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The Influence of COVID-19 Pandemic on Digital Transformation Process and Strategic Management in SMEs in the Czech Republic

Tomas Cervinka

Tomas Bata University in Zlin, Department of industrial engineering and information systems, Czech Republic

Petr Novak

Tomas Bata University in Zlin, Department of business administration, Czech Republic

Abstract

In this qualitative study, we provide insight to the influence of COVID-19 pandemic on the digital transformation process and strategic management in SMEs in the Czech Republic. Digital transformation is perceived as a driver of growth and competitiveness, defined by new technologies and approaches, and strongly connected with strategic management and strategic approach. Drawing on SME employees experience with recent pandemic situation, we analysed and addressed the factors that influence digital transformation process and strategic management to reveal and describe, what drives or slows the process. Our findings have been founded on several case studies carried out in SME organizations via series of interviews that involved employees of various level and specialization. Results reveal that influence of pandemic on digital transformation process and strategic management may vary according to individual experience, which opens the possibility for contextualization and further research using quantitative methods. The results indicate that the influence of covid19 pandemic on strategic management and digital transformation process generated both positive and negative experience. It was perceived as an accelerator of change, speeding up rigid or long-postponed processes and implementations, but also carrying negative effects as employee attrition, loss of morale and motivation and resignation. This research contributes to prior literature on digital transformation and strategic management by investigating the influence of unprecedent events of multinational impact on SME digital transformation process.

Keywords

Digital Transformation, Strategic Management, Covid-19, Change Management, Competitive Advantage, Qualitative Interpretative Research, Strategic Adaptability

JEL Classification

M10, M54, O31

Introduction

Digital transformation is perceived as strategic imperative on growth and performance (Fitzgerald et al., 2014; Hess et al., 2016; Singh and Hess, 2017), but empirical research that examines digital transformation process during unprecedent events such as global pandemic is scarce. The impact of digital transformation on the day-to-day operation is traceable phenomenon and deeper scientific discussion on digital transformation and its risks in context of internal and external factors is needed (Ivanov et al., 2019).

Globalized market is a competitive environment, causing the pressure on process efficiency (Nawanir et al., 2016). As companies need to achieve higher performance to attract new customers and retain current customers by achieving long-term customer satisfaction (Aguwa et al., 2012), they are ought to continuously improve and innovate mainly by improving their production quality, costs, and flexibility (Singh & Singh, 2015). Fitzgerald et al. (2014) define the digital transformation as an enabler of major business improvements such as creating new business models, raising performance, and enhancing customer experience. Therefore, digital transformation leads to gaining advantage in competitive environment.

Sing and Hess (2017) imply that transformation should consider holistic approach and comprehend multiple actions leading to maximize the full potential and avoid or deal with possible threats originating from both digital technologies and external factors. In comparison, the digital transformation is not simply about the technology, but

Corresponding author:
Tomas Cervinka, Tomas Bata University in Zlin
Email: cervinka@utb.cz

mainly about strategy and strategic approach, which imply that management and leaders must be able to implement new business model changes and deal with unexpected situations to optimize production output and meet customer needs, as Rogers (2016) states. Strategic management is a backbone of organization management and means to achieve set goals, and as such it directly contributes to higher competitiveness (Thompson et al., 2020).

Hess et al. (2016) states that firms deal with numerous challenges even if management teams are highly motivated to support the digital transformation of either business processes or organization structures. In addition, the global gamechanger such as pandemic with potential to break incumbent supply and customer chains, disrupt basic processes and stop transformations in progress provides vast opportunities for scholarly attention and sets forth the essential context for the study of pandemic impact on digital transformation process.

To explore this phenomenon, a question is drawn: How did the covid19 pandemic affect the strategic management and digital transformation process of a SME unit from the point of view of employees on various levels?

To answer this research question, case study research is presented on the topics of digital transformation, strategic management, and pandemic influence. Scope of qualitative data was combined through conducted semi-structured interviews with employees of various level and specialization. Authors focus on their experience and perspective (Chia & MacKay, 2007; Regnér, 2008; Whittington, 2006) with attention on individual point of view on digital transformation, strategic management, and pandemic influence.

Research contributes to prior literature on digital transformation and strategic management by investigating the influence of unprecedent events of multinational impact on SME digital transformation process and provide empiric insights into the experience of SME employees with digital transformation process and strategic management during pandemic situation by exploring their individual field experience.

