

# Impact Of Digitalization On Customer Value Creation In SMEs In Vietnam

Song Thuong Pham<sup>1</sup>, Thi Phuong Anh Nguyen<sup>2</sup>, Huyen Phuong Luu<sup>3</sup>, Khanh Van Bui<sup>4</sup>,  
Thi Huyen Vu<sup>5</sup>, Thi Dong Do<sup>6\*</sup>

<sup>1,2,3,4,5,6</sup>National Economics University, Hanoi, Vietnam.

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## Abstract

Digitalization and digital applications play important roles in the business activities and business models of enterprises. This paper investigates the impact of digitalization on customer value creation in small and medium enterprises in Vietnam. A quantitative study was conducted with a sample of 202 small and medium enterprises in Vietnam. SPSS version 28 was used to examine whether there was a relationship between digitalization and customer value creation. The study shows that factors such as connectivity, customer management and information, business models, technology and processes, and the use of online solutions have a positive impact on creating value for customers in small and medium enterprises in Vietnam. Based on the results, suggestions for top management of small and medium enterprises to improve customer value creation are provided.

**Keywords:** digitalization, customers, value creation

## 1. Introduction

In recent years, the Industrial Revolution 4.0 (Industry 4.0) has impacted businesses all over the world. Schwab (2016) noted that “Industry 4.0 is differentiated by a few characteristics of new technologies, for example: physical, digital, and biological worlds”. The popular application of Industry 4.0 technologies, especially digital technology, has a significant effect on industries, economies, and government development plans. It has brought about changes in the service sector (Dong, Fudurich, & Suchanek, 2017), manufacturing sector (Tay, Te Chuan, Aziati, & Ahmad, 2018), and others, including the government sector (Hoa, 2019).

Digitalization is the use of digital data to streamline workflows. Businesses aim to innovate their business models so they can adapt to the existence of digital environments, and undergo transformations in the way they operate with the use of digital technology and data to create greater value (Brennen & Kreiss, 2016). Thus, digitalization is a way to help businesses flexibly adapt to changes, especially fluctuations during the COVID-19 pandemic. In addition, there is no denying the role of digitalization in helping businesses increase productivity, save costs, create value for customers, and improve their competitiveness.

In Vietnam, digitalization has made great contributions to both the economy and the development of enterprises. Workflow optimization, product features, and customer experience are the three major areas of digital transformation of enterprises (Watkins, Trung, Nkhoma, Thien, & Long, 2021). However, most studies on the effects of digitalization on customer value creation focus on one or two influencing factors, which does not allow a comparison of the level of influence between factors. In addition, the research is mainly focused in Western countries, and there has been a lack of studies in Eastern countries, where the majority of developing countries and small and medium-sized enterprises are concentrated. Meanwhile, under the strong influence of globalization and Industry 4.0, competition among businesses has also become more severe. This requires innovation and improvement by businesses to be able to develop and operate effectively.

To fill this gap, this study proposes a research model that links elements of digitalization that impact the creation of customer value in businesses. The study looked at factors including connectivity, customer management, business modeling, technology and processes, and the use of online solutions in the context of the digital environment, to determine whether these factors influence customer value added. Based on a survey of small and medium-sized enterprises in Vietnam, the research team formulated hypotheses and proposed suggestions to improve the creation of customer value for businesses.

## **2. Literature review**

### **Digitalization and digital transformation**

Digitalization can be defined as the socio-technical process of applying digital technology across social and institutional contexts in ways that shift the organizing logic and render such technologies as infrastructure (Tilson, Lyytinen, & Sørensen, 2010). Digitalization has received attention and become an issue that researchers are interested in. Ritter and Pedersen (2019) studied the digitalization of business models in companies and defined digitalization as the application of digital technology with reference to applications in business. This in line with Brennen and Kreiss (2016) interpretation, which considered digitalization as “the structure of many diverse areas of social life around digital media infrastructure and media”.

According to Ismail, Khater, ZakiRetrieved, and from (2017), digital transformation is “the process through which companies converge multiple new digital technologies, enhanced with ubiquitous connectivity, with the intention of reaching superior performance and sustained competitive advantage, by transforming multiple business dimensions, including the business model, the customer experience (comprising digitally enabled products and services) and operations (comprising processes and decision-making), and simultaneously impacting people (including skills talent and culture) and networks (including the entire value system).” Digital transformation can be considered the integration of computer-based technologies in an organization in terms of products, processes, and strategies. According to Pratt and Sparapani (2021), organizations implement digital transformation to better involve their workforce and serve their customers in order to enhance their competitiveness.

