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DESIGNING AN ORGANIZATIONAL STRUCTURE AS A PREREQUISITE FOR ACHIEVING BUSINESS EXCELLENCE IN MANUFACTURING COMPANIES

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In the contemporary business environment characterized by risk and uncertainty, manufacturing companies need to focus on improving quality in every single aspect of their business model, with a focus on reaching the level of business excellence. As the central dimension of organizational design, organizational structure has the status of important support for achieving business excellence in the following areas: the success of the quality management system, process management, orientation towards employees (their satisfaction and motivation), the development of partnership relations with suppliers and customers, supply chain management, innovation, and social responsibility. The goal of the research is to identify the parameters of the organizational structure which have the highest influence on the success of manufacturing companies in terms of achieving business excellence. The results of the research conducted on a sample of 94 manufacturing companies in the territory of the Republic of Serbia showed the statistically significant influence of the organizational structure on each of the business excellence determinants, whereby the following parameters have the most important role: specialization, coordination (based on a combination of mechanisms) and formalization (based on compliance with QMS requirements - Quality Management System and the ISO 9001 standards).

Keywords: organizational structure, organizational structure parameters, business excellence, determinants of business excellence, manufacturing companies

JEL Classification: M11, M20

INTRODUCTION

Modern business conditions expose manufacturing companies to various challenges. The key to achieving long-term sustainable business success is continuous work on improving quality in all areas of business while creating value for all stakeholders (Domanović & Janjić, 2018). Generating business excellence implies excellence in the domain of managing information, people, processes, and partner relations, which results in the achievement of the good financial and non-financial indicators of business performance.

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Nowadays, in order to achieve business excellence, the management of manufacturing companies is particularly challenging. On the one hand, there are issues related to product design, given the pronounced tendency to shorten the lifecycle of most products, the choice of the materials that do not harm the environment, as well as the general impact on the environment. On the other hand, the production process itself is specific both in the context of environmental effects and in terms of the relationship between production time and responsiveness to suppliers and customers (Sutherland, Rivera, Brown, Law, Hutchins, Jenkins & Haapala, 2008). For these reasons, many manufacturing companies strive for lean manufacturing, which is largely based on maximizing efficiency. Other companies develop agile manufacturing systems, with an emphasis on flexibility, responsiveness and adaptability, whereas some strive to combine lean and agile manufacturing (Shahin & Rezaei, 2018). All this implies significant changes in business models compared to traditional production systems.

Organizational design is an important incentive factor in achieving sustainable success based on the improvement of all the predictors of business excellence (Edgeman & Eskildsen, 2014). In the previous research, the organizational structure as the central dimension of organizational design stood out as one of the most important organizational factors in stimulating employees to maximally contribute to the improvement of business quality, thus simultaneously improving business excellence (Bauer, Falshaw & Oakland, 2005; Toma & Marinescu, 2018; Stojanović-Aleksić, Erić Nielsen & Bošković, 2019). However, the concrete parameters of the structure that dominantly influence the business excellence of manufacturing companies have not been clearly identified to be able to compare these results with other activities (e.g. the service sector) in future research, thereby drawing relevant conclusions about the specifics of achieving business excellence in various industries. Also, such research is lacking in the Republic of Serbia (RS). Therefore, the subject matter of the research carried out in this paper is the analysis of the influence of the organizational structure parameters on the determinants of business excellence in manufacturing companies in order to identify the parameters whose support is of key importance for improvements in the domain of each of the following determinants: the quality management system, process management, employee orientation (human resource management resources), building partnership relationships with suppliers and customers (supplier relationship management and customer relationship management), supply chain management, innovation (innovation management) and social responsibility. The performance of the previously listed determinants of business excellence overlaps with the excellence criteria set by both the European Foundation for Quality Management - EFQM (https://efqm.org) on the territory of Europe and the Foundation for Quality and Business Excellence - FQCE (https://www.fqce.org.rs) on the territory of RS and the former Yugoslav republics.

The qualitative and quantitative methodologies were applied. The paper starts with the Introduction, then proceeds to analyze business excellence as a determinant of long-term sustainable competitive advantage for companies. It highlights the significance of implementing the Total Quality Management (TQM) principles for achieving business excellence. As a factor of business excellence, the analysis of the organizational structure is presented in the second part, and appropriate research hypotheses are formulated based on the analysis. The third part of the paper covers the empirical research conducted, including the methodology, obtained results, discussion, implications, and limitations. Finally, the conclusion briefly summarizes the findings of the research study.

BUSINESS EXCELLENCE AS A DETERMINANT OF SUSTAINABLE COMPETITIVE ADVANTAGE

Business excellence reflects a high degree of the maturity of the company in the relationship between management and achieved results. It is about achieving excellent results in the domain of managing processes, information, people, and partner relations

(Carvalho, Sá, Marques, Santos & Pereira, 2023). The European Foundation for Quality Management (EFQM) has developed a business excellence model that signals to companies what to focus on so as to achieve a long-term sustainable competitive advantage. Based on this model, the Foundation for Quality and Business Excellence in RS has created its model, which is a guideline for companies in the territory of the former Yugoslav republics. Both models are based on the following principles: result orientation, customer orientation, a continuous quality improvement, fact-based process management, employee orientation, partnership development, and social responsibility (Suárez, Calvo-Mora, Roldán & Periáñez-Cristóbal, 2017). The aforementioned principles are the determinants of business excellence and success, and their observance is a reflection of the success of the quality management system, process management, human resource management, supplier relationship management, customer relationship management, supply chain management, and innovation management. The practice of the companies with business excellence (the winners of the FQCE/EFQM awards) indicates the fact that there is a strong connection between the qualitative and quantitative performance indicators of the success of the previously listed areas of management – success in reaching the level of business excellence. The performance of each of these areas of management is a signal of the company's success in terms of their fulfilling the FQCE/EFQM criteria of business excellence.

