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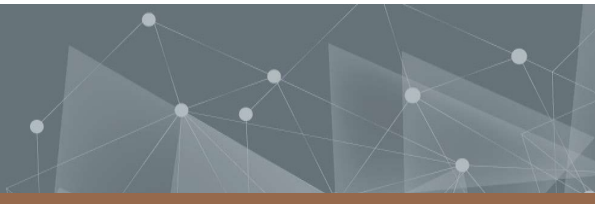

Purchasing Department's Role in the Servitization Transformation

Master's thesis in Supply Chain Management

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Abstract

Services have become commonplace among consumers where the trend also occurs in business to business markets. Due to competitiveness, risk sharing and adaptation to remain in business, servitization has become of greater importance to stabilize revenue and seek new opportunities. Though there is extensive research on servitization, most research takes an organizational perspective for the needed activities to be performed and not a departmental perspective. Which lead to the purpose of the research; to investigate what role the purchasing department plays in the servitization transformation and how to organize the department for the transformation. The qualitative research combines semi structured interviews at a case company within the automobile industry, two external companies and literature. The first external company is within the aerospace industry, and in the initial stages of their transformation. The second works in telecommunication and servitized back the 1990's.

The data collected from the case company and external companies is analyzed through a thematic methodology. The study presents managerial and academical implications that conclude by strengthening the link between the purchasing department and servitization. Specifically, the purchasing department can contribute by enabling external resources and leveraging market knowledge. Cross-functionality is vital since it will utilize the department's knowledge and focus on customer value creation. To explore new opportunities with external parties, it can be advantageous to separate a new venture from the original organization, providing the space to test and evaluate it in a measurable and protected manner. When evolved, the company's context and strategy will determine the optimal layout for the venture.

Keywords: Servitization, Procurement, Purchasing Department, Organizing for Servitization, Cross-functionality

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Abbreviations

IHIP - Intangibility, heterogeneity, inseparability and perishability

IT – Information technology

NPD – New product development

NSD – New service development

PSS – Product-service systems

RQ – Research questions

SaaS – Software as a Service

SSC – Services supporting the customer

SSP – Services supporting the product

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1. Introduction

Today, individual consumers are seeing an increasing trend of subscription services, especially digital services. The most common examples of services are in the streaming industry (services offered by Netflix, Spotify, etc.) and e-commerce/grocery platforms (services offered by Amazon, HelloFresh, etc.). Barseghian (2019) discusses that there has been a growing trend of subscription services, and further identifies factors that make them successful with consumers. Price is an important factor for the growth of services – companies can offer products for cheaper prices with a subscription model. Razor subscription services have been successful because they were able to offer razors for cheaper prices than at a store (Barseghian, 2019). Another factor that is driving services is convenience (Barseghian, 2019). As a part of the subscription services, companies offer periodic replenishment of products and even have home delivery. The last factor that is driving the growth of services is personalization/curation (Barseghian, 2019). For example, streaming services use complex algorithms to understand and recommend content that the customer prefers (Goodrow, 2021).

Similar growth in services is also seen in the industry, particularly the information technology (IT) industry which has experienced a significant rise in "as a service" business models in the last decade (Roche et al., 2020). One example is software-as-a-service (SaaS). With SaaS, software companies offer software services over the internet that are usually priced on subscriptions or a pay-as-you-go basis (*What is SaaS? ,* n.d.,). Examples of SaaS include Microsoft Office365, Zoom, Salesforce, Dropbox, etc. SaaS has been extremely successful and has reached 20% of the software market in all major industries (Roche et al., 2020). Companies in other industries have also implemented an "as a service" business model. One classic example is that of Rolls Royce and its "Power-by-the-Hour" offering for the airline industry (Neely, 2007). With this offering, Rolls Royce moved away from selling engines at a fixed price to charging airlines for every hour of flight with their engines. As a part of it, Rolls Royce takes care of maintenance, engineering, etc., that is necessary to keep up the engine's uptime performance (Neely, 2007). Another popular example is that of Xerox, who moved to a pay-per-use model for their printing services (Kowalkowski, et al., 2017). Services have been a fast-growing sector in the industry and there is an increasing trend of manufacturing firms competing through service offerings (Holmlund et al., 2016; Crozet and Milet, 2017; Bustinza et al., 2015). The trend of competing with services has been apparent in the very competitive automobile industry (Gaiardelli et al., 2014).

