Investigating the impact of SME servitization on strategic net structure

Over decades, manufacturing firms have tried to increase value creation, product differentiation and financial performance through servitization (Vandermerwe & Rada, 1988). Servitization refers to the transformation process in which manufacturing augment core offerings with services. Firms often engage in servitization as a response to product commoditization, increasing competition from cheaper labor countries and developments of digital technologies (Baines et al., 2009; Neely, 2008). Servitization is associated with several positive firm and societal outcomes (Baines et al., 2009; Crozet & Milet, 2017). For example, servitization may lead to 8% - 8,5% increase in profits, 0,5% increase in European employment and more efficient use of resources (Crozet & Milet, 2017; Yang & Evans, 2019). Despite these benefits, many firms do not achieve the intended results and end up in the so-called “service paradox” (Gebauer, Fleisch, & Friedli, 2005).

Because servitization leads to more complex offerings and often require firms to collaborate with external parties to access new resource and capabilities, a network perspective might help to understand the service paradox (Brax & Visintin, 2017; Spring & Araujo, 2013). In other words, servitizing firms are expected to coordinate business exchanges with multiple firms and rely on network embedded business models (Bankvall et al., 2017). Opening up the business model might however be challenging given network changes such as different network positions and new competitors (Sklyar, Kowalkowski, Tronvoll, & Sörhammar, 2019), adoption of new technologies for resource integration (Storbacka et al., 2016) and the increasing role of weak ties (Sklyar, Kowalkowski, Sörhammar, & Tronvoll, 2019). These findings not only show that servitizing firms must open up their business models (Visnjic et al., 2018), but also that existing relations to external actors are subject to change. To understand inter-firm collaboration in a servitization context, we adopt a strategic net approach. Strategic nets are suited for this research because we are interested in managerial decision making in a servitization context and strategic nets are susceptible to managerial decision-making (Möller et al., 2005).

This study aims to make theoretical advances in the domain of servitization by studying strategic net structure and collaboration dynamics of servitization SMEs. First, we study structural changes including collaboration dynamics as a result of introducing servitized offerings. Recent work have applied a network perspective to investigate structural changes (e.g., Chakkol et al., 2014; Sklyar, Kowalkowski, Sörhammar, & Tronvoll, 2019), however only tie strength was considered. Second, so far studies of networks in a servitization context focused on large firms (e.g., Chakkol et al., 2014). This is remarkable given the associated benefits of servitization for SMEs (Crozet & Milet, 2017), and the importance of networks for SMEs to compensate for lacking resources. Hence, we focus on SMEs to overcome this empirical gap. Third, by investigating servitization induced net changes in terms of structure and dynamics, we complement the emerging view of network-embedded business models in servitization (Bankvall et al., 2017; Visnjic et al., 2018). To conclude, this study answers the following research question:

What is the impact of servitization on strategic nets of SMEs?

To study relations within a network in terms of structure, dynamics and content, we conceptualize strategic nets through the ARA framework of Snehota & Håkansson (1995). Since strategic nets are susceptible to managerial decision-making (Möller et al., 2005), our main topic of interest is the active coordination of activity patterns, resource ties and actor bonds through managerial decision making. This allows us to get a better understanding of capabilities, routines and practices of actors that make up net structure.

METHODOLOGY

Case study and case selection

This study is the first step of a multiple-case study to investigate the impact of servitization on strategic net structures and dynamics. To get a holistic view on a small number of strategic nets, we adopted the case study approach. So far, we sampled one case from the construction industry because servitization is noticeable in this industry (Visnjic et al., 2018). Within the Dutch construction industry, we have studied WinCo, a Dutch façade manufacturer which is currently implementing a servitized offering.

WinCo is an SME with approximately 120 employees and yearly revenues between 20 and 30 million Euro. Due to increasing importance of sustainability and circular principles in construction of buildings, WinCo is implementing a servitization strategy. More specifically, WinCo is developing and implementing their Façade-as-a-Service (FaaS) offering, which is an integrated offering existing of the product with operation and maintenance services. Besides, in the FaaS offering, ownership of the product remains at WinCo instead of being transferred to the customer. WinCo's FaaS offering is new to the market which is dominated by product-offerings and price-based competition.

Data collection

For the case, we have identified net structure and dynamics through six interviews which lasted on average 60 minutes. These interviews were conducted both within the focal firms and with external net actors. Informants included executive officers, managers tasked with servitization efforts and key boundary spanning employees. External informants were found and accessed through references from the case firms.

