

## Affecting factors to the decision on digital transformation and its process at small and medium-sized enterprises in Hanoi, Vietnam

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### CHRONICLE

*Article history:*

Received: December 26, 2023

Received in revised format:

February 20, 2024

Accepted: April 6, 2024

Available online:

April 6, 2024

*Keywords:*

Digital transformation

Business digital transformation

Small and medium-sized enterprises in Hanoi

### ABSTRACT

The research was conducted based on the theory of planned behavior (TPB), with the research model built on 06 influencing factors to the digital transformation process of businesses, with the intermediate variable "Decision on digital transformation". There were 456 small and medium-sized enterprises in Hanoi surveyed for this research from March to June 2023. Research results found that the digital transformation process of small and medium-sized businesses in Hanoi are strongly affected by the "digital transformation decision"; while the technology platform and employees' capabilities largely determine these businesses' decision to digital transformation and its process. On that basis, three policy implications are proposed to promote the digital transformation process at small and medium-sized enterprises in Hanoi.

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## 1. Introduction

Digital transformation is an issue of great concern in the practical activities of governments, businesses and even in scientific research. Digital transformation is a series of activities, a complete process of employing digitalization and digitalization applications to a higher level to create new methods and ways of working. According to this understanding, digital transformation goes through three levels: digitalization, digital applications - digital activities, and digital transformation. In terms of theory, some studies focus on businesses' digital transformation strategies (Hess, Benlian, Matt, & Wiesbock, 2016; Matt, Hess, & Benlian, 2015; Zinder & Yunatova, 2016). Other studies focus on understanding the digital transformation process and influencing factors (Gamache, Abdul-Nour, & Baril, 2019; R. Eller, Alford, Kallmunzer, & Peters, 2020), however those work often considers the direct impact of influencing factors on the digital transformation process. This may not be convincing, because according to the theory of planned behavior (TPB), the behavior of applying new management methods comes from the intention of the subject (Ajzen, 1991; Dung, Trung, Thao, & Hoang, 2023). In practice, digital transformation is inevitable but not all businesses succeed. Some pioneering businesses in employing digital technology have become powerful large enterprises by transforming their operating models, better meeting customer needs and more effectively managing resources. However, in Vietnam, most businesses are struggling because of many concerns such as weak financial issues, information leakage, broken supply chains, and lack of synchronization of infrastructure elements; leading to skepticism among businesses about the success of digital transformation. Furthermore, the digital transformation process is different for each business, which depends heavily on factors both inside and outside the business. In particular, the Covid-19 epidemic and social distancing that have occurred since the beginning of 2020 are a boost to the e-commerce industry. Many businesses in Vietnam are starting to get used to selling online. Digital economy growth

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doi: 10.5267/dsl.2024.4.002

increased by 16% by the end of 2020 (N. Binh, 2020). Digital transformation of businesses can contribute from 24 to 30 billion USD to gross domestic product (GDP) in 2024 and contribute to Vietnam's economic recovery after Covid (Ngoc Luu, 2020). In addition, the state has also issued many policies to encourage the development of the digital economy such as Decision No. 749/QĐ-TTg dated June 3, 2020 of the Prime Minister approving the "National Digital Transformation Program to 2025, orientation to 2030" (Government of Vietnam, 2020) (Chính phủ, 2020). Therefore, digital transformation of small and medium-sized enterprises is very important. However, currently, there are very few studies related to digital transformation of small and medium-sized enterprises conducted in Vietnam. Those existing studies seem to only focus on the current situation related to the level of readiness for digital transformation or the stages of transformation without clearly studying the factors affecting digital transformation. This is said to have led to 57.6% of SMEs in Vietnam having difficulty implementing digital transformation at their businesses (Vietnam Investment review, 2021). Or according to the "Digital development report of small and medium-sized enterprises in Asia", most businesses, including Vietnamese ones, are indifferent to digital. Insufficient resources as well as a lack of understanding about the digital transformation process and influencing factors are also one of the explanations for this inadequacy (Đào Phương, 2019).

Therefore, we focus on examining the current status of digital transformation and influencing factors to this process at small and medium-sized enterprises in Hanoi in order to have better strategies in digital transformation. In addition, this study is also a basis as well as a reference for future teaching and research on digital transformation in small and medium-sized enterprises in Hanoi.