The automotive industry has seen a trend of declining profitability and increasing competition, and services have been seen as an option to increase business in the long term (Gaiardelli et al., 2014). In addition, automotive firms are using services to stand out among the competition. For example, Toyota offers a free long-term warranty to signal their product's high reliability (Gaiardelli et al., 2014). Other firms, such as Daimler, offer leasing and rental solutions to promote "sustainable mobility" options.

It has become commonplace in the car and heavy truck industries to offer product-related services such as maintenance, extended warranty, leasing, insurance, etc., (Gaiardelli et al., 2014).

On the academic front, research in the area of servitization has progressed immensely since it began in the 1980s. Today, the area covers topics ranging from service development models, product-service systems, digital servitization, partnerships, etc., There is consensus in the literature that the customer's involvement in the development and delivery of service is important for the success of servitization (Grönroos, 2006). On the other end, a few authors have highlighted the role and importance of supplier collaborations for servitization (Parida et al., 2014; Ayala et al., 2019).

1.1. Problem identification

In most of the literature on servitization, the area of procurement and purchasing is not the central theme of discussion and is rather discussed as a support function. Shah et al. (2020) point out that there is scarce research on supply chain factors that enable servitization and highlights the need for more empirical investigation of the enablers. They point out that a lot of research has been presented with anecdotal evidence. Davies et al. (2022) discovered that research has been done in the areas of supplier relationships, risk perception, capability development and resource integration. However, there is a lack of a cohesive theoretical perspective on the purchasing department's role while undergoing servitization. Even though the purchasing department is involved in the mentioned areas (van Weele, 2018), literature does not address how services are being developed in coordination with purchasing departments. Further, there is no investigation of the department's layout focusing on the purchasing department when undergoing servitization.

van Weele (2018) points out that contractual periods can extend for decades, which means that the work of the purchasing department can set the structure for long periods. Also, since the purchasing department is connected to external parties, such as suppliers, they may be a gatekeeper or connector to investigate and incorporate new opportunities from said external parties. As external parties may carry additional resources and competence, they might be able to contribute to new service development and delivery. Thus, the purchasing department may be the entity to bring new perspectives to the organization (Gallear et al., 2022; Li et al., 2023). Results within these topics could thus provide further understanding of the purchasing department's role, to both enable transformation and mitigate the risk of rigid processes. This leads to an improved understanding of how the transforming processes interlink with each other and makes it possible to take informed decisions throughout the journey of servitization.

Based on the presented areas, additional research into procurement's role in servitization is needed. Partly to build theoretical cohesiveness in the role of purchasing

department in servitization transformation and to understand the changes needed to organize knowledge and resources within the procurement function to succeed in the transformation.

1.1.1. Case company

The study is performed at a case company that is operating within the global automobile industry where they see a market change and the potential for growth through services. Thus, they are investing in how to servitize the company. With several steps on the way, they plan to reach a level of 50% revenue coming from services. Thus, they are investigating how the company could align towards this shared goal of servitization. As a part of the company-wide alignment, the purchasing department is also aligning with the servitization goals. Therefore, raising the question of purchasing's role in the servitization journey. From their previous research, the case company has noted that other companies vertically integrate by acquiring other companies and thus create more control of their supply chain. However, from a strategic perspective, it may be more viable for a company with a narrow product offering and is not seen as an option by the case company.

The purchasing department is centralized to support all functions of the organization. They are the company's face towards the suppliers and work with both procurement and maintaining both the relationships and requirements. This is on the scale of several thousands of suppliers on a global level, where the purchasing organization is spread over the globe. Furthermore, the purchasing organization is divided into subdepartments based on geographical location and component groups.

1.2. Purpose

With the evolving role of procurement as a network actor internally and in the supply chain, it is relevant to study the role of procurement during servitization. The purpose of this report is to investigate what role the purchasing department plays in the servitization transformation and how to organize the department for the transformation.

