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# ECONOMICS

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## *Sociology*

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## OPPORTUNITIES AND THREATS OF DIGITAL TRANSFORMATION OF BUSINESS MODELS IN SMES

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**ABSTRACT.** The importance of business models for small and medium-sized enterprises (SMEs) in terms of their competitiveness and sustainability is undoubtedly growing. The global Covid-19 pandemic even strengthens this trend. The degree of digitalization of corporate processes becomes the SME stability and development limitation. The paper submitted presents the results of research focused on the issue of digital transformation of business models on a test sample of 496 SMEs (out of which 214 operate in the manufacturing sector and industry and 218 are included in the services sector) using the method of dimensionality reduction and logit regression. The main output from the solution valid for both tested sectors is considered insufficient setting, management and evaluation of corporate processes. This applies to the main value-creating processes (input and output logistics, production, marketing and sales, service and other ancillary services) and supporting processes (purchase, scientific and technological development, human resources management and company infrastructure). In terms of the achieved degree of process digitization, an imbalance was found between the main value-creating processes and supporting processes. Investment in value-creating and supporting corporate processes are not considered an important factor for any of the sectors due to the high sensitivity of investments to the size and specialization of companies. In contrast, the higher perceived need for value chain digitization in both tested sectors, especially in the case of manufacturing and industry, is considered a very positive output. This proves the need for the digital transformation of companies and its positive impact on their profitability and competitiveness.

**Keywords:** business model, corporate strategy, value chain, digitalization.

## Introduction

The changes that have occurred in the corporate environment in the last decade significantly influence companies' function, behaviour and profitability. Business managers and the scientific community refer to this period as a period of "chaos" management, with a high and increasing degree of uncertainty and risk. In the next period, fundamental changes cannot be expected; on the contrary, one can almost certainly expect fiercer competition requiring a new approach to projecting and implementing corporate business policies. More than ever, the decisive factors will be originality, uniqueness, quality, and value yield of the company and its generator of added value or margin in the case of production processes. This creates an indisputable need for a fundamental change in corporate architecture, including the creation of a corporate or business strategy. This trend, already evident in many companies, is strengthened by intensifying processes of automation and digitization. To be efficient and sustainable, a company as an organized system needs to be competitive at the local, regional and national levels, even at the global level in the case of international corporations. This can only be achieved through systematically implemented operations of fundamental strategic character based on scientific and technical development, innovations, creating worldwide distribution networks, efficiently managed investments, and developing creative human resources. The business sector faces a new, existential challenge, with top management especially bearing the responsibility for the transformation of the existing corporate or business strategy into progressive and efficient business models. Business model transformation is a legitimate and necessary process, a response to ongoing changes in companies' internal and external environment. In addition to this process's prevailing positives (flexibility, addressability, efficiency, elimination of risks, etc.), it naturally has its risks (cost, time and personnel requirements, increased quality requirements, etc.). The basic feature of the business models generated in this way must be their dynamics and flexibility based on the anticipation of the development of customer demand, prices of products or services, price relations of inputs, tax and depreciation rates, expected available resources, etc. The purpose of the study is to reflect the fundamental changes in the concept of the corporate strategy itself, which is nowadays defined by the majority of SME managers as a business strategy, and at the same time to accentuate this fundamental categorical change in the scientific community and to induce professional discussion on this issue. The aim of the solution is then to demonstrate on concrete outputs of the solution the principle, respected by the majority of SMEs today, that the essence and at the same time the implementation tool of business strategy are business models. The topicality of the solution is accentuated by the course of the covid pandemic, as well as by the predicted change in the economic cycle, when the economy can be expected to enter a trajectory of stagnation or decline. This is also in line with the fundamental objective of the newly conceived business models, to prepare the company for the future development of the business environment and at the same time to create the ability to respond flexibly and operatively to unspecified changes. The indicated trends in the development of business models are based on the findings the authors of the paper obtained from broad departmental research at the Institute of Technology and Business in České Budějovice, Faculty of Corporate Strategy, Department of Management. The research was aimed at the business sector of the Czech Republic (ca. 500 companies) and conducted in the years 2016–2019. Its focus was the issue of creating and implementing business or corporate strategy, its structure, content, form and its impact on the profitability of companies. The study is divided into five basic parts, where the research part brings a confrontation of different currents of opinion on categorization and transformation of business models. This is followed by the methodological part, where statistical methods (dimensionality reduction and regression analysis) are presented. The results

of the solution are the content of the next empirical part as a basis for testing the set scientific hypotheses. The final chapters belong to the discussion of the outputs in terms of the set objectives of the solution and the conclusion, where the newly obtained findings are summarized and the further progress of the scientific activities of the researchers is indicated.