## 2. Research Overview of Enterprise Digital Transformation

Studies on digital transformation and businesses' capabilities of digital transformation: These studies conduct analysis of the nature of digital transformation in the direction of the digital transformation process and the necessary conditions (capabilities) for businesses to be able to conduct digital transformation (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022; (Nguyễn Thị Kim Anh & Nguyễn Thị Xuân Nương, 2022; Putthiwat, Kamonchanok, & Pongsa, 2021; Stoianova, Tatiana, & Victoriya, 2020). Accordingly, digital transformation is inevitable for businesses, but many factors are needed for successful digital transformation, including employee capacity, technology platform, corporate pressure, leadership, digital business strategy and corporate culture. Studies on the digital transformation process of businesses: These studies focus on the basic steps for an organization or a business to carry out digital transformation. Accordingly, the digital transformation process consists of 4 steps, from (1) Having a foundation in information technology, (2) Digitizing data, (3) Digitizing process, and (4) Completely digital transformation (Matzler, Bailom, Eichen, & Anschober, 2016). Research on factors affecting the digital transformation process of businesses: This research direction has received the attention of many studies both domestically and internationally (Chu Ba Quyet, 2021; Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022; (Chữ Bá Quyét, 2021; Mazzei & Noble, 2017; Nguyễn Thị Kim Anh & Nguyễn Thị Xuân Nương, 2022; Putthiwat, et al., 2021; Stoianova, et al., 2020). Accordingly, common factors affecting digital transformation include Leadership, Digital business strategy, Employee capacity, Corporate culture, Technology platform, Corporate pressure. The results of synthesis and analysis of studies related to digital transformation of businesses and organizations show that research often focuses on the nature of the digital transformation process and factors affecting digital transformation in general or at businesses in specific industries and fields. Some studies focus on the output direction of digital transformation, that is, the impact of digital transformation on business outcomes or performance. A common feature is that these studies have not considered the impact of those factors on digital transformation through the intermediate variable "digital transformation decision", if one considers that behavior comes from previous implementation intention according to the theory of planned behavior.

## 3. Theoretical basis

### 3.1. Business digital transformation

#### 3.1.1. Definitions

Digital transformation is the use of technology to radically improve the performance or reach of a business (Stolterman & Fors, 2004). Digital transformation is not just about digitizing resources, but the value created by businesses must be based on digital assets (McDonald & Rowsell, 2012). Also from this perspective, digital transformation in business can be understood as the use of new digital technologies such as social media, new analytical techniques, or automated linking systems to make major changes in business operations encompassing of customer experience enhancement, operation optimization, and new business models (Fitzgerald, Kruschwitz, Bonnet, & Welch, 2013). Digital transformation is the changes that digital technology can bring about in business models, leading to changes in products or organizational structures or automation of business processes (Hess, et al., 2016). Thus, digital transformation in businesses is not simply a matter of digitizing data, operational processes, or organizational information, but more importantly, applying technology to analyze digitized data to thereby change the way of creating value for businesses. The digital transformation ability of a business is the ability to apply new digital technologies in organization, operation, and management; and at the same time to create valuable assets from digital technology applications to help businesses optimize resources, better meet market

needs and create added value for businesses (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022) (Nguyễn Thị Kim Anh & Nguyễn Thị Xuân Nương, 2022).

### 3.1.2. *The digital transformation process of businesses*

The digital transformation process of businesses goes through 3 stages. Phase 1 is strategic orientation. During this period, businesses need to take advantage of technology solutions and improve customer experience to achieve their goals. Businesses often use available or easily accessible resources at a reasonable cost and in accordance with the business's ability to deploy. Phase 2 is digital transformation of the business model. At this stage, businesses focus on applying digital technology on a wide scale, with connections between functions. This stage often focuses on changing the management model to bring optimal efficiency in business operations. Phase 3 is the phase of digital transformation of management capacity. This is a period of complete digital transformation, focusing on connecting and synchronously integrating business systems and corporate governance. Information will be shared across departments and in real time. Digitally transforming management capabilities will help businesses manage and carry out operations more economically and with outstanding efficiency (Li, Su, Zhang, & Mao, 2018). Accordingly, the digital transformation process in businesses is often divided into three levels of digitization and digitalization; and digital transformation.

+ Digitization is the stage of transition from traditional methods (analog) to digital platforms; to create digital representations of entities (i.e. to generate data that characterizes these entities). For example, switching from TV advertising to online advertising. Simply converting information into digital form is not enough to call it digital transformation. The deciding factor is that digital information must be processed by systems and machines that make it functional and usable. This process opens up for businesses a new space, new business models and potential for technological advances and innovations waiting to be exploited (Joseph, 2018).

+ Digitalization or digital application is the use of digital data to streamline work. This level aims to innovate the business model of the enterprise to adapt to the existence of digital environments, that is, transform the way it operates by using digital technology and data to create greater new value for businesses (Brennen & Kreiss, 2016). The digitalization stage is the first step for businesses to succeed in digital transformation. At this stage, all physical documents and papers are transferred entirely to electronic data; stored in a network environment, on a cloud computing platform, from which it can be easily searched and retrieved. Businesses will save space for storage, printing costs, and limit the loss of documents.

+ Digital transformation is the application of data and processes in new business models (Nambisan, Lyytinen, Majchrzak, & Song, 2017).