1.3. Research questions

The gaps presented and the potential gains from filling them make further investigations within the three identified areas of interest for both the academia and manufacturing companies. From this, two research questions (RQ) were formulated to address each problem individually.

The scarce research that has procurement in focus could gain additional weight through further studies. Thus, clarifying the role of purchasing department in servitization, which is of both academic and industrial interests. This is due to the scarce literature linking purchasing to servitization, and the industry's vital function of purchasing. When researched, it could enable informed decision-making and working with efficiency improvements within the processes and/or departments. Thus, RQ1 aims to address the incohesive theoretical perspective of the role of the purchasing department within servitization.

RQ1: What is the purchasing department's role in servitization?

With the procurement's role determined, further investigation into how the department operates with others is of relevance. As there is a change in the business model during servitization, there is also a change in the interdependent organizational structure (Innowork, 2014). The changing organizational structure means a deeper understanding of the purchasing department's layout, collaborations with other departments and potential cross-functional interactions will be needed. Otherwise, there could be issues of the servitization transformation affecting unknown areas. The results could help create a holistic view and could be applied in industries undergoing the servitization transformation. Furthermore, existing literature addresses organizational structure during servitization transformation for other contexts excluding purchasing. Thus, providing an additional piece of the puzzle for the holistic organizational servitization transformation. RQ2 will provide clarity on the purchasing department's interaction with others when undergoing servitization transformation.

RQ2: How can the purchasing department be organized, with a focus on its knowledge and resources, to link to the transformation?

2. Theoretical framework

2.1. Services and servitization

In literature, there is broad agreement on what products/goods are. After decades of debate, most academics accept that a product is a physical object with a market demand that can be traded (Parry et al., 2011). A product's ownership rights can be clearly established, and the unit of ownership can be exchanged (Parry et al., 2011). The authors point out that though there is a consensus on the definition of a product, there is still little consensus on the definition of a service.

The concept of a *service* has changed and evolved in many ways (Edvardsson et al., 2005). A common way of describing the term *service* has been through its characteristics. The four characteristics that are used to describe a service are intangibility, heterogeneity, inseparability and perishability (Zeithaml et al., 1985). They are commonly abbreviated as IHIP.

- Intangibility refers to the idea that a service cannot be seen, felt or touched unlike products.
- Heterogeneity refers to the characteristic that services have a high variability in performance.
- Inseparability refers to that it is not possible to separate the production and consumption of services.
- Perishability comes from the fact that the services cannot be stored, making them perishable.

Researchers have since questioned the validity of the IHIP characteristics to describe services (Edvardsson et al., 2005). The authors have pointed out that the characteristics are based on practical observations and not derived from empirical research. They suggested that the service definition based on IHIP characteristics is too narrow. In addition, they conclude that service should instead be looked at as a perspective on value-creation from the customer's lens.

Grönroos (2006) adds to the discussion by promoting the notion of *value-in-use* rather than *value-in-exchange*. Traditionally, the value of a product is generated at the exchange between consumer and producer (i.e., value-in-exchange). With the *value-in-use* approach, the value is created when the customer includes the product or service in their value creation processes. This concept is referred to as *service logic* or *service-dominant logic.* In a service-dominant logic, the customer is considered a co-producer of the service (Edvardsson and Olsson, 1996). With this perspective, Grönroos (2006) defines service as "*processes that consist of a set of activities which take place in interactions between a customer and people, goods, and other physical resources, systems and/or infrastructures representing the service provider and possibly involving other customers, which aim at solving customers' problems".*

2.1.1. Servitization and product-service systems

In the late 1980s, Vandermerwe and Rada (1988) identified the trend of services in the industry and introduced the term "servitization". Servitization is defined as "*the transformational processes whereby a company shifts from a product-centric to a service-centric business model and logic*" (Kowalkowski et al., 2017). Firms can choose to focus on offering products exclusively, services exclusively or a combination of products and services (Annarelli et al., 2019). The term product-service system is used when a company offers a set of products and services that fulfil the users' needs (Annarelli et al., 2019). The authors point out that, though arriving from different perspectives and contexts, researchers use terms such as *product-service systems, functional product, integrated solutions, servitization, servification, hybrid product,* etc., to refer to the same concept. In this report, we use the terms *servitization* and *service transformation* interchangeably.

