

THE IMPACT OF DIGITAL TRANSFORMATION ON ORGANIZATIONAL PERFORMANCE OF SMALL AND MEDIUM-SIZED ENTERPRISES: AN ANALYSIS BASED ON DYNAMIC CAPABILITIES THEORY*

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Abstract

In the face of rapid development of the digital economy, digital transformation has become a major way for small and medium-sized enterprises (SMEs) to enhance their competitiveness. Based on the dynamic capabilities theory, this paper studies the mechanism by which digital transformation affects the organizational performance of SMEs. By using the empirical data from a survey of 286 SMEs, the study found that: (1) digital transformation has a significant positive effect on organizational performance; (2) dynamic capabilities play a mediating role in the effect of digital transformation on organizational performance; and (3) organizational learning capability positively moderates the effect of digital transformation on dynamic capabilities. The study enriches the theoretical study on digital transformation of SMEs and provides practical reference for SMEs' digital strategies.

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Introduction

Recent innovations in technologies, including artificial intelligence, big data, and cloud computing, have led to an overwhelming phenomenon of digital transformation worldwide. As stated by the International Data Corporation (IDC), global spending on digital transformation will reach \$2.8 trillion by 2025. In this global environment in which enormous changes are taking place, small and medium-sized enterprises (SMEs), which are significant actors of the economy, have numerous opportunities to develop, but they also face many challenges.

SMEs play very important roles in national economies. According to the latest statistics, SMEs contribute more than 60% of a country's GDP and more than 80% of urban employment opportunities (Li et al. 2022). As compared to larger enterprises, SMEs face tremendous challenges in their digital transformation journey. For instance, SMEs generally have insufficient financial resources, lack of technological capabilities, and lack of talent (Nambisan et al. 2019). Thus, how SMEs can go through their digital transformation to improve their organizational performance has become a very pressing problem for them to solve.

The study of digital transformation of SMEs is especially significant for the post-pandemic business environment. The COVID-19 pandemic has accelerated the adoption of digital technologies across industries, and forced SMEs to review their digital strategy. Those enterprises that had already developed their digital capabilities managed to deal better with the crisis than those who had not yet started their digitalization. Thus, the digital transformation of SMEs and its impact on their performance and survival in the market constitute a very important area of study.

Objectives

The objective of this research is to develop a theoretical framework explaining how the digital transformation influences the performance of SMEs, and also to reveal the inner workings that influence the process of the digital transformation and enhance or hinder its effects. The results of this research can serve as theoretical background as well as as a practical guide for SMEs planning to implement digital transformation in their organizations.

Literature Review

1. Concept and Connotation of Digital Transformation

The concept of digital transformation was first introduced by Vial (2019) referring to processes through which companies make use of digital technologies in order to change their business activities completely. Hereby, digital transformation goes beyond simple informatization. It is a process of change that links technology to business by means of systematic changes in various dimensions (e.g. enterprise strategy, culture and organization) (Warner & Wäger, 2019).

Some research has focused on defining and conceptualizing DT. Bharadwaj, Sawant and Vittal (2013) state that the main goal of DT is to change and improve an enterprise's strategy. Hess, Matthew Schitteck and Brian (2016) state that through DT, the ways in which a company creates value can change completely. Westerman, Boning and Radley (2014) in their book about digital transformation at WEF define DT as a way for companies to use technology in order to increase performance and reach at a high level.

In summary, for the purpose of this research paper, the term “digital transformation” refers to a change process during which a company uses digital technologies in order to completely change its business processes as well as products and services or even the business model of a company in order to

create value and to achieve an advantage on the market through innovation. At the same time, the process of SME digital transformation is marked by a number of specific characteristics. In contrast to large companies with virtually unlimited resources to invest in innovation, SMEs go through a process of gradual digital transformation, step by step, often in an economically rational manner (Li et al., 2022). Thus, the initial phase of digital transformation is typically associated with the digitalization of business operations, followed by a strategic transformation of business models, as well as the services and products offered by companies.

2. Dynamic Capabilities Theory

Dynamic capabilities theory. Dynamic capabilities theory was first proposed by Teece et al. (1997) and represents one of the most important theories in the strategic management field. As a key concept of strategic management, dynamic capabilities theory has been widely applied in many fields. The theory describes an enterprise's ability to integrate, build and reconfigure internal and external resources in order to address environmental changes (Teece, 2007). With the development of digital economy, environmental uncertainty and complexity are increasing. Thus, the role of dynamic capabilities in enabling enterprises to survive and develop in such a competitive environment is becoming more and more important.