The interview outline was based on core constructs from the ARA framework of Håkansson & Snehota (1995). This means that we asked questions regarding the value proposition, market offering, activities, resources, actors and positions. We have considered these structural observations also from a temporal perspective (Medlin, 2004). So, we haven't only asked the current state of a net's structure but also how this current state developed over the past and what developments are expected in the future.

Data analysis

Interviews have been recorded and transcribed verbatim, this was supplemented by secondary data collection. As soon as an interview was transcribed, it was read thoroughly, and seemingly interesting parts were highlighted. After multiple interviews were transcribed and highlighted, they were coded according to grounded theory approach, using semi-open coding (Corbin & Strauss, 1990). This means that predetermined concepts were used from the ARA framework while allowing new concepts to emerge from the data.

Preliminary RESULTS

We present findings from the WinCo case and how their servitization initiatives have influenced their strategic net on the actor, activity and resource layers are presented. To identify servitization induced changes, we first describe the network structure for WinCo's traditional product offering. This is followed by a discussion on servitization induced net changes.

Product-oriented net

Traditionally, the construction net aims to build and sell apartments and office space to end customers. These buildings are bought through price-based tendering and the products has a life cycle existing of the design, build, exploitation, and deconstruction phases. Currently, these life cycle phases are loosely or not connected. This means that different actors are concerned with the various life cycle phases. Within this product-oriented net, WinCo offers their façade as a product including engineering services and legally required warranties. Figure 1 gives a detailed overview of the current strategic net that delivers a building to the customer.

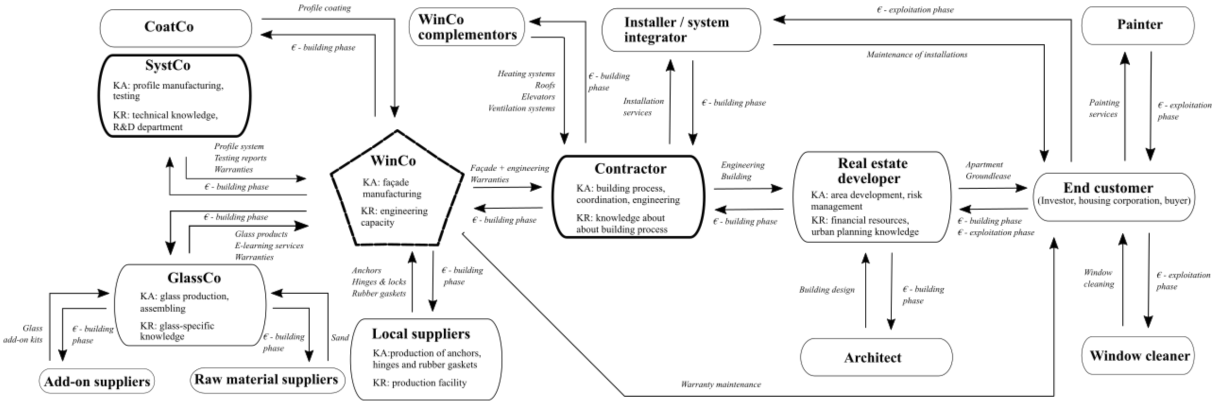

Figure 1: WinCo's current strategic net

From WinCo's perspective, its network can be divided in a customer and supply side. As we can see, WinCo's net aims to deliver an office, apartment, or house to the end-customer. The end-customer buys the building from the real estate developer, who, together with an architect initiates and oversees the project. The actual building and engineering responsibilities reside at the contractor. Depending on the contracting form, a contractor is mainly involved with engineering and supervising the building process. In most cases, the choice for a specific contractor is based on lowest price. For the different elements of a building, contractors rely on a wide variety of sub-contractors including WinCo, installers/system integrators and various complementors. The set of subcontractors are picked ad-hoc, through detailed offer requests and based on lowest product price. Moreover, the contractor and its subcontractors are often not involved in the exploitation and deconstruction phase. This means that WinCo only performs warranty maintenance for which no compensation is received. Responsibility beyond these warranties resides at the end-customer which must hire sub-contractors such as painters or window cleaners on their own behalf.

Figure 1 illustrates WinCo's most relevant suppliers including SystCo and GlassCo which are large MNEs and deliver aluminum systems and glass products. Next to these two suppliers, WinCo also relies on various local suppliers for various commodity products. Because aluminum systems are the basis of WinCo's products, WinCo relies on testing reports and assigned standards from SystCo to adhere to performance requirements set by both contractors and legislation. In applying these tests results, WinCo must adhere to specific activity patterns set by SystCo. GlassCo, another important supplier, tries to diffuse their technical knowledge on glass through e-learning services. However, GlassCo is often contracted on basis of lowest price still.