Product-service system (PSS) is defined as "*a business model focused toward the provision of a marketable set of products and services, designed to be economically, socially and environmentally sustainable, with the final aim of fulfilling customer's needs"* (Annarelli et al., 2016). Further, Tukker (2004) points out that a product-service system can help enhance the competitive position of the company and increase sustainability. The same is resonated by Annarelli et al., (2016) who say that the major benefits of PSS are environmental impact and differentiation in the market.

As seen in Figure 1, a PSS can have varied levels of service content. Tukker (2004) uses the level of service content to categorize PSS into three main categories – *product-oriented*, *use-oriented* and *result-oriented*. First, the author describes a *product-oriented PSS* as a system with a higher level of product content than service content. In other words, the focus of such a PSS is the product and services are just add-ons. Examples of services offered in product-oriented PSS are maintenance contracts, financing options, consulting services on product use, etc. (Tukker, 2004). Second, a *use-oriented PSS* does not focus on selling products even though the product is central to the services provided. Examples of services in such a setting include leasing/renting of products, shared products between multiple users (Tukker, 2004). Third, in a *result-oriented PSS,* there is no product involved. The customer focuses on buying a result/output from the supplier and not the product. Examples of services in a result-oriented PSS include outsourced services such as office supplies, printing services, catering, heating services, etc., (Tukker, 2004). Researchers use various classifications to categorize services based on product and service content (Jagstedt, 2020). The author points out that the commonly used classification is the one proposed by Mathieu (2001). The classification labels product-oriented services as *services supporting the product* (SSP) and customer-oriented services as *services supporting the customer* (SSC) (Mathieu, 2001). Some of the terms used in literature that are related to SSP are *product-oriented services, base services, intermediate services,* and *product support services* (Jagstedt, 2020). Similarly, terms used in literature that are similar to SSC are

end-user process-oriented services, use-oriented services, result-oriented services, advanced services, etc., (Jagstedt, 2020). The terminology proposed by Mathieu (2001) is used in the rest of the report.

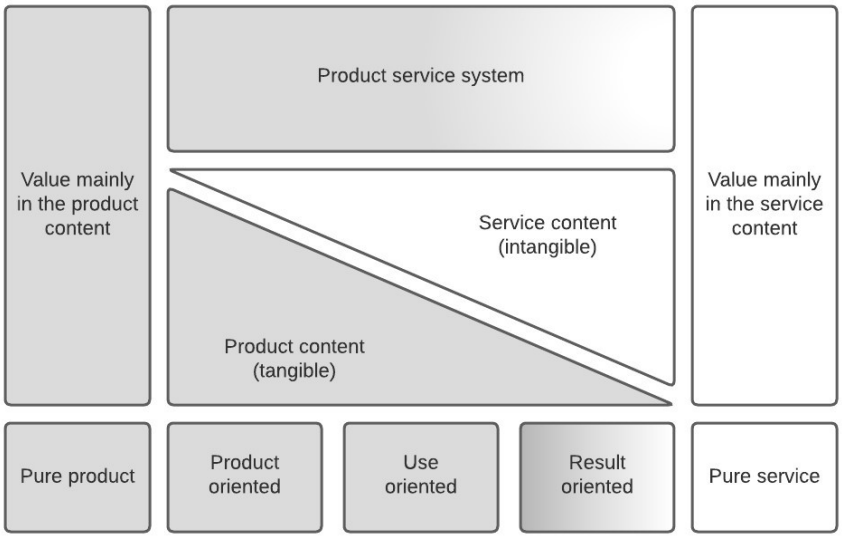

Figure 1: Varying levels of service content in PSS (Tukker, 2004). When compared to the terminology proposed by Mathieu (2001), SSP is similar to product-oriented services while SSC is similar to use-oriented and result-oriented services.