### 3.2. *Factors affecting businesses' digital transformation process*

Swen and Nadkarni (2020) summarized previous studies and points out that internal factors affecting the digital transformation ability of businesses are divided into 3 groups: 33% on technology, 34% on organization and 33% on both technology and organization. In studies focusing on organizations, the four most mentioned directly affect the expected results of digital transformation of businesses: (1) leadership, (2) digital business strategy, (3) employee capacity and (4) corporate culture. For research focusing on technology, the use of technology platforms for business activities such as: systematic storage of data information, customer interaction, internal communication and other activities that affect the digital transformation ability of the business. In the research of Nguyen Thi Kim Anh and Nguyen Thi Xuan Nuong, they call it (5) a technology platform. Besides, the research of these two authors also developed a new scale (6) corporate pressure to digital transformation (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022) (Nguyễn Thị Kim Anh & Nguyễn Thị Xuân Nương, 2022).

In this study, the sixth factor is called "Digital transformation pressure", because the existing pressure is obviously pushing businesses to improve the way they operate and aim to change their business models. Digital platforms make businesses' internal and external interactions much more convenient and effective than traditional methods. In addition, the digitalization of information systems in management and for customers along with modern analytical techniques help the proposed solutions have a clearer basis and be more effective in business implementation. Therefore, the determined trend of digital transformation creates pressure for businesses to conduct digital transformation, which is defined in this study as "Digital Transformation Pressure".

Another viewpoint believes that decisions about digital transformation are like deciding to apply a new management method, accepting to replace an old method or technology with a newer one (Ajzen, 1991; Davis, 1989; Ong, Kathawala, & Sawalha, 2015; Tang, Chen, & Wu, 2010). Therefore, decisions related to the digital transformation process of businesses are clearly influenced by the decision maker's acceptance to implement digital transformation (Truong Duc Thao, Vu Dao Tung Phuong, & Nguyen Anh Tuan, 2022) (Trương Đức Thao, Vũ Đào Tùng Phương, & Nguyễn Anh Tuấn, 2022). Therefore, this study proposes the variable "digital transformation decision" to be included as an intermediary variable between factors affecting the digital transformation process of businesses. Those factors are examined for their indirect impacts through intermediaries on the digital transformation of small and medium-sized enterprises.

### 3.2.1. Leadership

Changes in leadership thinking and actions greatly affect the ability of businesses to digitally transform. Those changes include: rapid optimization of leadership decision-making processes through instant access to open information and data (Mazzei & Noble, 2017), and changes in learning and development leadership development (Sia, 2016). Furthermore, leaders need to have a digital mindset to lead the digital transformation journey (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022) (Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022). Digital transformation leadership describes characteristics such as, being interested in digital transformation, having a positive attitude towards business digital transformation, using new technology applications in interactions, supporting proposals to apply technology to digitize operational and management processes in businesses, constantly learning to develop capacity to meet digital transformation requirements, and being ready to address concerns arising from the dark side of digital transformation (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022; (Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022; Putthiwat, et al., 2021; Stoianova, et al., 2020).

### 3.2.2. Digital business strategy

Information technology plays an important role in business activities. It has not only supported management but also developed into an essential element in building corporate strategy (Bharadwaj, 2000). Building and implementing a business strategy to achieve long-term goals on a digital technology platform is called digital business strategy (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022) (Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022). Digital business strategy is expressed in contents such as, digital transformation goals are included in the business strategy of the enterprise, the enterprise determines the establishment of a digital office in the strategic plan of the enterprise, the enterprise has deployed the use of a database system, the enterprise's strategy aims to change its operating model, the enterprise aims to optimize customer experience on digital platforms (Ministry of Information and Communication, 2021; Chu Ba Quyet, 2021; (Bộ Thông tin và Truyền thông, 2021; Chử Bá Quyết, 2021; Putthiwat, et al., 2021; Stoianova, et al., 2020).

### 3.2.3. Employee capacity

For employees and managers, there needs to be a process to perform activities faster, more accurately and more effectively when digital transformation is implemented. Therefore, employees must have enough capacity and be ready to access, develop and use new technologies in improving and performing work (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022) (Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022). Furthermore, depending on business conditions, employees and managers must develop the ability to perceive and be flexible in exploiting network systems and connectivity in a digital environment (Brennen & Kreiss, 2016; Daniel & Wilson, 2003). Employee capacity is expressed as: employees use information technology applications well, businesses provide training for employees to use digital applications, employees have a positive attitude toward new technology applications, employees in enterprises are given autonomy, enterprises have specialized employees in the field of information technology (Ministry of Information and Communication, 2021; Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022; (Bộ Thông tin và Truyền thông, 2021; Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022; Putthiwat, et al., 2021).