Literature Review

The digital innovation perspective changes the nature of strategic management, as can be drawn from information system literature (Yoo et al., 2010; Yoo et al., 2012; Nambisan et al., 2017; Tilson et al., 2010). The role of digital technology on firms' strategies was examined during past years (Hess et al., 2016; Bharadwaj et al., 2013), regarding the possible disruptive impact on business models and organizations.

As Sing and Hess (2017) imply, the holistic approach must be projected in connection to the strategic management, overall strategy, and digital transformation to compensate for disruptive impact of digital innovation of organizations (El Sawy and Pereira, 2013.)

For Thompson et al. (2020), strategic management provides means to achieve higher competitive edge and digital transformation can be perceived as one of the means. From the point of view of Industry 4.0 as an innovative approach (Üstündağ & Çevikcan, 2018), digitalization is one of the key concepts of raising the organization performance. As a part of industrial engineering, it is a logical element of applied modern approach in strategic management.

Addressing the choice of viable strategy, non-incumbent firms face though decisions whether to join or build its own digital platform, both of which contain unknown risks and unintended consequences (Dattée et al., 2018; Nambisan et al., 2017). The impact of digital transformation on the basic operations of organization, such as strategic management, including the connection to its peers (suppliers, customers) is a topic worthy of deeper discussion. Ivanov et al. (2019) states that connection of digital transformation and coherent risks must be described, widely discussed, and incorporated into scholarly research, concerning the field of management, supply-customer chains, data safety and controlling systems.

As can be drawn on Sommer (2015) the research regarding the SMEs in Germany, digital transformation, and industry 4.0 approach can be perceived as a challenge, mainly from the point of view of knowledge, readiness, and capability to face unexpected challenges. It can be established that the capability and adaptability depend on either size or revenue, but also on deriving factors such as strategic management, financial and human capital, and internal compatibility of embracing change, which originates from digital maturity and level of necessary competencies (Werner & Wäger, 2019). As digitalization is regarded as a sociotechnical process (Tilson et al., 2010), it deals with several issues in social, institutional, and cognitive contexts. That supports the research regarding "company readiness", as defined by Ghobakhloo & Iranmanesh (2021), being one of the crucial determinants of successful digital transformation. Company readiness involves several areas including financial, knowledge and human capital. Motivation, capability of adapting to change and digital maturity is vital in human capital for reaching success in complicated and costly process of transformation (Ghobakhloo & Iranmanesh, 2021).

As for the connection of digital transformation with human resources management and strategic development, involvement of said resources into the process positively affects the outcome and thus organizations' performance alike (Zhou et al., 2021). Dynamic capabilities for digital transformation include factor of digital maturity, affected with internal enablers such as management approach, decision making capability, knowledge capital and external

blockers such as rigid strategic management and resistance to change.

As the digital transformation and Covid 19 go hand in hand, new opportunities emerge (Tecknoworks, 2022). Tovaglieri (2022) claims that according to McKinsey research, the companies were able to adapt digital changes 20-25 faster than expected during the Covid 19 pandemic. Navigating the environment that the pandemic created, companies were ought to pay attention to employees' experience on technology to mitigate the negative effect of transformation.

The role of digital technologies has become more critical in the aftermath of pandemic, mainly in terms of investments in talent for digitization (Agrawal et al., 2020). Nagel (2020) states that digital transformation of work was accelerated by the pandemic crisis and that digital work will play a more important role in the future than traditional jobs.

Organization is ought to build up agile strategy, adaptive business and process models and embrace the digital change to gain competitive edge and achieve sustainable results. (Warner & Wäger, 2019). This is supported by the claim that raising the level of digital maturity of workforce is the determinant of successful digital transformations (Karimi & Walter, 2016; Li, 2017). Strategic management with emphasis on change management can support the digital transformation process of SMEs by limitation of bureaucracy and support of cooperation, innovative thinking, and knowledge sharing (Moeuf et al., 2018). New interactions with customers were made possible due to the digital transformation process (Khanagha et al., 2014; Chesbrough, 2010; Wirtz et al., 2010; Aspara et al., 2013). Logic of traditional business models is challenged by pervasive digital technologies since they cause the growth of customer expectations (Lakhani & Iansiti 2017; McGrath, 2010; Teece, 2010; Teece, 2014). Therefore, companies need to apply strategic approach enabling them to deal with unexpected challenges (Hess et al., 2016) as well as sufficient human capital, mainly represented by the level of knowledge of management which determines their future capability of success (Helfat & Peteraf, 2015.