2.1.2. Drivers and trends of servitization

Servitization has become of great importance for manufacturing companies as the market is shifting from product-based offerings to focusing more on service offerings (Kamal et al., 2020). The shift in the market towards servitization is because it could positively affect revenue, profitability and environmental impact (Li et al., 2023; Kanatlı and Karaer, 2022). Thus, servitization can both increase the current business performance, but also in some cases it is a needed transformation to remain competitive (Kohtamäki et al., 2018). Roos (2015) highlights that the value added in the production phase of the value chain has gone down over the past few decades, while the value added in the R&D and sales/service phases has gone up. Based on Figure 2, the author argues that to stay competitive, a firm needs to offer services. Additionally, the volatility and complexity of certain markets make companies respond with servitization (Tunisini and Sebastiani, 2015).

Tunisini and Sebastiani (2015) define three reasons for companies to respond with a transformation towards servitization. First, decreasing profitability makes the company want to differentiate itself. The second reason is companies' focus on capacity

utilization, stabilization of profits or penetrating new markets. The third reason is to innovate for the customer and thus provide a unique value (Tunisini and Sebastiani, 2015). Though extant research addresses servitization from different perspectives, the key drivers for servitization are within economics, competitiveness, and markets changes (Kohtamäki et al., 2018; Tunisini and Sebastiani, 2015; Benedettini et al., 2015; Kaňovská and Tomášková, 2018; Niemann and Pisla, 2021; Zhang et al., 2017).

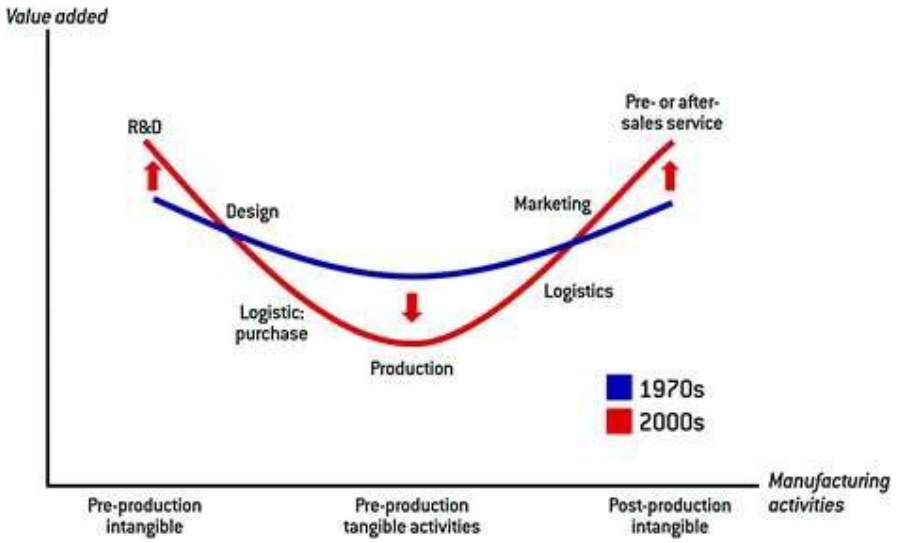

Figure 2: Over the past few decades, there has been a reduction in the value added in the production phases and an increase in the value added in the R&D, pre-sales and after-sales service (Roos, 2015).

2.1.3. Service quality models

Edvardsson and Olsson (1996) define service quality as a "*service should correspond to the customers' expectations and satisfy their needs and requirements*". They also mention that the customer is the recipient of the service and judges the quality from their perspective. Grönroos (1984) identified that the concept of service quality is missing. He then introduced *the service quality model* that is still used today. The author, through the model, presents that perceived service quality by a customer is an outcome of the expected service when evaluated against the perceived service. In other words, perceived service quality is the comparison between the expectations of the service and the perception of the service they receive. The expected service can be built up by giving promises to the customer through marketing activities and other forms of influence (Grönroos, 1984).

