

Research on Managers' Perception of Digital Transformation in Small and Medium Enterprises



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ABSTRACT: Digital transformation (DT) is the direction of many economies, organizations and businesses. Research on DT attracts great interest in academia. The article was carried out by the need to encourage a deeper understanding of DT in the context of small and medium enterprises (SMEs) through analyzing the current status of managers' perception of DT in SMEs in Vietnam. The author begins by reflecting on the theoretical issues of DT such as the concept and role of DT and explains in detail the challenges of DT for SMEs. Next, the research method is presented to describe the research process when making the article. The research results are the important content of the paper presented in the next section with three main topics: the nature of DT, the role of DT and challenges of DT to SMEs. According to research results, managers' perception of revenue still has some inadequacies, such as few managers realizing that revenue is about improving the business's operating processes instead of changing the way of selling and interacting. with customers,...; DT's role is not only gain new knowledge about customers, increase customer satisfaction, expand market opportunities, improve product development processes,... but also to improve business efficiency and increase labor productivity. However, the research results also show a good sign that managers think that the challenge to DT is not too great, completely controllable. Finally, the paper proposes a series of factors that need taking into consideration in order to move towards the digitization of SMEs. By focusing on analyzing key elements of managers' perception of the DT process in SMEs, the article has made a number of academic contributions.

KEYWORD: Digital transformation, manager's perception, small and medium enterprises

I. INTRODUCTION

The application of intelligent information technology and digital transformation is a contemporary issue because of the benefits it takes for the global economy. Society is facing rapid and radical change due to the maturity of digital technologies and their pervasive penetration into all markets (Reis et al., 2018); Companies are facing stiff competition due to globalization and rapidly changing customer needs this is why businesses are driving digital transformation to gain competitive advantage and survive. in the market. SMEs are considered to be the backbone of economies, but the DT process faces many difficulties and challenges due to limitations in size, resources as well as the quality of human resources. Promoting DT in SMEs requires great efforts both at the state management side and at the enterprise side. In terms of state management, propaganda and dissemination of DT for businesses is very important. In addition, supporting resources, building an appropriate institutional environment, developing human resources, and even providing digital platforms for SMEs are essential. On the business side, for successful sales, SMEs need to build strategic strategies and long-term directions for DT. To implement that strategy, SMEs need to mobilize resources, innovate technology, and train human resources for DT. However, these activities are only implemented when enterprises are properly aware of the role and nature of DT. This study was carried out to survey the awareness of managers about DT. The content of exploring the perception of foreign investors about DT focuses on three aspects: Understanding the nature of DT, the role of DT with DME and difficulties and challenges for SMEs when applying DT. The method used in the study is a combination of qualitative and quantitative research. Qualitative research is used to build measures of research variables. Quantitative research is used to test the metrics and measure the research problem. The research results show that the awareness of the managers about DT is still relatively inadequate, and it is necessary to make great efforts to raise the awareness of the managers about DT.

II. LITERATURE REVIEW

1. Digital transformation concept

Digital transformation (DT) is one of the important drivers of economic growth (Hanafizadeh & Bohlin, 2020). Research on digital technology and the application of digital technology in business activities has attracted the attention of many researchers. However, there is still no unified understanding of DT. Initially, DT was understood as focusing on digital technology to interact with customers. The DT process in enterprises begins with rethinking what customers value most, and then creating operational models that leverage new digital technologies to differentiate themselves from the competition (Berman, 2012).