### **Customer value creation**

Creating customer value has long been considered a central concept in marketing (Woodruff, 1997). In a study by Woodruff (1997), customer value is defined as the "customer's liking, perception and evaluation of product features, performance of characteristics, and results achieved" with regard to their intentions and goals for product use being met or hindered. According to (Holbrook, 2002), customer value is an interactive relativistic preference experience. It refers to the evaluation of an object by a subject. Customer value is interactive, relativistic, preferential, and an experience. (Mahajan, 2020) considered customer value "the perception of what a product or service is worth to a customer versus the possible alternatives". According to this author, worth means "whether the customer feels s/he got benefits and services over what s/he paid". A simple equation to calculate customer value is to subtract costs from benefits (customer value = benefits – costs).

### **Impact of digitalization on customer value creation**

Digitalization is mentioned in a number of studies because of its influence on the operation of businesses. A study by Baltes (2016) on the impact of digitalization on business communication in enterprises found that with the digitalization of business communication, traditional communication strategies are adjusted, including websites, emails, social networks (Facebook, Instagram, etc.), blogs, and webinars. The use of digital tools in business communication allows businesses to develop advantages such as brand development, customer attraction, digital analysis of competitors, reduced cost of customer communication compared to traditional forms, faster dissemination of products and business information, and the development of long-term customer relationships. Bouwman, Nikou, Molina-Castillo, and de Reuver (2018) showed that digitalization forces businesses to review their business models. It helps in experimenting with and improving business models, and this is especially important for small and medium enterprises. There is no denying the role of digitalization in life, and especially in the business field. In addition to the effects suggested by previous researchers, digitalization also has other effects. Therefore, we think that it is necessary to study this concept deeply as well as the impact that digitalization has on businesses.

Beyond bringing benefits to business operations, digitalization also has a great impact on creating value for customers. Through a qualitative survey of six manufacturing enterprises in Italy, (Matarazzo, Penco, Profumo, & Roberto, 2021) examined the effects of digital technology on businesses. Their research results confirmed that digitalization has changed the purchasing experience and interaction between businesses and customers. Digital tools enhance various aspects of the customer's business experience through omnichannel marketing and increased touchpoints along the consumer journey. Social media, through online platforms, also contributes by supplementing information and stimulating interactions between consumers and businesses, thereby developing a company's knowledge of customers' needs, desires, and feelings. In the context of manufacturing enterprises in Italy, the author emphasized that digital technologies play a role in analyzing the market, facilitating communication, creating integrated multi-channel distribution, and bringing about deeper relationships with customers.

There have been a number of research papers in Vietnam addressing the issue of digitalization and the creation of value for customers in enterprises. Those studies have shown that a number

of factors of digitalization have a strong impact on businesses and customers, such as digital technology applications, business models, technology and process, and connectivity. However, each study only focused on one or two influencing factors, and did not compare the level of influence between these factors. For that reason, in this paper, the authors conducted more in-depth research on the above-mentioned impacts and used new influencing factors to complete the scale. Synthesizing, evaluating, comparing, and collating many influencing factors at the same time will improve the comprehensiveness and inclusivity of the research. In addition, the authors found that most of the previous studies only focused on certain countries, mainly developed countries, where there are already high levels of digitalization, while none of them took into account the context of emerging economies like Vietnam, a developing middle-income country that is making a strong effort to catch up with the world's digitalization trend. For that reason, this study was conducted with small and medium enterprises in Vietnam in the hope that suggestions could be given to them to improve customer value creation and enhance competitiveness.

### **3. Hypothesis development**

A study by Kotarba (2017) looked at the digitalization metrics that are defined and used by various participants in the economy and the lessons or improvement actions that can be proposed to enhance these measurement systems. Accordingly, digitalization can be viewed in terms of the dimensions of the economy, society, industry, enterprise, and clients. Each one has major matrices. Some of them are presented below, along with and development of the hypotheses.

#### **Connectivity**

The concept of connectivity refers to “the capability of computers to be incorporated into networks” (Senior, 2010). This takes both interpersonal and technical connectivity into consideration. Connectivity is like a network involving the speed of reaching customers, and the volume and performance of social media or communications help deploy broadband infrastructure and control connection quality and service quality for customers/users in the best way. Kotarba (2017) noted that connectivity represents a company's multiple communication and information channels at the same time in terms of internal and external information flows along the value chain. Becker, Beber, Windt, and Hütt (2012) found a connection between connectivity and performance. Grimes, Ren, and Stevens (2012) noted that there is relationship between connectivity and a firm's productivity. Given that customer value creation is one of the measures of business performance, the following is hypothesized:

H1: Connectivity has a positive relationship with customer value creation.