Grönroos (1984) mentions three dimensions of service quality – *image*, *technical quality* and *functional quality*. These dimensions impact the customers' perceived service quality. First, technical quality concerns the outcome of the service, i.e., the

result of the service received by the customer. Technical quality does not encompass all aspects of quality as the customer is also concerned about how the service is delivered to them. Second, functional quality is the dimension that accounts for how the service is received by the customer and their perception of the process. While technical quality is an objective measure, functional quality is subjective (Grönroos, 1984). Third, Grönroos (1984) also presents the (corporate) *image* as another dimension that impacts perceived service quality. *Image* refers to how the customers view the firm, its local office or the specific organizational unit the customer interacts with for the service.

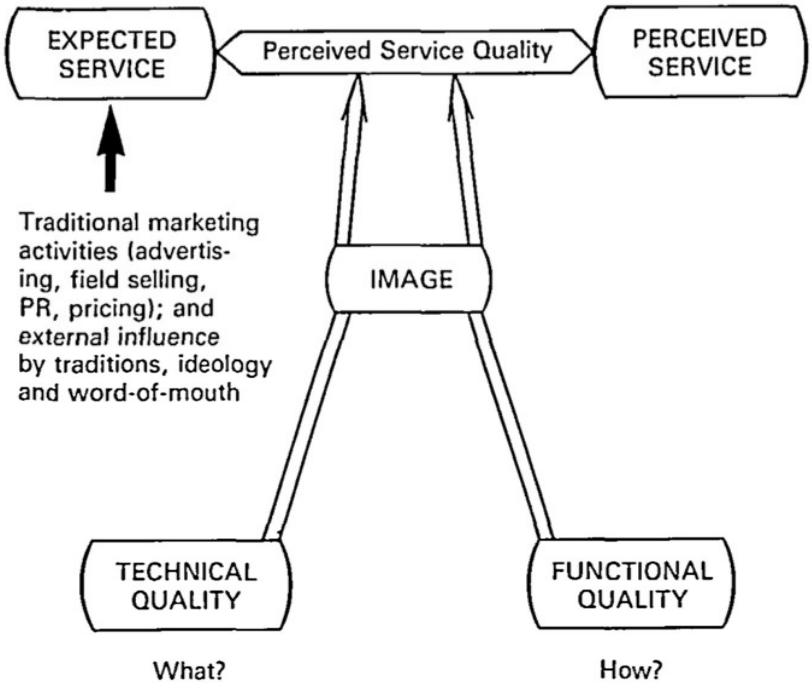

Figure 3: Service quality model proposed by Grönroos (1984). The model has three dimensions – technical quality, functional quality, and image.

Another service quality model that is popular today is the SERVQUAL model developed by Parasuraman et al., (1988). The SERVQUAL model has five key dimensions – Responsiveness, Assurance, Tangibles, Empathy and Reliability. The model is designed to capture the customers' perception of the quality of service and identify the gaps between the customers' expectations and perceptions.

2.1.4. Service development

Edvardsson and Olsson (1996) discuss service development with a focus on quality. They discuss that the aspect of quality is subjective, i.e., a customer judges a service from their perspective. From a service-dominant logic, the customer is a co-producer

of the service and can impact the quality of the service. The authors point out that each customer is unique and has unique processes that add value. Each unique process has an outcome that impacts the quality of the service. The service provider, therefore, has to offer prerequisites for a service that the customer can use in their processes to create a good outcome. (Edvardsson and Olsson, 1996). The authors describe the prerequisites for service as an outcome of a new service development process (NSD). Edvardsson and Olsson (1996) discuss that the NSD process has three components – service concept, service system and service process. First, the service concept details how the service intends to solve the customers' needs. Second, the service process is a chain of activities for the service to be produced. Third, the service system describes the necessary resources to complete the service processes and to realize the intended concept.

Service development is complex and is quite different from new product development (NPD) processes, particularly in the manufacturing context (Kindström and Kowalkowski, 2009). One difference pointed out by the authors is that the NPD processes requires more monetary investments while the NSD process requires more feedback from customers. Another difference is that the service is co-created with the customers' value processes (value-in-use) while products generate value-in-exchange. These differences could also lead to conflict between the product and service mindset. The authors further point out that service development can happen in an ad-hoc manner. They propose an NSD framework for manufacturing companies, as seen in Figure 4. The model comprises four overlapping steps which are circular – market sensing, development, sales, and delivery.

