Chief Author: Dr. LUONG MINH HUAN

DIGITAL TRANSFORMATION:

SOLUTIONS TO OVERCOME THE COVID-19 PANDEMIC AND ACCELERATE FOR BUSINESS

INFORMATION AND COMMUNICATIONS PUBLISHING HOUSE

Chief Author:

Dr. Luong Minh Huan, Enterprise Development Foundation

Author members

Assoc. Prof. PhD. Pham Thi Huyen, National Economics University

Dr. Le Thi Anh, National Economics University

Pham Phuong Nhi, Enterprise Development Foundation

Bui Viet Dung, Enterprise Development Foundation

Collaborators

Vu Lan Huong, Diplomatic Academy of Viet Nam

Le Chi Mai, Diplomatic Academy of Viet Nam

Vu Hoang Viet, Ha Noi University

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ASEAN BAC 2020 Legacy Project - Digital STARS

The legacy project “Digital Start-ups towards ASEAN Resilience and Sustainability” - Digital STARS is an initiative of the Viet Nam Chamber of Commerce and Industry (VCCI) and the ASEAN Business Advisory Council (ASEAN BAC) during the period that VCCI has hold ASEAN BAC presidency in 2020. This project aims towards creating an ecosystem to support tech startups in ASEAN, thereby promoting the digital transformation of MSME businesses in the region.

Along with the development of the report "***Digital transformation: solutions to overcome the Covid-19 pandemic and accelerate for business***", within the framework of the Digital STARS legacy project, VCCI has been in cooperation with the Viet Nam Post and Telecommunication Group (VNPT) to launch ***the online directory of digital transformation solutions for businesses in Viet Nam - Digital STARS Showcase 2020***.

The Digital STARS Showcase will gather the digital transformation solutions in Viet Nam, which are highly applicable, unique and innovative, in order to support the Vietnamese businesses, especially micro, small and medium enterprises (MSMEs) to upgrade their business models, and actively participate in the digital economy.

Launched in September 2020, with the supports from the Ministry of Information and Communications, and the Ministry of Science and Technology, and the close cooperation between VCCI, ASEAN BAC, VNPT, the Showcase now has more than 100 solutions registered, ranging from large enterprises to small companies and potential startups.

Digital transformation solution providers can join the Digital STARS Showcase, for free, at *(www.digital-stars.vn)* to promote their products to potential customers in Viet Nam and in the region.

Chương trình công bố danh bạ các giải pháp chuyển đổi số Việt Nam

Digital STARS Showcase 2020

PREFACE

The Covid-19 pandemic not only brought negative impacts on the health of people and businesses, but also changed habits of consumers and business methods. During the Covid-19 period, people became heavily dependent on Internet, such as online working, online learning, online shopping, etc. On the enterprises' side, due to social distancing measures, businesses are compulsory to allow employees work from home, organize online meetings, do online marketing, increase sales online, etc. Therefore, Covid-19 not only brings negative impact on business activities but also brings pressure for businesses to accelerate digital transformation process. This is undoubtedly the time for businesses to realize the superiority of digital economy and the urgent requirement of digital transformation process. Digital transformation will help Vietnamese enterprises, especially MSMEs, find a more flexible business model, reduce costs, as well as optimize resources to overcome difficulties and recover after the Covid-19 pandemic.

Although belong to the field of technology, the success or failure of digital transformation is not mainly dependent on technology. It mostly depends on political determination and national economic institutions. Therefore, the Government needs to create a system of modern economic institutions, with laws and skills to create an ecosystem for e-commerce and digital economy.

It is the responsibility of businesses to renew their model, establish a governance model based on digital technology, towards innovative, sustainable and inclusive development goals. Digital transformation success stories show that the pioneers in digital transformation are those who are willing to change, willing to abandon traditional business models to establish new models, reinvent the supply chains and decision-making processes, eliminate the cumbersome, intermediaries stages. Organizational reform based on creative culture will be the first step toward digital economy.