Methods

Main aim of this research study was to explore and describe the influence of COVID-19 pandemic on the digital transformation process and strategic management in SMEs in the Czech Republic.

Research design was based on two case studies that examine how included companies and their employees perceived the influence on digital transformation process and strategic management. (Eisenhardt & Graebner, 2007).

As a member of digital transformation projects, first author observed number of changes brought to interest amidst the industrial companies originating from the COVID-19 pandemic, as well as various responses across the market. Therefore, the research team used qualitative methods to collect and analyse individual experience and perception to address the main aim of this study.

In terms of the aim stated above, following research questions were proposed:

RQ1: How did the covid19 pandemic affect the strategic management and digital transformation process of a SME from the point of view of employees on various levels?

RQ2: What is the experience of a SME management with identifying the necessity to implement changes due to the COVID-19 pandemic?

RQ3: What does effective digital transformation process mean to employees of a SME and how do they perceive strategic management in relation to their level of position?

RQ4: How do production employees experience the changes resulting from digitalization progress caused by COVID-19?

RQ5: How do SME employees understand the benefits and risks of digitalization?

To address the research problem and answer the research questions, a research project based on conducting a qualitative study was carried out in SMEs in the Czech Republic.

To obtain the necessary data, a series of eight structured interviews was performed by the research team. Open questions interview based on the topics from strategic management, digitalization process and covid19 and its impact on company operation was created and conducted individually via personal meetings or MS Teams meetings between October 2021 and January 2022. Primarily, face-to-face interviews were chosen to enable personal contact. Employees from various age and gender groups from different levels and departments were selected for the interviews. During the interviews, research team asked the employees to share their personal views and experience with digital transformation process, strategic management, and COVID-19 pandemic influence. Research team focused on achieving results on scale from top management to production employee. To ensure the reliability of data collected, the same set of semi-structured questions was used in each interview. Addressing the ethical rules of research, full anonymity was guaranteed to each participant and organization.

The data gathered during the interview were transcribed from MS Word file to MS Excel and sorted into categories and labelled according to their affiliation and meaning.

Final dataset of 8 interviews from 2 medium-sized companies specializing on machinery production and plastic industry consisted of 2 CEOs, 2 IT managers, 2 mid-level production unit leaders and 2 production workers.

Research team drew on data frame used in wide qualitative study by Warner & Wäger (2019).

Table 1. Case study data set.

Case overview	Company A	Company B
Industry	Industrial machinery manufacturing	Plastic and rubber industry
Size (employees)	200-250	150-200
Revenues (2020)	15-20 mil. EUR	20-30 mil. EUR
Market focus	Global	CEE
Scope of case study data		
Interviews in total	4	4
Interview 1	A1	B1
Positions	CEO	CEO
Experience	18 years	15 years
Education	Ing.	Ing.
Interview 2	A2	B2
Positions	IT manager	IT manager
Experience	10 years	8 years
Education	Ing.	Ing.
Interview 3	A4	B4
Positions	Production unit leader	Production unit leader
Experience	12 years	9 years
Education	Bc.	Secondary
Interview 4	A5	B5
Positions	Production worker	Production worker
Experience	16 years	5 years
Education	Secondary	Secondary

Source: authors own

Subsequently, open coding analysis was applied. Each interview was divided by structure of questions and every information unit was assigned with a keyword code. Keywords were merged into categories. Relations between categories were identified and used to synthetize analytical story. A variation of summative content analysis (Hsieh & Shannon, 2005; Schreier, 2014) was used to count and compare keywords and form the content. This approach proved useful in interpretation of the interviews and deepening the understanding of the collected data.

Results and discussion

During the research phase, it became clear that interviewed participants had different perspectives based on their position and hierarchy level on both digital transformation process and strategic management. Also, the effects of pandemic were perceived divergently.

This phenomenon originated from the fact that each employee is struggling with different challenges and deals with different agenda in scope and extent alike.