There is a strong correlation between a successful implementation of the TQM principles and reaching the level of business excellence. The full integration of quality improvement in all the business domains of the company is the basis for reaching the level of business excellence. The key factors of a successful implementation of the TQM concept overlap with the success factors in the domain of the business excellence determinants:

- The engagement of the entire organization. Compliance with this TQM principle generates success within the Quality Management System (QMS). The commitment of the entire company to complying with the QMS requirements, the requirements of the ISO 9001 standard and the TQM principle lead to success in managing processes, information, and people, with a continuous improvement of quality in all business areas (International Organization for Standardization, 2015; Fonseca, 2015; Gray, Ross & Badrich, 2022). Employee orientation is critical for the synchronization of all organizational processes. Commitment to generating job satisfaction and retaining the best (most skilled) workers is an important determinant of employee motivation to contribute to the achievement of a business quality. Thus, the engagement of the entire organization in the field of TQM significantly correlates with employee orientation, result orientation, and quality improvement orientation as the determinants of business excellence.

- Process management. There is a strong connection between this TQM factor and the engagement factor, which is a consequence of the fact that process management is an important determinant of the success of the quality management system and the implementation of TQM, leading to business excellence (International Organization for Standardization, 2015; Jankalová & Jankal, 2020; Zapletalová, 2023). Based on Deming's cycle (the PDCA cycle - Plan, Implement, Check, Act), process management is key to respecting the TQM principles and achieving business excellence. The success of management in the supply, production, and sales processes is determined by the development of partnership relations with suppliers, employees, and customers as important stakeholders, and reflects the degree of the focus on suppliers and customers. In the literature, it is often emphasized that, as a phase of process management, process control is key to achieving business excellence (McDermott, Antony & Douglas, 2021). Therefore, as a factor of TQM implementation, process management overlaps with process management as a determinant of business excellence.

- A focus on suppliers. This TQM factor coincides with the principle of developing partnership relationships as a determinant of business

excellence and reflects the importance of interdependence in the relationship between supplier relationship management - process management (the supply, production, and sales processes) - customer relationship management - supply chain management (Madan, 2010; Luz Tortorella, Cauchick-Miguel, Li, Staines & McFarlane, 2022; International Organization for Standardization, 2022). A timely supply of quality raw materials under favorable commercial conditions is a signal of the level of the development of the partner relations with suppliers, which directly affects the timeliness and quality of production, which spills over into timeliness, quality, and price for customers (Metaxas & Koulouriotis, 2019; Sony, 2019). Partner relationships with suppliers are a determinant of supply chain management success, which is an indicator of business excellence (Oakland, Oakland & Turner, 2020; International Organization for Standardization, 2022).

A focus on customers. Developing long-term partnership relationships with customers is key to generating customer satisfaction and loyalty (Sheikholeslam & Emamian, 2016; Oakland, Oakland & Turner, 2020). The quality management system emphasizes the importance of a detailed analysis of all the antecedents of customer satisfaction and the definition of corrective and preventive measures for improvements in the domain of each of the factors, such as: the price, quality, delivery dates, and so forth. The customer focus also affects supply chain management. The timely delivery of a quality product to satisfied customers under favorable commercial conditions is a determinant of interdependence in the relationship between customer relationship management, and supply chain management and is significant for business excellence (Kanji & Wong, 1999; Sriyakul, Singsa, Sutduean & Jermsittiparsert, 2019; International Organization for Standardization, 2022).

Strategic planning. Strategic planning is important for each of the previously listed areas. Strategic management is the key link to success in supplier relationship management - process management - customer relationship management - supply chain management - business excellence (Sader, Husti & Daróczi, 2019).

Many authors emphasize the importance of successful innovation management and social responsibility for achieving business excellence. These determinants of business excellence are not directly covered by the TQM factors, but they overlap significantly with each one of them:

- Innovations are significant for business excellence not only from the point of view of improving process management and customer satisfaction, but also from the point of view of generating cost efficiency and improving product quality (Amponsah & Ahmed, 2017). Therefore, successful innovation management is an important determinant of improvement in the field of compliance with the EFQM/FQCE principles, which directly reflects in the generation of long-term sustainable competitive advantage. Innovations are the core of agile business, which is inevitable for survival and success in modern conditions of risk and uncertainty.
- As a determinant of business excellence, corporate social responsibility (CSR) is a reflection of the company's orientation towards ethical business and satisfying the interests of the social community and all other stakeholders, simultaneously respecting legal regulations and standards (Jankalová & Jankal, 2020; Bergant, 2021; Politis & Grigoroudis, 2022). The corporate image is determined by social responsibility and affects business excellence. The quality management system and the environmental protection management system (an integral part of the ISO standardization ISO 14001 and ISO 26000) both emphasize the importance of business ethics, CSR and transparency for generating long-term sustainable growth and company development (Zink, Steimle & Fischer, 2008; Adámek, 2018).

The parallel analysis of the EFQM/FQCE principles of business excellence (including their connection with the TQM principles, too) and the practices of the

manufacturing companies with business excellence (the winners of the FQCE awards in the domain of quality and business excellence) defined the key determinants of business excellence (Figure 1). The statements that measure a company's success in the domain of each determinant of business excellence are defined based on the FQCE interviews during the implementation of the competitions in the domain of business excellence - the questions regarding the successful implementation of the quality management system, compliance with the requirements of the ISO standards (primarily the ISO 9001, as well as the ISO 14001, ISO 26000 and ISO 28000) and the principles of business excellence.