To accelerate digital transformation process, following the instructions of Prime Minister, VCCI is cooperating with relevant ministries and associations to implement supporting programs to promote digital transformation for businesses. VCCI has also chosen the theme of "digital transformation" for the most important events for business community

in ASEAN 2020: Summit on Business and Investment (ASEAN BIS) and Viet Nam Business Summit (VBS). Specifically, these summit' themes are "Digital, Sustainable and Inclusive ASEAN" and "Digital Viet Nam, Proactive Adaptation and Sustainable Development".

Digital transformation is an arduous journey, requiring high determination and courage. I want to quote General Vo Nguyen Giap for the journey of digital transformation in Viet Nam today: "Fast and then faster, bold and then bolder". Only that way can Vietnamese enterprises emerge. The digital economy will be an opportunity for Vietnamese enterprises to re-navigate and change themselves in the world economy.

Dr. VU TIEN LOC

Chairman and President of Viet Nam Chamber of Commerce and Industry
Member of the Board of Directors World Chambers Federation
Chairman APEC Business Advisory Council of Viet Nam

INTRODUCTION

Digital transformation in Viet Nam in recent years has achieved many remarkable achievements, but a real leap has not happened yet. However, the Covid-19 pandemic suddenly happened, bringing many changes in perceptions, commercial transactions, and business, etc. This is considered as an opportunity, a hundred-year push for enterprises to realize the superiority of digital economics and the more urgent necessity for digital transformation.

On the occasion of Viet Nam being the chairman of ASEAN, with the aim of having a basis for building proposals to ASEAN senior officials to support businesses in Viet Nam in particular and ASEAN countries in general, as a member of ASEAN Business Advisory Council (ASEAN BAC), Viet Nam Chamber of Commerce and Industry (VCCI) conducted a survey to evaluate the current situation of digital transformation in enterprises amid the Covid-19 pandemic. The survey was technically supported by JETRO. It not only assesses the impact of the Covid-19 pandemic on the business community, but also focuses on analyzing the trend of digital transformation to overcome the difficulties caused by the pandemic and develop in the period of "new normal". Based on this survey result, VCCI has developed "***Digital transformation: solutions to overcome the Covid-19 pandemic and accelerate for business***". This report is supported by the Viet Nam Posts and Telecommunications Group (VNPT) under the framework of the Action Plan supporting enterprises in digital transformation in the Viet Nam business community.

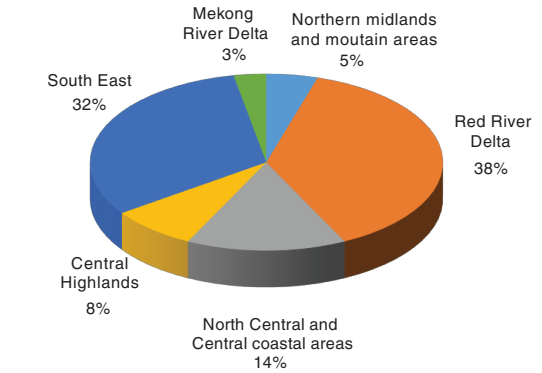
The survey was conducted in July and August 2020 in the form of direct and online survey with the support of Base.vn and VNPT. The enterprises' responses were based on performance in the first 6 months of 2020, thus not including the new impacts from the phase 2 of the Covid-19 outbreak that took place since late July.

Out of more 400 questionnaires collected, businesses in the Red River Delta (38%) and Southeast (31.8%) account for a large proportion. These are the areas with the most crowded density of businesses in the country. The enterprises surveyed in the North Central and Central Coast regions comprised 14.6%. A small percentage of surveyed enterprises are in the Northern Midlands and Mountains, Central Highlands and The Mekong Delta with 4.7%, 7.9% and 3.0% respectively.

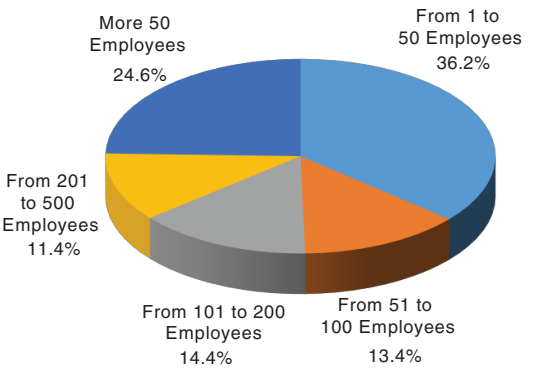
In terms of business size, the majority of MSMEs accounts for 64%, 36.1% of which have less than 50 employees, 13.4% of enterprises have size from 51 to 100 employees and 14.4% of enterprises size from 101-200 employees. Out of 36% of large enterprises (over 200 employees), there are 24.6% of enterprises with more than 500 employees.