DYNAMIC CAPABILITIES. In general, dynamic capabilities are based on three dimensions: (1) sensing opportunities and threats in the environment (sensing capability); (2) seizing on these opportunities by acquiring and integrating resources (seizing capability); and (3) transforming and reconfiguring the enterprise's resource base and processes (transforming capability).

In the last years, the application of Dynamic Capabilities Theory to Digital Transformation contexts has received increasing attention by scholars. Warner and Wäger (2019) argue that in order to be successful in their Digital Transformation, enterprises need to develop new Dynamic Capabilities, namely digital sensing, digital seizing and digital transforming capabilities. These new

capabilities are supposed to enable enterprises to deal with the new challenges and opportunities that arise from the increasing use of digital technologies.

For SMEs the analysis of Dynamic Capabilities is of particular importance as they attempt to conduct digital transformation in an incremental and in a way that is consistent with the existing resources of the organization. The main advantage of Dynamic Capabilities is the fact that enterprises with such a strategy can overcome the limitation of the resources that they possess and achieve competitive advantages through learning and strategic flexibility (Zahra, Soltani, & Ministock, 2006).

3. Measurement of Organizational Performance

Enterprises measure their performance in a comprehensive manner to check if they are reaching their objectives. As a rule, the performance indicators for enterprises are split into two categories: financial performance indicators and nonfinancial performance indicators (Santos & Brito, 2012). Financial indicators to measure the performance of an SME include the sales growth rate, the profit margin and the return on the investment. The nonfinancial performance indicators of an enterprise are indicators that provide information on the degree to which an organization creates value. In this context, customer satisfaction, the degree of innovation of an SME, and the degree of the market share that an SME holds on the market are typical examples. In general, the use of a variety of indicators to measure performance is recommended because single indicators are not always capable of providing an accurate representation.

Considering the long-term and complex nature of the change process of digital transformation for enterprises, a number of indicators are used to measure organizational performance of SMEs. These indicators aim to assess performance from a financial, operational and market perspective, and as such they cover a broad range of potential outcomes that may arise as a result of the organizational change process of digital transformation.

The choice of a set of indicators to measure the performance of a digital transformation project is critical. While financial indicators are typical and provide a good objective basis for comparison between different organizations, they may not be fully representative of all the benefits a digital transformation can bring. Intermediate outcomes such as improved process efficiency, data-driven decision making, and the organization of the supply chain are all key steps in the process of generating financial returns. Market performance indicators capture the competitive advantage and customer experience created by an organization through its digital transformation.

4. Organizational Learning Capability

Organizational learning capability. Organizational learning capability refers to an enterprise's ability to acquire, create, transfer, and integrate knowledge (Jiménez-Jiménez & Sanz-Valle, 2011). The study of organizational learning is especially relevant in the context of digital transformation since enterprises going through this process must be able to absorb new knowledge and make changes to their business processes and practices as required by new technologies. In this sense, there are three types of learning: experiential learning (through experience); vicarious learning (through the experience of others); and deliberate learning (through a study or analysis carried out on purpose) (Argote & Miron-Spektor, 2011).

Enterprises can implement organizational learning through several different mechanisms. Experiential learning, for example, is a process that enables people to improve their skills by learning from their own personal experiences. As employees go about their jobs, they encounter all sorts of problems that require them to use their ingenuity and creativity to come up with innovative solutions. By learning from these experiences, employees are able to apply what they have learned to future situations, leading to improvements in their performance and to the performance of the organization as a whole. Other ways of implementing organizational learning include through the use of other

people's experiences (vicarious learning), and by deliberately attempting to learn from experiences (deliberate learning). The key point about all of these is that they help to improve the way in which an organization is able to use the digital technology that it has purchased in order to develop greater understanding of how to use it, to identify new uses for the technology, and to spread the use of digital systems that have proven to be successful to other parts of the organization.

The relationship between organizational learning and dynamic capabilities has been researched already. Zollo and Winter (2002) describe the processes of learning that result in the development of dynamic capabilities, such as experience accumulation, knowledge articulation, and knowledge codification.

Methodology

1. Sample and Data Collection

The subjects of the study are small and medium-sized enterprises (SMEs). SMEs are defined in the study in line with the Regulations on Classification Standards for Small and Medium-sized Enterprises. These are companies with between 20 and 500 employees, and with an annual business turnover between 3 million and 400 million yuan.