### 3.2.4. Corporate culture

Digital transformation requires a corporate culture that verifies and shares data (Dremel, Herterich, & Wulf, 2017). This will require high transparency in work and business processes as well as data thinking among employees (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022) (Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022). In addition, digital transformation can cause cultural conflicts between young employees who understand digital technology but lack experience and older employees who have a long track record in traditional business but lag behind in terms of technology (Kohli & Johnson, 2011). Digital transformation corporate culture is expressed in whether each individual in the enterprise is willing to share knowledge and experience with each other or not, the spirit of mutual learning is always emphasized, each individual is always proactive in work, stored information is considered common property of the enterprise, enterprise data is always verified before being stored and shared, the coordination of work implementation within the enterprise is well managed (Ministry of Information and Communication, 2021; Chu Ba Quyet, 2021; Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022; (Bộ Thông tin và Truyền thông, 2021; Chử Bá Quyết, 2021; Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022; Putthiwat, et al., 2021; Stoianova, et al., 2020).

### 3.2.5. Technology platform

Digital transformation will change work structures (Loebbecke & Picot, 2015), job roles and workplace requirements (White, 2012). Digital interconnectedness enables the emergence of cross-location teams across the entire enterprise. In this context, traditional hierarchical work structures gradually disappear and new opportunities appear beyond the enterprise (Loebbecke & Picot, 2015). A digital workplace must be relevant, disciplined, imaginative, and independent of work location (White, 2012). Thus, how a business has a technology application platform in its current operations will greatly affect its ability to successfully realize digital transformation in the future (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022) (Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022). The technology foundation for digital transformation is understood as whether the business is exploiting a website to provide information, how the business is creating conditions for employees to use personal electronic devices for work, the business is managing an internal interactive system to reduce face-to-face work assignments, the business is applying cloud computing techniques in internal

administration, the business has created a digital workspace (Ministry of Information and Communication, 2021; Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022) (Bộ Thông tin và Truyền thông, 2021; Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022).

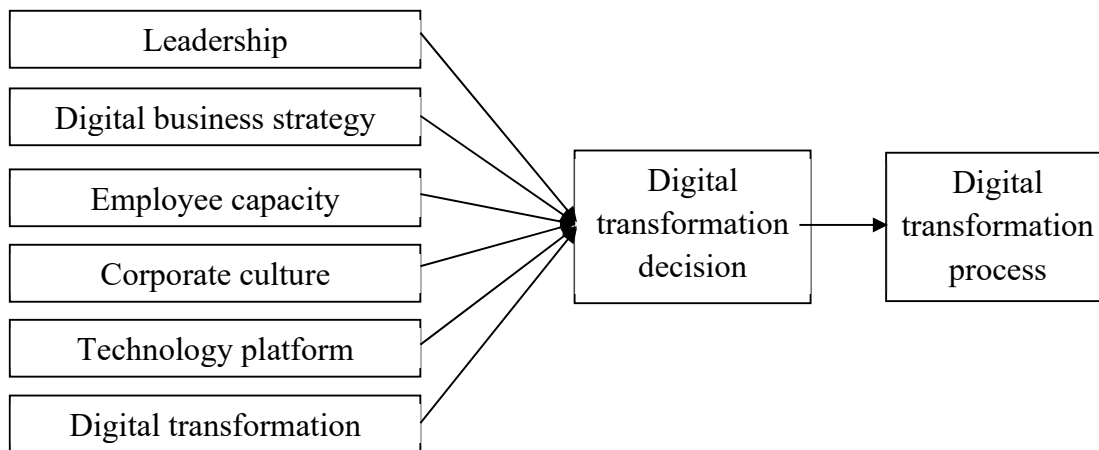
### 3.2.6. Digital transformation pressure

Pressure for digital transformation is understood as the actions businesses need to take in digital transformation to create better value such as using digital technology applications to interact with customers better, optimizing business and management processes, arranging better connection between departments, more effective using of resources, applying innovation in creating products for customers (Nguyen Thi Kim Anh & Nguyen Thi Xuan Nuong, 2022; (Nguyễn Thị Kim Ánh & Nguyễn Thị Xuân Nương, 2022; Putthiwat, et al., 2021).

## 4. Research methods

### 4.1. Research models

From the results of the aforementioned research overview, the research model of this topic is summarized as follows:



**Fig. 1.** Research model of affecting factors to businesses' digital transformation process

*Source: synthesized by the research team*

### 4.2. Research data

In this study, sample size is appropriately and reliably calculated according to the number of questions (Hair, Tatham, & Black, 1998). 500 survey forms have been distributed to small and medium-sized enterprises in Hanoi, and 485 responses have been returned, of which 456 were valid (>360). Regarding the sample structure, the dominant field of activity is enterprises operating in the field of trade and services with 171 enterprises, accounting for 37.5%; followed by 161 enterprises operating in the industrial sector, accounting for 35.3%; finally, there are 124 enterprises operating in the agricultural sector, accounting for 27.2%. This is understandable, when Hanoi is the economic and political center of the country, the number of businesses operating in the commercial and service sectors is much greater than the other two sectors. Therefore, this sample structure is appropriate.

