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SERVITIZATION STRATEGY AND FINANCIAL PERFORMANCE OF MANUFACTURING COMPANIES IN THE REPUBLIC OF SERBIA: A PRELIMINARY STUDY

Abstract

Intending to identify the relation between Serbian manufacturing companies' performance and the servitization strategy, the paper presents research that was carried out on a sample of 10 medium and large companies. The results suggest that there is a positive correlation between the level of servitization and the financial performance of manufacturing companies, as well as between the company's experience in implementing this strategy and its profits. Although the direction of the correlation corresponds to the hypothesized one, the results are not statistically significant. A small and geographically undiversified sample is seen as a primary reason for this. As a preliminary, this study should actualize servitization as a field of research and initiate the interest of practitioners in this strategy.

Keywords: *competitiveness, manufacturing, services, performance*

JEL classification: *M11, L25*

СТРАТЕГИЈА СЕРВИТИЗАЦИЈЕ И ФИНАНСИЈСКЕ ПЕРФОРМАНСЕ ПРОИЗВОДНИХ ПРЕДУЗЕЋА У РЕПУБЛИЦИ СРБИЈИ: ПРЕЛИМИНАРНА СТУДИЈА

Апстракт

Са циљем да се идентификује однос између стратегије сервитизације и перформанси производних предузећа у Републици Србији, у раду је представљено истраживање које је реализовано на узорку од 10 средњих и великих предузећа. Резултати спроведеног истраживања указују на то да између нивоа сервитизације и финансијских перформанси производних предузећа, као и између искуства предузећа у имплементацији ове стратегије и профита, постоји позитивна корелациона веза. Иако идентификовани смер корелационе везе одговара смеру који је дефинисан истраживачким хипотезама, изостала је статистичка значајност добијених резултата, за шта се примарни разлог види у малом и географски недиверзификованом узорку. И поред тога, као прелиминарна, ова студија

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треба да актуелизује сервитизацију као истраживачко поље и иницира интересовање практичара за ову стратегијску опцију.

Кључне речи: *конкурентност, производња, услуге, перформансе*

Introduction

The competitiveness of manufacturing companies is a complex phenomenon, determined by a range of factors located in the internal and external environment (Benedettini et al., 2015; Opresnik & Taisch, 2015). Strategic analysis of manufacturing companies highlights the importance of external threats and internal weaknesses for their competitiveness (Rabetino et al., 2017; Feng et al., 2021). Strengthening the position of consumers as one of the competitive forces, intensifying competition, maturing and saturation of the market, technology development, fluidity of industry boundaries and new competitors are some of the factors that weaken the competitive potential of manufacturing companies (Vandermerwe & Rada, 1988; Gaiardelli et al., 2014; Tao & Qi, 2019). Internally, the competitive position of manufacturing companies is threatened due to their insufficient flexibility and agility, investment in employee development, risk aversion, as well as inert business models (Xing Liu et al., 2017; Karatzas et al., 2020; Simonsson & Agarwal, 2021).

Responding to the challenges of threatened competitiveness, manufacturing companies seek to improve their business potential by undertaking a series of measures and practices, such as co-creating value with consumers (Cao et al., 2015), specialization, and close cooperation with key stakeholders (Tongur & Engwall, 2014), as well as a strategic turn, or innovation of their strategic portfolio (Rabetino et al., 2017; Tao & Qi, 2019). With all of the above, a servitization strategy is recognized as one of the possible paths that manufacturing companies can take to improve their competitive position (Martinez et al., 2010; Kowalkowski et al., 2017; Adrodegari & Saccani, 2020).

With the servitization strategy, the manufacturers are transforming and innovating their businesses toward offering an integrated bundle of products and services to deliver a total value for their customers (Vandermerwe & Rada, 1988; Baines et al., 2009; Martinez et al., 2010; Opresnik & Taisch, 2015). The servitization strategy is seen as a successful way to achieve a differentiated competitive advantage (Opresnik & Taisch, 2015). Successful implementation of this strategy supports the sustainable growth of manufacturing companies by enabling greater customer satisfaction and loyalty leading to an increase in the firm's revenues and profits (Bustinza et al., 2015; Kowalkowski et al., 2017).