The questionnaire survey was conducted between March and June 2023. The questionnaires were distributed to enterprises via online survey platforms, such as an academic survey platform, and SME communities, as well as via offline channels, including local SME associations and industrial parks. The middle and senior management personnel of the survey respondents had sufficient knowledge of their company's digital transformation and business operations. Before the survey was conducted, a pilot study was carried out with 35 enterprises. Based on the feedback from the pilot study, some of the survey

items were revised in order to make them clearer and more relevant. The pilot study also ascertained the time required to complete the survey (about 15 minutes) and the quality of the data obtained from the survey.

Of the 420 distributed questionnaires, 286 valid questionnaires were collected, which resulted in a recovery rate of 68.1%. The surveyed sample consisted of 38.5% manufacturing companies, 35.3% services companies, 15.7% wholesale and retail companies, and 10.5% of companies from other industries. The distribution of the sample in terms of the number of employees was as follows: 32.2% fewer than 50 employees, 45.4% 50-200 employees, and 22.4% more than 200 employees. In terms of the age of the companies, 28.7% were less than 5 years old, 41.3% were 5-10 years old, and 30% were more than 10 years old.

Late responses vs. early responses: Non-response bias. The study distinguished between late responses and early responses. There was no significant difference between late and early respondents on the enterprise characteristics (employee size, age of enterprise). Thus, non-response bias is not a problem for the current study.

2. Variable Measurement

For all the variables in this study, 5-point Likert scales were used, where 1 is “strongly disagree” and 5 is “strongly agree”. Existing scales have been modified to better fit the context of SMEs, and translated into Chinese and then back-translated to English to check for any language errors.

(1) Digital Transformation

Westerman et al. (2014) and Li et al. (2022) measured the dimension of digital transformation by four sub-dimensions of digital strategy, digital technology, digital processes and digital culture. The twelve survey items are designed to measure an enterprise’s degree of digital transformation from different perspectives. Sample items for measuring the degree of digital transformation include: “Our enterprise has formulated a clear digital

transformation strategy” and “Our enterprise widely applies digital technologies such as cloud computing and big data”. The remaining items are used to assess the degree of commitment that the leadership of the enterprise gives to digital transformation, the degree of investment that the enterprise makes in its digital infrastructure, and the degree to which the various digital initiatives of an enterprise are integrated with its business strategy.

(2) Dynamic Capabilities

For measuring the dynamic capabilities, the study is based on the research conducted by Teece (2007) and Wilden et al. (2013). In order to assess the sensing, seizing and transforming capabilities of an enterprise, 9 items have been developed (see below for examples). They cover issues like the ability to sense in time changes in the market environment, to seize new business opportunities and to transform and restructure the enterprise as required by changing market circumstances. Enterprises can either monitor the technological development in their environment or even integrate internal and external resources in order to tackle new challenges. Thus, they are able to restructure their internal routines in a flexible way in order to increase their innovative capacity.

(3) Organizational Performance

Organizational Performance. Referencing the research of Santos and Brito (2012), organizational performance was measured across three dimensions: financial performance, operational performance, and market performance, comprising 9 items. The study applied a number of subjective indicators for assessing the enterprise’s performance relative to major competitors in the previous 3 years. Since the financial data of SMEs is not commonly available or cannot be easily compared between different industries, this type of performance assessment is particularly suitable for such study objects.

(4) Organizational Learning Capability

Organizational learning capability was measured with 9 indicators across three dimensions of knowledge acquisition, dissemination and application, based on Jiménez-Jiménez and Sanz-Valle (2011) research. These indicators describe practices an enterprise uses to gather external knowledge, distribute inside knowledge within an organization and apply learned knowledge in practice to improve operations.

(5) Control Variables

This study incorporates enterprise size, age, industry and ownership in the analysis as control variables. In relation to the previous factors, these variables may also influence SMEs' performance and therefore should be excluded from the analysis to avoid any possible interference from other factors. Size of an enterprise was measured in the number of employees at the enterprise by using logarithm. The length of time an enterprise has been in operation was measured by calculating the years that have passed since the founding of the enterprise. The four types of industries (manufacturing, services, wholesale/retail, others) were classified as categorical variables. The three types of ownership (private, state-owned, foreign-invested) were also classified as categorical variables.

