidential

[Redacted text block]

Product offering –

Confidential

[Redacted text block]

PSS offering –

Confidential

[Redacted text block]

3.3 Assessed constructs

Within the case study design, an applied approach is chosen in order to research the specific situation at the Company. Later, the lessons learned out of this specific case are abstracted to a higher level in order to answer the main research question. To guide the case study, the following internal research question is developed:

“What is the internal perspective regarding the most viable ecosystem strategy in order to introduce the PSS offering successfully next to an existing product offering?”.

In Table 1, an overview of the help questions that are used in the practical execution is given, followed by an overview in Table 2 with the operationalisation of the different constructs.

Nr.	Help Questions	Constructs
1.	How are the ecosystems shaped around the product and future PSS offering (their value propositions)?	Current value proposition, current ecosystem, future value proposition, future ecosystem
2.	Which tensions are arising when having two parallel value propositions?	Tensions
3.	What is the most viable way for the organisation to achieve the desired ecosystem position starting from the current position?	Viable, Achieving

Table 1: Overview help questions research

Construct	Operationalisation
Current value proposition	The value proposition of the product offering.
Current ecosystem	The alignment of actors that contribute to the value proposition of the product offering according to the terminology of Adner (2017).
Future value proposition	The value proposition of the PSS offering.
Future ecosystem	The alignment of actors that contribute to the future value proposition of the PSS offering according to the terminology of Adner (2017).
Tensions	Tensions represent a negative side of business relationships, as do conflicts, competition, burdens, crises, and problems (Tidström, 2014, p. 261).
Viable	Is determined by long term sustainability of the business, in aspects like financial performance and market position.

Table 2: Overview operationalisations

3.4 Data collection methods

Besides a review of the literature on servitization and ecosystems, semi-structured interviews were held. This method is used because it helps in suggesting explanations and allows participants to reflect their perspective on important topics (Yin, 2018). The semi-structured interview set-up allowed the researcher to ask questions on questions, in case of unclarities, to get sharper and more detailed input from the participants. The complete set of interview questions and elaborated per help questions can be found in appendix A. Hereafter, the used data collection method is further broken down per help question.

1. How are the ecosystems shaped around the product and future PSS offering (their value propositions)?

The value blueprint of Adner (2017) has served as a basis to get an impression of the ecosystems around the product and PSS offering. The value blueprint of Adner (2017) focusses on the activities that need to take place to materialise a specific value proposition. These activities (functions) are performed by actors who are at a particular position in the ecosystem. Also, these actors have links to each other consisting of money, goods, knowledge and influence.

To a certain degree, the inputs from the different actors also complement each other. In the value blueprint of Adner (2017), both generic and non-generic complementarities are taken into account. Because products that provide generic complementarities are freely available in the market, it is not necessary to take them into account when assessing an ecosystem. On this point, this research follows the perspective of Jacobides (2018), which only focuses on non-generic complementarities that are not freely available in the market.

Building on Adner (2017) enriched with Jacobides (2018), an adaptive value blueprint is developed. This adapted value blueprint visually shows the positions and links between the different actors in the ecosystems that contribute to the materialisation of the value proposition. In Figure 2 an example of this adapted value blueprint can be found.

Field research execution: The first focus was on the value proposition. Afterwards, we looked at the actors producing it; the results were written on cards and visually laid out on the table. The next step was defining the links between the different actors. Four types of links were defined: knowledge, data, goods/services and money flow. The data flow link was added due to the rising importance of data in PSS's nowadays.

In order to draw a complete picture of the ecosystem, a step-by-step approach was followed. After asking the type of link, the respondent could indicate the link with an arrow (one or two directions) and a picture was taken. After this, the arrows were removed and the next type was done. At the end of the interviews, the different ecosystem pictures were merged into a combined ecosystem visualization (see for an example Figure 2). During the visualization process, respondents were asked what the function of different actors is and which non-generic complementarities are present. This process has been carried out for both the product offering and the PSS offering. The time point for the ecosystem of the PSS offering is when the PSS offering has just been deployed at the market. For the product offering, the current ecosystem has been adopted.

2. Which tensions are arising when having two parallel value propositions?

To assess the tensions that can arise questions about past experiences on this subject and the expected tensions were asked during the semi-structured interviews.

3. What is the most viable way for the organisation to achieve the desired ecosystem position starting from the current position?

The assessment of this question was done by focussing on the experiences and estimates of the respondents in the field of managing an ecosystem. Questions that were asked during the semi-structured interviews focussed on pitfalls, methods to overcome tensions and projections for this specific case.