THE IMPORTANCE OF THE ORGANIZATIONAL STRUCTURE FOR BUSINESS EXCELLENCE

The organizational structure is the central dimension of organizational design. The overall organizational success depends on its flexibility (Gupta, Drave, Bag & Luo, 2019). The parameters of the organizational structure determine its internal integration (as an indicator of organizational alignment). They also affect the company's employees' job satisfaction, motivation, and engagement, directly affecting competitive advantage (Birasnav & Bienstock, 2019; Soderstrom & Weber, 2020; Bošković, 2021). As a combination of structural parameters, internal organizational integration might affect employee motivation to all the determinants of business excellence: 1) the implementation of innovations, 2) building and maintaining long-term partner relationships with customers and suppliers, 3) a timely delivery of a quality product at a competitive price and 4) corporate social responsibility.

The importance of the organizational structure for reaching the level of business excellence has been the topic of the research studies carried out by a large number of authors. J. Bauer, R. Falshaw and J. S. Oakland (2005) found the significant influence of the organizational structure on the generation of the level of business excellence, where they pointed out the fact that organizations with simple structures reached this level more easily than the companies with complex and more formalized organizational structures. M. Dubey (2016) reached a similar conclusion, with an additional note that the influence of leadership on the interdependence of the organizational structure and organizational culture was important for business excellence. T. Pyzdek and P. Keller (2013) emphasized the importance of the organizational structure for the generation of operational excellence, with a detailed analysis of the impact of the organizational structure support for success in the domain of operational

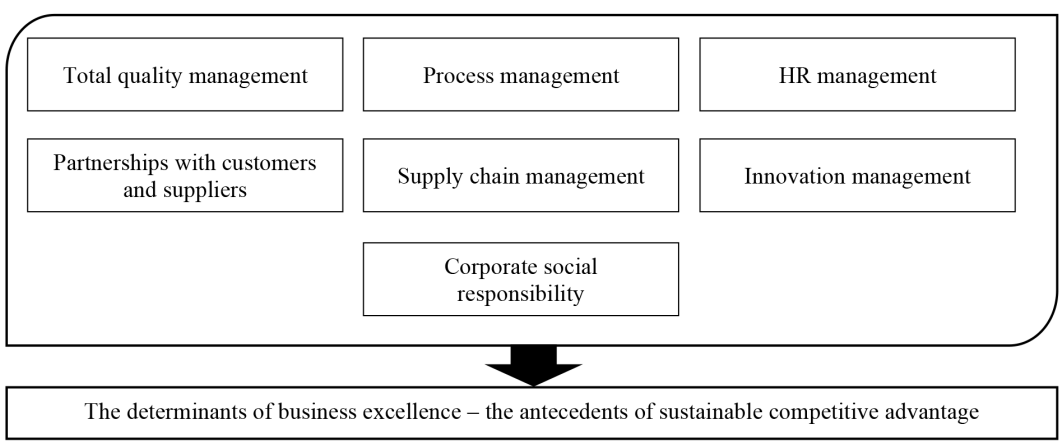

Figure 1 The determinants of business excellence, based on the EFQM/FQCE norms and the TQM principles

Source: Authors

excellence, especially the following determinants: supplier relationship management, process management, customer relationship management, and supply chain management. They confirmed the conclusion presented by L. M. Corbett (2011) that the support of the organizational structure was key to the successful implementation of all operational goals, which directly reflected in reaching the level of business excellence. O. Fok-Yew, H. Ahmad and S. Baharin (2013) highlighted formalization and flexible specialization as the parameters that contributed most to the generation of operational excellence. Through their research, D. More and A. Subash Babu (2008) confirm the importance of the organizational structure for the generation of innovations, which was key to long-term sustainable business excellence in turbulent environmental conditions. The practice of the manufacturing companies with business excellence (the winners of the FQCE awards in the field of business excellence) in the conditions of the COVID-19 pandemic and the current geopolitical circumstances highlighted the alignment between the organizational structure and organizational culture as the most important factor in supporting the maintenance of the achieved level of business excellence.

N. Jabnoun (2005) proved the importance of the support of the organizational structure for the successful implementation of TQM in the companies whose business is customer-oriented, emphasizing the fact that the aforementioned interdependence was one of the critical sources of competitive advantage in the conditions of fierce competition on the market. This research study fully confirmed the conclusion made by R. Mann and D. Kehoe (1995) that the stability of the organizational structure was the basis of successful compliance with the TQM principles. D. I. Prajogo and A. S. Sohal (2006) emphasized the importance of the support of the organizational structure for the successful implementation of TQM, noting the fact that this interdependence was a factor of organizational performance (performance overlaps with the performance of the determinants of business excellence).

The results of prior research also identified the importance of interdependence between the organizational structure and the individual determinants of business excellence for the generation of the successful implementation of TQM. The most common topic was the influence of the interdependence of the organizational structure and QMS for the generation of improvements in supply chain management, which directly reflected on the implementation of TQM (Llach, Casadesus & Marimon, 2011; Shi, Lin, Chen & Su, 2019). As a process management phase, an efficient and effective process control requires the support of the organizational structure parameters, which directly reflects in the successful implementation of TQM (Biazzo & Bernardi, 2003; Stravinskiene & Serafinas, 2020). J. L. García-Alcaraz, F. J. F. Montalvo, C. Sánchez-Ramírez, L. Avelar-Sosa, J. A. M. Saucedo and G. Alor-Hernández (2021) highlighted the importance of interdependence between the organizational structure and human resource management (primarily employee satisfaction and motivation) for the successful implementation of the customer-oriented TQM concept. Regarding CSR as a determinant of business excellence, CSR has been identified to exert a positive impact on business performance, whereby the successful implementation of TQM has a mediating role in this interdependence (Mehralian, Nazari, Zarei & Rasekh, 2016). According to the research results, decentralization and formalization were singled out as the parameters of the organizational structure that stimulate the successful implementation of the TQM concept (Escribá -Moreno, Canet-Giner & Moreno-Luzón, 2008).

