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PARTNERSHIPS PRIORITIZATION ON THE WAY TO SERVITIZE THE MANUFACTURING

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Abstract. The academic and practical interest in the servitization model of manufacturing is growing, mainly focused on achieving added value and growth through sustainable development. The digitalization of the process introduces new stakeholders in the servitization ecosystem, which imposes the need for new knowledge and critical skills. This study focuses on prioritizing partnerships in the servitization of manufacturing to meet these new requirements and to achieve greater overall value proposition in the context of Smart Specialization Strategies (S3) in the EU.

Keywords: servitization; partnerships; ecosystem engagement; quadruple helix
JEL: E23, M11, O32

Introduction

There are different views on the role of servitization as a business model and there is no consensus on its technology of organization and implementation. Even to some extent, the concept stands on a conceptual level. However, there has been no hesitation about its essence since its first definition (Vandermerwe & Rada, 1988) as a process in which manufacturing companies offer solutions to their products together with services. it brings a strategic perspective and has an impact on the firm's value proposition and its business model (Pistoni & Songini, 2017).

In general, the management literature refers to this as the concept of a Product Service System (PSS). It is mostly seen as a competitive proposition and thus directly refers to the need and focus on customer satisfaction and value creation (van Fenema & Mahr, 2021). The strategy, which is based on the business model for serving manufacturing companies, requires companies to be proactive, to be clearly aware of the stakeholders in their ecosystem with whom they will realize their strategic goal. This requires commitment to the process, but only with the right actors to achieve the sustainable development

of servitized production. Linde et al. (2021) attach particular importance to partnerships when they develop in a digitized environment, respectively digital servitization, considering that they invariably lead to ecosystem innovation. In their research, they bring *to the fore the* smart and sustainable city initiatives enshrined in Bulgaria's Innovation Strategy for Smart Specialisation (Ministry of Innovation and Growth, 2022) is a key strategic EU instrument to stimulate regional economic growth through innovation. For smart cities, it provides the framework and European funding for the deployment of modern urban technologies, green innovations and digital services for citizens

Other authors have found that servitization has an impact on networking in manufacturing industries. Through multivariate regressions, it has been found that servitization is positively associated with increasing work activities in service networks of manufacturing companies, but the mere existence of service networks cannot guarantee success in servitization (Bikfalvi et al., 2013). Because Servitization is a process that requires the establishment of relationships at all stages of its course multilevels from customer relationships to relationships with other organizations (Roost, 2025).

Bulgaria is not advancing so fast as other small industrialised economies on the way of servitization. (cited OT 2013 - small economies are faster served). The study of the causes, barriers and relations in general in the business ecosystems of manufacturing enterprises would provide an explanation for this situation. Bulgaria is not even included among the countries in the Franhouver surveys.

In the Bulgarian scientific space, there are no studies on the partnerships that are created in this multi-layered and heterogeneous process, and each look will contribute to the awareness of the benefits, barriers and role of partnerships in achieving their balance through the implementation of a strategy for servitization.

The research is aiming to identify the types of partnerships in which manufacturing companies participate in the process of servitization of production and more specifically digital servitization by addressing the following research questions:

RQ1: What are the main challenges associated with the creation and evolution of partnerships to implement the servitization strategy?

RQ2: What drives the partnerships in service-oriented and data-driven business models like in the case of digital servitization?

Methodology notes

Combination of methods: secondary analysis of studies on the servitization process, statistical methods for quantitative data analysis and interviews. Combining different methods for the purpose of this study is favourable, given that a systematic approach to analysis has been adopted, where manufacturing organisation is seen as a system connected to external organisations forming part of a larger business ecosystem

Background

Manifestations of servitization as a development strategy

Achieved innovation in joint servitization is the result of joint efforts to create and deploy innovative solutions with simultaneous innovation – technological and service design and results-based contracts, and flexible co-creation networks to ensure continuous customer value and sustainability (Sjödin et al., 2020).

In the literature, the term collaborative servitization is also known, as an approach in which companies work together to create PSS (Polova & Thomas, 2020). Despite encouraging collaboration, Wagstaff et al. (2021) show that only at advanced levels of servitization is cooperative behavior observed, and baseline and intermediate levels lead to non-cooperative behavior and thus illustrate the importance of adopting a multi-stakeholder perspective for servitization research.