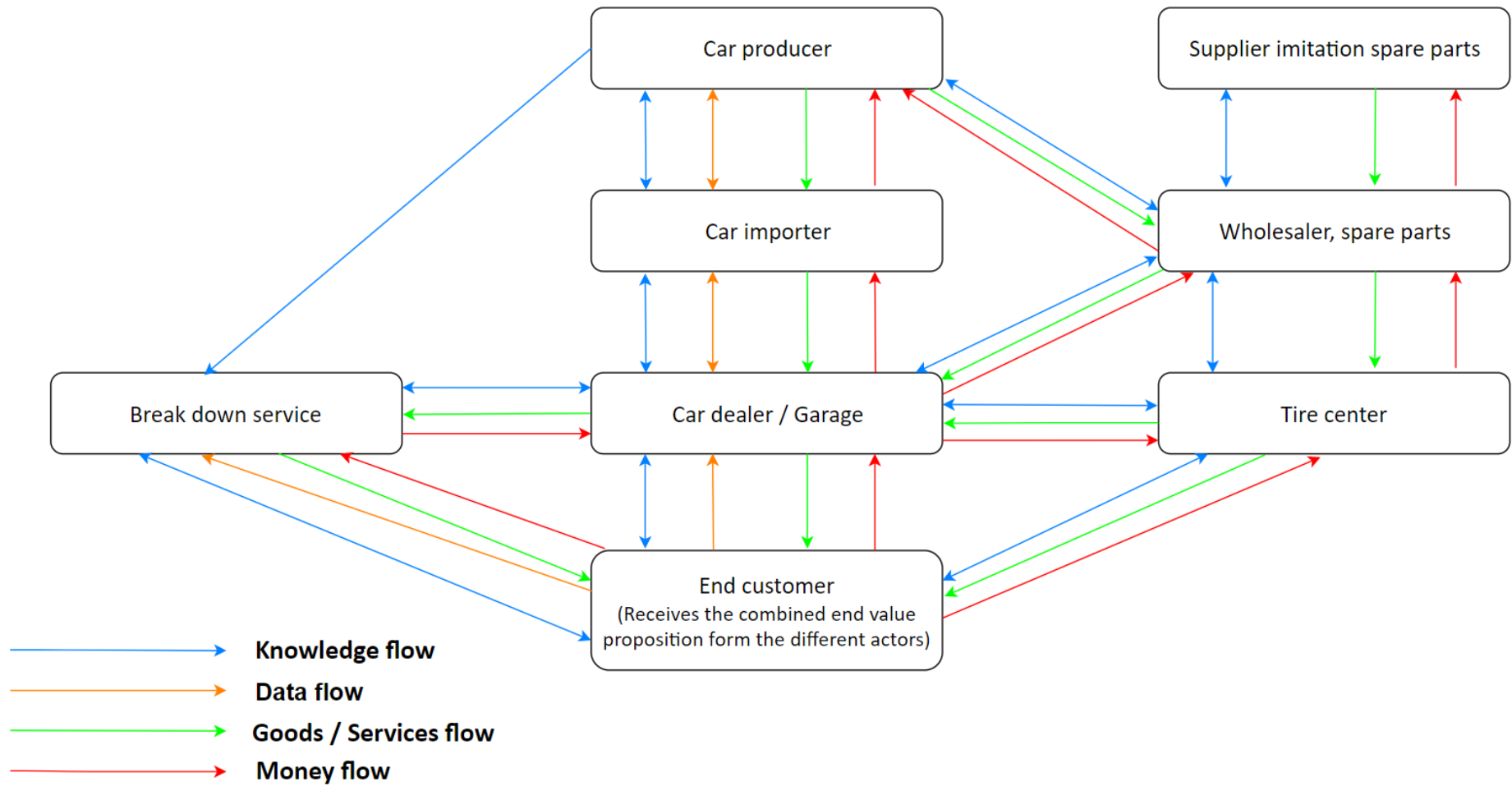


Figure 2: Example ecosystem visualisation, car manufacturer

3.5 Sampling and sample size

The respondents were selected based on an expert approach. The experts selected in the sample are only employees of the Company. Ten interviews were held in total. Half of this sample is working at the business unit and the other half is from other business units of the Company. The first group is able to provide a detailed picture of the ecosystem of the product and the PSS offering and in addition provide some strategic practices.

The second group adds practices from different business units in the field of servitization. Respondents in both groups are considered to be experts because they have current or past experience on servitization. Due to confidentiality and the limited time of the researcher there are no external respondents selected in the sample. This creates limitation for the research, which are further described in the limitations section. In Table 3, an overview is presented of the drawn sample.

Nr.	Business Unit	Markets	Interviewee function	Research contribution
1.	SE	Confidential	Business Development	Pretesting the model for improvement purposes
2.	AG	Confidential	Managing director	Expert knowledge on ecosystem development practices
3.	HE	Confidential	Managing director	Expert knowledge on ecosystem development practices
4.	AU	Confidential	Managing director	Expert knowledge on ecosystem development practices
5.	RE	Confidential	Managing director	Expert knowledge on ecosystem development practices
6.	SE	Confidential	Business Developer	Input on the ecosystems of the product and PSS offering and expert knowledge on ecosystem development practices.
7.	SE	Confidential	Business Developer	Input on the ecosystems of the product and PSS offering and expert knowledge on ecosystem development practices.
8.	SE	Confidential	Confidential partner manager	Input on the ecosystem of the product offering and expert knowledge on ecosystem development practices.
9.	SE	Confidential	Managing director	Input on the ecosystems of the product and PSS offering and expert knowledge on ecosystem development practices.
10.	SE	Confidential	Manager R&D	Input on the ecosystems of the product and PSS offering and expert knowledge on ecosystem development practices.

Table 3: Sample overview

3.6 Data collection

The data collection took place in three stages:

1. A trial interview with one of the newly hired employees of the research group, because he knows a bit of the context of the case, but still has a fresh scientific mind on the topic. After this trial session, the model and the interview questions were further refined.
2. Secondly, four interviews with managing directors of other business units within the Company. The business units of these four managing directors are currently servitized or servitizing and can, therefore, be regarded as experts in the process. After these interviews, the refinement process took place again.
3. The managing director of the business unit, manager of the research group and other business executers are interviewed.

In Table 4, an overview of the interview sample can be found, including the interview number, business unit, duration and the function of the respondent.

Interview	Business Unit	Duration	Function of respondent
1.	SE	01:20:09	Business Development
2.	AG	01:39:33	Managing director
3.	HE	00:30:48	Managing director
4.	AU	00:15:34	Managing director
5.	RE	00:56:01	Managing director
6.	SE	01:57:06	Business Developer
7.	SE	02:05:05	Business Developer
8.	SE	00:53:53 & 00:48:52	Confidential partner manager
9.	SE	01:01:30	Managing director
10.	SE	02:05:06	Manager R&D

Table 4: Details interviews

3.7 Ethics

To comply with all ruling ethical standards, permission for this research was requested and granted by the ethical board of the University of Twente. In the invitation that was sent to all participants of the study, the respondents had insight into the questions that were going to be asked, and they were free to refuse if they wanted to. Before every interview, permission was asked for recording the conversation, for transcription purposes later on. All gathered data during these interviews were treated as confidential and anonymised or removed in the published version of this research.

3.8 Data analysis

The visualisations of the ecosystems of the product offering and the PSS offering have first been synthesized into an image per interview. The visualizations of the various respondents were subsequently merged into one visualization per offering using the "majority principle". This means that when a "flow" or actor showed up in two or more visualizations, it was included in the combined visualization that can be found in the results section. In the descriptive text alongside the visualizations, an overview of the most notable differences is described including their implications.

The questions, including the answers, are first transcribed before being coded. The coding has been done based on the subject of the question, using the coding software Atlas.ti. This method can be considered "open coding" (Bryman and Bell, 2014). After coding, the quotes per participant are summarized and presented in a comparative table. Summarising and interpreting the quotes helped to separate the content from the specific context and enhanced the comparability.

After making the results comparable, we used pattern matching to look for connections in the data (Yin, 2018). In this process, we looked for similarities, contradictions or complementary outcomes. During this process, we also looked at whether certain results could be linked to the theoretical framework concerning the ecosystem structure and strategy. For example, tensions, pitfalls and success factors can be linked to alignment risks. These risks consist of co-innovation risks and adoption chain risks.

3.8.1 Validity and reliability

For a case study, it is necessary to assess its quality. Yin (2018) defines four tests to do so, namely: construct validity, internal validity, external validity and reliability. When focussing on the construct validity, it is important that the measurements are not solely based on the impressions of the researcher but on other events as well (Yin, 2018). In this research, two tactics from Yin's (2018) theory are used to secure the construct validity. The first tactic was used for the assessment of every sub-question, multiple interviews are held in order to triangulate the collected data. It is recognised that this is limited within the business, what is lowering the construct validity of this study. The second tactic is that the draft version of this research report is reviewed by participants that took part, as to prevent subjectivity from the researcher's side.

The second test of Yin (2018), internal validity, acknowledges that it is difficult to reach a high internal validity in a case study research. Although Yin (2018) proposes four methods to do so. These are pattern matching, explanation building, addressing rival explanations and using logic models. The method of pattern matching is applied in the analysing phase of this research by using a comparison method based on equal and different results to see where there is a general line between the research participants and where they are deviating from each other.

The third test of Yin (2018) focusses on the external validity of a study, this implies the extent to which the results of a study can be generalised in theory. In this research, it has been attempted to triangulate the theoretical background with various recent sources in order to maintain external validity. The single case study for the field research creates limitations for the theoretical generalisability due to the small sample size. Therefore this research can be regarded as exploratory and is a starting point for further research and validation.

The last test of Yin (2018) is the reliability test. This focusses on the repeatability of the study and the used procedures. This aspect is covered by documenting all steps that are taken in this research, which makes the research more repeatable. What can be noted here is that interviews present a vision, idea or opinion at one point in time, which can change over time. This could change the results when the study was repeated ones again.

4. Results

In this chapter, the results of the field research are presented. The results are structured as follows:

1. The introduction of a new PSS offering leads to a change in actor configuration compared to the product offering. In this section, the general conditions for this change are described and the ecosystems of both offerings are described based on the terminology of Adner (2017).
2. Describes the tensions that are likely to arise between the ecosystems of the two offerings, according to the respondents.
3. Presents the practices of respondents to successfully overcome tensions and introduce a PSS offering aside of a product offering. These practices form in combination with the literature the basis for answering the research question.
4. Presents three scenario's on servitization including the one that is followed in this case concerning servitization. In these scenario's the advantages and disadvantages of the different approaches is explained.