## 1. Literature review

### *1.1 Corporate or business strategy?*

In the scientific literature and business sector, the issue of corporate business policy and business strategy started to be intensively discussed after the second world war as a natural reaction to the shattered national economies both in Europe and in the global economic system. James Culliton (*The Management of Marketing Costs*, 1948) and Neil Borden (*The Concept of the Marketing Mix*, 1964) came up with the idea of establishing product strategy and product portfolio through marketing mix. The first typology by Miles and Snow (1978) and Slater and Olson (2001) classifies strategies such as prospector, defender, analyzer, and reactor. However, the most cited strategies are Porter's market-oriented strategies, specifically cost management, differentiation and focus on narrow market segment (Porter, 1980). Porter's statement that strategy is not dependent on the ability to anticipate changes but rather on a broad idea of which customer groups and what needs will be important in the next three and five years can be considered a milestone in terms of the concept of corporate strategy. There is a clear shift in the perception of corporate strategy as a business strategy aimed mainly at satisfying customer needs. These principles became the subject of scientific research and implementation in business practice with the beginning of the 21st century. Especially at the beginning, business models are considered to be the basis of corporate strategies. As an example, we can mention Bienstock, Gillenson, and Sanders (2002), who believe that business model represents a guide for companies to earn money. Watson (2005) is one of the first to mention the relationship between the costs of production or service and the achieved degree of customer satisfaction in the specification of business model. Similarly, in their definition of business models, Osterwalder and Pigneur (2010) emphasize that an integral part of business models is a set of principles for creating, identification and evaluation of business values. This clearly reflects the publications by M. Porter describing value chain as a basis for generating added value and achieving margin, which is a view shared by the authors of this paper. A properly set up business model is a prerequisite for the innovation of corporate processes (Teece, 2010) and a reflection of the implemented corporate strategy (Casadesus-Masanell, Ricart 2010; Vaníčková, Woszczyzna, 2020; Kinderis, 2019; Balaz, 2021). Chesbrough (2010), Teece (2010), Yunus, Moingeon and Lehmann-Ortega (2010), Bocken, de Pauw, Bakker & van der Grinten (2016) consider business models to be an important factor of business innovations. Both the specification and creation of business models have been influenced by the new concept of business competitiveness as a measure of customer satisfaction; business models are associated with ensuring and strengthening the competitive advantage (Saebi and Foss, 2015; Wirtz, Pistoia, Ullrich and Göttel, 2016). In shaping their competitiveness, Ryu, Lee and Choi, (2015) recommend companies to use three generic competitive strategies based on monitoring costs, the process of differentiation of corporate portfolio and focusing production or services on a narrow market segment. Ryu, Lee and Choi (2015) and Yuan, Lu, Tian, Yu, (2018) point to the need to consider environmental aspects when designing a business strategy.