#### **Digital management of customers and information**

According to Alkaabi, Adaikalam, Karim, Hock, and Hossain (2020), the intelligent and flexible application of digitalization and technology helps to recreate, reform, and perfect business models in order to create efficiency in operation and operating costs and be more user-friendly. Digital management of customers and information can improve business processes and operational productivity (Alkaabi et al., 2020) by using, for example, cloud computing software, resource planning tools, user (customer) management tools, or sales management by online

channels and e-commerce platforms. The transformation is also reflected in goal orientation, relationship orientation, change orientation, and practice. Gil-Gomez, Guerola-Navarro, Oltra-Badenes, and Lozano-Quilis (2020) found that customer relationship management by digital transformation can bring small and medium enterprises a dual benefit, in terms of customer knowledge management and innovation, leading to economic, social, and environmental sustainability. Thus, we hypothesize the following:

H2: Digital management of customers and information has a positive relationship with customer value creation.

### **Digitalized business model**

A business model is a mechanism that allows the firm's customers and owners to receive something valuable from engaging in transactions with the firm (Osterwalder & Pigneur, 2009). Management scholars and practitioners agree that value creation and value capture are among the primary functions of a business model (Biloshapka & Osiyevskyy, 2018). SMEs must constantly adapt to information technology applications and digitalization and understand how new technologies affect their business models. A highly influential business model can help to define a company's position in the industry and show how managers function in a changing digital environment. Therefore, companies will test new applications, software technology, and digitalization for their business models. Companies also have to understand that creating value depends on the business model. Thus, the following is hypothesized:

H3: The digitalized business model has a positive relationship with customer value creation.

### **Digital technology and digitalized processes**

(Kotarba, 2017) noted that one of the metrics for measuring digitalization is the use of digital technologies and digitized processes. Industry 4.0 has brought about an explosion in technology, with scientific and technical advances in many fields, including business economics. Business processes help enterprises run efficiently and smoothly, while technology helps automate processes, increase productivity, and reduce operating costs for enterprises. Torkzadeh and Doll (1999), who studied the effects of technology on work, determined that technology has a significant impact on productivity, innovation, and customer satisfaction. Digital technologies support the co-creation of network value through resource density and enable innovation (Hönigsberg, Dinter, & Wache, 2020). Therefore, the fourth hypothesis is as follows:

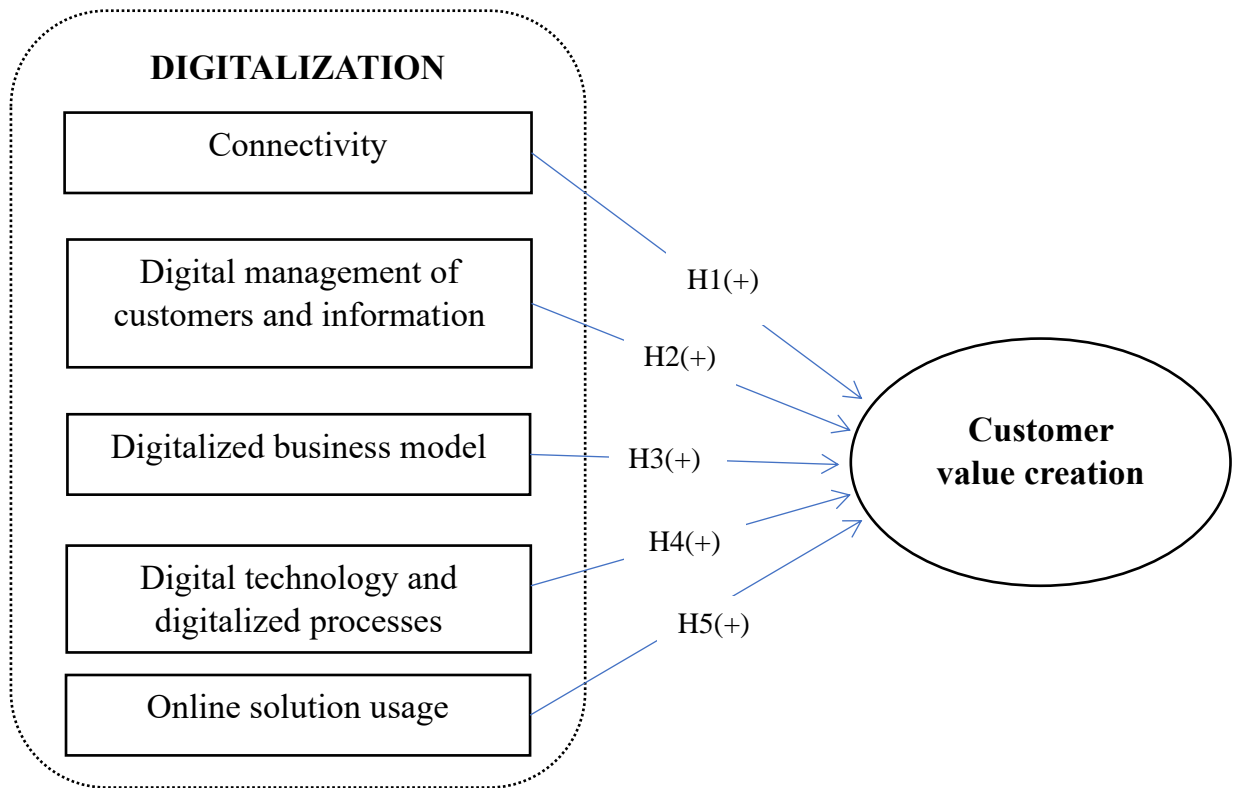
H4: The use of digital technology and digitalized processes has a positive relationship with customer value creation.