4.1 Actor configuration change

This section describes first the general conditions for servitization and second the ecosystem change resulting from the introduction of a PSS offering in addition to an existing product offering.

General conditions for servitization

The respondents were asked what they consider to be the prerequisites for an organisation to be successful in servitization. From the perspective of the business unit that is currently developing a PSS offering, several conditions are put forward. The most important one is that there is a clear vision what the firm is going to do, how to make sure that the new product-service combination is smoother than the current product offering. From an organisational perspective, respondents indicate that service delivery requires a completely different mindset compared to product delivery. When offering a service, the service provider becomes a larger part of the problem-solving process compared to selling a product offering. For the organisation, it is key that long term growth and added value are enhanced. The last point, brought up by one of the respondents; an ecosystem is developed for a final situation, a firm has to be aware that there is a difference between the starting and final situation. Reaching this final modelled situation cannot happen without some sacrifices. The following quote clarifies some of the mentioned points:

“If you have in your head, I am a manufacturer and all the trouble outside is solved by someone else, well, no, you are going to solve a part of that misery too. That is, of course, another mindset. .. It is about, you have to grow, your added value per employee has to increase and how can you do that. ... No, but of course you have to make a distinction between the starting phase and the final situation. So, you design a model for the final situation. The road to it- You cannot go through such a change without pain, without scratches and sacrifices” (SE, interview 10).

Another general servitization condition is the data protection aspect when servitizing. Clients most often have no objection that you use their data for product or service improvements, as long as they stay in control. Another respondent adds that one needs an excellent definition of one's market and that one should focus on this, preferably in a newly founded company. The following quote clarifies this vision further:

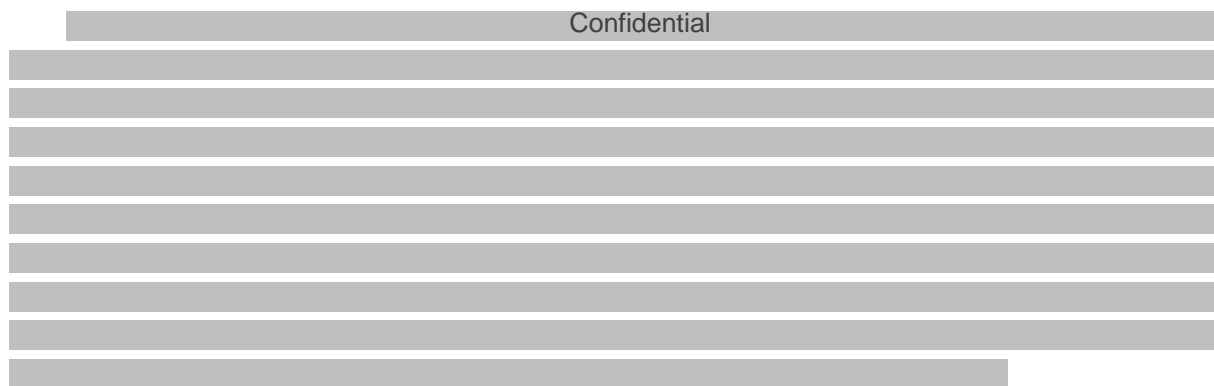
“You have to define that market, that is key. If you have that, then you do not have a conflict, really not. Maybe you have a little conflict, but you will not have a mega conflict. But it is not in the fact that you put something in ‘as a service’, yes or no, it is in the fact that you are going to do something

Ecosystem visualisation

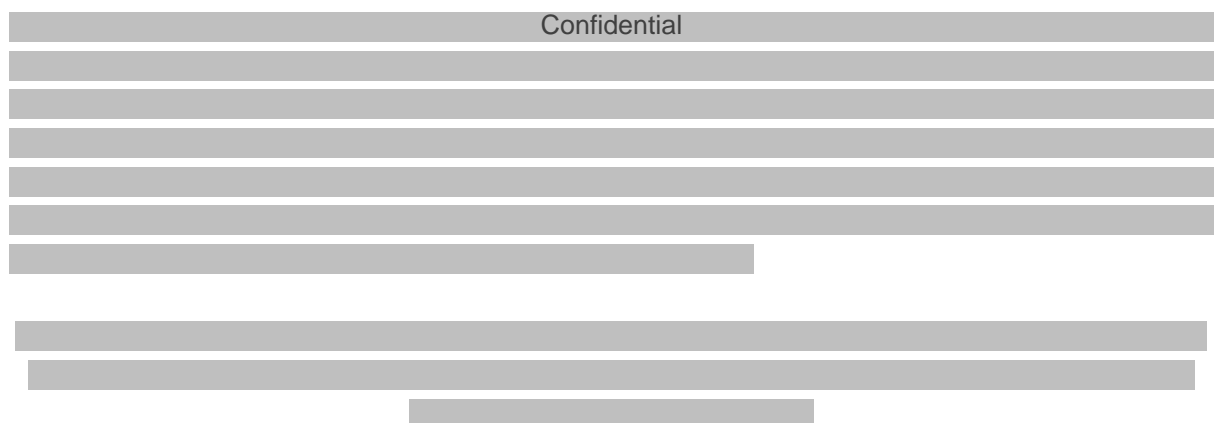
The respondents of the interviews, working at the business unit, were asked to visualise the ecosystem of the product offering based on a stepwise approach.



Figure 3: Ecosystem product offering – The business unit



Complementarities



Actors and functions

Confidential

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Actors	Functions
Confidential	<div></div> <div></div> <div></div> <div></div>
	<div></div> <div></div>
	<div></div>
	<div></div>
	<div></div> <div></div> <div></div> <div></div>
	<div></div> <div></div>
	<div></div> <div></div> <div></div> <div></div>
	<div></div>