Digital transformation process from a point of CEOs perspective can be stated: *"From my personal point of view, the digital transformation process is a means to achieve a competitive advantage. We can make decision faster, based on real time data and react to various arising situations. I support the technological development of our company, as well as of individual employees. I strive to invest both money and time to raise our company employees' level of competencies.*

From our organization's point of view, digital transformation is one of the pillars of our strategic management and

we earmarked separate cross-functional strategic team under the management of our IT manager with allocated budget, strategic targets, and manpower. I won't deny it is mainly because of my attitude this process. It goes both ways. One of my long-term goals is to digitize strategic management itself. We aim to implement simple, yet powerful digital tool to ease the management process from beginning to the end. From basic organizational department planning of goals and performance indicators, across the ability to divide each goal to a department and employee, track its progress and level of completion. It is not an easy process, takes a lot of time explaining, showing by example, empowering employees and so on. Yet, the pandemic helped us do that." (Connection to the Fig. 1, synthesized claims).

Whereas the perspective of a production worker can be perceived disparate:

"I am servicing the machining lathe. Yes, now I don't have to report daily outputs, because company installed some tech to count the outputs automatically. But it makes mistakes, so I must keep the count myself and check the data every day and correct a mistake or two. I also must fill in weekly and monthly tables I don't really understand, but I was ordered to do it. The managers are always explaining why we should do this or that, but the floor supervisors usually change it after the shopfloor meetings. So, I do my job, not asking too many questions." (Connection to the Fig. 1, synthesized claims).

Although the points of view may vary, the research team was able to compile individual opinions through semantic analysis into the following table, addressing the synthesized factors resulting from key words assignment and labelling, in context of proposed research questions.

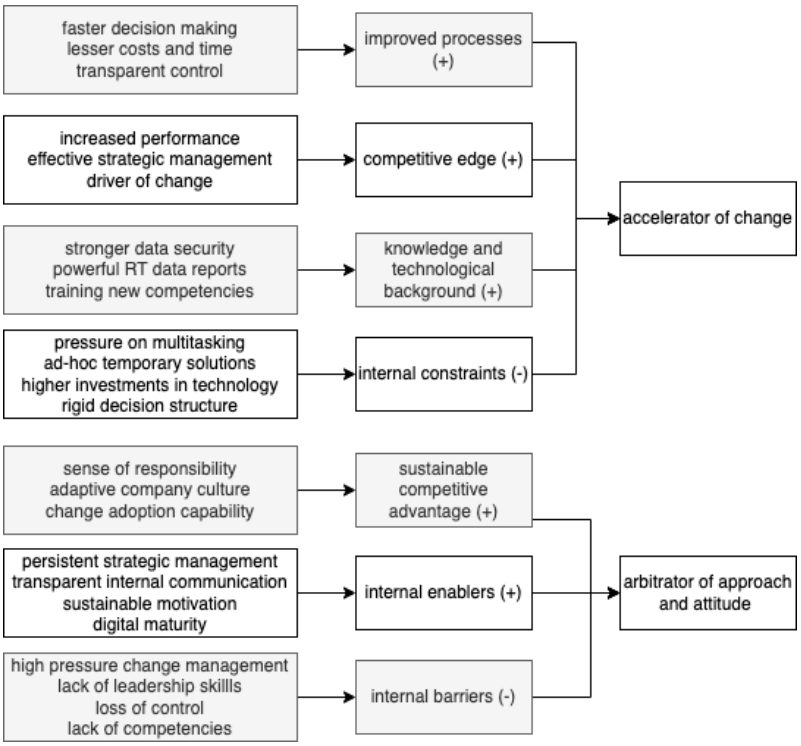

Fig. 1. Pandemic change factors of transformation process
Source: authors own

In Fig. 1, a model that explains the connection between assigned key words and coherent factors implying the answers for addressing the research questions is presented. The model is grounded in individual employees' experience in questioned areas.

The model specifies the main keywords and claims which imply the aggregated point of view on discussed areas. The starting point is represented by synthesized claims leading to key words affecting the output factor.

It can be stated, that from data gathered, the pandemic situation effect can be seen on every level of organization. The size and depth differ accordingly to respondents' position.

The quotation below indicates an experience of IT manager: *"I deem the covid19 as one of the worst situations ever happened to our world and company we had to deal with in the last decade, but from my professional point of view, it is also one of the best things I encountered. The pressure on accelerating the digitalization process was enormous. Suddenly, I had all the attention I needed, I was given a budget, manpower, and for example one simple target: We need to relocate each white-collar colleague to home office. They must have access to Sharepoint files, Office suite and prepare some distant work compatible task management app. Managers need transparent daily reports. Make it happen. Only thing I didn't have, was time. So, we set up everything from the scratch. Planner,*

Teams, Power BI, employee training in distant work tools, Shift management plan for production employees to reduce the risk of infection and so on. So, I can say that in a short time, I was allowed to implement technologies that would have taken much more time in normal circumstances. Suddenly, the schedule of achieving my goals in field of strategic management was much easier and faster." (Connection to the Fig. 1, synthesized claims).