Among the surveyed enterprises, up to 61.3% of them are enterprises of manufacturing and processing industries. This is a group of industries with special requirements for the ability to master technology and techniques in production, which is the driving force for digital transformation in business, promoting economic growth shifting to depth. The remaining 38.7% of enterprises are in the fields of agriculture, construction, trade, and service, collectively referred to as the non-manufacturing sector.

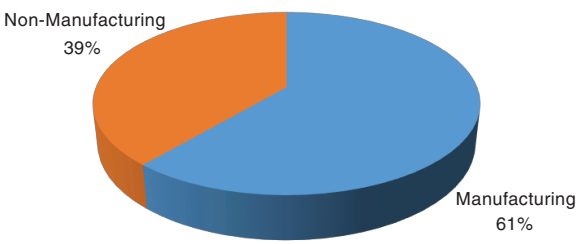
In terms of corporate ownership, private sector businesses accounted for the highest proportion with 72.6%, followed by foreign-invested businesses with 24.1%, state enterprises made up the least percentage with 3.3%.



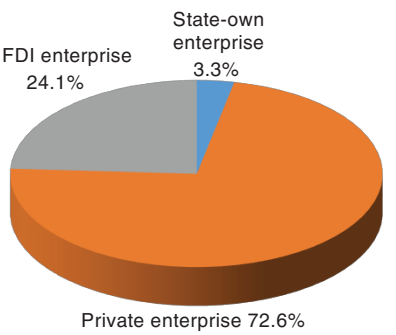
By region



By labor size



By industry



By sector

Source: Survey business, VCCI, 2020

Sample structure of enterprises participating in the survey

VCCI-IP

VCCI INTELLECTUAL PROPERTY SOLE MEMBER COMPANY LIMITED

8th Floor, VCCI Building, 9 Dao Duy Anh, Ha Noi, Viet Nam
Tel. (024) 3577 1365 ✦ Fax. (024) 3577 1563, 3577 2595, 3577 2629
E-mail: patent@vcci-ip.com; trademark@vcci-ip.com ✦ Website: www.vcci-ip.com

VCCI Intellectual Property Sole Member Company Limited (VCCI-IP CO., LTD) under the Viet Nam Chamber of Commerce and Industry specializes in legal services on Intellectual Property. Being authorized by the Government, VCCI-IP, formerly the Industrial Property Department of Viet Nam Chamber of Commerce and Industry, was established in 1984 (once after the establishment of National Office of Intellectual Property in 1982), to function as an exclusive intellectual property agency for foreign enterprises in Viet Nam. In the era of the economic renovation and global economic integration, in near 40 years, we have been continuously developing and improving the professional manner to firmly assert our position as one of the largest and most prestigious IP agencies in Viet Nam. VCCI-IP has annually ranked among Viet Nam's best IP agencies by intellectual property magazines, namely Managing IP Magazine, Asia IP Magazine.