Table 5: Actors & Functions - mentioned > 2 times

Actors	Functions
Confidential	

Table 6: Actors and Functions - mentioned ≤ 2 times

4.1.2 Ecosystem new PSS offering

Value proposition

Confidential

Confidential

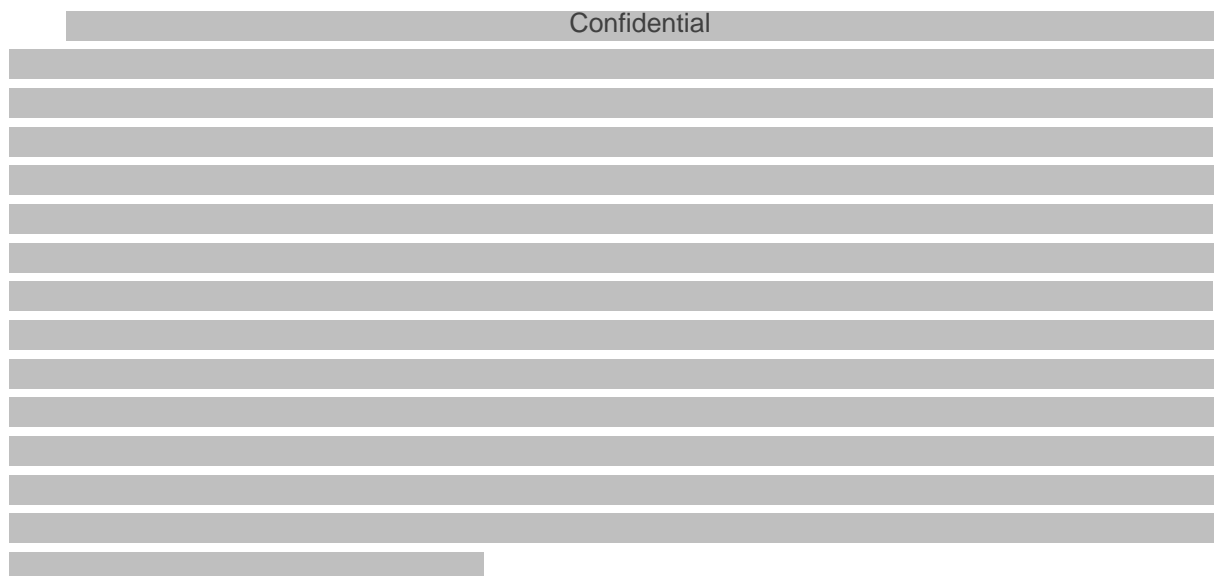
Confidential

Ecosystem visualisation

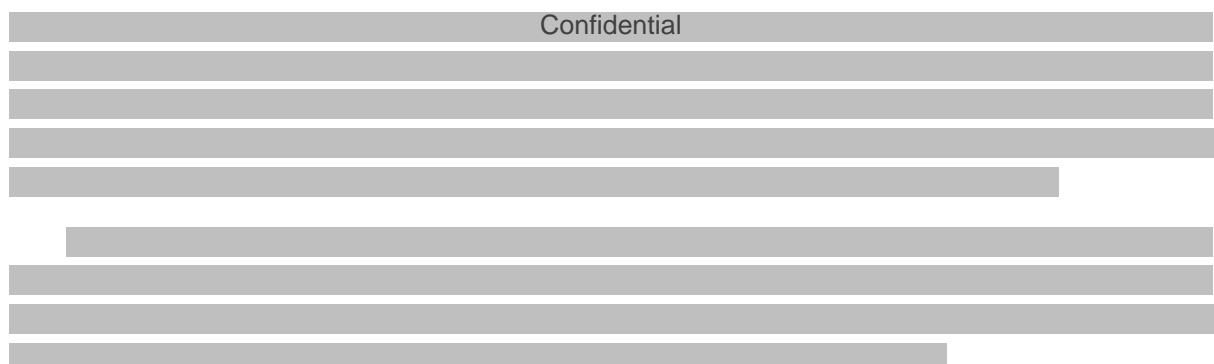
The respondents, working at the business unit, were asked to visualise their ecosystem based on a



Figure 4: Ecosystem PSS offering – The Research Group



Complementarities



Confidential

Actors and functions

Confidential

Actors	Functions
Confidential	[Redacted]
[Redacted]	[Redacted] [Redacted]
[Redacted]	[Redacted] [Redacted]
[Redacted]	[Redacted]
[Redacted]	[Redacted] [Redacted]
[Redacted]	[Redacted] [Redacted]
[Redacted]	[Redacted]

Table 7: Actors & Functions - mentioned ≥ 2 times

Actors	Functions
Confidential	<div></div> <div></div> <div></div> <div></div> <div></div>
	<div></div> <div></div> <div></div> <div></div>
	<div></div> <div></div> <div></div>
	<div></div>

Table 8: Actors & Functions - mentioned < 2 times

4.2 Tensions

This section presents the tensions that were identified during the semi-structured interviews. The tensions in this section are divided into three categories:

- Value proposition related tensions
- Structure related tensions (structure, role and position)
- Dynamics related tensions (way of working)

Value proposition related tensions

When introducing a new PSS offering, the client's image may conflict with its expectations of the new offering. In the beginning, when the new PSS offering is released to the market, customers of the new offering think that they are buying an upgrade compared to the product offering. But right at the start, it does not have the same capabilities as the product offering. The following quote illustrates this:

"That is, of course, weird that you are thinking that you are buying an upgrade of something better, while it has fewer capabilities actually, and this tension lasted for several years" (SE, interview 10).

Another illustration of a mismatch in expectation between the product offering and PSS offering can be seen at the value of software. In some sectors in the past, the software was perceived as it was for free. To change this perception of customers to pay regularly can be a serious tension, although it has key benefits for them. The following quote from one of the respondents from a relatively traditional sector clearly illustrates this:

"We are now confronted with the fact that people (customers) are not that far in these steps, and there are still competitors where it is for free, and these customers take them as a reference point to assess our offering" (AG, interview 2).

The Company intends to target large **Confidential** with their new PSS offering. However, this group is risk-averse and invests, mainly in proven products. The risk-averse nature of large **Confidential** is where the most significant tension lies. The perception of large customers is that the Company is proven thanks to the product offering, while the new PSS offering is not. This perception can lead to a substantial mismatch in expectations and can cause financial risks for the Company. The following quotes illustrate this:

*"It is the Company, and the Company is proven. The Company has already attracted **Confidential** So the confidence in the organisation, because the Company still does **Confidential** whether you call it the product offering or PSS offering, nobody knows. ... Exactly and that means that you have to be very careful in sales. It is very easy in sales to sell the PSS offering to a **Confidential** But that means that you have to be very careful and position yourself in such a way that they understand that it is a new part of the business" (SE, Interview 6).*

A last value proposition related tension lies in the development trajectory. How long do you develop inhouse, and when do you involve the market in this? Waiting too long can cause missing the essence of the market, but doing it too early can cause problems in the market. One of the respondents pointed out that the research group can have a beautiful long-term vision on **Confidential** , but large companies simply want to have all their sites secured.

Structure, role and position related tensions

In the new ecosystem of the PSS offering partners **Confidential** get a different position compared to the product offering. In the ecosystem of the product offering, the **Confidential** partners have an exclusive relationship with the end customer. In the ecosystem of the PSS offering these **Confidential** partners will not be a part of the **Confidential** anymore but will become a (managed) service provider dependent on the situation. The change of role results in the situation that partners have to give up their exclusive relationship with the end customer. This relationship change can lead to considerable tensions that are clarified in the following quote:

*“Well, especially that there is now a direct line between the Company and the customer. This simply means that existing **Confidential** partners of the product offering have to get used to the fact that they no longer have an exclusive relationship with the customer. That is an important tension. The fact that the Company does a lot of work where the **Confidential** partners now earn good money, namely those maintenance contracts and ensure that the system remains up and running. That is what we are going to take away” (SE, interview 10).*

Besides, partners need to adopt a new way of working. The partners will have to provide services related to the PSS offering instead of regular sales and installation of products. Providing services requires a significantly different set of capabilities compared to delivering products. This role change can lead to serious tensions. The following quote is an example of the essential difference between the two roles:

“The biggest problem of software companies is that when they sign a contract, they lose the order, so you have a contract, but the contract is never filled with orders. What you see is that customers, which we often did wrong in the beginning, we supported them with two successful implementations, but that customer had 100 customers. So you need to have 100 successful implementations. But we did not want to do all those 100 ourselves, so they had to do it themselves, and that did not happen. So you have to take customers through that funnel” (AU, Interview 4).