Previous research suggested that there is a direct link between the organizational structure and every determinant of business excellence was identified, namely:

Success in the field of Quality Management System (QMS). J. Pereira-Moliner, E. M. Pertusa-Ortega, J. J. Tarí, M. D. López-Gamero and J. F. Molina-Azorín (2016) show that specialization, formalization, and coordination are the most important supporting factors for successful compliance with the requirements of the QMS and the ISO 9001 standard. M. Á. Escribá-Moreno *et al* (2008) also highlight the importance of these parameters in manufacturing companies by analyzing the mediating role of the

organizational design of the effectiveness of employee teamwork and the successful implementation of the TQM concept.

Process management success. Successful process management is the core of the successful implementation of the requirements of the QMS and the ISO 9001 standard (Biazzo & Bernardi, 2003), which leads to the conclusion that the same parameters of the organizational structure support the success of the quality management system and process management. The EFQM/FQCE model of business excellence emphasizes the importance of successful process management based on the PDCA cycle for the successful implementation of the TQM principles and reaching the level of business excellence. High horizontal/low vertical specialization, the medium level of horizontal and vertical decentralization, a combination of the coordination/control mechanisms and the formalization based on compliance with the QMS requirements, the ISO 9001 standards, the TQM principles, and the business excellence criteria are important for the successful synchronization of all the processes in the company. For manufacturing companies, the most favorable results are expected from a combination of the organic and mechanical design parameters. The purpose of process orientation is to maximize efficiency and effectiveness simultaneously in order to provide maximum value to consumers (Stojanović-Aleksić, 2017). To maintain efficiency in the production process, a certain degree of formalization and control is required, as well as enabling sufficient freedom to employees to apply their knowledge and creativity intensively as well.

Success in generating job satisfaction and employee motivation. The organizational structure has effects on job satisfaction and employee motivation, while human resource management has an important mediating role in these relationships (Galanou, Sotiropoulos, Georgakopoulos & Vasilopoulos, 2011; Manzoor, 2012). E. G. Lambert, E. A. Paoline III and N. L. Hogan (2006) show that a high level of centralization and the dominant role of rules and procedures, along with high vertical specialization, have the greatest negative impact on job satisfaction and employee motivation. Organizations in which there is the delegation of authority and responsibility in the vertical and horizontal directions and in which employees have an influence on the work tasks they perform invest more in training and formal education of their employees (Adiharja & Hendarsjah, 2020). Hence, higher levels of motivation and satisfaction may be expected.

The development of long-term partnership relations with customers and suppliers as a factor in the establishment of efficient and effective supply chain management. The functional model of the organizational structure is considered to be the model that stimulates employees to develop and maintain long-term partnership relationships with suppliers, which, together with process management, contributes to the development of efficient and effective supply chain management (Kim, 2007). S. W. Kim (2007) emphasized the importance of coordination/control and formalization for the synchronization and control of processes along the entire supply chain. P. J. Daugherty, H. Chen and B. G. Ferrin (2011) indicated the importance of these organizational structure parameters with low vertical specialization and decentralization for the successful implementation of all innovations in the field of supply chain management. Y. Sabri (2019) points out the fact that internal coordination and control are the core of the successful synchronization of all flows in the supply chain. S. Adana, S. Cevikparmak, H. Celik, H. Uvet and Y. Idug (2022) confirm all the previously listed conclusions, emphasizing coordination and control for quality internal communication, which is the main driver of job satisfaction and employee motivation to contribute maximally to the improvement of supply chain management performance. All the considered studies included manufacturing companies in their sample, so the obtained results refer to this industry branch.

Innovation capacity. S. Gentile-Lüdecke, R. Torres de Oliveira and J. Paul (2020) point out the fact that a high degree of horizontal/vertical specialization and centralization are the parameters of the organizational structure with the greatest negative impact on the openness of the company to the introduction and implementation of innovations.

Recent research suggests that the involvement of employees in decision-making has a positive influence on the innovativeness of social enterprises (Aleksić Mirić, Aničić & Petrović, 2023). Based on the QMS requirements, the TQM principles, and the business excellence criteria, formalization has a positive effect on innovation management (Lokhande & Rajapadmanabhan, 2022). The TQM concept and the EFQM/FQCE model of business excellence emphasize the importance of continuous investment in the introduction and successful implementation of innovations so as to generate a long-term sustainable competitive advantage. In manufacturing companies, innovation is an essential factor for survival and growth. Innovation management in these companies is often based on differentiation through innovation in the product itself (Ulusoy, 2003), which is implemented through a process approach (McAdam, Keogh, Reid & Mitchell, 2007). This implies predominant reliance on an organic structure characterized by relatively low formalization, specialization and centralization.

Corporate social responsibility. D. Vazquez-Brust, R. S. Piao, M. F. D. S. de Melo, R. T. Yaryd and M. M. Carvalho (2020) pointed out the fact that high centralization and the dominance of formalization over employees' initiatives are the main obstacles to socially responsible business, which is an important segment of the sustainable growth and development of companies. In the manufacturing company sector, the impact on the environment is a challenging area, and it is especially important to identify critical impacts on stakeholders and make decisions on the ways to optimize or eliminate the harmful effects of the production process on the environment. This often requires the engagement of experts' complex knowledge, implying the fact that experts throughout the organization should be delegated authority and given flexibility in deciding on these aspects of doing business. This research confirmed the conclusions presented by A. Menon and A. Menon (1997), not only from the point of view of the influence of the organizational structure on the company's commitment to reach the social responsibility level, but also from the point of view of the importance of social responsibility in conditions of risk and uncertainty in the environment.