Servitization induced net changes

As mentioned earlier, WinCo is currently implementing a servitization strategy which changes their product offering into an integrated product-service system. Instead of a product-offering with an occasional yearly maintenance contract, WinCo offers a product-service combination. This offer includes the product augmented with maintenance and operation services through a 15 to 20-year performance contract. This new offering has several implications for WinCo's existing relations with customers, suppliers, and competitors as well as establishment of relations with new actors such as financiers.

Upgrading existing network

What we see in general is that servitization affects existing interaction with customers, suppliers and competitors due to the changing time horizon and technological complexity of WinCo's advanced service. As we can see in the following quote, WinCo tries to upgrade their existing network instead of building up a new one:

"I think for the most part you're going to upgrade an existing network. And where it does not work, you may be looking for other partners. But the basis is your own network because it has already proven itself in the years, that is how it feels on both sides. And yes, there are new products that you have never had before. In that case, you must look elsewhere for new suppliers. But it basically starts with, what you have, trying to get that to a higher level" (Technical manager WinCo).

Also, we can observe from this quote that new actors must be involved in the net. As is discussed later, these include financiers to provide financial resources to cover upfront investments for the service offering. The following observation covers both changes in current relations and establishment of new relations.

Establish new customer relations without harming old ones

Traditionally, WinCo sells its products to contractors who work for real estate developers and end-customers. When offering their product as an advanced service, WinCo circumvents contractors and builds direct customer relations with real estate developers and end-customers. This might be risky:

"For us, it could also be a risk to work for those new customers because we may circumvent the contractor. We must realize that we must sell our services without harming the contractor ... We must prevent to get into conflict with the contractors." (Director, WinCo)

Because WinCo builds relations with their traditional customer's customers, they might find themselves competing with those traditional customers. Since 90 – 95% of their total revenues still come from their traditional product business, which runs through contractors, this competition could be risky. It could lead WinCo to experience a backlash in the product-oriented net due to changing actor bonds in the service-oriented net that are characterized by competition. Next to these changes within relations with traditional customer, relations with existing customers are different compared to traditional customer relations.

Increased responsibilities in customer relations

Because the new customer relations between WinCo and real-estate developers and end-customers are based on performance requirements, WinCo and its new customers face increasing interdependency. Compared to traditional customer relations, which are based on detailed product requests, WinCo has more responsibility and freedom to deliver a performance. This means for example that WinCo has more freedom to design a solution. However, working on performance-based requirements instead of product specifications requires high levels of trust on the actor level:

We often see that our customers work with a fixed budget. However, we often see that they ask for a Mercedes, but you have money for an Opel. That will not work so we must make concessions about what we are going to do and what not. And trust is very important there, they trust that we are not going to charge some huge margins. And we are confident that they will continue with us to the end." (Innovation manager, WinCo).

So, selling performance over the long-term increases the risk of opportunistic behavior from both sides. In the negotiations about what performance is delivered for what price, WinCo could calculate excessive margins. And the customer might not be able to serve the entire contract, which would leave WinCo with lost upfront investments. Strong actor bonds appear to be an important requirement in overcoming these issues.

From price-based to quality-based supplier interaction

Traditionally, WinCo conducted business with their suppliers based on costs and legally required warranties. This resulted in an activity pattern of suppliers compromising quality for price minimization and not having responsibility for their supplied good. In the situation of an advanced service, WinCo demands performance guarantees for the duration of the contract to be able to guarantee long-term performance of their goods. This is significantly longer than was traditionally the case. However, suppliers can only give these guarantees when activity patterns across network actors are integrated:

"We must give 20 years of guarantee, which can be discussed by the way because we believe in this product (...) the only thing we ask is that our product is being connected according to a specific standard as an insurance for proper installation. Only then we can guarantee performance of our product" (Product manager GlassCo)

To bear operational product risks and get extended performance guarantees from suppliers, resource ties and activity patterns across the net are more integrated. The activities and knowledge of production, assembly, installation and maintenance of WinCo's products are distributed across the net. For example, GlassCo controls essential knowledge about installation and maintenance of their component while system integrators execute installation and maintenance. Hence, activity patterns of the system integrator must be adjusted to GlassCo's knowledge. While resources must be integrated regarding activities such as installation and maintenance, servitization also requires adaption of resources and activities in terms of digital technologies, as appeared in WinCo's case. To realize these integrations of resources and activities, strong actor bonds are important since these changing activity patterns and resource ties require significant changes from the involved actors.