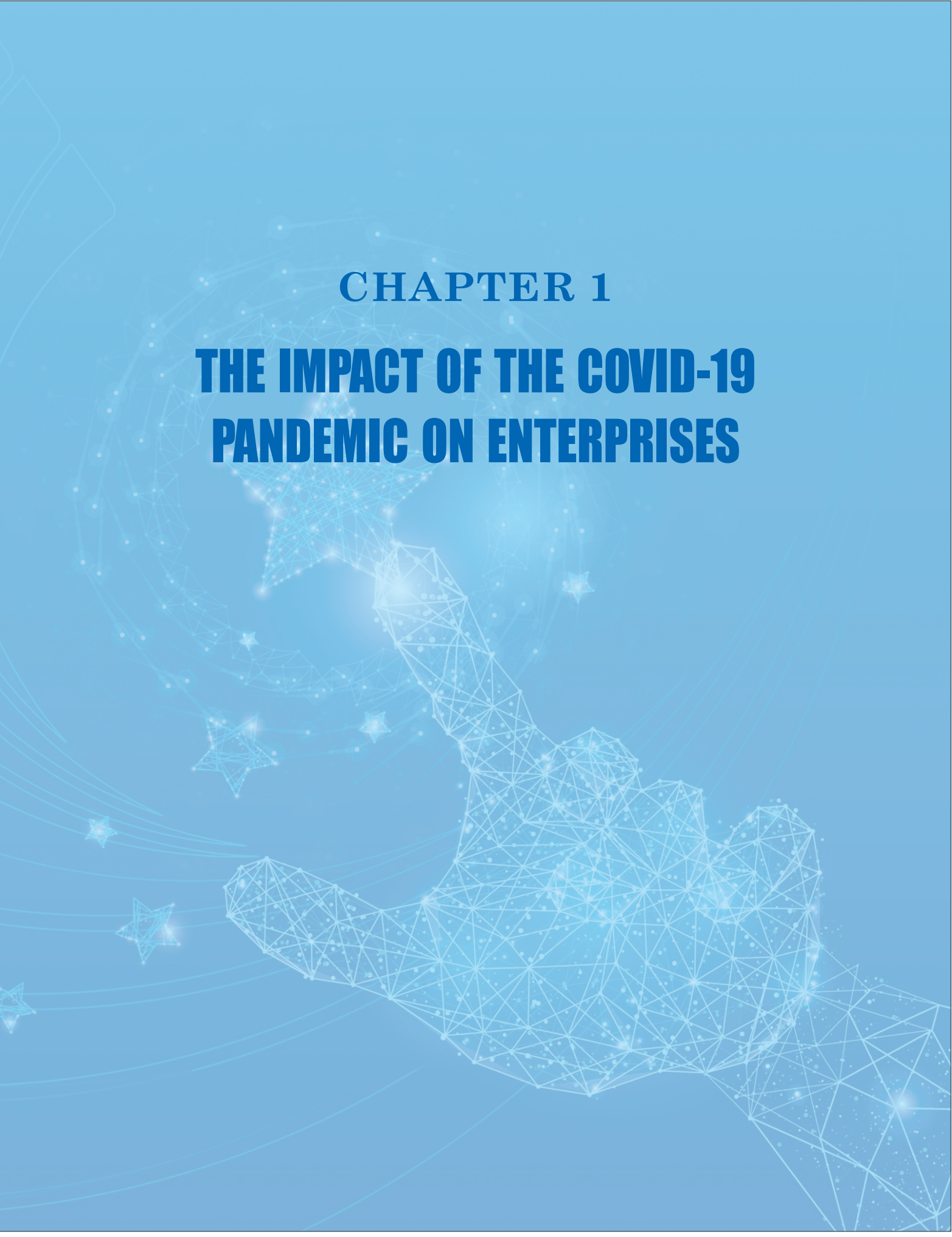
VCCI-IP has been cooperating with about 500 law firms in all over the world and representing for more than 1000 domestic and foreign clients among which are leading industrial groups, multinational corporations such as Sony, Sharp, Panasonic, GlaxoSmithKline, LG, Toshiba, NTT Docomo, Sanyo, Hitachi etc., VCCI-IP is a member of international association such as International Association for the Protection of Intellectual Property (AIPPI), International Trademark Association (INTA), Asian Patent Attorneys Association (APAA), etc.. With a team of more than 70 experienced and devoted lawyers, patent attorneys, legal and technical experts in various fields, VCCI-IP always commits to provide the best services on the basis of close and opportune coordination with clients in effectively establishing and protecting intellectual property rights in Viet Nam and foreign jurisdictions.