Although the beginnings of the practical application of the servitization strategy in manufacturing companies can be traced back to the middle of the 20th century (Feng et al., 2021), academic interest in this strategic option is more recent (Garcia Martin et al., 2019; Chen et al., 2022). Along with the efforts to conceptually frame the servitization (Vandermerwe & Rada, 1988; Ulaga & Reinartz, 2011), the attention of researchers is also focused on internal and external drivers and motives for implementing this strategy (Kowalkowski et al., 2015; Rabetino et al., 2018; Tao & Qi, 2019), the supply chain environment in which this implementation takes place (Martinez et al., 2010; Khanra et al., 2021), as well as on the underlying business models' innovation and the challenges a firm faces (Opresnik &

Taisch, 2015; Rabetino et al., 2017). In addition to the above, the impact of servitization on a firm's performance comes into research focus (Benedettini et al., 2015; Kohtamäki et al., 2019). However, even though servitization strategy and its relationship with the performance of manufacturing companies are undoubtedly significant research questions, the number of quantitative studies is not large. On the contrary, the majority of studies are qualitative and exploratory case studies (Vandermerwe & Rada, 1988; Eisenhardt, 1989; Khanra et al., 2021). The minority of quantitative studies that investigate the relationship between a firm's performance and servitization, do not offer unique results that allow unambiguous conclusions.

With the main purpose of contributing to filling the perceived gap, this paper aims to identify the relationship between the servitization strategy and the performance of manufacturing companies in the Republic of Serbia. To achieve this goal, the paper is structured as follows. The first part presents the results of the literature analysis based on which the expected relationships between the servitization strategy and the financial performance of manufacturing companies are hypothesized. Methodological aspects of the study design are described in the second part of the paper, after which the results of the conducted research are presented and discussed in the third part of the paper. The paper ends with some concluding remarks.

1. Literature review and hypotheses development

Services affect the functionality of the base product and they create additional value for customers. Nevertheless, their effects on producers' performance are not clear. The relationship between a servitizer's performance and the servitization strategy is probably the most complex aspect of research in this domain. Ambiguous results, methodological differences with an unclear effect of these differences on the results, as well as partial studies that do not include all factors that can influence the relationship (Kastalli & Van Looy, 2013; Feng et al., 2021), are some of the factors that make this research question complex.

Adequate implementation of the servitization strategy can increase revenues and profits, which then becomes the basis of sustainable growth (Martinez et al., 2010; Kastalli & Van Looy, 2013; Raddats et al., 2016; Kowalkowski et al., 2017; Mastrogiacomo et al., 2017; Garcia Martin et al., 2019; Adrodegari & Saccani, 2020; Kharlamov & Parry, 2021). The positive impact of the servitization strategy on the sales and revenues of manufacturing companies can be a result of a more complete satisfaction of consumer needs, a wider coverage of the market, a higher level of satisfaction, and customer loyalty. Thus, for example, servitization as a strategic option enables manufacturers to continuously monitor the state of the product during its use by the customer and to act proactively to prevent failures and/or maintain the product efficiency (Heskett et al., 2008; Kowalkowski et al., 2017). By actively monitoring the condition of a product and regularly replacing components, the product lifecycle can be extended (Kastalli & Van Looy, 2013; Benedettini et al., 2015). All of the previous means that consumers receive better quality products, which then increase their level of satisfaction and loyalty, leading to repeated purchases and increased sales revenue (Heskett et al., 2008). In addition, when a customer's needs and the product itself are better understood, a firm can improve the product design and reduce the costs of its use, which further encourages the sale of a new generation of products (Oliva & Kallenberg, 2003). By

enriching its offer with services, the manufacturer may gain new information about customer needs, which can lead to increased sales of related and complementary products (Kastalli & Van Looy, 2013).