In comparison with the experience of a production worker, it can be quoted: *"Well, for me, the worst thing was fear. I was afraid of job cuts, we were running on half-shifts system, our salary was reduced, and I had to learn how to fill-in new reports for some new applications. Each production machine unit was newly equipped with a tablet, so I had to learn how to use that too. It was a wild ride for few months, but in the end, we managed to get through. We received company memo that praised all of us for helping to achieve some strategic goals of the company."* (Connection to the Fig. 1, synthesized claims).

The necessity of changes was also a common theme within our data. As one CEO put it: *"We had to adapt. In a short time, everything was different. Motivation of employees dropped down, supply and customer chain collapsed, operational problems skyrocketed. It was necessary to change our business model. In the end, it we made the better of it."* (Connection to the Fig. 1, synthesized claims).

In understanding the effective digital transformation process and strategic management, a pattern can be seen. Even on the level of production employee, as it is quoted below: *"The management started to communicate much more than before the pandemic. We received weekly memos, and sometimes daily text messages, that the situation changes, that we must hold on, support the company, and do our job as well as we can. In return, we kept our jobs and after few months, management had paid off all our reduced salaries and rewards. So, I guess that what everyone did was effective."* (Connection to the Fig. 1, synthesized claims).

The awareness of advance in digital technologies was noted among the production employees. The change adaption process also generated several issues that employees had to address. As from the point of view of production unit manager: *"It was difficult at the start. Even the shop floor management worked in shifts, and we shared the management of multiple units. We took turns in leading the production crews and had to work with data from other groups. The power BI reports were a big help. Before that, each of us summarized the data from our production unit and we presented them on weekly meetings. Now, we have the data in real time, which was crucial in managing other units than our own. Sure, we had problems. Some colleagues filled in the data wrong, the illness ration had also risen, and we had to fill in the blanks for those sick colleagues. Some quit their jobs, angry because of salary reduction and changes that took part. But things that would have been impossible few years back, are now a part of our daily lives."* (Connection to the Fig. 1, synthesized claims).

Summarizing the results on various levels, it can be stated, that CEO level employees agree on positive influence in strategic management, faster decision making, performance and effectiveness, and negative influence can be perceived in terms of higher pressure, higher costs, and lack of ability to change. IT managers group points out faster change management, improvement of technology and overall approach to digital transformation as positive, and somewhat temporary solutions, rigid structure, and lack of competencies as barriers or constraints. Production employees are reticent to change and pressure to learn and react faster, but appreciate the cultural change, transparency, and communication.

The perception of benefits and risks of digitalization changed during the pandemic situation. From the data collected, it was obvious that less qualified employees experienced the transformation process as a threat, or something that forced them to change their work habits. During the changes accelerated by the pandemic, some of them learned to accept the digital transformation as something necessary to keep their job and deal with the situation that occurred. Sometimes, this pressure resulted in production employees leaving their job. As we progress through ranks of organization, we can perceive that top and mid-level management experienced the digital transformation as an opportunity, and the pandemic helped them in accelerating and driving the changes needed to keep or gain competitive advantage.

In comparison with Hess et al. (2016) it can be stated that pandemic added up to the numerous challenges of digital transformation, even with motivated employees driving the process. As per Rogers (2016) implications that the strategic approach and capability to adapt to unexpected situations are more vital to transformation process that solely technology, similar phenomenon can be perceived from the research data. Strategy-oriented and adaptable employees were able to deal with pandemic situation more easily.

Digital transformation is related to creating new business models (Fitzgerald et al., 2014). Respondents included support the fact, adding up that pandemic also forced them to change incumbent business models.

Based on the processed data, it can be stated that although the pandemic brought up various problems and difficulties, in the end, in terms of our research sample, it served as an accelerator of change of strategic business model, driver of digital transformation and arbiter of organization's strategic management approach.