The partner's role change also has an impact on its profitability. This impact is likely to cause tensions. The following quote reflects the concern of one of the respondents about this tension:

*“In that case, that makes it very difficult, I agree, what we want, you saw it, we want for our situation; we want them first to take all the load and gradually disappear from the stage. In my opinion, this will only work if they take over a different role; they will take much more security risk business. And understand more about how it works, because then they will deliver anything we need and can forget all about it. But that is extremely naïve because all **Confidential** systems (product offering) work in this way. They have to forget all that and pick up a different approach, to work with us alone” (SE, interview 7).*

When both offerings operate in the same market, this can lead to competition between the ecosystems and is likely to cause cannibalisation. This cannibalisation has to be avoided in the beginning phase as the product offering is financing the development of the PSS offering. Another consequence of cannibalisation is the limiting effect on growth, which is expressed in the following quote:

“Besides, if you do that, you will not grow in the end. You cannibalise your existing market, why would you do that? Then you start to shrink” (RE, interview 5).

Dynamics and links related tensions

Comparing the role of the Confidential partner in the ecosystem around the product offering with the ecosystem around the PSS offering, it can be observed that the role of the Confidential partner becomes less flexible which can lead to tensions.

Also, both offerings have different interests that can lead to tension between the two ecosystems. The quote below provides an internal example of this. Such tension can also arise between different actors of both ecosystems.

“The fact that you are going to tell two different stories with the same customers, and that we at the research group, are discrediting the product offering, and that they say at the business unit about PSS offering, you should not want that, because it is so new, it has all types of childhood illnesses” (SE, interview 10).

In the new ecosystem, different dynamics arise than in the old ecosystem. In general, the ecosystem around the product offering tends to focus on the short term and are transaction-based. Servitized offerings, such as PSS's, tend to have a long-term and relational focus. During the development and exploitation, this contrast can lead to tensions at the development team and at partners.

Partners need to adopt a new way of working for the PSS offering although all other systems in the industry work like the product offering. This new way of working includes aspects like the changing sales process and installation. One of the respondents is openly doubting if partners are convincible in the current future setup. The following quote illustrates this nicely:

“The only partners that join here are the ones who say, ‘I want to have a contract with you just to be sure’. Then they are actually one of our services. They are no longer independent. And then they absolutely do not function as the Confidential partners we now have. So then you actually create a totally different partner setup. A totally different ecosystem than the one we have in mind now. I see that as the only solution, but it is not at all what we want” (SE, interview 7).

Other respondents focus on the difficulty of a transformation. This difficulty is reflected in the following quote:

“Yeah, a transformation is driving you crazy. Then you are going to do the same thing as you are doing now. All the frustrations that are now associated with the product offering are not just technical frustrations; it is just that any company has, in the end, a frustration. So all these frustrations of all kinds of promises that have been made, all kind of difficult customers, a service department. A transition means that you are going to take all these troubles with you. So you are going to create the whole trouble device around a whole new product. Do not start!” (RE, Interview 5)

This difference in dynamics can also be recognised internally, which is reflected in the tension between the management and the research group. The following quote clarifies this a bit more:

“Because they want to see the invested money back? Yes, as soon as possible. So you are destroying the whole PSS offering concept. And that is my biggest concern, that is the highest risk of this project. And precisely because people discuss both approaches (PSS offering and Product offering) through each other without realising the consequences” (SE, interview 7).

4.3 Practices

Paragraph 4.2 presented the tensions that may arise in the ecosystem when a PSS offering is introduced parallel to a product offering. This section discusses the insights of the experts to deal with these type of tensions. The practices presented in this section are divided into three subtopics:

- Value proposition related practices
- Structure related practices (structure, role and position)
- Dynamics related practices (dynamics and links)

Value proposition related practices

The practices concerning the value proposition focus in the first place on the customer. Several respondents expressed this clearly in their answers. According to them development always starts with the end customer in mind. Preferably you involve the customers as early as possible. One of the respondents mentioned in his answer that in his department the product was already sold before the development even started. The following quotes illustrate this:

“At -AU- we turned it (proposition development) around, respondent 4 and I set up business unit AU together, so I am still a bit involved, and respondent 4 came up with a core product for agencies. He alone has sold the product to seven customers without writing a line of code. So he connected the market on his story. On his vision. And that was enough” (HE, Interview 3).

“So, I think it always starts with your end customer in mind and preferably asks for a commitment from them. ... What I think is important is that when you do that, you certainly have a problem at the customer. And that the customer is willing to go with you. That is why you want 7 customers and not one. Because one customer is not a customer. And that will then determine, this is what it should be like and then it only works concept-wise. If we can do that, we scale to the next segments. That means that you have to do that in your development but also in your implementation, support, marketing and sales” (AU, interview 4).

Other practices concerning the market approach are in the fact that the new offering should focus on a completely different segment as the product offering. Because otherwise one is constantly confronted with existing methods and networks, while also searching for your own segment, this is not going to work according to the respondents. The following quote expresses this backlog from the past nicely:

“Especially if you have an existing network that already works in a certain way. So you are confronted with what is going on in your current network, whilst looking for something new at the same time and do not knowing where to end” (SE, interview 8).

The following quote of one of the respondent also puts the urgency of finding a target group for the new PSS offering forward:

“So you have to find a target group, which is I think the biggest task for this group, a market to which they can sell this product, who sees the value, the unique value for the new thing. I do not know what that is yet, but that is what you have to look for. But again, the key is a new market, and that is quite difficult for the research group, I am not entirely sure, it is not a very sensitive market. In principle, they sell the product, so there is a specific market that needs this type of security” (RE, Interview 5).

A last practice concerning the value proposition is that it is key for the research group to find a commercial fit for the current technical setup. This is also fitting with the statement of other respondents that finding a target segment is key. The following quote illustrates this nicely:

“That is what you get when you put techs in a room, that is what happens. They are going to make something. In itself that does not have to be very bad, again it happens often, that a group of technicians have an idea and a vision. A technological vision, building something and thinking, yet and now what? Then you have to find a commercial fit for it. So I think the key is to brainstorm about which markets will especially need this solution” (RE, interview 5).

Structure, role and position related practices

The practices around the structural aspects of the new PSS offering’s ecosystem tends to focus on the establishment of a completely new ecosystem. Already indicated in the tensions section, if you try to use the ecosystem of the product offering, the new PSS offering including the way of working and customer troubles will constantly be compared with the old. This prevents a fresh start of the new ecosystem of the PSS offering.

When initially offering the new PSS offering, several respondents point on the fact that you have to start small and completely separate from the product offering. The following two quotes provide some in-depth insight into this:

“Yeah, but I think you can make those risks very small by starting with something small. We did this by starting with pure registration, which is 1 per cent of the total ERP solution. Now we have said; we have registration, we have scheduling and now we are going to do everything combined. So, in the end, you have to start somewhere, but we also had the end in mind where we wanted to go” (AU, interview 4)

“Not in a small market, the market can be big, but a small company. You want to start small, but that does not work with a Confidential ... Market by market, taking small pieces and growing in them. In a small segment. Yeah, where your goal is to get to those Confidential in the end. ... Your product has to become mature” (SE, interview 6).

Another respondent points on the fact that you have to start completely new, in a new specific market but keeping your end market in mind. The following quotes illustrate this point in more detail:

“You have to start in a specific market, and that market is going to get bigger and bigger and then you are going to look for an even more specific market. And at a certain point, you are ready, and then those Confidential will be interested, and that is getting bigger and bigger. Then you start, then you will see where your options and possibilities lie, and you will expand. Then you will start another market segment, and at a certain point in time it might start cannibalising the product offering, but then that product will be much more mature. And then it also has more features. In this way, you can actually avoid damaging your own product. Starting from there completely separate and from there on a new market with new people and preferably in a new country. Because you want the most is that it strengthens each other. That they speak to each other, that they are satisfied”. (RE, interview 5).