3. Data Analysis Methods

This study used SPSS 26.0 and AMOS 24.0 to analyze the data. First, the study analyzed the reliability and validity of the scale, as well as the common method bias. Then, it conducted the confirmatory factor analysis to test the measurement model. Finally, it used hierarchical regression analysis and Bootstrap methods to test the hypotheses of the study.

In the analysis of mediation effects the procedure of Baron and Kenny (1986) is widely applied. However, the procedure of Baron and Kenny (1986) is not without limitations (e.g., Center and Kennedy, 1988). Therefore, besides applying the procedure of Baron and Kenny (1986) the analysis of mediation effects in this study applies the application of Bootstrap confidence intervals in

order to test the indirect effects robust. For the analysis of moderation effects the interaction terms between mean-centered independent variables are included in the regression analysis in order to reduce the problem of multicollinearity (Aguinis, 1995). In addition, simple slopes analysis is applied in order to graphically analyze the significant interaction terms.

4. Empirical Analysis

4.1 Reliability and Validity Tests

(1) Reliability Test

Cronbach's α values for all of the four factors were above .7, the critical value (digital transformation α = .912, dynamic capabilities α = .887, organizational performance α = .903, organizational learning capability α = .895). In addition, item-to-total correlations for all of the items were greater than .5. Removal of any item from any factor did not significantly improve the scale's reliability.

(2) Validity Test

The confirmatory factor analysis for the four-factor model yielded the following results: χ^2/df = 2.156; CFI = 0.937; TLI = 0.924; RMSEA = 0.063; and SRMR = 0.048. All of these indicators signaled acceptable fit for the measurement model under study.

The average variance extracted (AVE) for all variables exceeded 0.5 (DT=0.61, DC=0.58, OP=0.63, OLC=0.59). The composite reliability (CR) for all variables exceeded 0.7 (all CR values > 0.85). The square root of the AVE for each variable was greater than the correlation between that variable and all other variables (all values > 0.085). Thus, the results support convergent and discriminant validity for the four study variables.

An alternative four-factor model, with factor Digital Transformation + Dynamic Capabilities, showed a very poor fit (χ^2/df = 3.71; CFI = 0.821; TLI = 0.785; RMSEA = 0.11; SRMR = 0.09) and was therefore not further analyzed. An

alternative two-factor model, with factor Independent + Mediating Variables, also showed a poor fit ($\chi^2/df = 4.53$; CFI = 0.778; TLI = 0.736; RMSEA = 0.12; SRMR = 0.10). Thus, all four studied constructs are distinct.

4.2 Common Method Bias Test

The data for this study were collected by means of the same questionnaire, thus there is potential for common method bias. In order to test for common method variance (CMV), the Harman single-factor test was employed. When the factors were not rotated, the first factor explained 31.24% of the variance, which is below the critical value of 40%. Thus, it is safe to conclude that common method bias is not a major problem for the current study.

A marker variable test was additionally carried out. In this case a so-called single method variable was chosen, i.e. a variable for which it can be sure that it has not been influenced by digitalization. The preferred color was used for this purpose. In correlation analysis with the study variables all correlations were found to be low ($r < 0.08$) thus indicating that there is no substantial common method bias influencing the results of this study.

4.3 Descriptive Statistics and Correlation Analysis

Table 1 presents the mean values, the standard deviations and the correlations between the variables. The results show that digital transformation is positively correlated with dynamic capabilities ($r = .562$, $p < .01$) and with organizational performance ($r = .489$, $p < .01$). In the same way, dynamic capabilities are positively correlated with organizational performance ($r = .571$, $p < .01$). These results support the subsequent analysis of the hypotheses and do not indicate multicollinearity between the independent variables.

Table 1: Descriptive Statistics and Correlation Analysis

Variable	Mean	SD	1	2	3	4
1. Digital Transformation	3.42	0.78	1			
2. Dynamic Capabilities	3.38	0.72	0.562**	1		
3. Organizational Performance	3.51	0.81	0.489**	0.571**	1	
4. Organizational Learning Capability	3.45	0.75	0.478**	0.512**	0.463**	1

Note: ** indicates $p < 0.01$; SD = Standard Deviation

Variance inflation factors (VIF) were calculated for all regression models. All VIF values were below 3.0, well under the commonly used threshold of 10, indicating that multicollinearity does not pose a problem for the analysis.