## ***1.2 Transformation of business models and process of digitization***

After the information revolution at the beginning of this century, the second changing corporate transformation, namely digitization, is currently intensifying in practice, including the business sector. In general, in the business sector, this fact can be considered the response to the ongoing management paradigm, or rather business paradigm. According to Meskendahl (2010); Wirtz, Pistoia, Ullrich (2016); Gatautis, (2017), the digitization process in the business sector is triggered by the fundamental change in the approach, collection, storage, evaluation and use of ever-expanding set of corporate information. In keeping with the objective approach, it shall be noted that the digitization process was primarily driven by the societal demand and international pressure to harmonize this process. Business sector is actively involved in this process; at the same time, there is also a specific process going on given by the nature of the environment and the changes taking place in it. Demir et al. (2017) and Dagnino et al. (2017) point to this ongoing process, stating its intensification and its impact on the generation of business strategy and business models in terms of their content and structure. The inevitable process of business strategy or business models' digitization is pointed out by Casadesus-Masanell and Ricard (2010). Other authors point to the course of digitization processes in the international market environment as a part of the process of business internationalization (Harris, 2002; Barlett, Ghoshal, 2003) or from the point of view of emerging global economic centres (Atkinson, 2016). The process of digitizing corporate datasets creates a realistic precondition for the transformation of business models in terms of their anchoring in the business processes. The benefits of this process include operational regulation of the quality of corporate, especially value-generating processes, design of new processes including their functions, their better reliability, efficiency and the possibility of their optimization, aimed at better satisfaction of customer needs (Lenka, Parida, Wincent, 2017). The application of the process of business processes digitization enables achieving the maximum corporate margin. The digitization process raises increased demands on the expertise of managers and all employees (Kidschun et al., 2020), financial security of induced investments (Choy 2020), available space, style and forms of management (Voß, Köhl, Asghari, 2020) etc. At the same time, it is an extraordinary opportunity to implement changes in business architecture as a result of changes in the business environment in order to ensure the competitiveness of the company (Matt, Rauch 2020). Similarly, Furjan, Tomicic-Pupek, Pihir (2020) consider digital technologies in the process of digital transformation to be an extraordinary opportunity for the business sector in terms of setting up corporate portfolio, changes in organization management and value flow management (Furjan, Tomicic-Pupek, Pihir 2020). Today, economics cannot be imagined without gradual digitization of all processes, including the business sector. For companies, the fundamental benefit of this process from the perspective of business models is setting new, unused functions of companies based on the analysis of business process in terms of generating added value for customers (Lenka, Parida, Wincent, 2017). Corporate or business strategies should always aim at setting new visions, direction, targets. Digitization should be perceived as a new opportunity as well as a means to transform business processes (Schwaferts, Baldi 2018; Lazic, Jovic (2019). The paper presents business models of selected business processes in SMEs in two different sectors. The primary data were collected using the information systems of the companies. Digital transformation and their impact on business models along with the innovations brings a change in the expectations and behaviour of consumers (Schwaferts, Baldi 2018; Verhoef et al., 2021).

According to the authors of this paper, digital transformation of business models is an inevitable process and an efficient tool to ensure long-term competitiveness and efficiency. In

accordance with the above research and current knowledge in the field, the following three hypotheses were formulated:

Hypothesis 1: Value chains are used by managers of SMEs in the sectors of industry, manufacturing and services in the required intensity and structure in order to achieve profitability and sustainability of companies.

Hypothesis 2: The achieved degree of digitization in both sectors is comparable, at the required level, and balanced in terms of individual value-creating and supporting business processes.

Hypothesis 3: The perception of the need for value chain and its digitization by SME managers in both tested samples can be considered very intensive and at the required level.

## 2. Methodological approach

The test sample consisted of 496 SMEs, including 117 microenterprises (up to 25 employees; 24 %), 236 small enterprises (25–50 employees; 47 %) and 143 medium-sized enterprises (50–250 employees; 29 %) from the whole Czech Republic. Out of them, 214 (43 %) operate in the sector of manufacturing and industry, 282 (57 %) in the services sector. In terms of the geographical scope of activities, 481 enterprises (58,8 %) operate at the regional level, 162 enterprises (32 %) at the national level, and 46 (9.2 %) at the international level. 78 % of the tested enterprises reported profit. Extensive research focused on the creation of corporate or business strategies was started in the years 2016-2017 (included a total of 373 SMEs). The second research phase is still going on (123 SMEs). In the current pandemic period, the research is conducted with the same structure and focus. The input information has been obtained through an extensive contact questionnaire survey (a 27-member team had been trained for this purpose). The survey was conducted both face-to-face and online. Before the survey, the questionnaire was consulted with the representatives of the business sector as well as the scientific community of the relevant field, including the Czech Statistical Office in order to ensure the representativeness of the test sample. The research is still ongoing, in 2016-2019 data were obtained for periods of high economic growth, starting in 2020 data are obtained for periods of economic stagnation or slight decline (covid pandemic). Currently, data are registered with the prediction of economic recession.

The data were statistically processed using the method of dimensional reduction (Cook, 1998; Cook and Lee, 1999; Chiaromonte, Cook and Li, 2002) and regression analysis (comprehensive linear modelling) (McClullagh, Nelder, 1989). The methodology proceeds in three steps. The profit data were transformed to 0/1 variable no profit/profit. The investments in value and supporting business processes along with the value chain were transformed from intervals to middle value of the interval in order to be able to sum these investments. The single value string variable was calculated from the dimensional reduction of all value string variables. The dimensional reduction calculates the linear combination of the input variables which explains the best explained variable (the profit variable in this case). The same procedure was also performed on all variables expressing the degree of digitalization. The dimensional reduction provides again one variable which maximizes the explanation of the profit variable. Finally, the total investment in value and supporting business processes was calculated (sum of all investments in the value chain), together with effective investments calculated as weighted sum of all investments where weights are the loads of obtained single value string.