Hagberg Sundstrom and Egels-Zandén (2016) explored the digital transformation of retail by discussing how it affects four elements of the retailer-consumer interface (exchange, actor, service, installation). The authors analyze changes in exchange practices through changes in communication, transactions, and distribution; the transformation of actors through the blending of humans and digital technologies, the blurring of boundaries between new actors, roles and relationships; variation in settings including traditional settings, new settings as well as mixtures between them; and how offerings are transformed through product changes, service extensions, and new forms of pricing (Hagberg Sundstrom and Egels-Zandén, 2016). More broadly, DT aims to create new products and services, improve organizational performance and innovate business models. Fitzgerald et al. (2013) explained DT as the use of digital technology to transform business models to create new business models such as improving customer experience, simplifying operations. From the original purpose of changing the way customers interact, DT helps organizations change the way they create value based on the impact of digital technology; managing organizational change and its impacts (both positive and negative); optimize organizational processes with the goal of operational excellence using data-driven workflows (Lederer et al., 2017); use technology to improve the performance or reach of the business. And since then, DT has become an essential tool to maintain the competitiveness of enterprises. Some later authors emphasize more on the role of DT in different aspects of social life. Reis et al. (2018) believed that DT is the use of new digital technologies to achieve the main goal of transforming business models and influencing all aspects of social life. He categorized DT into three distinct levels: (1) technology transformation - based on the use of new digital technologies such as social media, mobile, analytics or embedded devices; (2) organizational transformation - DT to create changes in organizational processes, create new business models; (3) social transformation - using digital to create positive impacts on aspects of people's lives, for example, enhancing the customer experience. Although there is still a lack of clarity regarding the concept of DT, in simple terms, DT is "enterprise plus technology plus data"; The main advantage of DT is the transformation in the processes, activities, capabilities and models of a company, thereby affecting different aspects of social life or in other words, DT is model innovation. create new values and economic forms.

2. The role of digital transformation

Digital transformation is widely influencing many different industries, especially healthcare, telecommunications, automotive, banking and manufacturing sectors (Nadeem et al., 2018). DT is becoming more and more important in every country due to the roles it brings to businesses and social communities. On the economic side, DT benefits businesses and the economy as a whole through improvements in productivity, quality, and financial costs. For businesses, DT creates changes in products and services; a change in the way customers interact; the change in operating process thereby creating new business models and improving the competitiveness of enterprises. For SMEs, studies have shown that DT processes can improve business performance because of the transformation of key business activities, affecting products and business processes (Cardona et al., 2013), (Gu & Jung, 2013). Furthermore, SMEs taking advantage of DT processes can improve the efficiency of information use in enterprises and improve business performance (Marchand et al., 2002); can access market opportunities, gain new knowledge about customers, and improve new product development processes (Neirotti et al., 2008), (Setia, et al., 2013) and can contribute to organizational impacts (Bayo-Moriones et al., 2013), (Jean, 2007); Melville et al., 2004). The European Commission emphasizes that the benefits of DT for SMEs can include: improved process efficiency and quality; increase employee productivity; increase customer satisfaction; easier access to new markets; strengthen business relations with large companies; ensure business flexibility; increase return on investment; reduce administrative costs and focus more on core business activities (Commission, 2015).

3. SMEs' difficulties and challenges in digital transformation

It can be argued that it is easier for large enterprises to implement DT than SMEs because they have more resources for DT. Likewise, the European Commission (2015) emphasized that while DT creates unprecedented opportunities for SMEs to enter new markets by participating in global digital supply chains, the challenge for enterprises are to realize the full potential of ICT as well as the technical issues, benefits and innovative thinking of enterprises. Jari Collin et al., (2015) argued that both the challenges and opportunities of DT in trading companies stem from three groups of factors: (1) external factors related to the market, (2) internal factors related to organizational and technical areas within the company, or (3) elements of the company's core values, i.e. are activities and changes related to the core business.

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Regarding challenges from the external environment, Lederer et al. (2017) argued that wider use of IT can solve external challenges such as rapidly changing customer needs, international competitiveness or technological change. According to Biahmou et al. (2016), the challenge for SMEs' sales process comes from optimizing the supply chain with modern technologies to improve products and services according to the continuous changes in demand. Improving the factors of the internal environment to suit the change of the external environment is the common direction of SMEs. However, how to improve is a difficult problem for businesses. Imran & Kantola (2019) stated that for optimal performance, changes within an organization must be compatible with changes in the external environment (i.e. development in technology and markets).

The intrinsic challenges of digital transformation can be overcome through the perspectives of business model, technology and knowledge. From a business model point of view, the challenge with SME's DT process can be related to governance aspects such as a focus on end-to-end digitalization of tangible assets; integrating digital ecosystems with value chains (Lee et al., 2017); integrating "digital" into business models (Reis et al., 2018) or reshaping customer value (Berman, 2012). In addition, it is possible to mention the challenges that come from dealing with important governance issues (Horlacher & Hess, 2016), handling changes in process and operational governance to ensure interoperability. Interoperability between different systems, standards, and formats used for electronic data exchange. In terms of technology, SMEs often face difficulties in the DT process due to the selection of appropriate technology. SMEs can only benefit from DT when their information systems are compatible with new technologies. However, due to limited financial resources, most SMEs use an isolated solution instead of an integrated solution at the ecosystem level when innovating technology. Financial investment for technological innovation is also a challenge for SMEs because this is a group of businesses with weak financial resources while the costs related to the identification, development, purchase and integration of suitable IT solutions, ensuring DT performance is great. In another aspect, security and privacy are also major obstacles hindering the DT process at enterprises in general and SMEs in particular. Trying to achieve the same level of security and privacy is a complex issue and it becomes a challenge for SMEs. This has been demonstrated in the studies of YIN et al., (2016) and Viriyasitavat (2016).