Given that modern trends in the organization of manufacturing companies suggest combining the lean and agile approaches, the organizational structure should be such that it supports exactly this type of balancing, which means that a combination of mechanical and organic design characteristics can be expected to generate the most favorable results in terms of the determinants of business excellence.

Based on all the aforementioned, the following research hypotheses were set:

H1: As a parameter of the organizational structure, specialization is a determinant of business excellence in manufacturing companies.

H2: As a parameter of the organizational structure, centralization is a determinant of business excellence in manufacturing companies.

H3: As a parameter of the organizational structure, coordination is a determinant of business excellence in manufacturing companies.

H4: As a parameter of the organizational structure, formalization is a determinant of business excellence in manufacturing companies.

EMPIRICAL RESEARCH

Research methodology

The empirical research was done during the first half of 2023. It was conducted on a sample of 94 manufacturing companies from RS. The survey method was applied, and the respondents were the employees who mainly belonged to the managerial structure at the strategic and operational levels. Earlier research carried out by the authors in the field of the implementation of the TQM concept shows that only these categories of employees are sufficiently familiar with the requirements of the QMS, ISO 9001,

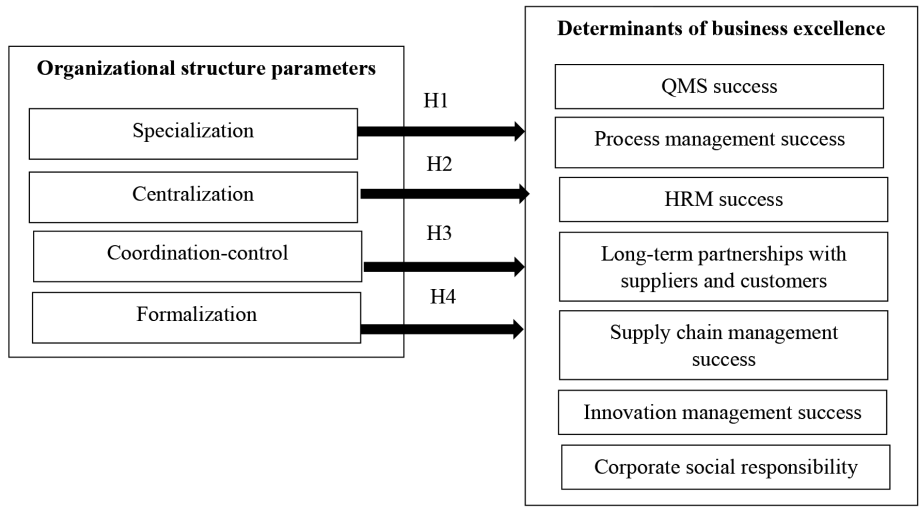

Figure 2 The research model

Source: Authors

and TQM principles, as well as the specifics of the organizational structure and the determinants of business excellence.

The respondents expressed the level of their agreement with the items on a five-point Likert-type scale from 1 to 5 (1 - complete disagreement, and 5 - complete agreement). For data processing, the SPSS software was used.

The structure of the sample implies 55% of small and medium-sized companies, as well as 45% of large companies. The predominant activity of 64% of the companies is the production of the semi-finished products that are inputs in other sectors (e.g. metal processing, as well as companies to which large production companies outsource one segment of the production process). The remaining 46% of the companies produce finished products (spare parts in the field of electrical goods, pneumatics, hydraulics, mechanical engineering, and various types of packaging). The sample is dominated by the companies based in Belgrade and Vojvodina (37%), followed by those from Western Serbia (23%), Central Serbia (16%), Eastern Serbia (15%), and Southern Serbia (9%).

Research results

A descriptive statistical analysis was conducted in order to analyze the organizational structure of the company (Table 1) and success in respecting the principles of business excellence (Table 2). The analysis of the organizational structure indicates high horizontal (M=4.05) and low vertical specialization (M=2.71), which implies the fact that employees perform a narrow group of related work tasks, which they have a relatively high influence on. Authority and responsibility are to a great extent delegated at the vertical and horizontal levels, as is evidenced by the mean values for the statements measuring centralization ranging from 2.39 to 2.62. Coordination is based on the equal representation of the three mechanisms: the standardization of inputs/work processes/outputs, the internal verification of compliance with the QMS requirements, and direct supervision (for all the three, the value of M is ~4.20). Formalization embodied through rules and procedures (first of all, the QMS requirements and the requirements of the ISO 9001 standard) play a significant role (M ranges from 4.19 to 4.21). The employees exert an influence on the work they perform but do not have complete autonomy in performing the work tasks that trigger strategic

Table 1 The descriptive analysis - the organizational structure parameters (n=94)

	Variable	Statements	Mean (M)	Standard deviation (SD)
Independent variables	Specialization	High horizontal specialization.	4.05	1.1394
		High vertical specialization.	2.71	1.3960
		Employees value work with minimal concentration and stress.	2.77	1.4175
	Centralization	High vertical centralization.	2.62	1.3687
		High horizontal centralization.	2.39	1.2023
		The complexity of the communication channels in the company.	2.51	1.2247
	Coordination/ control	The standardization of inputs, work processes, and outputs.	4.21	0.7742
		Internal QMS checks - compliance with the QMS procedures.	4.24	0.7716
		The coordination/control of the realization of the target performance of the process in the manager–employee relationship.	4.27	0.7503
	Formalization	The significant role of the rules and procedures in the company.	4.21	0.7742
		Rules and procedures - an easier control and predictability of employee behavior.	4.19	0.7798
		Employees do not have a high level of autonomy and freedom in performing their work tasks - especially those triggering strategic issues.	4.20	0.7701

Source: Authors

issues. The QMS procedures for each process indicate that the employees have an influence on their work to a certain extent but there is a definite list of authorizations and activities whose implementation requires communication with superiors. The standard deviation values indicate the relative homogeneity of the respondents' attitudes about the organizational structure.