The binomial logit model was performed:

Profit ~ value chain + total investment + degree of digitization

$$\text{Value chain} = \text{load}(n) * \text{variable}(n) + \text{load}(n+1) * \text{variable}(n+1) + \dots$$

This model is specified in the results (the variables are all the components of the value chain, and the loads are the values of their weights in the model as computed by the dimensional reduction).

Total investment = Investment in value chain components(n) + Investment in value chain components(n+1) + ....)

### 3. Empirical results and discussion

In the category of small and medium-sized enterprises, two sectors were subjected to testing (the sectors of manufacturing and industry and services). The first part deals with the assessment of value-creating and supporting business processes in terms of their impact on SME profitability. The second part focuses on the level / degree of digitization of value-creating and supporting business processes again in terms of their impact on SME profitability. In the third part, the authors present the results of the binomial logit model (see Tables 5 and 6), which determines the importance of SME business models within the value chain, its digitization and the amount of the total investments.

Table 1. SME-sectors of manufacturing and industry – Dimensional reduction of business model components within value chain and their impact on SME profitability

Value chain components	Dir1	
	Sectors of manufacturing and industry	
Inbound logistics		-0.05002
Production		0.31986
Outbound logistics		-0.07373
Marketing and sales		0.64733
Service and other ancillary services		-0.56113
Purchase		-0.34875
Scientific and technological development		0.09821
Human resources management		0.14065
Company infrastructure		0.06918
Dir 1 – importance of value chain components		
Sectors of manufacturing and industry	R <sup>2</sup> (OLS dr)	1.0000
	Eigenvalues	0.07639

Source: *Authors' results.*

The results of the dimensionality reduction presented in Tab. 1 emphasize the impact of the production process, mainly marketing and sales, on the profitability of SMEs operating in the sectors of manufacturing and industry. Negative impact was confirmed in the case of services and other ancillary services, and purchase to a lesser extent. The values of the remaining components of the value chain fluctuate around zero; it can thus be stated that business owners or managers pay average attention to these activities. However, human resources should achieve much higher values, if companies aim to achieve high performance and prosperity. The resulting value of 0.14065 is in principle contrary to the actual need of enterprises and by its nature, it is a prerequisite for creating added value.

The second analysed dataset concerned the service sector. The results of the analysis are presented in Tab. 2.

Table 2. SME-sector of services – Dimensionality reduction of business model components within the value chain and their impact on SME profitability

Value chain components	Dir1	
	Sector of services	
Inbound logistics	-0.03441	
Provision of services	0.53548	
Outbound logistics	0.53060	
Marketing and sales	-0.29492	
Services and other ancillary services	-0.10338	
Purchase	0.14637	
Scientific and technical development	-0.22028	
Human resources management	-0.21687	
Company infrastructure	0.46464	
Dir 1 – importance of value chain components		
	R <sup>2</sup> (OLS dr)	1.0000
Sector of services	Eigenvalues	0.05555

Source: *Authors' results.*

Compared to the sectors of manufacturing and industry, the sector of services shows even more pronounced influence of managers' focus on the process of delivering services. Similar values were achieved in the inbound logistics, slightly lower than in the case of company infrastructure. Surprisingly, there was a negative impact of marketing and sales, scientific and technical development, and human resources management. This might be due to the underestimation of the above factors in the sector of services, which is not in line with the specifics of this sector. Underestimation of human resources is a highly negative phenomenon in the case of SMEs. The reason may lie in the nature of the companies in the service sector, or in their size, with prevailing microenterprises and small enterprises, which are mostly family companies, but on the other hand, the reason might also be the underestimation of modern forms of management, where there is a strong belief in the adequacy of the transfer of experience from generation to generation and managerial literacy at the level of pragmatism and intuition.

The following part of the paper deals with the evaluation of the degree of digitization of value chain components in SMEs in the sectors under review or the focus on the need for digitization of individual value-creating and supporting components of the value chain on the side of SME managers or owners.

A positive impact on the profitability of SMEs operating in the sectors of manufacturing and industry in terms of the perceived need for digitization and its level was recorded in the case of outbound logistics; a lower value was recorded in the case of services and other ancillary services. The remaining components show rather a negative impact on the profitability of SMEs operating in the manufacturing sector.

The results of this part of the research reflect general processes, which take place with almost the same intensity in the external environment of both sectors, independently of the business entity and are directly reflected in the internal environment of the enterprises. They are based on the digitization processes established e.g. in the area of state administration and municipal administration, financial, health care and social institutions, infrastructure networks, statistical reporting, and other areas. The achieved degree of digitization depends on the technical and personnel preparedness of enterprises to implement these processes from the external environment into their internal environment. Another area is the area of internal processes and resources.