The challenges associated with SME's core values stem from the fact that DT can transform an enterprise's core business activities. Viriyasitavat (2016) said that the dynamics in real-time interaction of service processes creates complexity, service attributes change frequently, and an appropriate selection process is required.

III. RESEARCH METHODOLOGY

To clarify the reality of the perception of the foreign investors about the DT in SMEs, the author uses a combination of qualitative research methods and quantitative research methods

3.1 Qualitative Methods

Qualitative methods are used with the aim to discuss the indicators used to measure the nature of DT, the role of DT in SMEs, and challenges with the acquisition process in SMEs. Based on the theoretical basis that has been synthesized, the author outlines a questionnaire with two main parts: the first part is to find out the perception of the public about the DT in SMEs and the second part is the personal information of the respondents as well as the respondents. Like the company they work for. To assess the role and challenges faced by enterprises when implementing DT, the author uses a 5-level Likert scale to answer the statements in the questionnaire with 1 - totally disagree and 5 - totally agree. 15 scientists who are lecturers teaching modules on digital business, management, and information technology at universities in Hanoi were invited to participate in the discussion. In addition, 20 other members who are NGOs, technical staff and sales staff at SMEs in Hanoi's districts were also invited to participate in the discussion. Acquiring opinions in the discussion, the author has built an official questionnaire with two parts, the part assessing the perceptions of the public about the population in SMEs and the description describing the information of the respondents as well as where they work. job. The public's perception of DT in SMEs focuses on three main topics: (1) Understanding of digital transformation; (2) Role of DT with SMEs; (3) Challenges for DT in SMEs.

3.2 Quantitative Methods

Data collection

After completing the questionnaire, the questionnaire is sent to SMEs in two ways: Direct survey with SMEs in Hanoi and survey via google form with SMEs in Da Nang and Binh Duong in February 2023. Due to time and financial resources, direct surveys were only conducted in Hanoi - the locality where the author lives and works. SMEs are understood according to the provisions of Decree No. 39/2018/ND - CP 2018 of the Government of Vietnam, are enterprises with less than 200 employees and 100 billion VND of operating capital in the fields of agriculture - forestry, fisheries, industry, construction or less than 100 employees and 100 billion VND operating capital in the field of trade and service. Due to the condition of time and resources, the author surveyed 58 enterprises with convenient random sampling method. In each enterprise, the author surveyed 5 managers (top-level: 1, middle-

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level: 2 and low-level: 2). With the help of Trade union officials from the Binh Duong Provincial Labor Confederation, the survey was sent to 23 enterprises, the results obtained 100 responses in 20 enterprises (3 enterprises refused to answer because objective reasons). Thus, the survey link was sent to 15 businesses in Da Nang through the Da Nang City Labor Confederation. Results in Da Nang received 75 responses The author directly surveyed 20 enterprises In Hanoi in paralell. The list of businesses was provided with the Hanoi Labor Confederation, the survey process was also supported by an official at the Federation. The results obtained 100 responses from international investors in SME enterprises in Hanoi. The total number of responses from 58 enterprises in three provinces and cities was 275. After cleaning the questionnaires and preliminary screening, 265 questionnaires were included in the analysis to assess the current state of public perception of DT in SMEs.

Data analysis

Survey data was coded and entered in excel and then entered into SPSS 22 software for processing. For the purpose of evaluating the reliability and accuracy of the scale, the author used the coefficient of KMO (Kaiser - Mayer - Olkin) to consider the appropriateness; total variance explained to consider the fit of the EFA model; Bartlett test to see if the variables are correlated with each other; Cronbach's Alpha coefficient, factor loading, and Corrected Item - Total Correlation to consider the reliability of the scale (Hair et al., 2010). Descriptive statistics are used to describe the observed variables. In addition, techniques of synthesis, descriptive statistics, data comparison are used to analyze and comment on the surveyed data.