VCCI-IP's areas of specialization include:

1. Providing legal, economic and technical information in relation to intellectual property of Viet Nam and foreign countries to domestic and foreign individuals/enterprises;
2. Providing search services on technical background, protection status, patentability or registrability of inventions, industrial designs, trademarks etc.;
3. Advising and representing for filing and prosecuting patent applications, industrial designs, trademarks, copyrights etc., of domestic and foreign individuals/enterprises in Viet Nam and other countries;
4. Advising and representing for filing and prosecuting international patent applications under PCT (Patent Cooperation Treaty);
5. Advising and representing for filing and prosecuting international trademark applications under Madrid Protocol/Agreement and Community Trademarks (CTM);
6. Advising and representing for settlement of appeals, disputes resolutions;
7. Advising and representing for enforcement of intellectual property rights against infringement and counterfeit in Viet Nam and other countries;
8. Advising on license, assignment of intellectual property rights, and technology transfer.

CHAPTER 1

THE IMPACT OF THE COVID-19 PANDEMIC ON ENTERPRISES



1.1. THE IMPACT OF COVID-19 ON THE GENERAL BUSINESS OF ENTERPRISES

1.1.1. The Covid-19 pandemic has caused many negative impacts on enterprises' business activities, especially difficulties in maintaining jobs for employees.

Covid-19 started to spread and broke out in early 2020 around the world, seriously impacting the economy, delaying most production and business activities and shutting down many enterprises belonging to special economic sectors. The economic events that kick off for 2020 are the lockdown measures that economies must perform to keep the disease under control. Viet Nam is considered as one of the successful countries in preventing and limiting the spread of pandemic thanks to the implementation of drastic measures, stronger than the WHO's recommended level, including the implementation of social distancing and limited contact. Although measures to prevent this disease are necessary, their implementation also affects the enterprises' overall performance in the first 6 months of 2020.

Among the negative impacts caused by the Covid-19 pandemic on the enterprises' general business activities, the necessity to narrow the size or reduce the frequency due to the Covid-19 impact has caused many enterprises to dismiss the employees or let them temporarily leave. Therefore, maintaining jobs for employees is the concern of many enterprises under the impact of Covid-19 (76.2%). Additionally, due to the need of implementing social distancing measures and gathering restrictions to prevent the pandemic, many businesses have to let their employees work remotely or rotate shifts, leading to difficulties in personnel management (38%) as well as additional costs to install tools/equipment for pandemic prevention (30.3%). In addition, the directive of social distancing, travel restrictions, and labor gathering restrictions have caused difficulties for some businesses about business papers completion (21.3%) and caused many barriers in internal communication (20.8%). Due to the pandemic's progress as well as the measures to prevent the spread of the disease widely propagated and regularly updated by Vietnamese authorities on the mass media, only 12.4% of enterprises said that they had trouble updating and complying with new regulations and rules related to the pandemic.