Companies pay great attention to business excellence, as is evidenced by the value of M greater than 4.00 for the largest number of the relevant findings. In the human resource management field, there is room for improvement in employee satisfaction and motivation (M=2.88). The innovation management field is rated lower than the other fields.

The reliability analysis was based on the Cronbach alpha coefficient - Table 3. Internal consistency within each scale is good (the Cronbach alpha is above 0.80), while centralization is excellent (the Cronbach alpha value is greater than 0.90).

To identify the relationships between the variables, correlation analysis was made (Table 4). The relationship between specialization and centralization is statistically significant. These parameters of the organizational structure statistically significantly and positively correlated only with the establishment of a successful quality management system as a determinant of business excellence. There is a strong and positive correlation between specialization and the QMS expressed by the correlation coefficient 0.50. Centralization is negatively correlated with all the determinants of business excellence. There are strong negative correlations with process management, supply chain management, and innovation management. The relationship between formalization and the QMS is statistically significant at a level of $p \leq 0.05$, while the relationships between formalization and other business excellence determinants are not significant. Coordination/control has a statistically significant, positive and strong correlation with all the determinants of business excellence. The correlation analysis shows statistically significant, positive, and

Table 2 The descriptive analysis - the determinants of business excellence (n=94)

Variable		Statements	Mean (M)	Standard deviation (SD)
Dependent variables	QMS & ISO 9001	The company operates in compliance with the requirements of the QMS and ISO 9001 certified QMS.	4.22	0.7355
		The continuous improvement of quality in all the domains of business – one of the key goals.	4.19	0.7798
		Internal and external QMS audit reports are an important input for the implementation of corrective and preventive measures in this domain.	4.15	0.8546
	Process management	The management goals of each process are aligned with the goals at the company level.	4.15	0.8027
		Success in realizing the target performance of each process is monitored and represents the basis for defining corrective and preventive measures.	4.14	0.7979
		Defined corrective/preventive measures in the field of improving the process performance are the basis for defining target performance for next business year.	4.10	0.8807
	HRM	Measuring employee satisfaction and motivation.	2.88	0.9821
		Training - planning, organization, implementation, and monitoring effects.	4.00	0.9837
		Intensive work on the improvement of personnel relationships in the company – with a focus on professional personnel retention.	4.16	0.7938
	Partnership – buyers and suppliers	Continuous work on improving partnership relationships with suppliers.	4.04	0.8154
		Continuous work on improving partnership relationships with customers.	4.07	0.7793
		The involvement of suppliers and customers in innovation in the domain of the quality of raw materials, processes, and products.	4.09	0.8727
	SCM	The management of relationships with suppliers generates a timely procurement of quality raw materials under favorable commercial conditions.	4.10	0.8174
		Process management generates the timely production of quality products at acceptable costs.	4.11	0.8095
		Customer relationship management generates customer satisfaction through the timely delivery of a quality product at an acceptable price.	4.07	0.8327
	Innovation management	Innovations as an integral part of actively flexible business.	3.68	0.9183
		Innovation planning and innovation budgets.	3.70	0.9255
		The involvement of partners in the introduction and implementation of innovations – suppliers and customers.	3.68	0.9414
	Social responsibility	The company bears responsibility for its impact on the environment.	3.57	0.8612
		Ethical conduct and transparency in the domain of decision-making and implementation.	4.09	0.7987
		Communication and networking in the company-stakeholder relationship are based on generating business stability and avoiding potential conflicts.	4.06	0.7871

Source: Authors

Table 3 The values of the Cronbach alpha coefficients - the reliability of the statements by the variables

Variable	Values of the Cronbach alpha coefficients
Specialization (S)	0.883
Centralization (C)	0.922
Coordination/control(CC)	0.821
Formalization (F)	0.854
QMS (QMS)	0.832
Process management (PM)	0.820
Human Resource Management (HRM)	0.813
Partnership – buyers and suppliers (RM)	0.817
Supply Chain Management (SCM)	0.819
Innovation management (IM)	0.828
Corporate social responsibility (SR)	0.818

Source: Authors

strong correlations among all the determinants of business excellence (the values of the correlation coefficients above 0.5 at p≤0.01).

Regression analysis was carried out in order to identify the parameters of the organizational structure with statistically the most significant influence on business excellence (Tables 5-12). The parameters of the organizational structure are the independent variables, and the determinants of business excellence (the QMS, process management, human resource management, partnerships, chain management supply, innovation management, and social responsibility) are the dependent variables. Centralization was excluded from the regression analysis due to the unsatisfactory precondition of multicollinearity (VIF>10) since the correlation showed a negative interdependence with the determinants of business excellence. The goal of the corrected research model (without centralization) is to identify the parameters of the organizational structure that will positively and statistically significantly influence the improvement of all the determinants of business excellence. All the models are statistically

Table 4 The results of the correlation analysis

	S	C	KK	F	QMS	PM	HRM	RM	SCM	IM	SR
S	1	0.46**	-0.22*	0.83**	0.50**	-0.24**	-0.18	-0.03	-0.22*	-0.18	-0.19
C	0.46**	1	-0.47**	0.76**	0.23*	-0.58*	-0.48**	-0.42**	-0.58**	-0.57**	-0.48**
KK	-0.22**	-0.47**	1	-0.05	0.64**	0.95**	0.93**	0.96**	0.90**	0.73**	0.87**
F	0.83**	0.76**	-0.05	1	0.72**	-0.16	-0.06	0.10	-0.17	-0.20	-0.08
QMS	0.50**	0.23*	0.64**	0.72**	1	0.56**	0.62**	0.76**	0.51**	0.38**	0.54**
PM	-0.24**	-0.58*	0.95**	-0.16	0.56**	1	0.93**	0.96**	0.95**	0.81**	0.90**
HRM	-0.18	-0.48**	0.93**	-0.06	0.62**	0.93**	1	0.98**	0.94**	0.82**	0.92**
RM	-0.03	-0.42**	0.96**	0.10	0.76**	0.96**	0.98**	1	0.93**	0.77**	0.91**
SCM	-0.22**	0.58**	0.90**	-0.17	0.51**	0.95**	0.94**	0.93**	1	0.88**	0.94**
IM	-0.18	-0.57**	0.73**	-0.20	0.38**	0.81**	0.82**	0.77**	0.88**	1	0.88**
SR	-0.19	-0.48**	0.87**	-0.08	0.54**	0.90**	0.92**	0.91**	0.94**	0.88**	1