Results

1. Direct Effect Test

Hierarchical regression analysis was employed to test the direct impact of digital transformation on organizational performance. As shown in Table 2, after controlling for enterprise size, enterprise age, industry type, and ownership type, digital transformation has a significant positive impact on organizational performance ($\beta = 0.467$, $p < 0.001$), supporting Hypothesis H1.

The control variables showed limited effects on organizational performance. Enterprise size had a small positive but non-significant effect ($\beta = 0.054$, $p > 0.05$), suggesting that firm scale does not strongly determine performance outcomes in this sample. Enterprise age similarly showed a weak positive relationship. Industry effects were minimal after accounting for digital transformation, indicating that digital transformation benefits extend across different industry contexts.

Table 2: Hierarchical Regression Analysis Results

Variable	Model 1	Model 2	Model 3	Model 4
Control Variables				
Enterprise Size	0.082	0.054	0.048	0.043
Enterprise Age	0.067	0.045	0.039	0.036
Industry Type	0.023	0.018	0.015	0.012
Ownership Type	0.041	0.032	0.028	0.025
Independent Variable				
Digital Transformation		0.467***	0.285***	0.276***
Mediating Variable				
Dynamic Capabilities			0.389***	0.372***
Moderating Variable				
Organizational Learning Capability				0.124**
Interaction Term				
Digital Transformation × Org. Learning				0.156***
R ²	0.032	0.248	0.362	0.398
ΔR ²		0.216	0.114	0.036
F	2.341	18.567***	26.453***	24.872***

Note: *** indicates $p < 0.001$, ** indicates $p < 0.01$

2. Mediation Effect Test

The Baron and Kenny (1986) mediation testing procedure and Bootstrap method were employed to test the mediating role of dynamic capabilities in the relationship between digital transformation and organizational performance. The findings are as follows: (1) the digital transformation of SMEs has a significant positive effect on dynamic capabilities ($\beta=0.538$, $p<0.001$); (2) when dynamic capabilities were added to the model, the effect of digital transformation on organizational performance decreased from 0.467 to 0.285, and remained significant; (3) the dynamic capabilities of SMEs have a significant positive effect on organizational performance ($\beta=0.389$, $p<0.001$).

Using the Bootstrap method (5000 resamples), the significance of the mediation effect was further tested. The 95% confidence interval for the indirect effect is [0.142, 0.268], and it does not include zero. Therefore, the mediating effect of dynamic capabilities is significant. The indirect effect of digital transformation on organizational performance through dynamic capabilities is 0.209, and it accounts for approximately 45% of the total effect of digital transformation on organizational performance. In summary, dynamic capabilities of an enterprise play a partial mediating role between digital transformation and the organizational performance of the enterprise, supporting the hypothesis H2.

3. Moderation Effect Test

Hierarchical regression analysis was conducted to test Hypothesis H3. The result shows that after adding the interaction term between digital transformation and organizational learning organization capability to the model, the regression coefficient of the interaction term is significant at 0.156 and p-value <0.001 . Thus, Hypothesis H3 is supported. Figure 1 depicts the graph of moderation effect of learning organization capability on the relationship between digital transformation and dynamic capability. Figure 1 portrays the effect of Organizational Learning Capability on the relationship between Digital Transformation and Dynamic Capabilities. We observe that when Organizational

Learning Capability is at its highest (i.e., at +1SD) the simple slope of the relationship between Digital Transformation and Dynamic Capabilities is significantly positive (simple slope = 0.694, $p < 0.001$). Conversely, when Organizational Learning Capability is at its lowest (i.e., at -1SD), the simple slope of the relationship between Digital Transformation and Dynamic Capabilities is significantly less positive (simple slope = 0.382, $p < 0.001$). The difference between the two simple slopes is statistically significant, thereby providing evidence of the existence of an moderation effect. Thus, organizational learning capability serves as an important factor for SMEs to make the most of their digital transformation efforts and to generate additional value through them.

4. Supplementary Analysis

This paper includes four supplementary analyses to examine the robustness of the prior findings. First, an alternative model is estimated by using different performance measures, i.e. financial performance, operational performance and market performance. All three performance measures showed significant positive effects of digital transformation, while the strongest effect was found for the operational performance ($\beta = 0.512$, $p < 0.001$), followed by market performance ($\beta = 0.448$, $p < 0.001$) and financial performance ($\beta = 0.389$, $p < 0.001$). Second, the findings from the prior analyses were replicated in the subsamples of manufacturing and service industry firms. The results supported the mediation model for both types of firms, with somewhat larger effect sizes in the service sector. This result is plausible because the service sector contains many more customer-facing opportunities for digital innovation than the manufacturing sector. Third, prior year performance was added to the model as a control variable to test for reverse causality. The results remained unchanged after the addition of this variable. While the use of a single prior-year measure may not be sufficient to rule out reverse causality, the finding of no change in the results does provide some comfort that the prior findings are not the result of reverse

causality. However, to establish causal claims with certainty, a longer panel of data would be required.