In addition, the number of enterprises in the survey sample with fewer than 100 employees also account for a high proportion (84.5%), which is consistent with the reality of small and medium-sized enterprises. and is also consistent with the predominant proportion of commercial and service enterprises in the study sample. This is because businesses in this field often employ few workers and are gradually being replaced by information technology applications, e-commerce, digitalization... The proportion of revenue is similar to the proportion of businesses in the research sample, with the survey results showing a high concentration towards businesses with revenue of less than 50 billion/year in three recent years (78.5%). This is appropriate when considering the actual situation of the Covid pandemic over the past 3 years and the transition to a new normal state in nearly 2 years. In that context, businesses face many difficulties, reflected in the rather modest revenue levels of small and medium-sized enterprises in Hanoi.

EFA analysis was performed with the principal axis factoring method, Promax rotation, and breakpoint when extracting elements with matrix eigenvalue equal to 1. The results of EFA with 36 observed variables show that the KMO coefficient reaches 0.833 with Sig value. = 0.000 and Eigenvalues reach 71.741 at a factor breakpoint of 1.062. The results of the rotated matrix also reveal that the study's measurement scales converge on 06 factors consistent with the proposed research model. The results of testing the reliability of the research concepts and scales show that the Cronbach's Alpha coefficient of the factors all reached a value greater than 0.6, meaning that the scales used in the study are appropriate.

In the model of these scales  $df=570$ , and the results of testing the critical model confirm that the model is compatible with the research data set: Chi-square= 1492.673 ( $p=0.000$ );  $cmin/df = 2.619$ ; CFI = 0.921; GFI = 0.852; TLI = 0.913; and RMSEA = 0.060. The standardized weights of the observed variables are all greater than 0.5 and the unstandardized weights of the variables are all statistically significant, leading to confirmation of the convergent validity of the scales. The correlation coefficients of the concepts are all less than one unit, so the concepts achieve discriminant value. The measurement model fits the research data set, with no correlation between measurement errors confirming the achievement of unidimensionality.

## 5. Research results

To evaluate the current state of the relationship between factors affecting the digital transformation process at small and medium-sized enterprises in Hanoi, model estimation is performed by linear structural equations (SEM).

**Table 1**

Standardized estimation of parameters in the theoretical model

Relationship between concepts	Standardized estimate	Unstandardized estimate	SD	(t)	(p)
<b><i>R<sup>2</sup> of the digital transformation decision = 0.492</i></b>					
QDCDS ← LD	0.171	0.161	0.037	4.288	0.000
QDCDS ←ALCDS	-0.111	-0.094	0.049	-1.924	0.054
QDCDS ← VH	0.065	0.056	0.038	1.485	0.138
QDCDS ← NL	0.209	0.272	0.072	3.772	0.000
QDCDS ← CL	0.192	0.180	0.047	3.833	0.000
QDCDS ← NTCN	0.518	0.445	0.054	8.196	0.000
<b><i>R<sup>2</sup> of the digital transformation process = 0.524</i></b>					
QTCDS ← QDCDS	0.724	0.815	0.062	13.174	0.000

(Source: Data processing results on Amos24)

Model estimation results show that the digital transformation process of small and medium-sized enterprises in Hanoi is strongly influenced by the digital transformation decision of business leaders (over 50%,  $R^2 = 0.524$ ). In particular, the digital transformation decision of small and medium-sized enterprises in Hanoi is positively influenced by factors such as, Technology platform ( $\beta=0.518$ ,  $p=0.000$ ); Employee capacity ( $\beta=0.209$ ,  $p=0.000$ ); Digital business strategy ( $\beta=0.192$ ,  $p=0.000$ ); Leadership ( $\beta=0.171$ ,  $p=0.000$ ). For the rest, there is not enough evidence to conclude that there is an impact relationship between the factors Digital Transformation Pressure and Corporate Culture on the digital transformation decision of small and medium-sized enterprises in Hanoi ( $p=0.054$  and  $0.138$  respectively, both greater than  $0.05$ ).

## 6. Policy implications

Based on research results on affecting factors to the digital transformation process of Vietnamese small and medium-sized enterprises using data collected from 456 small and medium-sized enterprises in Hanoi, the following policy implications are outlined to promote the digital transformation process in small and medium-sized enterprises in Hanoi in particular and similar localities that are aiming for digital transformation:

### 6.1. Actively communication to raise awareness of the need for digital transformation of small and medium-sized enterprises

Model estimation results show that leadership plays a very important role in digital transformation. The consistent awareness, determination and commitment of leaders will positively influence the decision to conduct the digital transformation process of the business. In addition, the role of employees is also very important. Because if they are trained to clearly understand digital transformation and its importance, favorable conditions for the digital transformation process will certainly be created. After all, human resources are still the most important thing in any organization.