Mihailović et al. (2024) have recently made an attempt to deepen research on collaborative servitization based on the perceived understanding of the positive role of this business approach in achieving company growth and end-customer satisfaction. They show that partnerships in the servitization process are of strategic importance in 1) generating ideas, 2) developing and 3) in the go-to-market phase, especially due to the trend in digitalization. Each phase requires a different approach, in most cases different partners are involved depending on the nature and specificity of the servitization model and its place in the production life cycle, with customers seen as important partners at all stages. In the process of making a decision on partnerships, and in the next phases of service of product companies, service companies are also undergoing development, the authors argue in their study. Cooperation with customers is a function of their openness to participate in the development of PSS. The study highlights the importance of (1) collaboration models, (2) customer engagement, and (3) strategic focus for the successful implementation of joint servitization.

The success of the servitization strategy requires different partners to achieve close cooperation and clear value sharing, and which requires trust and overall commitment, which in turn implies clarity in communicating the value of each actor in the reallocation of roles and in the reallocation of captured value (Polova & Thomas, 2020).

Partnerships in the context of digital servitization

Manifestations of digital servitization

The dynamic development of manufacturing companies in the context of increased digitalization in the last ten years IoT, platform business models, Artificial Intelligence represents a crucial enabler of their transformation. In view of this, the interest of researchers and manufacturing companies in PSS has deepened and significantly affects their ecosystem by introducing requirements for a new type of relationship even among traditional B2B and B2C relationships in the process of serving production (Naik et al, 2020).

Paschou et al. (2020) define digital easement as a transformative process that develops or improves existing information technology-based services. The potential that lies in the relationship between servitization and digitalization is enormous. However, to realize it, businesses need to understand the rapidly changing established models of value creation in B2B product and service firms (Gebauer et al., 2021; Porter & Heppelmann, 2014), as well as what capabilities are needed to reap the benefits of digital servitization.

Other studies have concluded that due to product companies' strong, sometimes mainstream focus on technology, the digital service process requires at least the following interrelated transformational shifts: (1) from planning to discovery, (2) from scarcity to abundance, and (3) from hierarchy to partnership (Gebauer et al., 2021). These transformation changes forward digital servitization require the establishment of an organizational identity, and collaboration is key, which implies a flexible mindset. In particular, digital technologies, big data analytics, and artificial intelligence are expected to enable manufacturing companies to go through the transition of servitization from product provider to solution provider (Kohtamäki et al., 2019).

Specificity of the motives for choosing partners and the results of digital servitization

Although knowledge has been accumulated over the past 5-6 years about digital servitization, there is still no consensus on how suppliers and customers are transforming their relationships to achieve the benefits of digital servitization. Multifaceted cooperation is identified as a decisive factor for the success of servitization and reveals three typical lenses of the servitization process, as well as shaping six categories of influence factors with their possible positive and negative outcomes (Wang et al., 2022).

And here comes the need to create new partnerships and/or maximise the use of existing ones in order to achieve value for each country. Kamaldan et al. (2020) create a framework for transforming the relationships of manufacturing companies on their path to digital servitization to benefit optimally. At the heart of the framework are the perspectives on what to focus their efforts on through the different phases of relationships with partners to help managers prioritize their resources and decision-making - foundational, intermediate, and advanced phases of relationships in digital servitization, and how these phases build on each other. Reaching the advanced stage of relationships becomes more strategic in nature, as it is based on long-term goals that lead to significant investments in continuous improvement and innovation, based on strong mutual trust, loyalty and commitment of the other to the partnership. It may be assumed to invest in digital platforms, in a joint digital and analytical team, including for research activities. The authors identify digitalization capabilities as the main trigger for initiating a digital servitization relationship and preserving it over time

Wei et al. (2020) argue that partner selection is a vital factor for the success of collaboration in platform-based innovation ecosystems. They believe that a good outcome in the process of selecting partners for platform-based innovation ecosystems towards servitization is achieved in two stages and propose a framework for this selection with the available selection criteria. In the first stage, importance is attached to pre-selection and the goal is to form a "Resource Pool" of a sufficiently large number of candidates, based on the capabilities of the candidate, the compatibility of the platform and the joint risk. The authors share the view that the success of innovation ecosystems depends not only on real partners, but also on potential partners (Adner, 2006). In the second stage, the requirements of the clients, shaped as tasks, are formative for the choice, and the grounds are the candidates' abilities for cooperation and sustainability. From the point of view of mutual cooperation and co-creation of value, the authors complement the criteria with complementarity and heterogeneity, coherency and symbiosis, and sustainability, which we believe should be valid for any ecosystem through the servitization of production.