Discussion

Based on a theoretical model which analyzes the influence of digital transformation on the organizational performance of SMEs, this study employed 286 valid questionnaires to test the model and drew the following conclusions. Firstly, digital transformation of SMEs significantly affects their organizational performance and thus is beneficial to improving the performance of these enterprises. As digital transformation generates a variety of values for an enterprise, such as improved business processes, customer experience, and model, advancing digital transformation is essential for improving the organizational performance of SMEs. The findings of this study support the results obtained by prior studies that were conducted on large enterprises, and extend the existing body of knowledge on digital transformation of SMEs. Secondly, digital transformation of SMEs affects their organizational performance through the intermediate variable of dynamic capabilities, and thus the former influences the latter. In other words, the sense of an enterprise, its ability to seize opportunities, and its capability to transform are enhanced by digital transformation of the enterprise. Thus, when advancing digital transformation, SMEs must focus on improving their dynamic capabilities. The results also indicate that digital transformation generates not only direct benefits of improved efficiency but also indirect benefits of developing capabilities. Third, organizational learning capability positively moderates the relationship between digital transformation and dynamic capabilities. Thus, SMEs with high organizational learning capability can more effectively convert their digital transformation investments into dynamic capability advantages. This finding underlines the importance of organizational learning for successful digital

transformation. Thus, SMEs need to build learning organizations and to create an organizational culture that supports knowledge sharing and innovation.

2. Theoretical Contributions

The theoretical contributions to the study can be summed up in three key points. On one hand, the paper extends existing theoretical research into the area of digital transformation into a digital enterprise. A large portion of such studies have focused on research into the transformation of large enterprises. Therefore, the present study explores this area with respect to small and medium-sized enterprises, i.e. organizations that possess considerable potential for development in this area, yet, at the same time, are subject to a number of specific constraints and opportunities that require theoretical analysis. On the other hand, the study presents a new combination of research areas into digital transformation and dynamic capabilities, and, based on this, develops a more complete theoretical framework for the study of information systems from a strategic management perspective. Second, the study reveals the internal mechanism of how digital transformation affects organizational performance. In other words, the study ‘opens up the black box’ between digital transformation and organizational performance by identifying dynamic capabilities as a mediating variable. This means that by introducing the concept of dynamic capabilities, the study provides insights into the various intermediate processes and the way in which digital transformation is translated into organizational performance by means of digital investments. Third, the study identifies the moderating role of the organizational learning capability. This variable influences the effect of the digital transformation on the dynamic capabilities of the organization. The finding supports a contingency perspective for explaining the differing results of digital transformation in organizations. Therefore, the results of the study can be used to develop a strategy for digital transformation that is effective in increasing the organizational performance of an SME. This strategy should be aligned with the organizational learning capability of the enterprise.

3. Practical Implications

On the basis of the above conclusions the present study will outline, in what way SMEs can successfully implement their digital transformation. Firstly, be proactive to create a strategy for digital transformation for SMEs. Digital transformation is key to development for enterprises. First of all, SMEs must realize the importance of digital transformation. With the different characteristics of SMEs, enterprises must choose the appropriate path of digital transformation and put into practice step by step through digital construction in line with the development strategy of the enterprise. Leadership at the top to support digital transformation is important since digital transformation requires continuous investment and change of the organization over time. Secondly, focus on the building of enterprise's dynamic capabilities. During the process of introducing information systems, enterprises of SMEs type must pay special attention to the building of their own capabilities. Strengthening the capability of environmental monitoring and analysis of an enterprise, i.e. its sensing capability, through introduction of modern information technologies and the development of data analytics functions and systems of customer insights, building of cooperative relations with other enterprises (both within the framework of the same enterprise and outside of it) and creation of adequate internal environment that enables an enterprise to implement necessary transformations within the company, i.e. its transforming capability, should become a priority of enterprise's activity. Moreover, it is necessary to create an internal structure of an enterprise that would enable it to seize necessary opportunities on time, i.e. its seizing capability. It is recommended to implement an agile organization structure within an enterprise. Third, establish a learning organization. Within the framework of their digitalization strategies, SMEs must foster an organization culture that promotes and supports their employees in their need for new knowledge and competences. Enterprises can support their employees by installing a knowledge