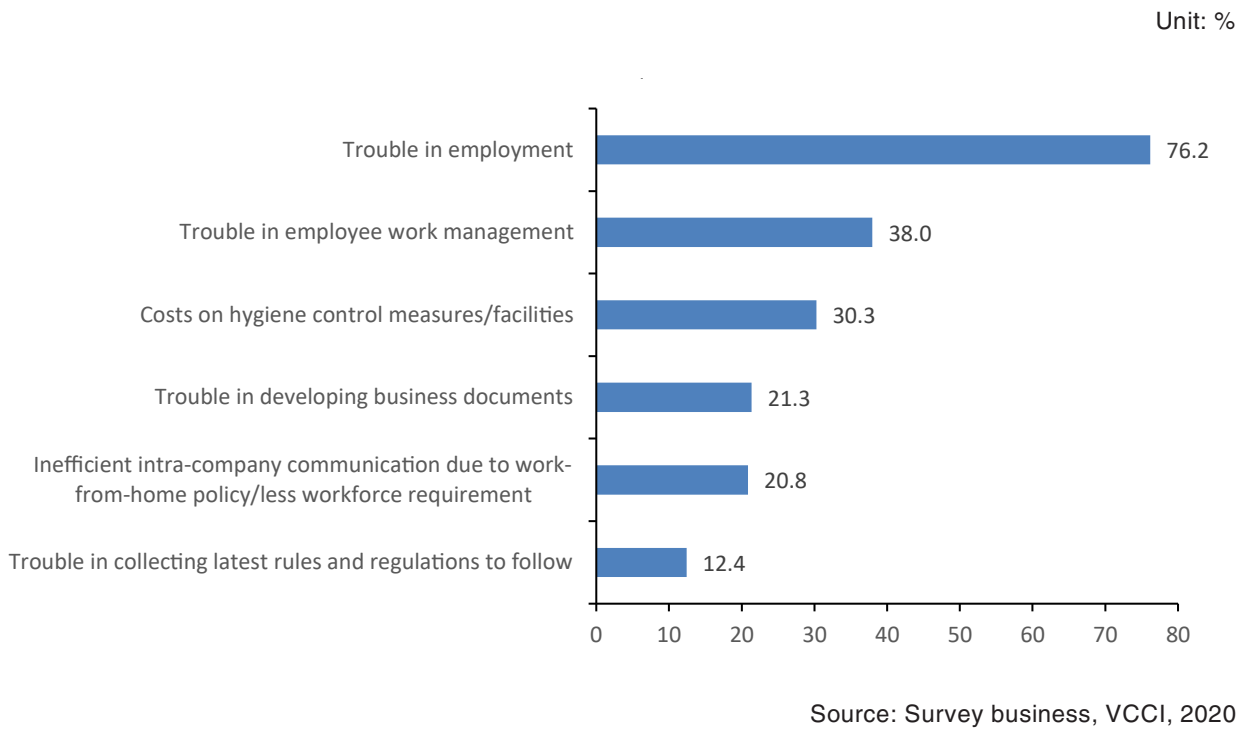
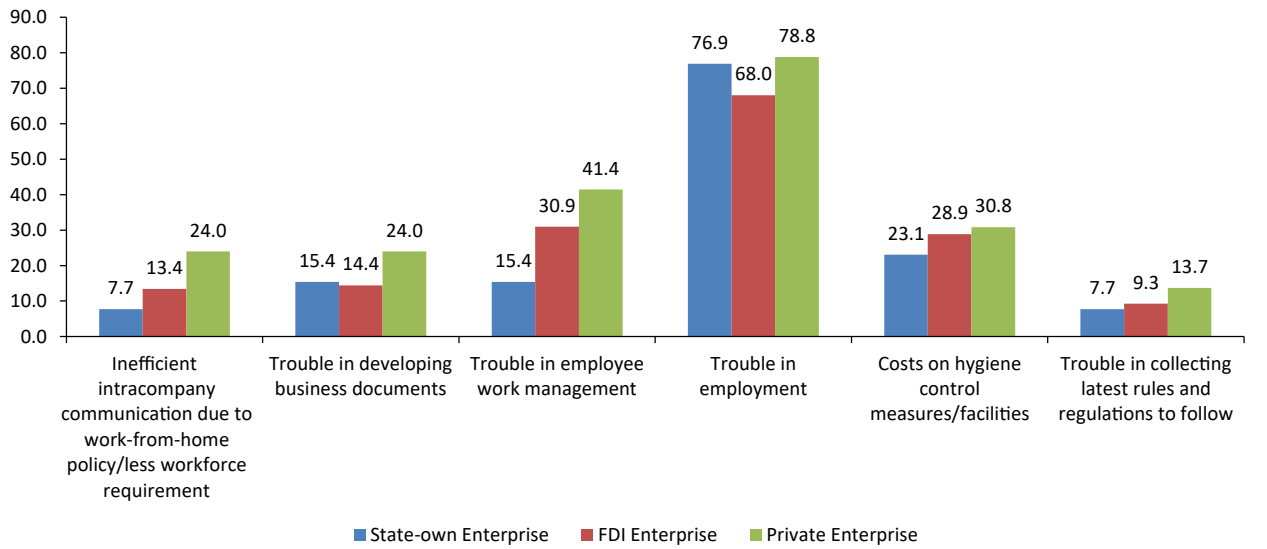


Figure 1.1. The impact of Covid-19 on general business

1.1.2. Private sector is more affected by the Covid-19 pandemic

Among the issues affecting the general business of enterprises, the problem of *job maintaining (such as quitting and temporary leave)* is the biggest problem affecting all types of enterprises. Specifically, 78.8% of domestic private sector enterprises, 76.9% of state-owned enterprises, and 68.0% of FDI enterprises find it difficult to maintain jobs for their employees. However, general business performance of domestic private sector enterprises is most affected by the Covid-19 pandemic among state-owned and FDI enterprises on most issues such as ineffective internal communication due to work-from-home policies/limited labor force; difficulties related to business papers completion; difficulties in managing the employee's work; difficulties in job maintaining; expenses on pandemic's preventive hygiene facilities/equipment; difficulties in updating and complying with new regulations and rules related to the pandemic.