For Vietnam, this recommendation aims to propagate, disseminate, and raise awareness and skills about the activities of the central government's Digital Transformation Support Program for Small and Medium Enterprises (SMEs). This plan applies to SMEs in Hanoi in many forms such as composing documents, print newspapers, electronic newspapers, and mass media; using social networks, portals/websites, seminars, conferences, contests with content related to digital transformation activities and other forms.

Relevant agencies should develop documents, publications, reports, and media columns on digital transformation, organize annual events on digital transformation, and introduce digital technology products and digital platforms to serve management, production, business and digital economy in all fields, introduce digital platforms to small and medium-sized enterprises, and encourage SMEs to participate in programs to support small and medium-sized enterprises in digital

transformation. At the same time, it is necessary to evaluate and select typical SMEs whose strong digital transformation developments every year to honor and widely publicize in the media.

In Hanoi city, the main role in implementing this solution is the Department of Information and Communications. Accordingly, this unit needs to organize and integrate propaganda content and instructions on digital transformation, and provide training on exploiting and applying digital transformation platforms in seminars, training, forums on entrepreneurship. Along with that, the Ho Chi Minh Communist Youth Union of Hanoi City also needs to organize seminars, training courses and workshops to raise awareness about digital transformation for youth union members from SMEs in the City.

### *6.2. Implementation of training courses, educational programs, and consulting activities on digital transformation for SMEs*

Currently, according to research results, important barriers to digital transformation of local SMEs are the lack of internal human resources to apply digital technology as well as the lack of digital technology platforms. Therefore, it is very necessary to come up with solutions to address this problem, including the following:

Organize training and educational programs on digital transformation for local SMEs. Organize training and consulting activities on digital transformation strategies and planning for SMEs aiming for digital transformation. Organize skills training on effectively using and exploiting digital platforms for SMEs. Organize advanced training corresponding to the scale, stage, and field of digital transformation for businesses.

Regularly introduce new legal documents, compile legal documents related to SMEs and post them on the local legal dissemination and education webpage.

Implement consulting programs to support connecting experts with local SMEs using digital platforms to participate in digital transformation support programs.

Organize and coordinate with ministries, agencies, and industry associations to organize seminars and conferences on digital transformation for SMEs. Organize diverse seminars and conferences in face-to-face and online forms on digital transformation for businesses: coordinate with organizations, experts, and industry associations to organize seminars and conferences on digital transformation for SMEs according to specific industries and fields.

Support digital platforms to participate in the program of organizing events and seminars to introduce and promote excellent solutions and platforms to support local SMEs in implementing digital transformation. Consult and support local SMEs to choose a digital platform suitable for the scale and field of operation of the business. Provide training, conduct coaching and foster knowledge on e-commerce application skills for SMEs.

### *6.3. Support small and medium-sized enterprises to transform digital technology*

Research results show that local SMEs may encounter difficulties in the technology platform for digital transformation when digital technology solutions are hindering local SMEs in their digital transformation activities. The following recommendation is expected to solve this issue.

First, search, evaluate, and select potential small and medium-sized enterprises (prioritizing fields consistent with local development strategies) to support digital transformation.

Second, support businesses in applying e-commerce, participating in e-commerce platforms, connecting and linking with trading platforms to connect supply and demand according to each industry/field, making electronic declaration for social insurance, electronic tax declaration, and electronic invoices.

Third, regularly survey and evaluate the digital transformation needs of local businesses and deploy appropriate and timely support programs.

Fourth, support small and medium-sized accommodation establishments to apply digital transformation platforms operating on cloud computing in management, business development, customer care and local tourism promotion.

Fifth, support the provision of information, knowledge, and documents on business digital transformation; information management, results of supporting business digital transformation, communicating typical successful models, introducing practical experiences, registering for online support.

Sixth, support for consulting in assessing the digital transformation readiness situation, goals and conditions for implementing digital transformation of selected businesses with the specialized digital transformation support packages for each business when evaluated and selected.

At the same time, online public services at localities also need to be enhanced to high levels related to business activities; support and guide businesses in using online public services to reduce time, travel costs and administrative procedures.

Develop digital infrastructure to ensure readiness in meeting all connection needs, deploy digital technology platforms to serve digital transformation in production, business and digital economic development.

Ensure network safety and security by annually organizing training to raise awareness of information security, network security, personal privacy protection for state agencies, businesses and people.