Analysis and discussion

As a result of the in-depth interviews conducted with the representatives of the companies, as well as the academic circles, a consensus was established in their views on the types of partnerships that are created/should be created for the successful implementation of the strategy for servitization in manufacturing companies in the conditions of digitalization. To the question *why they should create partnerships*, the understanding was established that for the implementation of any strategy, especially those related to activities that are not typical for manufacturing companies, the identification of stakeholders is of primary importance. But only then does the establishment and development of relationships begin. Relationships are defined as internal. *The organization interacts with the external environment and with the suppliers (producer of goods or services) and the customers who are part of the environment. The management of this system aims to increase its productivity by taking into account the opportunities and limitations of the external environment. in which every business must be flexible and contribute to the sustainability of the entire system. It was concluded that there are two main factors for success:* 1) internal cooperation within the manufacturer itself and the characteristics of the product; 2) the network between the producer, the service provider and the user, both in B2C serviceization and in B2B. Kreye & Van Donk (2021) complement these two factors with the need to have an institutional environment such as regulations and consumer needs.

Undoubtedly, the main partnership of the product firm in the servitization process to address the heterogeneous network participants and achieve customer satisfaction is the service business participants (Raddats et al., 2019).

In managing these relationships, manufacturing firms are faced with the need to manage a variety of strategic, functional and operational risks. The research of Gebauer et al. (2021) shows that if the manufacturer does not realize that not only he but also customers face risks when concluding contracts, it leads to a failure in servitization, the so-called servitization. *Service Paradox*, which was confirmed by all interviewees.

When asked what they expect from partnerships in the course of implementing their servitization strategy, the answers can be summarised in the direction that partnerships are implemented to fill gaps in critical skills, such as technology, data management and customer service, and to provide competences specialised in specific areas. This necessity applies in general to the process of servitization, and in digital servitization, partnerships in reality have an extremely long-term character, even becoming an integral part of the organization of the production company.

During the different stages of servitization of production, some partnerships may increase in importance, others may decrease, as well as new ones can be created, and others may be prioritised. In the context of digital servitization, partnerships with companies that have high expertise in digital services, through their developments, can facilitate the path to digital transformation for the creation of PSS, which confirms other research (Gebauer et al., 2021).

Strategy for Smart, Sustainable and Inclusive Growth of the EU. recommended a partnership approach at regional level to realise this new vision for the EU, including the outermost regions, thus strengthening territorial cohesion

Referring to research results and proven different methods for organizing and managing multi-level cooperation, the opinion of the European Committee of the Regions on the "New European Innovation Agenda" concludes that in order to achieve results at local level, the need for cooperation between all stakeholders with a view to creating an innovation environment and value-added products is of paramount importance. The multilateralism approach that underpins the Quadruple Helix is perceived by a number of researchers as the right way to create an environment for training and the accumulation of specialized knowledge necessary for decision-making on innovations and their implementation with a view to improving regional innovation ecosystems and smart specialisation. In such an environment, manufacturing firms have the opportunity to create their partnerships much more justifiably for the successful implementation of the servitization strategy. Using the quadruple helix approach can achieve an acceleration of the transfer of research and innovation results to regional growth, as well as to the manufacturing companies themselves. Combining Quadruple Helix with servitization shifts innovation from an isolated, technology-centric approach to a collaborative, user-centric service model. This means that businesses don't just sell products, they provide ongoing solutions jointly developed by industry, academia, government, and civil society to maximize value and sustainability. This synergy creates a powerful framework for tackling complex societal challenges, such as smart cities, mobility and healthcare.

Conclusion and future research

The survey among Bulgarian producers formed the view that probably the basis of the success of the servitization model is the ability of companies to build an ecosystem of participants, which allows rapid growth by coordinating external resources and opportunities. This gives the prospect of conducting an in-depth study among Bulgarian companies that offer products and services. It is relevant because the interest in servitization is growing especially in the context of highly prevalent digitalization in many phases of production processes, both in academia and in practice. In-depth research at company level will provide the necessary basis for the development of policies and measures to promote servitization in Bulgarian manufacturing enterprises to achieve growth and sustainable development.

Partnerships are essential for servicing because they provide manufacturers with the necessary specialist skills, technological integration, risk-sharing and market access needed to transition from product-oriented to performance-based service models.

Through collaboration, manufacturers can leverage external expertise – consulting companies, other business service providers – engineering, auditing, optimize complex processes, share the costs and risks of developing new service offerings, and build stronger and more sustainable customer relationships to achieve sustainable growth in a competitive market.

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