### **Online solution usage**

Online activities are increasingly ubiquitous in the world, from the consumption of online content to modern media activities and online shopping and banking, which have all shown growth (Kotarba, 2017). By exploiting online sales channels through applying digital technology, enterprises can improve efficiency, reduce costs, and better attract customers, collaborators, and business partners. Moreover, the internet as a sales medium helps in reaching out to wider and potentially growing markets. Therefore, the following is hypothesized:

H5: The use of online solutions has a positive relationship with customer value creation.

The research model is presented in Figure 1.



**Figure 1.** Research model.

### 3. Research Methodology

The observed variables were measured using a 5-level Likert scale. A total of 225 questionnaires were collected. After screening, 202 filled questionnaires were used. SPSS version 22.0 software was used to process and analyze the data. The analysis steps included: (1) evaluating the reliability of the scale through Cronbach's alpha reliability coefficient, (2) conducting exploratory factor analysis (EFA), and (3) conducting regression analysis.

#### Measures

The dimensions of digitalization are taken from the study of (Kotarba, 2017). The scale of connectivity was synthesized from Mwangi et al. (2013) and the two matrices, connectivity and use of the internet, from Kotarba (2017). A sample item for connectivity is "Digital technology helps members of our business work in any place". Measuring the digital management of customers and information is based on the metric of interaction between firms, customers, and suppliers in (Kotarba, 2017). A sample item for digital management of customers and information is "Multi-channel integration through digital technology helps businesses better control information about customers". Digitalized business model measurements were developed from metric of running enterprises from Kotarba (2017) and a well-known paper by Casadesus-Masanell

and Ricart (2010). A sample item for this scale is “The use of the internet contributes to changing the business model of enterprises”. The measurement of digital technology and digitalized processes was developed from two matrices, digital technology and internal/external business processes, proposed by (Kotarba, 2017), and a sample item is “Adopting digital technology allows us to better respond to the changing needs of our customers.”. The measurement of the last digitalization dimension, online solution usage, was developed from the metric of the same name in the study of (Kotarba, 2017). A sample item in this scale is “Using online services helps us to be more productive”. Finally, customer value creation was measured using five items adapted from a study by Smith and Colgate (2007), a sample of which is “We bring products/services which meet our customers’ requirements”.

#### 4. Research results

The influencing factors of digitalization in terms of creating value for customers applied to small and medium enterprises in Vietnam included 6 latent variables and 30 items. The analysis results of Cronbach's alpha coefficient of latent variables are all satisfactory at  $>0.6$ . Among the 30 items, the research team kept them all, as their item total correlation coefficient was greater than 0.3 and none were removed (having a small total correlation coefficient). Thus 30 items met the requirements and were kept for analysis and testing in the main part of the study.

**Table 1.** Cronbach's alpha coefficient.

| Model   | Label   | Number of items | Cronbach's alpha coefficient |
|---|---------|-----------------|------------------------------|
| Connectivity  | CONNECT | 5               | 0.870                        |
| Digitalized management of customers and information | DIMAGMT | 6               | 0.777                        |
| Digitalized business model                          | DIBIZMO | 5               | 0.835                        |
| Digital technology and digitalized processes        | DITEPRO | 4               | 0.755                        |
| Online solution usage                               | ONSOUSE | 4               | 0.779                        |
| Customer value creation                             | CUSVACR | 6               | 0.828                        |

All of the data from 202 completed questionnaires were included in the analysis. Reliability analysis of all items of the 6 variables showed that all Cronbach's alpha coefficients of the sum variable were greater than 0.6, which means that all were satisfactory in terms of reliability. Therefore, the 30 statements among the 6 analyzed factors about trust all satisfied Cronbach's scale of reliability, a necessary condition; no item was excluded, random error was avoided, and objective, consistent results are provided.