## References

- Ajzen, I. (1991). The theory of planned behaviour. *Organizational behaviour and human decision processes*, 50(2), 179-211.
- Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: an empirical investigation. *Management Information Systems Quarterly*, 24(1), 169-193.
- Bộ Thông tin và Truyền thông. (2021). *Quyết định 1970/QĐ- BTTTT, về Phê duyệt đề án chỉ số đánh giá mức độ chuyển đổi số doanh nghiệp và hỗ trợ thúc đẩy doanh nghiệp chuyển đổi số, ban hành ngày 13 tháng 12 năm 2021*. Việt Nam. (Ministry of Information and Communication. (2021). *Decision 1970/QĐ- BTTTT dated on December 13, 2021 Approving the "Project on indicators to evaluate the level of digital transformation of enterprises and supporting the promotion of digital transformation of enterprises"*. Vietnam.)
- Brennen, J. S., & Kreiss, D. (2016). *Digitalization*: Wiley Online Library.
- Chính phủ. (2020). *Quyết định số 749/QĐ-TTg ngày 03/6/2020 của Thủ tướng Chính phủ phê duyệt "Chương trình Chuyển đổi số quốc gia đến năm 2025, định hướng đến năm 2030"*. Việt Nam. (Government of Vietnam. (2020). *Decision No. 749/QĐ-TTg dated June 3, 2020 of the Prime Minister approving the "National Digital Transformation Program to 2025, orientation to 2030"*. Vietnam.)
- Chữ Bá Quyết. (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*, 233, 57-70. (Chu Ba Quyet. (2021). Research to explore factors affecting successful digital transformation of businesses in Vietnam. *Journal of Economic & Banking Studies*, 233, 57-70.)
- Daniel, E. M., & Wilson, H. N. (2003). The role of dynamic capabilities in e-business transformation. *European Journal of Information Systems*, 12, 282-296.
- Đào Phương. (2019). Doanh nghiệp dấn đo chuyển đổi số <https://baodautu.vn/doanh-nghiep-dan-do-chuyen-doi-so-d102309.html>. (Dao Phuong. (2019). *Enterprises' hesitations in digital transformation*. <https://baodautu.vn/doanh-nghiep-dan-do-chuyen-doi-so-d102309.html>.)
- Davis. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 13(3), 319-339.
- Dremel, C., Herterich, M. M., & Wulf, J. (2017). How AUDI AG established big data analytics in its digital transformation. *Management Information Systems Quarterly Executive*, 16(2), 81-100.
- Dung, P. X., Trung, V. T., Thao, T. D., & Hoang, C. C. (2023). Intention to apply rehabilitation exercises to patients in healthcare facilities in Vietnam. *International Journal of ADVANCED AND APPLIED SCIENCES*, 6(10), 80-88.
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2013). Embracing digital technology: A new strategic imperative. *MIT Sloan Management Review*, 55(2), 1-12.
- Gamache, S., Abdul-Nour, G., & Baril, C. (2019). Development of a Digital Performance Assessment Model for Quebec Manufacturing SMEs. *Procedia Manufacturing*, 38, 1085-1094.
- Hair, J. F. A., Tatham, R. E., & Black, R. L. (1998). *Multivariate Data*. 5th ed. 1998: Upper Saddle River Prentice - Hall.
- Hess, T., Benlian, A., Matt, C., & Wiesbock, F. (2016). Options for formulating a digital transformation strategy. *Management Information Systems Quarterly Executive*, 15, 123-139.
- Joseph, R. P. (2018). Digital Transformation, Business Model Innovation and Efficiency in Content Industries: A Review. *The International Technology Management Review* 7(1):59, 7(1), 59 - 70.
- Kohli, R., & Johnson, S. (2011). Digital transformation in latecomer industries: CIO and CEO, Leadership Lessons from Encana Oil and Gas (USA). *Management Information Systems Quarterly Executive*, 10(4), 141-156.
- Li, L., Su, F., Zhang, W., & Mao, J. (2018). Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129-1157.
- Loebbecke, C., & Picot, A. (2015). Reflections on societal and business model transformation arising from digitization and big data analytics: a research agenda. *Journal of Strategic Information Systems*, 24(3), 149-157.
- Matt, C., Hess, T., & Benlian, A. (2015). Digital transformation strategies. *Business & Information Systems Engineering*, 57, 339-343.
- Matzler, K., Bailom, F., Eichen, S. F. V. D., & Anschober, M. (2016). *Digital Disruption. Wie Sie Ihr Unternehmen auf das digitale Zeitalter vorbereiten*, Vahlen, München.
- Mazzei, M. J., & Noble, D. (2017). Big data dreams: a framework for corporate strategy. *Business Horizons*, 60(3), 405-414.
- McDonald, M., & Rowsell, J. A. (2012). *The Digital Edge: Exploiting Information & Technology for Business Advantage*, Gartner incorporated, Stamford, Connecticut, USA.
- N. Binh. (2020). Thương mại điện tử Việt Nam đạt 11,8 tỉ USD, tăng ấn tượng 18%. <https://tuoitre.vn/thuong-mai-dien-tu-viet-nam-dat-11-8-ty-usd-tang-an-tuong-18-20210124163408234.htm>. (N. Binh. (2020). *Vietnam's e-commerce reached 11.8 billion USD, an impressive increase of 18%*. <https://tuoitre.vn/thuong-mai-dien-tu-viet-nam-dat-11-8-ty-usd-tang-an-tuong-18-20210124163408234.htm>.)
- Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital Innovation Management: Reinventing innovation management research in a digital world. *MIS Quarterly*, 41(1), 223-238.