IV. RESULTS AND DISCUSSIONS

1. Statistical results, description of the survey form

On the basis of the generalized theory and predefined research methods, the author has synthesized the results of the survey on the perception of foreign investors about DT in SMEs in Hanoi. The characteristics of enterprises participating in the survey shown in Table 1 are quite consistent with the structure of SME in Hanoi in terms of fields of operation as well as the number of years of operation. Among the enterprises participating in the survey, the majority of enterprises have just implemented DT at the level of IT application in operations (36.23% of enterprises participating in the survey) and digitizing the organization's data (28.3% of enterprises participating in the survey). The number of enterprises with total DT only accounted for 15.47%, corresponding to 41 enterprises

Table 1: Characteristics of enterprises participating in the survey

Criteria	Classification	Quantity	Rate (%)
Field of activity	Industry	84	31.7
	Agriculture, forestry and fishery processing	57	21.5
	Trade and service	124	46.8
Number of years of operation	Less than 5 years	84	31.7
	From 5 to 10 years	133	50.2
	Over 10 years	48	18.1
DT level at enterprises	IT application	96	36.23
	Data Digitization	75	28.3
	Process Digitization	53	20
	Digital transformation	41	15.47

Source: Author's survey, 2023

About the characteristics of the international staff participating in the survey: The number of male international students is 181, accounting for 68.3%, female staff is 84, accounting for 31.7%; most of the ICUs were aged from 31 to 40 years old with 150 patients, accounting for 56.6%; the number of international students at college level is 61, accounting for 23%, university level is 181 accounting for 68.3% and graduate level is 23 accounting for 8.7%. An interesting thing discovered in the study is that although the survey subjects are managers in enterprises, the majority of them are young people in terms of age (the number of managers between the ages of 31 and 40 accounts for 56.6%) and less experience (the number of managers with 5 to 10 years of working experience accounts for 63.8%). It can be said that the team of international managers in SMEs is being rejuvenated. This is the result of the development of the education and training system, the rejuvenation of the entrepreneurial team, the spirit of entrepreneurship and innovation in Vietnam.

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Table 2: Personal characteristics of managers participating in the survey

Criteria	Classification	Quantity	Rate (%)
Gender	Male	181	68.3
	Female	84	31.7
Age	From 22 to 30 years old	66	24.9
	From 31 to 40 years old	150	56.6
	From 41 to 50 years old	45	17
	Over 50 years old	4	1.5
Academic level	College		
	University		
	Postgraduate		
Level of Management	Top-level	58	21.9
	Mid-level	105	39.6
	Low-level	102	38.5
Working experience	Less than 5 years	48	18.1
	From 5 to 10 years	169	63.8
	Over 10 years	48	18.2

Source: Author's survey, 2023

2. Survey results on managers' perception of the nature of digital transformation

The results of the survey on the perception of foreign investors in SMEs about the nature of DT show that the awareness of digital transformation of foreign investors is still incomplete. 163 managers think that the essence of DT is to use digital technology to create new products and services, but this seems to be true only for businesses operating in the field of information and communication technology. The number of managers who think that the essence of DT is to use digital technology to change the way of interacting with customers is also quite large with 132 votes; is to change the way value is created based on the impact of digital technology with 155 votes. With the development in awareness of DT, recent perspectives emphasize, DT is not only the work of information technology enterprises but needs to be applied in all types of businesses because DT is the use of technology to innovate business models, improve labor productivity, and improve organizational performance. The European Commission emphasizes that DT starts with using "smart" ICT to create competitiveness for businesses, especially SMEs, but in the long run, information technology must be applied in the entire operation of the enterprise thereby creating a change in operating processes, business models and even core business values (Commission, 2015). The use of "smart" ICT in companies leads to digital transformation, which refers to the optimization of an organization's processes, by using technologies to improve performance. However, the number of managers aware of this is very small. Only 87 managers said that DT is using digital technology to change the business model of enterprises; 99 managers believe that DT is the use of digital technology to improve business performance and 119 managers understand that DT is using technology to radically improve the performance or reach of the business.