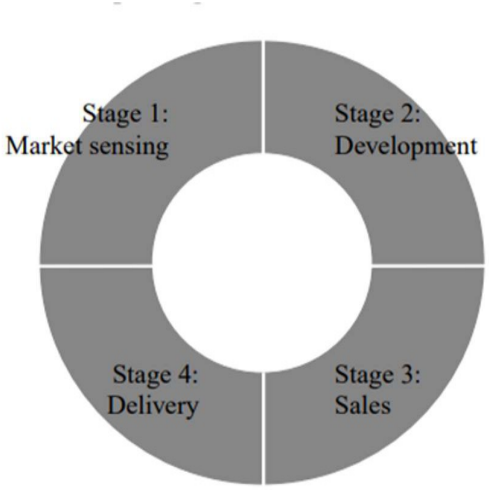

Figure 4: Four-stage cyclical NSD proposed by Kindström and Kowalkowski (2009).

2.1.5. Organizing for services and servitization

Organizational structure is one of the critical factors that impact a firm's servitization strategy and service innovation (Bustinza et al., 2015, Parida et al., 2014). Adopting an appropriate organizational structure is one of the major factors that impacts the success of servitization, particularly for firms offering SSC (Fliess and Lexutt, 2017; Bustinza et al., 2017). There has been a debate regarding whether a separate service function or an integrated product-service function is better for servitization in terms of organization. Neu and Brown (2005) argue that an integrated product and service organization allows for the integration of resources from various functions and presents a single market offering towards the customer. On the other hand, other authors argue that a separate service organization is better as it helps protect the service culture from a pre-existing product culture in the organization (Oliva and Kallenberg, 2003; Oliva et al., 2012). A separate service organization in manufacturing settings has clear organizational visibility and can easily engage with customers to co-create value in their processes (Oliva et al., 2012). A separate organization can also help create a profit and loss responsibility and ensure commitment to a service strategy (Oliva and Kallenberg, 2003; Fliess and Lexutt, 2017). Multiple studies indicate that the choice of organizational structure depends on the maturity of the firm in the servitization process (Fliess and Lexutt, 2017). Firms that are mature and advanced in their servitization journey benefit from a separate service organization (Fliess and Lexutt, 2017). Even though there are certain disagreements in the literature about the right way of organizing for services, there is agreement on both sides that aspects of cross-functionality, decentralized decision-making, organizational culture, and service strategy are essential to succeed in servitization (Fliess and Lexutt, 2017).

Bustinza et al., (2015) present additional organizational structures for services in which there is a division based on whether a service is part of the firm's core competence or not. They conclude that the choice of organizational structure depends on the competitive strategy of the company. If a firm aims to differentiate itself in the market, a separate service organization is preferred. If the firm aims to have high customer satisfaction, services should be developed in an integrated manner with the business functions. Additionally, firms that are vertically integrated have an advantage as they can provide services that can differentiate the firm and also achieve high customer satisfaction (Bustinza et al., 2015).

Another important factor that helps firms succeed in the servitization journey is the competence of personnel in the area of services (Fliess and Lexutt, 2017). The authors mention that firms that focus on hiring personnel with service-related skills are successful in servitization. Additionally, firms that invest in training and incentive programs to improve service-related skills among their personnel achieve good results (Fliess and Lexutt, 2017). Further, an organizational culture that has a service orientation can help companies succeed as well.