Despite the described positive impact on revenues, the implementation of the servitization strategy requires investments and changes in operating the business (Gebauer et al., 2005; Lenka, Parida & Wincent, 2016). In this way, the servitization strategy confronts manufacturers with greater internal and external risks, some of which are completely new and arise precisely because of the implementation of this strategy (Benedetini et al., 2015). Some of these challenges concern the change in organizational structure and culture, the need for a new set of resources and capabilities, as well as changes in supply chain relationships, both downstream and upstream (Kindström & Kowalkowski, 2014; Cao et al., 2015; Díaz-Garrido et al., 2018; Makkonen et al., 2022).

Lack of knowledge to manage services, but also different characteristics of services that are not aligned with the usual values and goals of production, all can increase the cost of servitization (Kastalli & Van Looy, 2013). Moreover, a manufacturing firm may be confronted with high market barriers in introducing services in its offer. For example, customers may expect that the additional service from its manufacturing supplier should be free of charge, or they may resist connecting more closely with the manufacturer to provide additional services because they fear the outflow of internal information (Coreynen et al., 2017). In a word, the research results on the relationship between servitization strategy and profit are not unambiguous. Some authors find that the servitization strategy increases the firm's profitability and that this relationship is linear (Neely, 2008; Kastalli & Van Looy, 2013), that is, positive and non-linear (Kohtamäki et al., 2013; Khanra et al., 2021), others identify a non-linear, U-shaped relationship (Kastalli & Van Looy, 2013; Kohtamäki et al., 2020). Moreover, it is indicated that the model of maturity is valid in the case of servitization (Martinez et al., 2010; Mastrogiacomo et al., 2017; Adrodegari & Saccani, 2020; Feng et al., 2021). This maturity is reflected by the firm's experience in implementing the strategy, as well as the level of its application, where a higher level of servitization implies greater importance of the services within the firm's offer (Gomes et al., 2021).

Based on the literature review, the following relationships are expected between the servitization strategy and the company's financial performance:

H1: *A higher level of servitization strategy is positively correlated with the company's operating income.*

H2: *A higher level of servitization strategy is positively correlated with the company's operating costs.*

H3: *The firm's profit is positively correlated with the level of servitization and experience of the company in implementing the servitization strategy.*

2. Methodology

2.1. Data and sample

The research was conducted on a sample of 10 large and medium-sized companies located in the area of the city of Niš. After the initial contact with company representatives, respondents were sent a link to an online questionnaire (Google Forms) through which data

for the research was collected. The research was conducted in the period from December 2023 to February 2024. Available evidence suggests that the servitization strategy is more often a practice of large and medium-sized enterprises (Eloranta et al., 2021; Kharlamov & Parry, 2021), and this was the argument for sample units' selection. Data on the sample's features are shown in Table 1.

Table 1. Data on the sample's features

<i>Sample's characteristics</i>	
Firm size (%)	
Large	30
Medium	70
Production processes (%)	
Production to order	60
Serial production	30
Line production	10
Average financial performance (RSD)	
Operating income	6,955,393.37
Operating costs	11,118,285.43
Net result (profit)	674,040.00
<i>Note.</i> RSD-Dinar of the Republic of Serbia	

Source: Authors

2.2. Variables and methods

A firm's financial performance is measured by operating income, operating costs, and net results. Data on these variables were collected for each respondent from their financial reports which are available in the database of the Serbian Business Registers Agency. The search for financial reports is conducted based on the respondent's registration number, which is data collected through the online questionnaire. The firm's experience in implementing the servitization strategy is measured by the number of years of strategy implementation. Similar to Adrodegari & Saccani (2020), Dmitrijeva et al. (2019), and Martín-Peña et al. (2023), the level of servitization strategy is assessed by the relative share of services in the firm's sales, where higher relative importance of services implies a higher level of servitization strategy. Because the observed variables are not linearly related (indicated by scatterplot), the Spearman correlation coefficient is used to measure the strength, and direction of the association between the variables. The analysis was carried out in SPSS v.29.