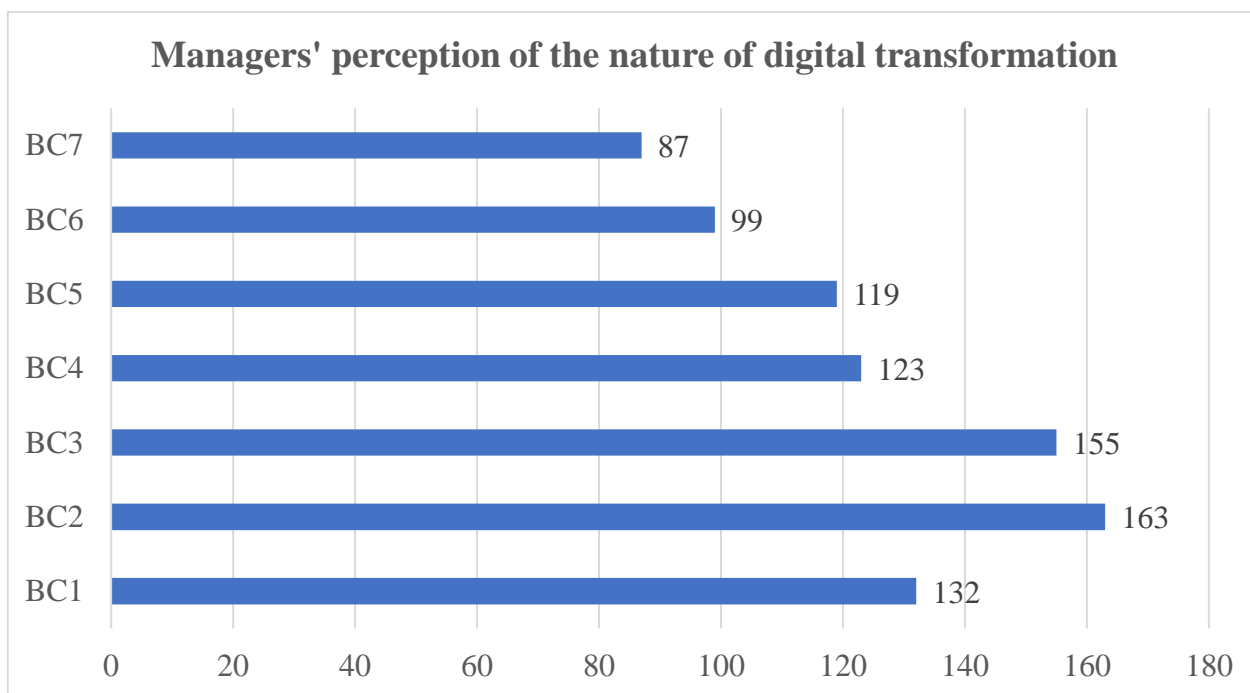


Figure 1: Managers' perception of the nature of digital transformation
 Source: Author's survey, 2023

3. Survey results on managers' perception of the role of digital transformation

The roles of DT for businesses are considered on two aspects: The role of DT with operational management activities and the role of DT with operational efficiency. of the enterprise. The results of processing survey data also show that the KMO of the role scale is 0.588, satisfying the condition $(0.5) \leq KMO \leq 1$ is a sufficient condition for factor analysis, Bartlett's Test sig is $0.000 < 0.05$, showing that observed variables are correlated with each other (Hair et al., 2010). The EFA test shows that the coefficient of Cronbach's Alpha test is 0.882, showing that the reliability of the scale is good (Hair et al., 2010). The survey results on the perception scale of managers about the role of DT are shown in Table 3. The loading coefficients of all factors are larger than 0.6 and smaller than Cronbach's Alpha coefficient of the whole group, showing that the observed variable has good quality; The total variance explained is 68,419, showing that the EFA model is suitable. The correlation coefficient of all variables is greater than 0.3, showing that the observed variable is strongly correlated with the remaining variables, the observed variables show the role of DT with SMEs.