If we look specifically at each item of the variables, it is found that the Cronbach's alpha coefficient of all statements is smaller than that of the total variables (Table 1). Therefore, 30 items provided satisfactory reliability, so they were included for exploratory factor analysis and regression analysis.

**Table 2.** KMO and Bartlett’s test.

|   |                    |          |
|---|--------------------|----------|
| Kaiser–Meyer–Olkin Measure of Sampling Adequacy |                    | 0.822    |
| Bartlett’s Test of Sphericity                   | Approx. chi square | 1966.006 |
|   | df                 | 276      |
|   | Sig.               | 0.000    |

**Table 3.** Rotated component matrix.

|   | Component |       |       |       |       |
|---|-----------|-------|-------|-------|-------|
|   | 1         | 2     | 3     | 4     | 5     |
| CONNECT3  | 0.831     |       |       |       |       |
| CONNECT5  | 0.824     |       |       |       |       |
| CONNECT1  | 0.746     |       |       |       |       |
| CONNECT4  | 0.744     |       |       |       |       |
| CONNECT2  | 0.709     |       |       |       |       |
| DIBIZMO3  |           | 0.812 |       |       |       |
| DIBIZMO1  |           | 0.769 |       |       |       |
| DIBIZMO2  |           | 0.750 |       |       |       |
| DIBIZMO4  |           | 0.732 |       |       |       |
| DIBIZMO5  |           | 0.716 |       |       |       |
| DIMAGMT6  |           |       | 0.763 |       |       |
| DIMAGMT2  |           |       | 0.728 |       |       |
| DIMAGMT1  |           |       | 0.666 |       |       |
| DIMAGMT4  |           |       | 0.639 |       |       |
| DIMAGMT3  |           |       | 0.627 |       |       |
| DIMAGMT5  |           |       | 0.611 |       |       |
| ONSOUSE1  |           |       |       | 0.722 |       |
| ONSOUSE3  |           |       |       | 0.679 |       |
| ONSOUSE4  |           |       |       | 0.659 |       |
| ONSOUSE2  |           |       |       | 0.644 |       |
| DITEPRO3  |           |       |       |       | 0.754 |
| DITEPRO4  |           |       |       |       | 0.708 |
| DITEPRO2  |           |       |       |       | 0.626 |
| DITEPRO1  |           |       |       |       | 0.579 |
| Extraction method: principal component analysis.<br>Rotation method: varimax with Kaiser normalization <sup>a</sup> |           |       |       |       |       |
| <sup>a</sup> Rotation converged in six iterations.  |           |       |       |       |       |



To evaluate whether the research dataset was suitable for factor analysis, exploratory factor analysis (EFA) was performed. The analysis results show a KMO coefficient value of 0.822 ( $0 \leq \text{KMO} = 0.822 \leq 1$ ), and the Bartlett test result shows a sig coefficient = 0.000 < 0.05, indicating that the variables in the population are related (Table 2). Therefore, the factor analysis is appropriate.

All variables have a communality values greater than 0.5. There are five factors extracted with eigenvalue >1. The total variance extracted is 59,685, and these five factors explain 59.685% of the data variability. The load factor corresponding to the sample size is 0.5. The results show that the factor loading coefficient in the factor coefficient table after the rotation has a value greater than 0.5, so no observed variables were excluded (Table 3).

Then, with 202 valid observations, correlations and linear regression analysis of the relationships between five independent variables, CONNECT, DIMAGMT, DIBIZMO, DITEPRO, and ONSOUSE, and dependent variable CUSVACR were carried out (Tables 4 and 5).

**Table 4.** Correlation matrix.

|             | CONNEC<br>T | DIMAGM<br>T | DIBIZM<br>O | DITEPR<br>O | ONSOUS<br>E | CUSVAC<br>R |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| CONNECT     | 1           |             |             |             |             |             |
| DIMAGM<br>T | 0.206**     | 1           |             |             |             |             |
| DIBIZMO     | 0.310**     | 0.214**     | 1           |             |             |             |
| DITEPRO     | 0.402**     | 0.236**     | 0.270**     | 1           |             |             |
| ONSOUSE     | 0.402**     | 0.314**     | 0.282**     | 0.558**     | 1           |             |
| CUSVACR     | 0.382**     | 0.322**     | 0.320**     | 0.457**     | 0.502**     | 1           |

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 5.** Model summary.

| Model | R     | R-Squared | Adjusted R-Squared | Std. Error of Estimate | Durbin-Watson |
|-------|-------|-----------|--------------------|------------------------|---------------|
| 1     | 0.595 | 0.354     | 0.338              | 0.39754                | 1.715         |

According to the model summary results, the adjusted R-squared value is 33.8% (Table 5). Normally, if all factors affecting the creation of customer value are considered, the adjusted R-squared value must be at least 50%, then the new research model would make sense. However, within the framework of this research paper, the authors only considered some factors of digitalization affecting customer value creation, so the value of 33.8% is reasonable. Besides

digitalization, creating value for customers is also influenced by other factors such as customer psychology, communication, marketing activities, etc. (Donny, Juju, Jusuf, & Rosmadi, 2018; Fan & Dong, 2021; Smith & Colgate, 2007). Thus, the proportion of 33.8% provides evidence of the important role of digitalization in customer value creation.