2.1.6. Risks and challenges when undergoing servitization

One of the common challenges faced by firms undergoing the service transformation is the lack of returns on investments. Firms transforming make costly investments to offer new services and generate returns, but the expected rate of returns is not generated. Gebauer et al., (2005) refer to this situation as a *service paradox.* First, the authors point out that to overcome the service paradox, manufacturing companies need to increase service awareness and understand the risks that come along with it. Second, they recommend that manufacturing companies need to change their organizational structure to develop a clear service development process, have a clear service strategy and create a service culture. Third, they identify side effects that firms undergo during organizational changes and recommend ways to deal with them. The first side effect identified by Gebauer et al., (2005) is *credibility gap*. During the servitization phase, management often pushes an ambitious goal which creates short-term momentum but for the goal to be achieved in the long term, there needs to be active involvement from the employees. When the employees do not take initiative for the goal and actively participate, it could lead to cynicism about the goal and a credibility gap (Gebauer et al., 2005). Setting appropriate goals with the involvement of employees and service workers can help achieve the necessary involvement to achieve the service goals (Gebauer et al., 2005). Once the employees are engaged with the service, a second side effect arises - service quality erosion. As employees and workers have limited resources, they split their time between the daily routine and the new servitization goal. The combination of limited resources and scaled-up service operations can lead to a significant drop in service quality for the customer (Gebauer et al., 2005). The authors suggest that managers should look out for these resource bottlenecks and hire extra staff to work on services. Once the firm overcomes these two side effects, it could end up focusing only on first-order improvements (Gebauer et al., 2005). The third side effect discussed by the authors is the focus on first-order improvements. First-order improvements focus on symptomatic treatment of problems in daily service business while second-order improvements focus on structural changes that are needed to eliminate the symptoms. Employees often focus on first-order improvements as they are tangible and more obvious (Gebauer et al., 2005). Focusing on first-order improvements instead of second-order improvements does not solve the existing problems and can lead to resource wastage.

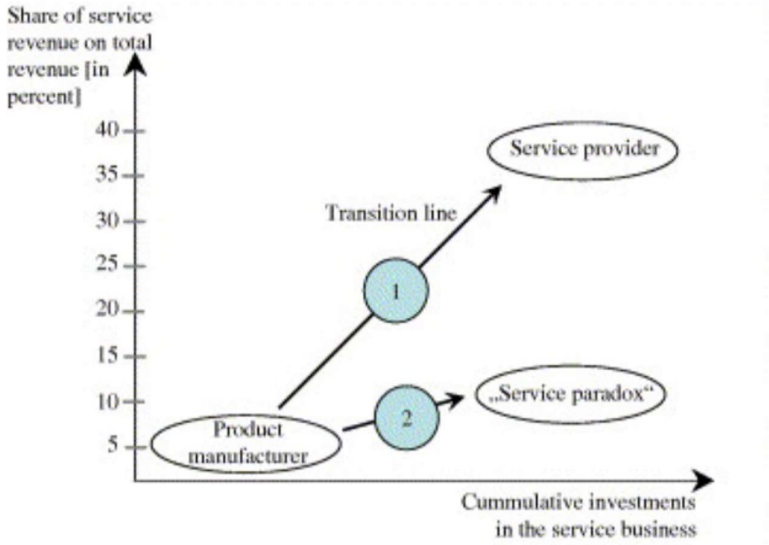

Figure 5: The journey of a product manufacturer during the servitization can turn them into a service provider or push them into a service paradox (Gebauer et al., 2005).

Benedettini et al., (2015) resonate with the issues of profitability and service paradox highlighted by Gebauer et al., (2005). Further, they performed a study to identify the reasons for the bankruptcy of servitized firms. They note that a lot of companies have gone bankrupt after servitization and other companies such as Siemens and Intel have also faced failures when it comes to services. They identify various environmental and internal operating risks that the failed firms faced. Further, they conclude that servitized firms are more prone to risks of bankruptcy than non-servitized firms. Additionally, they find that firms offering SSCs are more exposed to environmental risks than SSPs. Benedettini et al., (2015) argue that these findings are not meant to discourage firms from pursuing service strategies but for them to be more aware of the uncertainties and risks to succeed in their journey.

2.2. Procurement

Purchasing is concerned with the management of a company's external resources (goods, services, capital, knowledge, etc.) to assist the primary and support activities in a company at the most favourable conditions (van Weele, 2018). Purchasing and procurement functions are similar to each other, where procurement takes a total cost approach and a wider approach to also include parts of the supply chain, as visualized in Figure 6 (van Weele, 2018). The terms purchasing and procurement are often used interchangeably and seem to be a matter of personal preference (van Weele, 2018). Furthermore, industrial companies tend to prefer to use the term purchasing to refer to the entire process while public companies prefer the term procurement (van Weele, 2018).