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Table 3. SME-sectors of manufacturing and industry – Dimensionality reduction of the business model components digitization in the value chain and their impact on SME profitability

Value chain components	Dir1 – degree of value chain components digitization	
	Sectors of manufacturing and industry	
Inbound logistics	-0.18769	
Production	-0.01575	
Outbound logistics	0.72080	
Marketing and sales	-0.32878	
Services and other ancillary services	0.49183	
Purchase	-0.19937	
Scientific and technical development	-0.16500	
Human resources management	-0.16310	
Company infrastructure	-0.03739	
Dir 1 – degree of value chain components digitization		
Sector of services	Eigenvalues	0.152
	R <sup>2</sup> (OLS dr)	1.0000

Source: *Authors' results.*

In this case, enterprises are classified according to their size, with the direct proportional relationship between the size of company and the degree of corporate processes digitization. Companies naturally focus on the areas that have a direct relationship with customers and the related services (outbound logistics, services and other ancillary services). The negative value of other tested parameters indicates both the underestimation of these parameters from the side of business managers and the need for their solution.

Table 4. SME-sector of services – Degree of business model components digitization within the value chain and their impact on SME profitability

Value chain components	Dir1 – degree of value chain components digitization	
	Sector of services	
Inbound logistics	-0.183916	
Provision of services	-0.005341	
Outbound logistics	0.097168	
Marketing and sales	0.075452	
Services and other ancillary services	0.037016	
Purchase	0.027806	
Scientific and technical development	-0.406956	
Human resources management	0.772604	
Company infrastructure	-0.431669	
Dir 1 – degree of value chain components digitization		
Sector of services	Eigenvalues	0.0887
	R <sup>2</sup> (OLS dr)	1.0000

Source: *Authors' results.*

In the sector of services, higher values were recorded in the case of human resources management, scientific and technical development, and company infrastructure; however, in the case of the latter two components, their negative impact on the profitability of SMEs operating in the service sector was confirmed. In accordance with the principles of digitization processes in relation to the external business environment, the specifics of this sector were

reflected in the outputs. The provision of services, their quality, scope and structure especially in the case of small enterprises and microenterprises is fundamentally limited by the professional level of the owner and their co-workers. This is closely related to the application of state-of-art practices and technologies, which create a competitive advantage for the enterprises. Achievement of this objective can be ensured mainly by the transfer of new findings concerning modern management method from the research base to the corporate environment of SMEs, or by obtaining relevant licence for a given technology or practice, logically while ensuring the necessary level of company infrastructure. The need to provide the technical background for the implementation of new progressive management methods is not perceived by business owners or managers with adequate intensity, the complexity of this process in the real business practice is more reflected here.

Table 5. Binomial logit model – SMEs – sector of manufacturing and industry

	<b>Estimate</b>	<b>Std. Error</b>	<b>Z value</b>	<b>Pr(&gt; z )</b>
<b>(Intercept)</b>	2.010e+00	6.949e-01	2.892	0.00382 **
<b>HR (value chain)</b>	5.704e+00	2.483e+00	-2.297	0.02160 *
<b>Investments in total</b>	3.210e-05	2.695e-05	1.191	0.23370
<b>HRD (digitalization)</b>	9.015e+00	3.159e+00	2.854	0.00432 **

Source: *Authors' results.*

Table 6. Binomial logit model – SME – sector of services

	<b>Estimate</b>	<b>Std. Error</b>	<b>Z value</b>	<b>Pr(&gt; z )</b>
<b>(Intercept)</b>	-5.792e-01	6.885e-01	-0.841	0.4003
<b>HR (value chain)</b>	1.855e+00	1.091e+00	1.701	0.0889 .
<b>Investments in total</b>	6.178e-06	2.142e-05	0.288	0.7730
<b>HRD (digitalization)</b>	3.380e+00	1.474e+00	2.293	0.0219 *

Source: *Authors' results.*

The use of the binomial logit model in the sectors of manufacturing and industry (see Tab. 5) showed a high degree of significance of the value chain for managers of SMEs in terms of their management, decision-making and earnings. Slightly different results consisting in a lower degree of confirmed significance were recorded in the case of the sector of services (see Tab. 6). Nevertheless, it is still possible to consider the attitude of business management towards the digitization process to be a positive input for the next period. Statistical significance of investment inputs in the individual components of value chain was not confirmed. This is partly given by the period in which the survey was conducted, since the vast majority of the companies reported high profits at that time. The authors of the paper submitted are currently processing the data for the period of the Covid-19 pandemic; the partial results indicate the opposite trends in terms of monitoring value-creating flows in the company including considered development activities to support their evaluation and management.