The results of regression analysis are presented in Table 6.

**Table 6.** Coefficients.

| Model |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig.  | Collinearity Statistics |
|-------|------------|-----------------------------|------------|---------------------------|-------|-------|-------------------------|
|       |            | B                           | Std. Error | Beta                      |       |       | Tolerance               |
| 1     | (Constant) | 1.322                       | 0.292      |                           | 4.526 | 0.000 |                         |
|       | CONNECT    | 0.088                       | 0.044      | 0.131                     | 1.996 | 0.047 | 0.759                   |
|       | DIMAGMT    | 0.137                       | 0.060      | 0.140                     | 2.288 | 0.023 | 0.879                   |
|       | DIBIZMO    | 0.094                       | 0.047      | 0.124                     | 1.994 | 0.048 | 0.855                   |
|       | DITEPRO    | 0.164                       | 0.062      | 0.190                     | 2.653 | 0.009 | 0.644                   |
|       | ONSOUSE    | 0.216                       | 0.060      | 0.264                     | 3.622 | 0.000 | 0.618                   |

The model regression analysis results show the sig value for the relationships between the five independent variables with customer value creation. All values are less than 0.05, meaning that the hypotheses are supported.

The beta regression coefficient values of the five independent variables are all greater than 0: connect, 0.131; management, 0.140; model, 0.124; technology, 0.190; and solution, 0.264. This shows that these five independent variables have a positive impact on creating value for customers.

## 5. Discussion and implications

The aim of this study was to determine the relationship between the factors of digitalization and value creation for customers. After testing the hypotheses, some findings are as follows:

(i) The connectivity of a business is correlated with creating value for customers. This view is in agreement with several researchers around the world (Henkens, Verleye, & Larivière, 2020; Hollebeek & Macky, 2019). High connectivity can help employees work anywhere geographically, making them more flexible through their own communication channels. In addition, digital connectivity helps businesses reach larger numbers of customers and partners to achieve maximum profitability, and is convenient for financial transactions with remote customers. Customers can have the fastest service experience using digital technologies.

(ii) Digital management of customers and information within the business is correlated with the creation of value for customers. This is in agreement with Kotarba (2017), who noted that there are a number of applications that can improve business processes and the employee productivity.

Employees can store huge amounts of customer information using software, and it is easier to find and use customer information through data sharing. With its ability to integrate across all customer touchpoints, digital technology helps businesses better manage and control customer information, which provides customers with the fastest and most suitable products and services.

(iii) A digitalized business model is correlated with the creation of value for customers. This conclusion is also in agreement with many previous studies (Bouwman et al., 2018; Casadesus-Masanell & Ricart, 2010; Hedman & Kalling, 2003; Methlie & Pedersen, 2007; Zott & Amit, 2017). Business enterprises need to transform their models in line with the trend of global digital transformation. The use of social media is considered by most small and medium-sized businesses to be innovative, influenced by innovative activities that can be tied to the needs and tastes of customers. Business model innovation can be seen as all activities undertaken by a company in order to value its products and services and then operate with the highest performance, meeting customer requirements.

(iv) Digital technology and digitalized processes have a positive relationship with creating value for customers. This view is widely accepted by several researchers. Boratynska (2019) contended that fintech brings people new skills, languages, and digital solutions to better satisfy customer requirements. Matarazzo et al. (2021) proposed facilitating customer value with digital transformation by adopting digital technologies that support all stages of the customer journey. In the digital age, using technology networks is the best way to help businesses adapt and maintain their development. In particular, applying modern technology and processes allows businesses to take on a larger, more productive workload. Not only that, applying modern technology helps businesses manage the process better and be agile in responding to changing customer needs, thereby giving customers a greater experience and level of satisfaction, which brings value to customers.

(v) Using online solutions has a positive relationship with customer value creation. This view is in agreement with several authors. Patrutiu-Baltes (2016) thought that customer needs could be better identified and satisfied by using online analysis tools like Google Analytics. Matarazzo et al. (2021) believed that customer value creation could be facilitated through apps and social media. During the COVID-19 epidemic, with regulations limiting contact, using online solutions is one an optimal way to maintain the relationship between businesses and customers, giving customers the opportunity to experience services and products for themselves. Not only that, it also meets customers' requirement for fast, compact processes in this era.