Table 3: Results of the survey of managers' perception on the role of digital transformation

No.	Variables	Descriptive statistics		Factor analysis	
		Mean	Standard Deviation	Factor Loading	Corrected Item - Total Correlation
<i>"Process of performing operational management tasks" aspect</i>					
1	DT helps businesses gain new knowledge about customers	3.74	0.475	0.866	0.346
2	DT helps businesses increase customer satisfaction	3.85	0.722	0.870	0.673
3	DT helps businesses expand market opportunities	3.94	1,080	0.872	0.589
4	DT helps businesses improve new product development processes	3.64	0.988	0.882	0.392
5	DT helps businesses strengthen business relationships with large companies	3.63	1,073	0.864	0.711
6	DT helps improve the efficiency of information use in enterprises	3.68	1,062	0.861	0.775
7	DT helps businesses improve process efficiency and quality	3.82	1,115	0.860	0.785

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8	DT helps businesses ensure business flexibility	3.63	1,025	0.868	0.659
"Enterprises' business performance" aspect					
9	DT helps businesses increase employee productivity	3.54	0.988	0.870	0.612
10	DT helps businesses reduce costs, increase return on investment	3.54	0.941	0.870	0.615
11	DT helps businesses focus more on core business activities	3.63	1,227	0.881	0.460
12	DT helps businesses innovate their operations	3.63	0.829	0.884	0.323
13	DT helps businesses improve their operational efficiency	3.71	0.951	0.862	0.772

Source: Author's survey, 2023

A remarkable point in the survey results on the perception of the public about the role of DT is that the mean value of all observed variables is greater than 3.5, reflecting the degree of agreement with the statements about the role of DT quite well. Administrators believe that DT plays an important role for SMEs, which is reflected in the fact that DT supports operational management activities in enterprises such as helping businesses obtain information about customers, increasing customer satisfaction, and increasing customer satisfaction. expanding market opportunities, improving production processes and providing services, etc. At the same time, DT helps businesses improve the efficiency of their activities, which is reflected in improving labor productivity, reducing costs, and increasing productivity. profits, focusing on core business activities, innovating business operations, improving business efficiency. The research results of the author are quite consistent with the research results of the Cardona et al., (2013), của Gu & Jung (2013), của Neirotti et al, (2008); của Setia et al., (2013), của European Commission (2015). This is why DT is important for SMEs in particular, for organizations and social community in general. DT is considered an important driving force for global economic development.

4. Survey results on managers' perceptions of difficulties and challenges in digital transformation

DT is said to be very important for SMEs, but to get successful DT, businesses have to deal with many difficulties and challenges. Reviewing the studies of previous researchers, the author built a scale of difficulties and challenges for SMEs including difficulties and challenges from: business environment, business model, technology, knowledge and skills of staff or core business values of the enterprise. The results of testing the scales are shown below:

Table 4: Results of testing the cognitive scale of MANAGERS about difficulties and challenges for businesses in digital transformation

No.	Index	Value	Evaluation
1	KMO	0.681	Eligible for factor analysis
2	Sig Bartlett's Test	0.000	The observed variables are correlated with each other
3	Coefficient of Cronbach's Alpha	0.911	The reliability of the scale is good
4	Total Variance Explained	78,781	The observed variable is strongly correlated with the remaining variables

Source: Author's survey, 2023

The results of descriptive statistical analysis of difficulties and challenges faced by enterprises when performing DT showed that the average value of the observed variables about difficulties and challenges for enterprises was greater than 3.5; some observed variables have average values above 4. This shows that DT with SMEs faces many difficulties. Two groups of factors are said to create the biggest difficulties and challenges for SMEs when sales are difficult due to changing core business values and difficulties stemming from knowledge and skills of human resources (value of human resources). mean values are 4.04 and 4.09, respectively; Two observed variables measuring difficulties and challenges from knowledge and skills of human resources both reached the average value of 4.00. The author's research results are slightly different from those of (Chu, 2021) because in his research, two factors are believed to have the strongest impact on successful digital transformation in businesses. as "data and information security" and "government support". In the study of (Chu, 2021), the factor that has the least impact on successful sales in enterprises is "external logistics services" while the author's research results show that factors from the external environment The outside seems to cause less difficulties for SMEs in the DT process.

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The results of EFA analysis show that the scales of difficulties and challenges for SMEs when DT have a factor loading greater than 0.6; The Corrected Item - Total Correlation is greater than 0.3, showing that the observed variable has good quality (Hair et al., 2010).