- Ngoc Luu. (2020). Chuyển đổi số doanh nghiệp vừa và nhỏ giúp GDP Việt Nam tăng thêm 30 tỷ USD vào 2024. <https://vietnamfinance.vn/chuyen-doi-so-doanh-nghiep-vua-va-nho-giup-gdp-viet-nam-tang-them-30-ty-usd-va-2024-20180504224243753.htm>. (Ngoc Luu. (2020). *Digital transformation of small and medium-sized enterprises helps increase Vietnam's GDP by 30 billion USD by 2024*. <https://vietnamfinance.vn/chuyen-doi-so-doanh-nghiep-vua-va-nho-giup-gdp-viet-nam-tang-them-30-ty-usd-in-2024-20180504224243753.htm>.)
- Nguyễn Thị Kim Anh, & Nguyễn Thị Xuân Nương. (2022). Các nhân tố ảnh hưởng đến chuyển đổi số của doanh nghiệp: Trường hợp nghiên cứu tại Bình Định. *Kinh tế phát triển*, 304(2), 65 - 74. (Nguyen Thi Kim Anh, & Nguyen Thi Xuan Nuong. (2022). Factors affecting digital transformation of businesses: Case study of Binh Dinh. *Development Economics*, 304(2), 65 - 74.)
- Ong, C. M., Kathawala, Y., & Sawalha, N. (2015). A Model for ISO 9000 Quality Management System Maintenance. *The Quality Management Journal*, 22(2), 22.
- Putthiwat, S., Kamonchanok, S., & Pongsa, P. (2021). Factors Influencing Digital Transformation of Logistics Service Providers: A Case Study in Thailand. *Journal of Asian Finance, Economics and Business*, 8(5), 0241–0251.
- R. Eller, Alford, P., Kallmunzer, A., & Peters, M. (2020). Antecedents, consequences, and challenges of small and medium-sized enterprise digitalization. *Journal of Business Research*, 112, 119–127.
- Sia, S. K. (2016). How DBS bank pursued a digital business strategy. *Management Information Systems Quarterly Executive*, 15(2), 105–121.
- Stoianova, O. V., Tatiana, L., & Victoriya, I. (2020). *Corporate Culture: Impact on Companies' Readiness for Digital Transformation*, In: Bach Tobji, M.A., Jallouli, R., Samet, A., Touzani, M., Strat, V.A. & Pocatilu, P. (eds), *Digital Economy. Emerging Technologies and Business Innovation. ICDEc 2020. Lecture Notes in Business Information Processing*, vol 395, Springer, Cham. DOI: [https://doi.org/10.1007/978-3-030-64642-4\\_2](https://doi.org/10.1007/978-3-030-64642-4_2).
- Stolterman, E., & Fors, A. (2004). Information technology and the good life. *Information Systems Research*, 687–692. doi: [https://doi.org/10.1007/1-4020-8095-6\\_45](https://doi.org/10.1007/1-4020-8095-6_45).
- Swen, N., & Nadkarni, P. (2020). Digital transformation: a review, synthesis and opportunities for future research. *Management Review Quarterly*. doi: <https://doi.org/10.1007/s11301-020-00185-7>
- Tang, Z., Chen, X., & Wu, Z. (2010). Using behavior theory to investigate individual-level determinants of employee involvement in TQM. *Total Quality Management*, 21(12), 30.
- Trương Đức Thảo, Vũ Đào Tùng Phương, & Nguyễn Anh Tuấn. (2022). Các nhân tố ảnh hưởng đến ý định ứng dụng TQM tại các doanh nghiệp kinh doanh khí hóa lỏng Việt Nam. *Kinh tế phát triển*, 298, 56 - 66. (Truong Duc Thao, Vu Dao Tung Phuong, & Nguyen Anh Tuan. (2022). Factors affecting the intention to apply TQM at Vietnamese liquefied gas businesses. *Development Economics*, 298, 56 - 66.)
- Vietnam Investment review. (2021). Over 57.5 per cent of Vietnamese SMEs struggle with digital transformation: How can they cope with the challenge?. Retrieved from <https://vir.com.vn/over-575-per-cent-of-vietnamese-smes-struggle-with-digital-transformation-how-can-they-cope-with-the-challenge-83754.html>.
- White, M. (2012). Digital workplaces: vision and reality. *Business Information Review*, 29(4), 205–214.
- Zinder, E., & Yunatova, I. (2016). *Synergy for digital transformation: person's multiple roles and subject domains integration*, *International Conference Digital Transformation and Global Society*. Paper presented at the International Conference Digital Transformation and Global Society.



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