Completely restarting the ecosystem, proposition and development team is regarded as the most viable way according to some respondents. When the old ecosystem is used, the new PSS proposition will never become a proposition on its own. The following quote illustrates this:

“To restart. In my opinion, this is the only way that the new proposition becomes in the long term on its own. In the beginning, this will be financed by the old one. But how long it takes to get started differs, depended on the speed with which you want to put it on the market” (SE, interview 6).

At last, the creation of an attractive model for new and existing partners will be crucial to bring the new PSS offering to the market. In practice, this requires a good definition of roles and sufficient attractiveness for partners as is illustrated in the following quote:

“But if you look at it from a natural point of view, how can you make it grow, and scale-up, then it will be beneficial if there are enough parties for whom it is lucrative enough to get involved. Because this also means investing in knowledge, we need to think carefully about what this role means. And if you want to be an equal partner to the end customer, it means that you have to define these two interfaces clearly” (SE, interview 10).

Dynamics and links related practices

The practices about the dynamics and links focus on the way to work in the ecosystem and how the interaction between different actors can be set up and maintained. What can be recognized here is that most respondents are quite pragmatic about engaging partners and the methods to do this. Respondents opt for training partners to join the ecosystem of the PSS offering and if there is an imbalance, partners can be incentivized with funds. As one of the respondents said:

“I think money is a lubricant for balancing inequality in a partnership. It may well be that you say to the partner for each customer you get a kickback fee” (SE, interview 6).

Respondents were quite pragmatic about the impact on existing partners. The following quote provides more in-depth clarification on this point:

“By being transparent. Some people are quite dogmatic about it, but I am very flexible about it. We are going to see what happens. Maybe that is my driving factor; as a team, we need to learn as soon as possible. We need to make ourselves better today than yesterday. And that is where all the money comes from. But if money is your only driving force, you will never get anywhere, so you just have to experiment with it. And maybe it is at the expensive of a deal, that is possible, so be it” (SE, interview 9).

One of the respondents also mentions that the new PSS offering creates fewer troubles and complexity for partners than the product offering. This creates also an incentive for them to join the ecosystem of the PSS offering. The following quote illustrates this nicely:

“I think that, if you look at those business partners, they do not like the fact that all the trouble we cause with the product offering has to be solved by them. So that we have a bug means work for them, they might get paid for, but that is very unpredictable work. So I think it makes them happy when some of those unexpected, unpredictable things go away” (SE, Interview 10).

4.4 Servitization scenario analysis

In this research on what a viable ecosystem strategy is during servitization, several servitization methods can be taken into consideration. In this scenario analysis, the most plausible options are discussed, advantages and disadvantages are described and where possible, a connection is made with the case study.

Scenario 1: New business development

In this scenario, the servitizing business chooses to develop a new service offering besides an existing product offering. The researched firm in this case study followed this servitization trajectory. The main advantages of this approach are that “dominant routines”, including difficulties from the past product offering, are avoided, which creates a fresh start for the new service offering. Other advantages are that a separate business unit can be established, which has a service mindset. Product and service mindsets are contradictory and having these two in one department would lead to conflicting interests which could lower down performance. Disadvantages lie in the fact that when you start completely new, also the benefits of your old network, including references are weakened.

Furthermore, existing partners cannot be used in bringing the service offering to the market. The results of the investigated case indicate that the benefits are more significant than the disadvantages in this scenario. Core reasons for this are the high importance of a Confidential partner, which has established a way of working and is used to earn a specific amount on the product offering. Changing the mindset and the profitability level (for the worse) could create strong friction and harming existing market positions. By avoiding the old ecosystem, with these Confidential partners and other critical partners, this kind of problems will be avoided. Important note for this scenario is that a servitizing firm should start in a new market in which the firm is not active yet. Otherwise, competition with the existing product offering is likely to happen in combination with internal and external (ecosystem) friction.

Scenario 2: Servitizing the existing product offering

In this second scenario, the servitizing firm is servitizing the current product offering to a service offering. This scenario is in line with the perspective of Oliva and Kallenberg (2003), in which a servitizing firm adds step by step services to the basic offering to be in the end, fully servitized. This servitization process of an existing offering brings of a couple of advantages and disadvantages. Advantages of this strategy are that the servitizing firm can use its existing network for deploying the new services related to the service offering, retaining the reputation of the product offering, and existing customers are part of the servitization process which prevents substantial investments in sales. Disadvantages of this scenario lie in the existing customers, is this existing customer base the suitable customer base for the service offering and is the servitizing firm able to create enough incentives for existing partners to stay cooperating in the new setting. Besides, the internal firm perspective creates a significant disadvantage; a servitizing firm needs to be able to change the mindset of existing employees and be able to attract enough suitable new employees. In practice, it is also questionable if an existing product offering can be servitized by adding step by step services to the basic offering. One of the respondents in the research stated that a switching point needs to be created, where the firm stops selling the product offering and only sells the service offering. In this setup which can also apply to other cases, the focus seems to be on the switch from on-premise software, towards cloud and subscription-based software. Keeping two options creates too much overhead and confusion.

Servitizing of an existing product offering with an extensive ecosystem with multiple actors and roles can only be done when enough incentives are provided for existing partners. In this case study, the

Confidential partner is the most vital partner to incentivize in this perspective. Suggestions for doing so are in creating new security advice functions (consulting) or project management tasks.

Scenario 3: Hybrid solution

In this third scenario, the servitizing firm develops the new service offering within the same business unit, where also the product offering is sold. This option creates a choice for the customer regarding the offering it wants to buy. Also, this option has some significant advantages and disadvantages. The advantages of the hybrid solution are that existing infrastructure (development, sales, customer care et cetera) can be used to develop and market the new service offering, an existing ecosystem can be used and at last current customers can be approached to sell the new offering. This hybrid solution has some significant disadvantages, starting with the organizational setup, including its culture. What is already recognized is that a product-oriented culture is contradictory with a service-oriented culture and because of these substantial opposite factors like transaction focus versus relation focus and short-term focus versus long term focus it is tough to combine both in one business unit. For customers and the ecosystem partners as well, it can create significant confusion which direction the firm wants to go for the future, and in what cases a product offering is still the best option. What must be kept in mind for the case study firm is that specific security systems are bought for 10-15 years and end clients its key that a solution stays running and by the time for that period.

5. Conclusion

In this research, insights are presented concerning the most viable ecosystem strategy for a firm that is servitizing through the introduction of a PSS offering next to an existing product offering. The supporting research consists of two parts: an in-depth literature review on the topics servitization and ecosystems and a single case study at a firm which is currently servitizing through the introduction of a parallel PSS offering. The research question of this study is:

“What is a viable ecosystem strategy for a servitizing manufacturing firm to introduce a PSS next to an existing product offering?”

Building on the terminology of Adner (2017), an ecosystem strategy is defined as *the way in which a focal firm approaches the alignment of partners and secures its role in a competitive ecosystem (p.47)*. In condensed form, this is about how the focal firm deals with the alignment of other actors in the ecosystem, ensuring or creating a leadership position for the focal firm and aims to build a competitive ecosystem in comparison to other ecosystems that fulfil the same need. The alignment aspect covers two types of risks, namely co-innovation and adoption chain risks. These risks focus on the innovations and adoptions at partners that are essential to bring the end value proposition to the end customer. If one of these innovations does not occur, the value proposition cannot be materialised.