Table 5: Results of the survey on awareness of MANAGERS about difficulties and challenges for businesses in digital transformation

No.	Variables	Descriptive statistics		Factor analysis	
		Mean	Standard Deviation	Factor Loading	Corrected Item - Total Correlation
Environmental factors					
1	Economic, legal or institutional environment creates challenges for businesses in the process of transformation	3.45	0.839	0.909	0.552
2	International competition creates challenges for businesses in DT	3.63	0.980	0.912	0.423
3	Technological change creates challenges for businesses in DT	3.68	1.018	0.922	0.326
4	Businesses face challenges in DT due to the constant change in customer demand	3.70	0.949	0.910	0.526
Business model					
5	Integrating the digital ecosystem with value chains is a big challenge for businesses in the DT process	3.72	1.072	0.909	0.527
6	Integrating "digital" into business models creates great challenges for businesses in DT	3.77	0.902	0.907	0.605
7	Enterprises face difficulties in digitizing tangible assets	3.85	0.976	0.906	0.640
8	Enterprises face difficulties in handling changes in process and operational management	3.91	1.042	0.909	0.554
9	Enterprises have difficulty in handling important management issues	3.91	0.951	0.901	0.820
Technology					
10	Optimizing supply chains with modern technologies is a big challenge for businesses in the DT process	3.91	0.848	0.910	0.484
11	Enterprises have difficulty choosing the right technology	3.94	0.973	0.910	0.510
12	Ensuring security and privacy is a challenge for businesses	3.95	0.930	0.905	0.696
13	Limited financial resources	3.9509	0.93006	0.908	0.572
14	Interoperability between different systems, standards and formats used for electronic data exchange	3.96	0.978	0.901	0.819
Necessary knowledge and skills of staff					
15	The necessary knowledge and skills of human resources create challenges for businesses to transform	4.00	0.955	0.902	0.792
16	Enterprises have difficulty in training new skills	4.00	0.907	0.907	0.619
Core business					
17	DT changes core business activities of enterprises	4.04	0.978	0.904	0.711
18	DT forces businesses to reshape customer value	4.09	0.902	0.910	0.510

Source: Author's survey, 2023

V. CONCLUSION AND IMPLICATION

The results of the author's research show that the perception of DT about DT still has many shortcomings. First of all, the awareness of the nature of DT. The new managers are aware of the original values of DT which is to change the customer experience, change the way to interact with customers. However, in reality, DT needs greater efforts to improve business processes. Regarding the role of DT, managers still believes that the great benefits that DT brings to businesses is to help businesses gain new knowledge about customers, increase customer satisfaction, and expand market opportunities, improving the process of developing new products, etc. Meanwhile, DT also brings greater benefits such as improving business efficiency, improving labor productivity. Inadequate awareness of the role of DT can hinder efforts to apply DT in enterprises. Raising the awareness of foreign investors about DT is very necessary and important not only for SMEs but more broadly for the global economy. To promote DT in SMEs, corporate managers need to understand deeply and fully the nature of DT and the roles that DT will bring to businesses. This is a prerequisite for successful DT application in SMEs.

Of course, applying DT can cause businesses to face many difficulties and challenges. The results of the author's research show that the average value of these difficulties and challenges is mostly below 4 - meaning that corporate managers think that these are not tough challenges, beyond their control. Of course, seizing control of these challenges will speed up the DT process in SMEs.

Raising awareness of foreign investors about DT must first come from their own efforts in SMEs. They must be active people in seeking knowledge about DT and how to apply DT in the business. With the development of the sharing economy, knowledge about DT is presented in many different media and managers must be proactive in accessing this information. On the basis of a correct and sufficient understanding of the DT, the manager selects appropriate information and technology to build a sales strategy for the business. This requires great efforts from mapping out the vision and direction for the future; mobilize resources for DT; control changes before, during and after the conversion process or mobilize the support of human resources during the conversion process.

On the side of state management, which is directly the Ministry of Industry and Trade, the Ministry of Information and Communications needs to continue to develop action programs to propagate and raise awareness for foreign nationals about ethnic minorities. Propaganda content should focus on in-depth issues of DT such as usable technologies, strategic planning process for DT, human resource training for DT, change control when DT, etc. With that content, it is very necessary to organize DT forums for foreign nationals to share, learn and discuss important issues of DT. These forums allow participants to exchange and interact with each other, improving the effectiveness of propaganda and knowledge dissemination.