#### 4. Discussion

In general, from the perspective of business process management, the digitization process can be considered an inevitable and positive process with a global dimension. Its complexity consists in the fact that in addition to the existing actual benefits, it brings many challenges and threats if improperly implemented in the business practice. When designing research activities, the authors assumed that the process of digitizing business processes, its intensity and complexity are prerequisites of systematic and effective monitoring of value flows

in enterprises. This is even more true for SMEs than for large companies, where the digitization process is more intense. The need to address the digital transformation of small and medium-sized enterprises is all the more urgent, as their role in national economies is irreplaceable. Small and medium-sized enterprises are a pillar of national economies all over the world, including the Czech Republic. This fact was the main motivational factor for the authors of this paper to address the issue primarily in this size category. Moreover, the category of SMEs is much more closely connected with the local governments and other institutions operating in their vicinity and this is another reason and real need for accelerating the digitization process in this size category. Following these facts and assumptions, three research hypotheses were formulated.

The first hypothesis was focused on the use of value flows in the required structure and intensity in order to achieve profit and sustainability of SMEs was rejected for both tested sectors. It has been confirmed that in neither of the sectors, SME managers do not use the value-creating feature of business processes for their management, or do not use it in the required structure of the components and with appropriate intensity. This is the case of all main, value-creating processes in the sectors of manufacturing and industry. In the future, the creation of added value or margin seems to be endangered, since the results indicate significant underestimation of value-creating processes in both tested sectors (in terms of the main processes, it is the process of production, marketing and sales in the sectors of manufacturing and industry and the process of providing services in the service sector; in terms of supporting processes, it is company infrastructure). In both sectors, the process of human resources management is paid little attention to, which significantly endangers value-creating business processes ensuring profitability and sustainability. This is also the case of scientific and technical development. The transfer of new knowledge from the field of research and development into business practice has long been criticized by SME owners and managers, so far without any significant improvement of the current situation. The results from the sector of services also document the reasons for rejecting the first hypothesis. Managers of the companies underestimate the importance of the main activities of value chain in terms of the generation of added value; the situation is similar in the case of supporting activities. Given the specifics of the sector of services, the situation should be the opposite, as creating new value in services is a basic factor of their effectiveness and profitability and the main tool to obtain the required competitiveness. The negative impact on profitability was surprisingly identified in the case of marketing and sales, which is supposed to play a key role in gaining and maintaining business competitiveness in the sector of services. In the future, underestimation or insufficient attention paid to value-creating processes may become a significant development risk for SMEs and thus for the entire national economy, as SMEs form its economic base.

The issue of digitization or the achieved degree of digitization, its balance in the tested sectors was addressed in the second hypothesis. Even in this case, the hypothesis was rejected. On the basis of the achieved results, the achieved degree of digitization cannot be referred to as balanced in the entire value chain in both tested sectors, especially in the sector of services. This cause can be found in the quality of human resources or in the degree of their managerial literacy, when many SME managers or owners are not professionally prepared for this process. This finding is a challenge for a system-based solution with financial and material support from the state administration. Within this hypothesis, it shall be stated that the digitization process in the company is significantly influenced by the digitization processes that are adopted from the external environment of companies. This applies mainly to the processes of state administration and relevant institutions and authorities.

The perceived need for the value chain and its digitization from the side of SME managers in both tested datasets in terms of the match of the need and the actual state was the

subject of the third hypothesis. This hypothesis can be considered confirmed. On the basis of the conducted literature search on this issue, it can be stated that the results achieved by the authors of the presented paper show the same tendencies in the concept of business strategy, or business models. Very similar are also the approaches to solving the problem itself, where the main focus is on the analysis of business processes as a basic knowledge for setting the business strategy in terms of maximum fulfillment of customer requirements. Highly positive is the fact that a systemic view of this issue has been proved, i.e. there is a need for digitization process of the entire value chain in the structure of the main value-creating processes and supporting processes. This positive finding can be used to set the further digitization process of business processes, business models, and the entire business environment.