The results of this research suggest that the focus should be on a brand new start for the introduction of a new PSS offering. This new start includes a new development team, a new market segment and a new ecosystem with new partners. Justifications for this are the fact that in an existing ecosystem, there are already existing expectations and dominant routines that may hinder the introduction of a new PSS offering. This in combination with “path dependency” of existing customers (e.g. troubles and expectations) of the product offering can cause a false start for the PSS offering and in the worst case to prevent the PSS offering from becoming a stand-alone offering. In the long term when the new PSS offering develops, it will not be possible to avoid cannibalising the existing product offering. However, the new offering will be more proven and have more body by the time to absorb this cannibalising effect on the product offering. Also, it is likely that the new PSS offering will have a

more complete set of features than at launch, which in all likelihood will result in fewer issues when taking over customers from the old product offering.

Alignment of partners should be done by establishing new partnerships in combination with training and monetary incentives. The results of this study provide clear examples of the co-innovation and adoption chain risks that affect the alignment of partners. Starting with the first risk, partners need to learn a new way of working for contributing to the new ecosystem of the PSS offering. If this is completely different from the industry standard, partners should be trained and incentivised to adopt this new way of working. The goal for the focal firm should be to engage partners to co-innovate without creating a strong dependency relationship. In that case, partners become de facto subsidiaries of the focal firm. Adoption chain risks lie in the focal firm's ability to attract a sufficient amount of partners to contribute to the new ecosystem. It is crucial for the focal firm to know where the bottlenecks are and how to handle these.

The last two components of an ecosystem strategy focus on securing the role of the focal firm and the competitiveness of the ecosystem as a whole. The focal firm can secure its role by entering crucial components into the ecosystem and by creating an attractive environment to attract enough partners. Finally, the focal firm must ensure that the new ecosystem as a whole is competitive compared to other ecosystems that aim to meet the same need.

According to the results of this single case study and the underlying literature study, there can be suggested that the most viable ecosystem strategy for a firm to introduce a PSS offering aside of a product offering is by starting from scratch. This results in a completely new ecosystem in a new market segment. Such a strategy avoids on the first place old path dependencies and dominant routines and on the second place it prevents cannibalisation in the initial phase. Alignment of partners can be achieved by providing incentives for partners to participate in the new ecosystem in the form of training and monetary incentives.

6. Discussion

As previously described in the introduction, the literature lacks knowledge on what a viable ecosystem strategy is when a manufacturing firm is servitizing through the introduction of a parallel PSS offering in addition to an existing product offering. On this topic, exploratory research has been carried out in this research and in this chapter, the results are compared with the existing literature. Because the research has focussed on a relatively new and underdeveloped part of the literature, this discussion focuses mainly on how the conclusion relates to the concepts used and the related research field. The following topics are covered in this discussion: ecosystem-as-structure in servitization research and the ambivalence effects of co-existing of product and service offerings.

Ecosystem-as-structure in servitization research

In this study, an adapted version of the value blueprint of Adner (2017) was used to make an assessment of two ecosystems in the process of servitization through the introduction of a parallel PSS offering. The results are very focused on the alignment of ecosystem actors through financial incentives and the provision of training to partners. The current literature on ecosystems focuses on creating an attractive ecosystem (e.g. Adner, 2017; Jacobides et al., 2018). What is lacking in these studies are concrete examples of the ways in which such an alignment can be achieved. This research adds a practical perspective by describing alignment methods and proposing an appropriate ecosystem strategy.

In this study, an adapted value blueprint has been used to get a visualization of an ecosystem structure. Due to the fact that in this specific case study the exact actor configuration differed per

project, the development of such a visualization required a lot of generalization. This complicated the process of creating such a visualization (value blueprint). Whereas Adner's (2012) original value blueprint focuses on bringing uniform products (e.g. HD television, PAX tire Michelin) to the market, this research has shown that such an application is difficult when the ecosystem configuration is different for each project. As a result, the created ecosystem visualisations are of less value. As far as is known, there are no models in the literature that provide a very concrete representation of the value proposition by different actors and can include large variations in composition.

In addition, this research adds on existing literature on ecosystems and servitization that if you as a firm want to put a new PSS offering on the market that is completely different from your existing value proposition, setting up a new ecosystem configuration is of great importance. The mainstream servitization literature focuses on moving along the product-service continuum, where a servitizing company adds services to the core offering gradually (Oliva & Kallenberg, 2003). It is assumed that the ecosystem around this core offering accepts the change in the first place and is able to change in the second place. Whether this is the case, is entirely industry-dependent, but this research offers a contradictory result in this regard. The results of this study indicate the presence of existing dominant routines and path dependency with existing customers that are desirable to avoid when introducing a new offering on the market.

Co-existence of product and service offerings

The prevailing literature on servitization focuses mainly on a servitization trajectory where firms move along a product service continuum (Lenka, Parida, Sjödin, & Wincent, 2018). Within this view, it is noticed that firms are servitizing by adding step-by-step more advanced services to their basic offering (Matthyssens & Vandenbempt, 2010; Oliva & Kallenberg, 2003). Another perspective that also applies to this specific case study is that a company is servitizing through the parallel introduction of a service offering next to an existing product offering (Kowalkowski et al., 2015; Storbacka et al., 2013). The co-existence of these two different types of offerings results in conflicting interests and goals because both types of offerings are contradictory by nature. Product offerings, on the one hand, tend to be short term and transactional focussed, whereas service offerings, on the other hand, are long term and relational focussed (Visnjic Kastalli & Van Looy, 2013). Lenka et al. (2018) researched manufacturing firms with co-existing product and service offerings using an ambivalence perspective on an organizational level and concluded that so far too little research has been done on how firms can deal with such ambivalence. In their research, the authors emphasize that such ambivalence effects can be one of the causes of servitization failure. The results of this study suggest that complete separation (internally and externally) is necessary to deal with such conflicting interests. Although the research conducted by Lenka et al. (2018) is focusing mainly on the ambivalence aspects within the organisation, it can be assumed that a particular servitization trajectory also leads to particular ambivalence effects in the external environment, conceptualized in this case study with an ecosystem perspective. In this case study, a practical example is given on how a servitizing firm deals with these "ambivalence" effects on an ecosystem level. A detailed assessment of these ambivalence effects and practices remain subject for further research.

7. Practical contributions

In this section, the learnings for practical applications are provided which can support other manufacturers when deciding to servitize. The most important learning from this study is the fact that when a new PSS offering is introduced that differs significantly from an existing product offering, starting with a blank sheet is key. From an internal perspective, this should lead to the formation of a new business unit that is purely focussing on new proposition development. Arguments for this are to avoid existing "dominant routines" and "path dependency" from the product offering e.g. customer

frustrations and internal employee mindset. From a market development perspective, businesses should start their PSS offering development from a customer perspective. A firm should make sure that it builds for a specific niche with specific needs, built leadership within that niche, create word of mouth and approach the next related niche. This strategy creates a foundation to convince the part of the target group, which is conservative because these are mainly relying on mature propositions. This is defined by mainly a leadership position. Viewing to the ecosystem perspective, a business should start just as internally with a blank sheet, search for new suitable partners by providing an attractive ecosystem.

From a business perspective, it is key that the new PSS offering is avoiding cannibalisation of the existing product offering. After all, this existing product offering finances the development of the new PSS offering. If the PSS offering, cannibalises the existing product offering in the beginning phase, the product offering will shrink, while the PSS offering has to take up. This leads to major financial and other related risks which can be avoided by starting with a blank sheet.