REFERENCES

- 1) Bayo-Moriones, A., Billón, M., & Lera-López, F. (2013). Perceived performance effects of ICT in manufacturing SMEs. *Industrial Management and Data Systems*, 113(1), 117–135. <https://doi.org/10.1108/02635571311289700>
- 2) Berman, S. J. (2012). Digital transformation: Opportunities to create new business models. *Strategy and Leadership*, 40(2), 16–24. <https://doi.org/10.1108/10878571211209314>
- 3) Biahmou, A., Emmer, C., Pfouga, A., & Stjepandić, J. (2016). Digital master as an enabler for industry 4.0. *Advances in Transdisciplinary Engineering*, 4(October 2017), 672–681. <https://doi.org/10.3233/978-1-61499-703-0-672>
- 4) Cardona, M., Kretschmer, T., & Strobel, T. (2013). ICT and productivity: Conclusions from the empirical literature. *Information Economics and Policy*, 25(3), 109–125. <https://doi.org/10.1016/j.infoecopol.2012.12.002>
- 5) Chủ, B. Q. (2021). Nghiên cứu khám phá các nhân tố ảnh hưởng đến chuyển đổi số thành công của doanh nghiệp ở Việt Nam. *Tạp Chí Khoa Học & Đào Tạo Ngân Hàng*, 14(233), 57–70.
- 6) Commission, E. (2015). *SMEs' growth digital*.
- 7) Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). Embracing Digital Technology A New Strategic Imperative: Findings from the 2013 Digital Transformation Global Executive Study and Research Project. *MIT Sloan Management Review*, 1–16. <http://sloanreview.mit.edu/faq/>
- 8) Hair, J., Anderson, R., Babin, B., & Black, W. (2010). Multivariate Data Analysis.pdf. In *Australia : Cengage: Vol. 7 edition* (p. 758).
- 9) Horlacher, A., & Hess, T. (2016). What does a chief digital officer do? Managerial tasks and roles of a new C-level position in the context of digital transformation. *Proceedings of the Annual Hawaii International Conference on System Sciences, 2016-March*, 5126–5135. <https://doi.org/10.1109/HICSS.2016.634>
- 10) Imran, F., & Kantola, J. (2019). Review of Industry 4.0 in the Light of Sociotechnical System Theory and Competence-Based View: A Future Research Agenda for the Evolute Approach BT - Advances in Human Factors, Business Management and Society. *Advances in Human Factors, Business Management and Society.*, 118–128.

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- 11) Jari Collin, Kari Hiekkänen, Janne J. Korhonen, Marco Halén, Timo Itälä, M. H. (2015). *Leadership in Transition*.
- 12) Lederer, M., Knapp, J., & Schott, P. (2017). The digital future has many names - How business process management drives the digital transformation. *2017 6th International Conference on Industrial Technology and Management, ICITM 2017*, 22–26. <https://doi.org/10.1109/ICITM.2017.7917889>
- 13) Lee, M.-X., Lee, Y.-C., & Chou, C. J. (2017). Essential Implications of the Digital Transformation in Industry 4.0. *Journal of Scientific & Industrial Research*, 76(August), 465–467.
- 14) Marchand, D., Kettinger, W., & Rollins, J. (2002). *Information Orientation: The Link to Business Performance*.
- 15) Nadeem, A., Abedin, B., Cerpa, N., & Chew, E. (2018). Editorial: Digital transformation & digital business strategy in electronic commerce - The role of organizational capabilities. *Journal of Theoretical and Applied Electronic Commerce Research*, 13(2), i–viii. <https://doi.org/10.4067/S0718-18762018000200101>
- 16) Neirotti, P., Cantamessa, M., & Paolucci, E. (2008). Do companies with a competitive advantage make better use of IT? Evidence from Italian enterprises. *International Journal of Technology Management*, 42(1–2), 158–184. <https://doi.org/10.1504/IJTM.2008.018066>
- 17) Reis, J., Amorim, M., Melão, N., & Matos, P. (2018). Digital transformation: A literature review and guidelines for future research. *Advances in Intelligent Systems and Computing*, 745, 411–421. https://doi.org/10.1007/978-3-319-77703-0_41
- 18) Viriyasitavat, W. (2016). Multi-criteria selection for services selection in service workflow. *Journal of Industrial Information Integration*, 1, 20–25. <https://doi.org/10.1016/j.jii.2016.03.003>
- 19) YIN, Y., Zeng, Y., Chen, X., & Fan, Y. (2016). The internet of things in healthcare: An overview. *Journal of Industrial Information Integration*, 1, 3–13. <https://doi.org/10.1016/j.jii.2016.03.004>



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