Conclusion

This paper was aimed to examine how SMEs deal with the covid19 pandemic effects on digital transformation process and strategic management and we conceptualized the approach to digital transformation and strategic management in pandemic times as a process of gaining a competitive edge for ongoing thrive for sustainability and competitiveness.

According to the obtained data and discussed results, number of conclusions can be drawn regarding the research questions.

It has been found that the influence of covid19 pandemic on strategic management and digital transformation process had both positive and negative impact. It was perceived as an accelerator of change, speeding up rigid or long-postponed processes and implementations. During the times of pressure and crisis, talents emerged, and new approach and competencies were gained. As with all processes of change, job attrition occurred, loss of motivation and resignation had risen, and transparent communication and substant motivation was required to overcome uneasy times. It can be stated that in comparison with the state of perception before pandemic, strategic management gained importance and digital transformation process was accelerated.

As for the management, the capability to implement necessary changes was probed in dealing with internal barriers. It can be stated, that through internal enablers, the changes were able to take place and helped the organization to gain competitive edge. Based on the data, the identification of change, as it springs from the organisation's environment, it the first step of the new transformation process. Then, depending on the capability to take advantage of internal enablers and compensate for barriers, the activities that drive the changes were set up, based on the overall strategic approach of the organisation. Change of strategic approach was also necessary, undertaking the task of creating more effective and faster decision-making processes. Through maximizing the effect of transformation process, firmer competitive position was gained.

The understanding of digital transformation from the point of view of production employees shifted from sometimes necessary and redundant secluded tasks to powerful support to overcome situation that occurred. The results show that experience of production employees may vary depending on their set of skills, attitude, internal communication and relationship to direct supervisor and leadership, causing either stronger stabilization and performance or the loss of motivation, dismay, and resignation.

It can be stated that perception of benefits and risks of digital transformation depend on individual experience with overall process and employee's involvement in the process, based on its position and specialization, as well as on organizations' strategy and internal communication, as derived from analysed data presented in Fig. 1 and individual interviews. As the benefits and risk can be perceived differently, transparent communication and strategic management in terms of goals and tasks management leading to a better position and competitive advantage is necessary.

Results of the research study address the possibility for subsequent quantitative research, which, according to its results, could recommend to SMEs in different industries of the Czech Republic to focus on persistent strategic management, transparent internal communication and continuous training and empowerment of their employees to reach sustainable competitive edge and harness the full potential of digital transformation and strategic management.

Future research can identify the influence factors of Covid 19, such as human resources and knowledge capital, strategic management, digital infrastructure, strategic approach to business models and analyse the relationship to internal and external problems and barriers.

The research contributes to (Ivanov et al., 2019) study results that call for deeper discussion on digital transformation in terms of internal and external factors influencing the output of the transformation process. In terms of this research, authors strived to enrich the point of view by the context of pandemic situation caused by covid19 as a driver of change.

As this study has an exploratory character, there are natural limitation, yet they provide impulses and create possibility for future research. As it comes with qualitative research, the parameters of data triangulation were addressed. To compensate for data distortion, multiple participants from the same organization were included. Reactivity, thus the researcher being present, might be eliminated by future quantitative research based on the collected data. One of the limitations concerns the transferability and generalizability of our findings in wider context. Our data model concerns individual organizations and was not conducted using quantitative methods. It cannot be determined if our model is applicable to a wider population of SMEs in the Czech Republic. Research team focused primarily on individual perspective using qualitative methods, rather than quantitative analysis to analyse and measure the effect of covid19 pandemic on variables as transformation costs, employee attrition ratio, staff training costs, organizational performance, and growth. However, the research team perceives this as an opportunity to move the future research forward, exploring and measuring the effects on quantitative scale, suggesting broader survey research that can provide sufficient data and new insights on long-term pandemic

effects on digital transformation process and strategic management. Future research could explore the means of building up the digital maturity and training necessary competencies needed to successful digital transformation (Zhou et al., 2021). Another research gap can be seen in comparison between various SME divided by fields of business, size, revenue, and other performance indicators, concerning their role and purpose in building dynamic capabilities for digital transformation (Barreto, 2010).

Furthermore, following studies could assess the relevance of multiple internal and external factors of increasing competitiveness. In the world of ongoing continuous competition, constantly developing technologies and new attitudes, the sources of competitive advantage are increasingly unknown (McGrath, 2013). More research is needed to explore the role of unexpected global gamechangers such as pandemic and its effect on gaining and maintaining competitive edge.

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