3. Results and Discussion

Correlation analysis results (Table 2) indicate that the correlations between the observed variables have the hypothesized direction. Namely, the level of the implemented servitization strategy is positively correlated with all financial performance of the company, that is, with operating income (H1), operating costs (H2), and net profit (H3). Also, a positive correlation is identified between the company's profit and the experience it has in implementing the servitization strategy (H3).

Table 2. Correlation analysis results, Spearman correlation coefficient

Variables		Operating income	Operating costs	Net result	Level of servitization strategy	Experience in implementing servitization strategy
Operating income						
	Correlation coefficient	1.00	0.806**	0.636*	0.413	0.110
	Sig.		0.005	0.048	0.235	0.778
Operating costs						
	Correlation coefficient	0.806**	1.000	0.345	0.070	-0.358
	Sig.	0.005		0.328	0.848	0.344
Net result						
	Correlation coefficient	0.636*	0.345	1.000	0.394	0.376
	Sig.	0.048	0.328		0.260	0.318
Level of servitization strategy						
	Correlation coefficient	0.413	0.070	0.394	1.000	0.937**
	Sig.	0.235	0.848	0.260		<0.001
Experience in implementing servitization strategy						
	Correlation coefficient	0.110	-0.358	0.376	0.937**	1.000
	Sig.	0.778	0.344	0.318	<0.001	

Source: Authors

Similar to the results of Neely (2008), Martinez et al. (2010), Baines & Lightfoot (2013), Kastalli & Van Looy (2013), Benedettini et al. (2015), our results indicate that an increase in the level of implemented servitization strategy is positively correlated with an increase in operating revenue, operating costs and net results of the manufacturing companies. The increase in the share of services in the sales is accompanied by an increase in sales revenue, and this may be the result of different effects, including: wider market coverage attained by introducing services into the offer (Kastalli & Van Looy, 2013; Benedettini et al., 2015; Bustinza et al., 2015; Abou-Foul et al., 2021), the possibility to define a higher price based on the expanded offer (Wise & Baumgartner, 1999; Ulaga & Reinartz, 2011; Kohtamäki et al., 2013; Vendrell-Herrero et al., 2017), as well as increased satisfaction and loyalty of the customers which lead to their repeated purchases (Yeo et al., 2021).

By providing services, manufacturing companies can develop stronger connections with their consumers. Consumer loyalty is based on the greater satisfaction they get from consuming innovative products, i.e. integrated product-service offerings (Bustinza et al., 2015). Services generate more stable revenues, have a longer life span, and are less subject to commoditization, which is why they allow maintaining a competitive advantage in

mature industries (Benedettini et al., 2015). Bustinza et al. (2015) argue that the servitization strategy contributes to the differentiation of the offer. By innovating and differentiating their offer, manufacturing companies can respond more effectively to the changing demands and expectations of consumers (Leković, 2018). Innovating the offer by enriching it with services is seen as an innovation practice that is more difficult to imitate and, thus, as an effective tool for manufacturing companies to achieve a sustainable competitive advantage (Kindström & Kowalkowski, 2014).

At the same time, the higher the share of services in the sales of manufacturing companies, the higher the operating costs, which implies that this strategy is resource-demanding and requires additional effort from the company, which increases with the increase in the level of its implementation (Neely, 2008; Martinez et al., 2010; Bressanelli et al., 2018; Kohtamäki et al., 2020). Existing evidence suggests that in some cases the costs of servitization can be so high that they force the company to abandon this strategic direction (Coreynen et al., 2017).

Finally, more intensive implementation of the servitization strategy is related to higher profitability of the company, which leads to the conclusion that the benefits of this strategy exceed the investments that its implementation requires (Kastalli & Van Looy, 2013; Martinez et al., 2010) and that this effect is reinforced the more experienced the company is in implementing the strategy (Adrodegari & Sacconi, 2020; Suarez et al., 2013). The value of the correlation coefficients indicates that the positive relationship is more pronounced between the level of servitization strategy and operating income and profit, compared to the strength of the positive correlation between the level of servitization strategy and the company's operating costs.