**p≤0.01; *≤0.05

Source: Authors

Table 5 Regression model results - the QMS as the dependent variable

	Unstandardized coeff.		Standardized coeff.	t	Sig.	VIF
	B	Std. error	Beta			
Specialization	0.038	0.012	0.093	3.128	0.002**	3.571
Coordination/control	0.426	0.010	0.695	41.539	0.000**	1.118
Formalization	0.499	0.021	0.677	23.214	0.000**	3.404
R^2=0.977						

Source: Authors

Table 6 Regression model results - process management as the dependent variable

	Unstandardized coeff.		Standardized coeff.	t	Sig.	VIF
	B	Std. error	Beta			
Specialization	0.162	0.041	0.219	3.941	0.000**	3.571
Coordination/control	1.099	0.035	0.981	31.498	0.000**	1.118
Formalization	-0.389	0.073	-0.289	-5.318	0.000**	3.404
R^2=0.922						

Source: Authors

Table 7 Regression model results - HRM as the dependent variable

	Unstandardized coeff.		Standardized coeff.	t	Sig.	VIF
	B	Std. error	Beta			
Specialization	0.096	0.060	0.117	1.611	0.111	3.571
Coordination/control	1.189	0.051	0.950	23.399	0.000**	1.118
Formalization	-0.164	0.106	-0.109	-1.539	0.127	3.404
R^2=0.867						

Source: Authors

Table 8 Regression model results - partnership with buyers/suppliers as the dependent variable

	Unstandardized coeff.		Standardized coeff.	t	Sig.	VIF
	B	Std. error	Beta			
Specialization	0.104	0.031	0.166	3.361	0.001**	3.225
Coordination/control	0.905	0.026	0.995	34.574	0.000**	1.096
Formalization	0.000	0.056	0.000	-0.002	0.998	3.102
R^2=0.952						

Source: Authors

Table 9 Regression model results - SCM as the dependent variable

	Unstandardized coeff.		Standardized coeff.	t	Sig.	VIF
	B	Std. error	Beta			
Specialization	0.209	0.060	0.280	3.500	0.001**	3.571
Coordination/control	1.068	0.051	0.940	21.006	0.000**	1.118
Formalization	-0.479	0.107	-0.351	-4.493	0.000**	3.404
R^2=0.839						

Source: Authors

Table 10 Regression model results - innovation management as the dependent variable

	Unstandardized coeff.		Standardized coeff.	t	Sig.	VIF
	B	Std. error	Beta			
Specialization	0.342	0.102	0.417	3.344	0.001**	3.571
Coordination/control	0.991	0.087	0.796	11.402	0.000**	1.118
Formalization	-0.758	0.182	-0.507	-4.161	0.000**	3.404
R^2=0.608						

Source: Authors

significant at p≤0.01. Model 1 explains 97.7% of the variance of the QMS as the dependent variable, and a statistically significant influence of specialization, coordination/control, and formalization is also found. Model 2 accounts for 92.20% of the variance of process management success, with a statistically significant influence of all the independent variables identified. Model 3 explains 86.7% of the variance of the HRM determinants, and coordination/control has the biggest influence. Model 4 explains 95.2% of the variance in the development of partner relationships with customers and suppliers, with specialization and coordination/control having the biggest influence. Also, 83.9% of the variance of supply chain management is accounted for by Model 5, where a statistically significant influence of specialization, coordination/control, and formalization is identified. Model 6 explains 60.8% of the variance of innovation management success, with a significant influence of all the independent variables observed. Model 7 explains 76.4% of the variance of social responsibility, where coordination/control is the only parameter of the organizational structure that has a statistically significant influence.

In Table 12, the original research model was checked, considering business excellence as a unique dependent variable, without centralization as one of the independent variables. The model defined in this way explains 89.3% of the variance of the determinants of business excellence as a dependent variable, where all the three observed parameters of the organizational structure have a statistically significant influence on making improvements in this domain.

Discussion of the research results

The results of the conducted statistical analysis are the basis for drawing a conclusion with respect to the defined initial research hypotheses:

- The results of the regression statistical analysis identified a statistically significant influence of specialization on all the determinants of business excellence, except for the success of human resource management and social responsibility. Therefore, the hypothesis H1 is supported. The relationship between specialization and

the QMS is the strongest. The positive effects of specialization imply that employees should perform a group of related jobs, which increases their expertise in the same area.