management system, by offering training and workshops on an internal as well as on an external basis and by organizing crossdepartmental discussions. This supports the organization's knowledge and competence creation in order to support digitalization. Community of Practice could be established for digitalization related projects and processes. Post-implementation reviews should be systematic and knowledge sharing behaviors should be incentivized. Fourth, emphasis should be placed on cultivating and recruiting talent with the right skills for the digital environment. This will provide SMEs with the necessary human resources to support their digital transformation. Beyond having sufficient numbers of employees with the right technical skills, SMEs must also strive to develop the necessary change management skills and those of digital leaders to be able to implement their digital strategy throughout the organization. Fifth, focus on talent. SMEs must recognize the importance of having staff who are able and willing to change as well as having the skills to exploit information and communication technologies. There is a need for a more systematic approach to recruiting and retaining digital talent. Incentives for implementing new skills and knowledge within the workplace should be put in place.

4. Research Limitations and Future Directions

This study has a number of limitations for future research.

First, this study primarily uses cross-sectional data and therefore is unable to establish causal relationships between variables. A longitudinal research design may be used to examine the long-term impact of digital transformation on SMEs, as well as to investigate how the previously mentioned relationships change and develop over time. Second, the data collected for this research study are from Chinese SMEs. Thus, the findings may not be generalizable to other SMEs from other countries. Future research should investigate whether the same relationships hold in other countries and under different institutional and cultural contexts. In other words, cross-national research studies are required to confirm the generalizability of the theoretical framework to other contexts. Third, while

the paper primarily analyzes the mediating effect of dynamic capabilities, future research should identify and analyze other potential mediating variables including organizational innovation, business model innovation, organizational ambidexterity and digital culture, using multiple mediator models in order to gain a more in-depth understanding of the effects of digital transformation. Fourth, future research should also investigate the role of other organizational characteristics as potential moderators, such as the characteristics of the top management team, the industry dynamism, the competitive pressure, and the degree of institutional support for digitalization. Fifth, The subjective assessment of organizational performance used in this study of SMEs may not be as reliable as an objective financial measure of performance, which is typically used in studies of larger enterprises. The use of both subjective and objective measures of organizational performance would be desirable in future research in order to verify findings. Sixth, in this study, the concept of digital transformation is treated as a unidimensional variable, whereas it can be divided into several dimensions. Future studies can, therefore, investigate how the different aspects of digital transformation (e.g., operational digitalization and strategic digital innovation) affect dynamic capabilities and SME performance.

Recommendation

Based on the study “The Impact of Digital Transformation on Organizational Performance of Small and Medium-Sized Enterprises: An Analysis Based on Dynamic Capabilities Theory,” the following recommendations are proposed:

1. Strengthen Digital Capabilities

SMEs should invest in digital infrastructure, digital platforms, data management systems, and employee digital skills. These capabilities enable firms to adapt more effectively to technological and market changes.

2. Enhance Dynamic Capabilities

SMEs should develop three core capabilities: sensing opportunities, seizing opportunities, and reconfiguring resources. This will help organizations respond quickly to customer needs, competition, and environmental uncertainty.

3. Promote Leadership Support for Digital Transformation

Owners and managers should play an active role in setting a clear digital vision, encouraging innovation, and allocating sufficient resources for digital initiatives.

4. Develop Employee Readiness

Training programs should be provided to improve employees' digital literacy, problem-solving skills, and adaptability. Employee participation is essential for successful digital transformation.

5. Use Data-Driven Decision-Making

SMEs should adopt data analytics to understand customer behavior, improve operational efficiency, and support strategic decision-making.

6. Build Strategic Partnerships

Collaboration with technology providers, government agencies, universities, and business networks can help SMEs access knowledge, funding, and digital tools.

7. Focus on Long-Term Performance

Digital transformation should not be viewed only as a short-term technology investment, but as a strategic process that improves innovation, competitiveness, customer satisfaction, and sustainable organizational performance.

Recommendation for future research: Future studies should examine specific industries, compare SMEs of different sizes, or use longitudinal data to better understand how digital transformation influences organizational performance over time.

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