Involving financiers in the net

To cover high upfront investments, required for a servitized offering, WinCo and its suppliers need to involve financiers in the net. In contrast to the traditional business, WinCo generates revenues from its FaaS offering over a long contract period. This requires significant upfront investments because there is a significant difference between the product's cost price and initial revenues. Since WinCo has only limited financial resources as an SME, financial resources must be acquired from external actors. These actors include both banks, who cover the largest part of investment, but also suppliers of private equity. Also, GlassCo requires external financing to cover high upfront investments:

"We also know that customers are afraid for new technologies. Then perhaps, we should think about certain constructions that our product is calculated as if it were the standard product, which customers need anyway. Then, we would put those additional costs into a kind of maintenance contract in which we receive a monthly amount for the maintenance of the total product for 15 years or so." (Product manager, GlassCo)

To overcome the problem of lacking customer trust, GlassCo considers selling their high quality and more expensive products for regular product prices, which is far below production costs. The difference is earned back over time through maintenance contracts. To cover these upfront investments, external financiers are considered. While financiers are important in a servitized net, to get them aboard, financing actors require certainty and a minimum scale, hence WinCo decided to partner with competitors.

From competitor to co-supplier

Another observed net change due to servitization is the increasing collaboration with competitors to ensure operational continuity in case of bankruptcy of a service provider and create financial scale for financiers. Traditionally, WinCo has contact but little collaboration with competitors since everybody does and knows more or less the same. However, in a servitized setting, WinCo established a strategic collaboration with two competitors:

"These are comparable competitors, same caliber, they can also handle the same type of work (...) there is also a strategic idea behind that, because if you are going for long-term contracts, a customer also wants certainty, if we go bankrupt, the customer is stuck with the product and who will take over? And if we have some sort of collaboration, then others can also vouch for our service contracts. And that is necessary because we offer such long-term contracts." (Innovation manager, WinCo)

So, these competitors were chosen because of comparable ambitions and competences. Together, WinCo and its competitors aims to offer more certainty to both customers and financiers. Since these competitors are SMEs, bankruptcy of one of these SMEs is a realistic scenario which leaves the customer with an un-serviced product. Hence, by vouching for each other, one of the partners can take over the service contract in case of a bankruptcy. Also, by pooling their products and service contracts, financiers get the required investment scale which can be diversified and fit within the risk profiles.

While there is a high level of collaboration between these competitors, they don't plan to equally divide earnings, so they still must compete to a certain extent. This means that WinCo and these two competitors will face co-opetitive dynamics in which they collaborate to maximize the product pool size but simultaneously compete for earnings share from this pool. How this will be organized is yet to be decided by the involved actors.

CONCLUSION & DISCUSSION

Our results indicate that servitization has various consequences for strategic nets of servitizing SMEs. These consequences relate to different actors in the network including building new customer relations without harming old ones, quality-based interaction with suppliers, involvement of financiers in the net and transforming competitors into co-suppliers. While these are only first results, there are some indications that enable us to link our results to the service paradox (Gebauer et al., 2005).

First, our results indicate that servitizing firms must put effort in transforming existing relations as well as including new actors, such as financiers, into the strategic net. Visnjic, Wiengarten, & Neely (2016) show that implementing services is associated with a profitability dip. While we cannot assign any causality yet, further investigation might be able to link the required time and effort to transform this profitability dip.

Second, our results show that servitizing firms may experience network conflicts because both product and service offerings co-exist and both networks are interdependent and closely related. This finding complements the work of Lenka et al., (2018) which found that servitizing firms experience challenges due to co-existing but contradicting service and product offerings. However, this work only found ambivalent forces on the organizational level while our results might indicate the presence of ambivalence on the network level. This might especially pose challenges to boundary spanning employees who are involved with building new customer relations or change existing relations with customers, competitors, and suppliers.

Third, applying the ARA framework seems to be an effective perspective to study networks in a servitization context. In this sense, our results complement the work Visnjic et al. (2018) who call for further investigating open business models in a servitization context. Our results give an indication that the ARA framework can be used to progress such research on open business models in servitization. In our further research efforts, we will study how firms open up their business models in servitization by investigating mutual coordination of ARA elements on the strategic net level.

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