- High centralization in the vertical and horizontal directions is statistically significantly and negatively correlated with all the determinants of business excellence, but due to the unsatisfactory determinant of multicollinearity, no statistically significant influence of this variable on each of the determinants of business excellence was identified. Therefore, the hypothesis H2 is partially supported. The results of the descriptive statistical analysis showed a significant degree of the delegation of authority in the sample, with the absence of the complexity of communication channels, which indicates that these companies are well on their way to use the benefits of this factor for the motivation of their employees so as to contribute to improvements in the domain of business excellence.
- The standardization of inputs/work processes, the internal checks of the QMS, and direct control in the manager-employee relationship is a combination of the coordination mechanisms that determines the achievement of business excellence of the manufacturing companies in RS. Therefore, the hypothesis H3 is supported. This parameter of the organizational structure in business practice has a very important role in defining and monitoring the implementation of corrective and preventive measures in the domain of all processes, which directly reflects in each of the determinants of business excellence. Process management (based on the PDCA cycle), aligned with the requirements of the QMS, ISO standardization (including the standards in the CSR field), and the TQM principles, is a predictor of reaching the level of business excellence, as is indicated by the FQCE and EFQM business models excellence.
- Formalization (based on the QMS procedures) statistically significantly determines the determinants of business excellence, with the biggest influence on success in the fields of the QMS, process management, supply chain

Table 11 Regression model results - social responsibility as the dependent variable

	Unstandardized coeff.		Standardized coeff.	t	Sig.	VIF
	B	Std. error	Beta			
Specialization	0.098	0.069	0.137	1.418	0.160	3.571
Coordination/control	0.971	0.059	0.893	16.493	0.000**	1.118
Formalization	-0.198	0.123	-0.152	-1.604	0.112	3.404
R2=0.764						

Source: Authors

Table 12 Regression model results - business excellence as the dependent variable

	Unstandardized coeff.		Standardized coeff.	t	Sig.	VIF
	B	Std. error	Beta			
Specialization	0.169	0.047	0.235	3.595	0.001**	3.571
Coordination/control	1.064	0.040	0.969	26.526	0.000**	1.118
Formalization	-0.384	0.084	-0.291	-4.566	0.000**	3.404
R2=0.893						

Source: Authors

management, and innovation management. Therefore, the hypothesis H4 is supported. Formalization has the strongest correlation with the QMS. The quality management system permeates all the spheres of management, which implies that making improvements in this domain is the initiator of improvement in the domain of business excellence.

The parallel analysis of the conclusions regarding the hypotheses H1 to H4 with the results of the regression analysis for the entire research model leads to the conclusion that the organizational structure has the status of statistically significant support for reaching the level of the business excellence of the manufacturing companies in RS. The parameters of the organizational structure have a dual effect on reaching the level of business excellence in practice: 1) they affect job satisfaction and employee motivation (especially specialization and centralization) to contribute to improvements in the domain of each of the determinants of business excellence, and 2) they affect the success of the QMS and process management (coordination/control and formalization), which spills over to all the other determinants of business excellence (which is confirmed by the high positive correlation between all the determinants of business excellence).

The results of the research study fully confirmed the conclusions presented by M. Birasnav and J. Bienstock (2019) and S. B. Soderstrom and K. Weber (2020), with a more detailed analysis of the influence of the organizational structure parameters on all the determinants of business excellence in the manufacturing sector of RS. Previous research in the influence of the organizational structure parameters on the individual determinants of business excellence has identified low vertical specialization and decentralization as the key factors of making improvements. This research study has confirmed the said conclusion, with the fact that, unlike the analysis of the impact on the individual factors, coordination crystallized in the integrated analysis as a parameter of the organizational structure of essential importance for successful compliance with the QMS requirements, the ISO standards, and the TQM principles, which reflects in improvements in the domain of each of the determinants that are highly positively correlated with each other. Therefore, unlike the previous ones, this research study has identified the central role of coordination in terms of the importance of the support of the organizational structure for generating business excellence.

CONCLUSION

The paper suggests that the organizational structure has a significant role in supporting the achievement of business excellence in the manufacturing sector of an economy. The parameters of the organizational structure have a statistically significant influence on the determinants of business excellence. It was found that specialization affects the largest number of the determinants of business excellence, thus supporting the Hypothesis 1. The negative correlation between centralization and the determinants of business excellence was identified as statistically significant, while the influence of this variable was not proven by regression analysis, which is why the Hypothesis 2 is only partially supported. The influence of coordination and formalization on most indicators of business excellence is statistically significant, so the Hypothesis 3 and Hypothesis 4 are supported. Since the determinants of business excellence are highly correlated among each other, these impacts are important for the business excellence as a whole, and for long-term sustainable competitive advantage in the manufacturing economy sector as well.

The essential theoretical and practical contribution of the conducted research study reflects in a detailed analysis of the impact of the organizational structure on all the determinants of business excellence, with a parallel analysis of the interdependence of the determinants. The results of the research identified the influence of each parameter of the organizational structure on each determinant of business excellence, which contributes to the literature in several related

areas, such as organizational design, business excellence, and quality management. Such research is rare, especially in manufacturing companies, so the results are particularly relevant for this sector of the economy, and thus the scientific knowledge about the relationship between the organizational structure and the determinants of business excellence has deepened. In a practical sense, the research results guide managers of manufacturing companies in terms of corrections and improvements in the domain of the central structural dimension of organizational design so as to initiate positive changes in the relationship between the QMS - process management – all the other determinants of business excellence. The paper provides information about the specific parameters of the organizational structure that management can use when making decisions at the company level, with the goal of improving the level of business excellence. To increase business excellence, it is suggested that managers of manufacturing companies should adjust organizational design in order to use a combination of different coordination mechanisms, relying on formalization. Additionally, a relatively high degree of specialization should be developed in this context.

The main limitation of the research study reflects in the fact that, in contemporary conditions of risk and uncertainty in the global environment, it is important to analyze the flexibility of the organizational structure, which this research does not deal with (only the current situation is analyzed). For a detailed analysis of the impact of the organizational structure on improvements in the domain of the determinants of business excellence, it is important to analyze the flexibility of the organizational structure (especially in the domain of adaptation to the contextual dimensions of organizational design) because only a flexible organizational structure leads a manufacturing company towards business excellence. Research in the interdependence of the organizational structure and business excellence should move in this direction in the future, which will make a significant theoretical and practical contribution at the international level.

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