## **Conclusion**

In general, the digitization process is an inevitable societal phenomenon, which concerns the whole society, including the corporate sector. In addition to indisputable benefits of this process, there are also social, personal and professional risk factors. The latter one is the subject of the paper submitted, namely the opportunities and threats of digital transformation of SME business models. At the beginning of the research activities, the authors of the paper formulated the basic research questions defined as hypotheses. Objectively, it shall be stated that some of the achieved results were rather surprising for the authors; moreover, during the research process, other, yet unexpected relations and development trends were defined. The theoretical basis of the solution stems from the specification of corporate or business strategy or business models based on business processes. These are anchored in the value chain and classified into the main, value-creating activities (processes) that ensure the creation of added value or margin, and supporting activities ensuring the proper functioning of value-creating processes. The outputs show that a significant number of SMEs do not accept or even reject the above theoretical basis in terms of the specification and implementation of the business strategy or business models in practice without providing a different solution. On the other hand, a strong perception of the need for the digitization of business processes within a defined value chain with a greater emphasis on the manufacturing and industrial sectors can be considered a positive finding in both sectors. There is a consensus on the irreplaceable role of SMEs as a guarantee of the stability of national economies. The results presented in the paper concerning the lagging behind of these companies in terms of business models' digitization is a reminder both for the state administration bodies and for the business entities themselves in both tested sectors. The authors of the study continue to address this issue with the above sample of firms in different economic conditions. Their further research activities will be aimed at simplifying the procedure by developing software support and a manual for direct use in the corporate sphere.

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**References**

- Atkinson, A. B. (2016). *Ekonomika nerovnosti*. Praha, CZ: Fragment.
- Balaz, R. (2021). The concept of a business model for an air carrier in Slovakia. *International Journal of Entrepreneurial Knowledge*, 9(2), 96-108. <https://doi.org/10.37335/ijek.v9i2.137>
- Barlett, A., & Ghoshal, S. (2003). What is a global manager? *Boston: Harvard Business Review*, 81(8).
- Bienstock, C. C., M. L. Gillenson, & T. C. Sanders (2002). The complete taxonomy of web business models. *Quarterly Journal of Electronic Commerce*, 3(2), 173–182.
- Bocken, N. M. P., I. de Pauw, C. Bakker, & B. van der Grinten (2016). Product design and business model strategies for a circular economy. *Journal of Industrial and Production Engineering*, 33(5), 308-320. <https://doi.org/10.1080/21681015.2016.1172124>
- Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. *Long Range Planning*, 43(2-3), 195-215. <https://doi.org/10.1016/j.lrp.2010.01.004>
- Chesbrough, H. (2010). Business model innovation: Opportunities and barriers, *Long Range Planning*, 43, 354–363
- Chiaromonte F., Cook R. D., & Li, B. (2002) Sufficient dimension reduction in regressions with categorical predictors. *Annals of Statistics*, 30, 475-497.
- Choy, J (2020). Kompromat: A theory of blackmail as a system of governance. *Journal of development economics*, 147. <https://doi.org/10.1016/j.jdeveco.2020.102535>
- Cook, R. D. (1998). *Regression Graphics: Ideas for Studying Regressions Through Graphics*. New York, NY: Wiley.
- Cook, R. D., & Lee, H. (1999). Dimension Reduction in Binary Response Regression. *Journal of the American Statistical Association*, 94(448), 1187-1200.
- Dagnino, G. B., King, D. R., & Tienari, J. (2017). Strategic management of dynamic growth. *Long Range Planning*, 50(4), 427-430.
- Demir, R., Wennberg, K., & Mckelvie, A. (2017). The Strategic Management of High-Growth Firms: A Review and Theoretical Conceptualization. *Long Range Planning*, 50(4), 431-456. <http://linkinghub.elsevier.com/retrieve/pii/S0024630116301273>
- Furjan, M. T., K. Tomicic-Pupek, & I. Pihir (2019). Understanding digital transformation initiatives: cases studies analysis. *Business system research*, 11(1). <https://doi.org/10.2478/bsrj-2020-0009>.
- Gatautis, R. (2017). The Rise of the Platforms: Business Model Innovation Perspectives. *Inzinerine Ekonomika-Engineering Economics*, 28(5), 585–591. <http://dx.doi.org/10.5755/j01.ee.28.5.19579>
- Harris, P. R. (2002). European challenge: developing global organizations. *European Business Review*, 14(6), 416–425, 2002. ISSN 0955 –534X.
- Kidschun, F., et al. (2020). Development of an Organizational Structure Model as a Basis for the Assessment of the Digital Transformation of Organizations. *Proceedings of the 15th European Conference on Management, Leadership and Governance*, 217-226. <https://doi.org/10.34190/MIg.19.107>
- Kinderis, R. (2019). Identification of Business Model Complementarity and the Factors that Determine it in the Klaipeda City Incoming Tourism. *Journal of tourism and services*, 10(19), 93-110. ISSN 1804-5650. <https://doi.org/10.29036/jots.v10i19.107>
- Lazic, A., & Jovic, M. (2019). Strategic digital transformation of organisations. *Proceedings of the 5th IPMA SENET project management conference*, 108, 184-188