The results of the research shows that creating value for customers is relatively strongly influenced by digitalization. Therefore, businesses could promote their customer value creation by enhancing digitalization. Enterprises should enhance the use of online solutions, such as by using online services, to better serve customers. Enterprises should also use digital technology for both internal and external communication with customers. The use of multi-channel integration through digital technology should be developed to help businesses better control data and information. Connectivity should be fostered to help people work flexibly, make it easier for them to promote products or services, and reach a wider range of customers. Enterprises also should pay attention to using the internet, especially social media, to better contribute to the creation of customer value.

## Conclusion and future research

This study approaches the topic from both the theoretical and practical perspective. Theoretically, this study provides a research model for empirical studies to explore the factors affecting the creation of customer value in SMEs. The results show that five factors—connectivity, digital management of customers and information, digitalized business model, digitalized technology and processes, and the use of online solutions—significantly affect the creation of value for customers. From a practical perspective, some implications can be proposed to help businesses increase customer value.

Given the fact that there were 651,138 SMEs in Vietnam as of December 31, 2019 (MPI, 2021), the sample size in this paper is small. Future research should use larger sample sizes to increase the power of the study and reduce the error margin. In addition, customer value creation in this study was evaluated by representatives of enterprises, and not by customers. Future research should also pay attention to the assessment of value creation from the customer perspective.

## References

- Alkaabi, A., Adaikalam, J., Karim, D. A., Hock, O., & Hossain, M. (2020). Influence on Internal Control through Digitalization of Assets: A Study on Ministry of Interior. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 10, 13-24. doi:10.6007/IJARAFMS/v10-i1/6989
- Baltes, L. P. (2016). The impact of digitalization on business communication. *Practical Application of Science IV(2)*, 319-325.
- Becker, T., Beber, M., Windt, K., & Hütt, M.-T. (2012). The impact of network connectivity on performance in production logistic networks. *CIRP Journal of Manufacturing Science and Technology*, 5, 309–318. doi:10.1016/j.cirpj.2012.09.004
- Biloshapka, V., & Osiyevskyy, O. (2018). Value creation mechanisms of business models: Proposition, targeting, appropriation, and delivery. *The International Journal of Entrepreneurship and Innovation*, 19(3), 166-176.
- Boratynska, K. (2019). Impact of Digital Transformation on Value Creation in Fintech Services: An Innovative Approach. *Journal of Promotion Management*, 25, 1-9. doi:10.1080/10496491.2019.1585543
- Bouwman, H., Nikou, S., Molina-Castillo, F.-J., & de Reuver, M. (2018). The Impact of Digitalization on Business Models. *Digital Policy, Regulation and Governance*, 20, 00-00. doi:10.1108/DPRG-07-2017-0039
- Brennen, S. J., & Kreiss, D. (2016). Digitalization and Digitization. In K. B. Jensen, R. T. Craig, J. D. Pooley, & E. W. Rothenbuhler (Eds.), *The International Encyclopedia of Communication Theory and Philosophy*. Oxford, UK: Wiley-Blackwell.
- Casadesus-Masanell, R., & Ricart, J. E. (2010). From strategy to business models and onto tactics. *Long Range Planning*, 43(2010), 195-215.
- Dong, W., Fudurich, J., & Suchanek, L. (2017). *Digital Transformation in the Service Sector: Insights from Consultations with Firms in Wholesale, Retail and Logistics*. Retrieved from Ottawa, Ontario, Canada:

- Donny, J., Juju, U., Jusuf, E., & Rosmadi, M. (2018). The Factors That Affect Customer Value and Its Impact on the Customer Loyalty. *Budapest International Research and Critics Institute (BIRCI-Journal) : Humanities and Social Sciences*, 1, 299-305. doi:10.33258/birci.v1i4.122
- Fan, J., & Dong, L. (2021). A Study on Improving Customer Value Based on the Effect of Word of Mouth. *Frontia Psychology*, 12(628665). doi:doi: 10.3389/fpsyg.2021.628665
- Gil-Gomez, H., Guerola-Navarro, V., Oltra-Badenes, R., & Lozano-Quilis, J. (2020). Customer relationship management: digital transformation and sustainable business model innovation. *Economic Research-Ekonomiska Istraživanja*, 33, 1-18. doi:10.1080/1331677X.2019.1676283
- Grimes, A., Ren, C., & Stevens, P. (2012). The need for speed: impacts of internet connectivity on firm productivity. *Journal of Productivity Analysis*, 37(2), 187-201.
- Hedman, J., & Kalling, T. (2003). Kalling, T.: The business model concept: Theoretical underpinnings and empirical illustrations. *European Journal of Information Systems* 12(1), 49-59. *European Journal of Information Systems*, 12, 49-53. doi:10.1057/palgrave.ejis.3000446
- Henkens, B., Verleye, K., & Larivière, B. (2020). The smarter, the better?! Customer well-being, engagement, and perceptions in smart service systems. *International Journal of Research in Marketing*. doi:<https://doi.org/10.1016/j.ijresmar.2020.09.006>
- Hoa, T. T. V. (2019). *Industrial Revolution 4.0 Hanoi, Vietnam*.
- Holbrook, M. B. (2002). Introduction to consumer value. In M. B. Holbrook (Ed.), *Consumer Value: A framework for analysis and research*. New York: Routledge.
- Hollebeek, L., & Macky, K. (2019). Digital Content Marketing's Role in Fostering Consumer Engagement, Trust, and Value: Framework, Fundamental Propositions, and Implications. *Journal of Interactive Marketing*, 45, 27-41. doi:10.1016/j.intmar.2018.07.003
- Hönigsberg, S., Dinter, B., & Wache, H. (2020). The Impact of Digital Technology on Network Value Co-creation.
- Ismail, M. H., Khater, M., ZakiRetrieved, M., & from. (2017). Digital business transformation and strategy: What do we know so far?
- Kotarba, M. (2017). Measuring digitalization - Key Metrics. *Foundations of Management*, 9(2017). doi: <https://doi.org/10.1515/fman-2017-0010>
- Mahajan, G. (2020). What Is Customer Value and How Can You Create It? *Journal of Creating Value*, 6(1), 119-121.
- Matarazzo, M., Penco, L., Profumo, G., & Roberto, Q. (2021). Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research*, 123, 642-656. doi:10.1016/j.jbusres.2020.10.033
- Methlie, L., & Pedersen, P. (2007). Business model choices for value creation of mobile services. *info*, 9, 70-85. doi:10.1108/14636690710816462
- MPI. (2021). *White book: Vietnam enterprises 2021*: Statistical publisher.
- Mwangi, J., Miller, R., Tuttle, D., Kaplan, D., Koome, K., Cisse, A., . . . Kaplan, D. (2013). Impact of the Internet in Africa. Establishing conditions for success and catalysing including growth in Ghana, Kenya, Nigeria and Senegal. Retrieved from Washington, USA:

- Osterwalder, A., & Pigneur, Y. (2009). *Business Model Creation*. Netherlands: Modderman Drukwerk Amsterdam.
- Patrutiu-Baltes, L. (2016). *The Impact Of Digitalization On Business Communication*. SEA - Practical Application of Science, Romanian Foundation for Business Intelligence, Editorial Department(11), 319-325.
- Pratt, M. K., & Sparapani, J. (2021). What is digital transformation?
- Ritter, T., & Pedersen, C. (2019). Digitization capability and the digitalization of business models in business-to-business firms: Past, present, and future. *Industrial Marketing Management*, 86. doi:10.1016/j.indmarman.2019.11.019
- Schwab, K. (2016). *The Fourth Industrial Revolution*. Geneva, Switzerland: WWorld Economic Forum.
- Senior, R. (2010). Connectivity: A Framework for Understanding Effective Language Teaching in Face-to-face and Online Learning Communities. *RELC Journal*, 41(1), 1-11.
- Smith, J. B., & Colgate, M. (2007). Customer Value Creation: A Practical Framework. *The Journal of Marketing Theory and Practice*, 15(1), 7-23. doi:10.2753/MTP1069-6679150101
- Tay, S., Te Chuan, L., Aziati, A., & Ahmad, A. N. A. (2018). An Overview of Industry 4.0: Definition, Components, and Government Initiatives. *Journal of Advanced Research in Dynamical and Control Systems*, 10, 14.
- Tilson, D., Lyytinen, K., & Sørensen, C. (2010). Digital Infrastructures: The Missing IS Research Agenda. *Information Systems Research*, 21, 748-759. doi:10.1287/isre.1100.0318
- Torkzadeh, G., & Doll, W. J. (1999). The development of a tool for measuring the perceived impact of information technology on work. *Omega*, 27(3), 327-339.
- Watkins, J., Trung, N. Q., Nkhoma, M., Thien, V. K., & Long, N. L. H. (2021). *Digital Transformation in Vietnam: the SME and SOE experience*. Retrieved from
- Woodruff, R. B. (1997). Customer value: The next source for competitive advantage. *Journal of the Academy of Marketing Science*, 25(2), 139. doi:10.1007/BF02894350
- Zott, C., & Amit, R. (2017). *Business Model Innovation: How to Create Value in a Digital World*. GfK Marketing Intelligence Review, 9. doi:10.1515/gfkmir-2017-0003