8. Limitations

Like any research, this research also has its limitations. Firstly, the fact that only inductive research was used to describe the tensions and practices when introducing a PSS offering in addition to an existing product offering. Secondly, the limited sample size of one can be regarded as a limitation. Thirdly, the ecosystems have only been studied from the perspective of the focal firm, this may have led to a limited understanding of the ecosystems. Conducting interviews with other actors outside of the focal firm would have ensured more validity of the data. Due to confidentiality and time limitations this was not possible in this research. Fourthly, the moment of interviewing and the position of the respondents within the organisation may have led to bias that forms a limitation for this research. Fifthly, the construct tensions have been operationalised to a limited extent in this research because existing operationalisations were not appropriate in the research context studied. The last limitation can be found in the developed adapted value blueprint. During the field research, it became clear that the actor configuration depends on the project. In a setting in which the ecosystem configuration differs per project, it is difficult to create an overall picture that represents reality. Therefore this can be considered as a limitation of the adapted value blueprint.

9. Recommendations for further research

The conclusions of this research provide also some starting points for further research. At first, the visualisation tool developed in this research, which is based on the value blueprint of Adner (2017), can be tested further in future research. This helps in assessing whether the new visualisation method can be more validated and used in other research settings. A second recommendation for further research is in the ambivalence perspective of two different value propositions in a similar market. The outcomes of this research point strongly on the separation of both internally as well as externally. For future research, it would be interesting to research this aspect with an ambivalence perspective and what the consequences are of such a dual strategy.

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Appendix A: Interview questions

Stappenplan voor interviews:

Terminologie:

Begrip:	Definitie:
Servitiseren	De verschuiving van een op een product gebaseerde naar een op diensten gebaseerde waarde propositie.
Actoren	Begrip waarmee individuen, dan wel instellingen, of organisaties, worden aangeduid, waarvan algemeen wordt aangenomen, dat zij een doorslaggevende invloed hebben op een bepaald proces.
Generieke componenten	Algemeen in de markt verkrijgbaar
Niet generieke componenten	Niet algemeen in de markt verkrijgbaar en er afstemming noodzakelijk tussen verschillende partijen in de markt.
Business ecosystem	De samenstelling van verschillende markt actoren (minstens 3) die moeten samenwerken om een bepaalde waarde propositie naar de markt te brengen. (Adner, 2017).

Introductie vragen

- Zou je een korte omschrijving kunnen geven van de **Confidential** waarbinnen je werkt en welke functie je hierbinnen vervult?
- Wat zijn je ervaringen met servitisering? (Bijvoorbeeld werkzaam in een niet-geservitiseerde afdeling, geservitiseerde afdeling of hybride geservitiseerde organisatie)
- Hoe zou je de huidige servitise status van de **Confidential** omschrijven? (aangeven op schaal van 1 tot 10 en op basis hiervan doorvragen)

Subvraag 2: "Hoe is het ecosysteem opgebouwd rond de huidige waarde propositie?"

- Hoe ziet of hoe zou u de huidige waarde propositie (EVP) omschrijven van?
- Complementariteit beschrijven
 - Bestaat de volledige waarde propositie uit generieke en niet generieke componenten?
 - In welke mate zijn verschillende producten/diensten/componenten van verschillende spelers in de markt aan elkaar aangepast?
- Functies beschrijven die door alle actoren in het ecosysteem worden uitgevoerd.
 - Zijn de verschillende functies op te delen in verschillende subonderdelen?
 - Welke onderdelen hiervan zijn essentieel om **Confidential** / aan te bieden?
- Welke partners en andere actoren zijn er actief in de **Confidential** markt en welke rol voeren zij uit? (Bijv **Confidential** partner, consultant, overheid)
- Laat vervolgens geïnterviewde partners en andere actoren uittekenen volgens de systematiek van Jacobides. Begin bij de "End value proposition" en laat vanuit hier rest uit tekenen. Ieder onderdeel los behandelen en uiteindelijk bij het opstellen van de resultaten combineren. Eventueel aan het einde van het proces de professionals samen laten zitten en de resultaten van iedereen bespreken en bediscussiëren om uiteindelijk tot een bepaalde common sense te komen. Dit leidt bewezen tot betere resultaten. **Confidential** gaf een betrouwbaarheid van 80% aan). In figuur 1 is een overzicht te zien van alle losse onderdelen gecombineerd in een afbeelding.

Verschillende onderdelen ecosysteem visualisatie omvatten:

- Kennis, data, goederen en geld stromen

- Inschatting geven van de waarde creatie t.o.v. winst verhouding, markt invloed en project risico.
- Aan laten geven welke van de markt actoren unieke en niet unieke zaken inbrengen in het ecosysteem.

Subvraag 3: "Wat is de gewenste ecosysteem positie voor beide waarde proposities, product-based en service-based gepositioneerd samen in de markt?"

- Controleer of de gewenste functies die uitgevoerd dienen te worden in het ecosysteem zijn veranderd of gelijk zijn gebleven aan de oude situatie.
- Complementariteiten in het nieuwe ecosysteem omschrijven die hoogstwaarschijnlijk aanwezig zullen zijn.
- Mate van verandering in het huidige ecosysteem laten omschrijven
- Laat nogmaals de partners en andere actoren uittekenen volgens de systematiek van Jacobides. (Inclusief marktmacht, informatie & goederen stromen)

Subvraag 4: "Welke ecosysteem spanningen ontstaan er als er twee parallelle waarde proposities zijn?"

- Heb je in het verleden te maken gehad met spanningen tussen verschillende waarde proposities die in dezelfde markt gepositioneerd zijn?
- Zo ja, Hoe is hier / heb je hier destijds op gehandeld? Wat zijn de leerpunten hier uit?
- Voor Confidential respondenten: Welke spanningen/uitdagingen komen er naar jou inzien naar voren wanneer je het geservitiseerde product wordt gelanceerd naast de huidige waarde propositie Confidential
- Op welke wijze zijn deze spanningen volgens jou te overkomen? (Zodat Confidential niet zal schaden)
- Indien dit mogelijk is met geldwaarde: Hoeveel waarde creatie moet Confidential overlaten aan partners in de markt om het ecosysteem zo optimaal mogelijk te laten functioneren? (Percentage van het totaal)

Optioneel: In welke mate is Confidential bereid om een deel van de waarde die zij toevoegt (gecombineerd) en vasthoudt in het ecosysteem te delen met ecosysteem deelnemers zodat het ecosysteem aantrekkelijk blijft voor toetreders? (Leiderschap in een ecosysteem wordt namelijk niet bepaald door de leider maar door de aanhangers die aangeven dat in dit geval Confidential de leider is in het ecosysteem).

Subvraag 5: "Wat is de meest levensvatbare weg voor de organisatie om een gewenste ecosysteem positie te bereiken startende vanuit de bestaande positie?" (Zie figuur 1 voor een visualisatie)

- Welke kernelementen zijn hier naar jou inzien van cruciaal belang om andere actoren in het netwerk mee te krijgen? Overbruggen door andere partijen te betalen om deel te nemen, risico reductie bij projecten etc.
- Wat zijn naar jou/jullie ervaring de grootste valkuilen het vormgeven / orkestreren van een nieuw ecosysteem in de markt waar het oude product nog als melkkoe (cash cow) fungeert?
- Wat zijn naar jullie inzichten de randvoorwaarden waar je als servitiserende organisatie aan moet voldoen om succesvol te servitiseren (zonder hierbij schade te berokkenen aan je oude waarde propositie)?
- Wat is naar jouw ervaring de meest haalbare route om te transformeren naar een situatie waarbij je je oude en nieuwe waarde propositie naast elkaar laat bestaan?