- Lenka, S., Parida, V., & Wincent, J. (2017). Digitalization Capabilities as Enablers of Value Co-Creation in Servitizing Firms. *Psychology & marketing*, 34(1), 92-100. <https://doi.org/10.1002/mar.20975>
- Matt, D.T., & E. Rauch (2020). The role of small-and medium sized enterprises in the digital transformation. In *Industry 4.0 for SMEs challenges, opportunities and requirements*, 3-36. [https://doi.org/10.1007/978-3-030-25425-4\\_1](https://doi.org/10.1007/978-3-030-25425-4_1).
- McCullagh, P., & Nelder, J. A. (1989). *Generalized linear models*. 2nd ed. Boca Raton: Chapman & Hall/CRC.
- Meskendahl, S. (2010). The influence of business strategy on project portfolio management and its success - A conceptual framework. *International journal of project management*, 28, 807-817.
- Miles, R. E., & Snow, C. C. (1986). Organizations: New concepts for new forms. *California Management Review*, 28(3), 62-73. <https://doi.org/10.2307/41165202>
- Osterwalder, A., & Y. Pigneur (2010). *Business model generation: A handbook for visionaries, game changers, and challengers*. New Jersey. John Wiley & Sons, Inc.
- Porter, M., E. (1980). *Competitive strategy*. Free Press: New York
- Ryu, H., Lee, J., & Choi, B. (2015). Alignment Between Service Innovation Strategy and Business Strategy and Its Effect on Firm Performance: An Empirical Investigation. *IEEE Transactions on Engineering Management*, 62(1), 100-113. <https://doi.org/10.1109/TEM.2014.2362765>
- Saebi, T., & N. J. Foss (2015). Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions. *European management journal*, 33(3), 201-213. <https://doi.org/10.1016/j.emj.2014.11.002>.
- Schwaferts, D., & Baldi S. (2018). Digital transformation management and digital business development. In *Business information system and technology 4.0*, 147-159. [https://doi.org/10.1007/978-3-319-74322-6\\_10](https://doi.org/10.1007/978-3-319-74322-6_10).
- Slater, S. F., & Olson, E. M. (2001), Marketing's contribution to the implementation of business strategy: an empirical analysis. *Strat. Mgmt. J.*, 22(11): 1055-1067. <https://doi.org/10.1002/smj.198>
- Teece, D. J. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2-3), 172-194. ISSN 0024-6301. <https://doi.org/10.1016/j.lrp.2009.07.003>
- Vaničková, R., & Woszczyzna, S. (2020). Innovation of business and marketing plan of growth strategy, business success and competitive advantage in exhibition industry. *Polish Journal of Management Studies*, 2, 425-445. <https://doi.org/10.17512/pjms.2020.21.2.30>.
- Verhoef, P. C., et al. (2021). Consumers' Privacy Calculus: the PRICAL index development and validation. *International journal of research in marketing*. <https://doi.org/10.1016/j.ijresmar.2021.05.005>.
- Voss, L., F. H. Kühl, & R. Asghari (2020). Fostering digital transformation in SMEs: towards a cohesive digital disruption analysis methodology. *16th European Conference on Management Leadership and Governance*. <https://doi.org/10.34190/ELG.20.049>.
- Watson, D. (2005). *Business models. Investing in companies and sectors with strong competitive advantage*. Hampshire: Harriman House Ltd.
- Wirtz W. B., A. Pistoia, S. Ullrich, & V. Göttel (2016). Business Models: Origin, Development and Future Research Perspectives. *Long Range Planning*, 49(1), 36-54. <https://doi.org/10.1016/j.lrp.2015.04.001>.
- Yuan, Y., et al. (2020). Business strategy and corporate social responsibility. *Journal of Business Ethics*, 162(2), 359-377. <https://doi.org/10.1007/s10551-018-3952-9>
- Yunus, M., B. Moingeon, & L. Lehmann-Ortega (2010). Building social business models: Lessons from the grameen Experience. *Long Range Planning*, 43, 308-325.