However, although the relationships between the analyzed variables are identified following those set by the hypotheses, the results are not statistically significant. The small size of the sample, as well as its geographic focus on the area of the city of Niš, are recognized as the key reasons for the results not being statistically significant. The absence of statistical significance limits the generalization of the results and conclusions. Nevertheless, the fact that in all cases the relations that are in line with the expected ones are identified, is an argument that justifies the study and opens the potential for further research in this direction. All of the above makes this research a preliminary, pilot study.

The results indicate certain interesting relationships that are not hypothesized, and which are worth further research. Thus, for example, a positive and statistically significant relationship is identified between the length of servitization implementation and the operating income. Also, the results indicate that longer implementation of the servitization is accompanied by a reduction in operating costs. Longer implementation of the servitization strategy results in learning, establishing, and mastering routines in its implementation, which positively affects revenues and reduces investments in strategy implementation (Abou-Foul et al., 2021; Coreynen et al., 2017). After the successful completion of the initial phase, servitization's further application can affect the reduction of expenditures (Benedettini et al., 2015). For example, by proactively monitoring the functionality and condition of products (which can be an element of the manufacturer's enriched offer), the number of product failures, repairs, and overhauls is reduced (Neely, 2008; Baines et al., 2009; Tao & Qi, 2019). Investing in technology and digital servitization ensures more efficient collection and processing of the required data (Lenka et al., 2016; Kohtamäki et al., 2020), while increasing the efficiency of resource use, as well as investing in relationships with supply chain members

and developing closer relationships, lead to a reduction in operating costs and an increase in company effectiveness (Ulaga & Reinartz, 2011; Benedettini et al., 2015; Bressanelli et al., 2018).

Conclusion

The results of the research that is conducted on a sample of 10 medium and large manufacturing companies that operate in the territory of the city of Niš indicate the existence of a correlation between the level of servitization and the firm's financial performance. As expected by the hypotheses, a higher level in the implementation of the servitization strategy, i.e. higher relative importance of services in the sale of manufacturing companies, is accompanied by higher values of operating income, operating costs, as well as the net result (profit). Also, a longer implementation of the servitization strategy is related to the higher profitability of a company. However, although the direction of the correlation relationships is identified as expected, the results are not statistically significant. The primary reasons for this can be seen in the small size of the sample and its narrow geographical focus, which are also considered as key limitations of the conducted study. Therefore, this research should be understood as a preliminary, pilot study whose intention is to encourage a research effort towards identifying and understanding the relationship between the servitization strategy and the performance of manufacturing companies in the Republic of Serbia. Bearing in mind the fact that the number of quantitative studies in the domain of servitization strategy is relatively small and that there are no unique results on servitization importance for the financial performance of manufacturing companies, the presented research primarily contributes to filling the existing gap and enriching the knowledge base in this research field, especially in contexts which are less researched, such as the economic system of the Republic of Serbia. Also, the paper has the potential to raise awareness and initiate the interest of practitioners in the strategy of servitization. As this is a pilot study of the relationship between a firm's financial performance and servitization, its function is to trigger academic interest, to argue the justification, and to recommend further research of the mentioned phenomena. Further research can pursue the following avenues: inclusion of additional variables that would provide a more comprehensive overview of the focal relationship, application of more complex statistical methods that would include a wider set of variables, as well as increase in sample size and geographic dispersion. Also, although they are not hypothesized, the results of the presented research indicate the existence of a correlation between the company's experience in implementing the servitization strategy, on the one hand, and operating income (positive link) and operating costs (negative link) on the other hand. The obtained results can be interpreted as a confirmation of the concept of maturity in the implementation of the servitization, which is also one of the possible directions for future research.

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