Unit: %



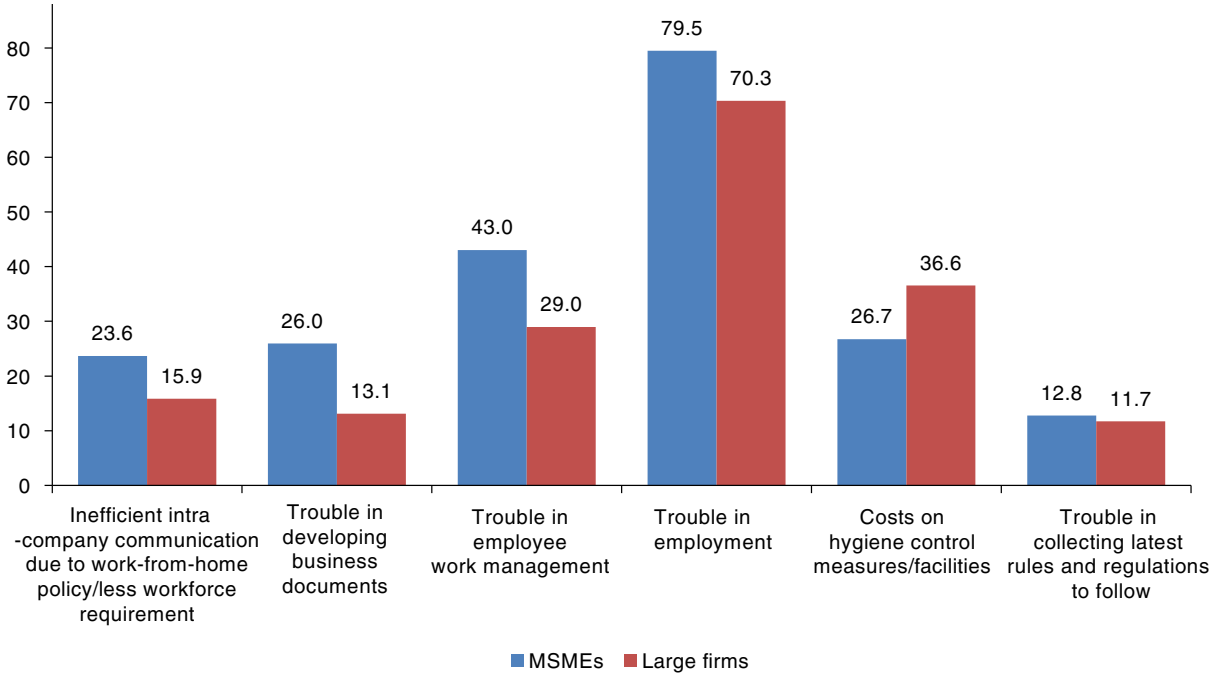
Source: Survey business, VCCI, 2020

Figure 1.2. The impact of Covid-19 on the general business of enterprise group by type

1.1.3. MSMEs are more negatively affected by Covid-19 than large enterprises

With different scales, the influence of Covid-19 on enterprises' business activities is also different. Figure 1.3 shows that Covid-19 has a strong influence on the MSMEs' performance in almost all aspects except for the *cost on hygiene control measures/facilities*. This can be easily explained, MSMEs often have a limited facility, while big businesses own a large facility. Covid-19 requires businesses to clean their facilities and prevent pandemic at all stages, phases and aspects of production and business. As a result, large businesses will incur costly maintenance, cleaning and pandemic prevention costs. When the business is in trouble, each increase in cost will make the financial burden worse.

Unit: %



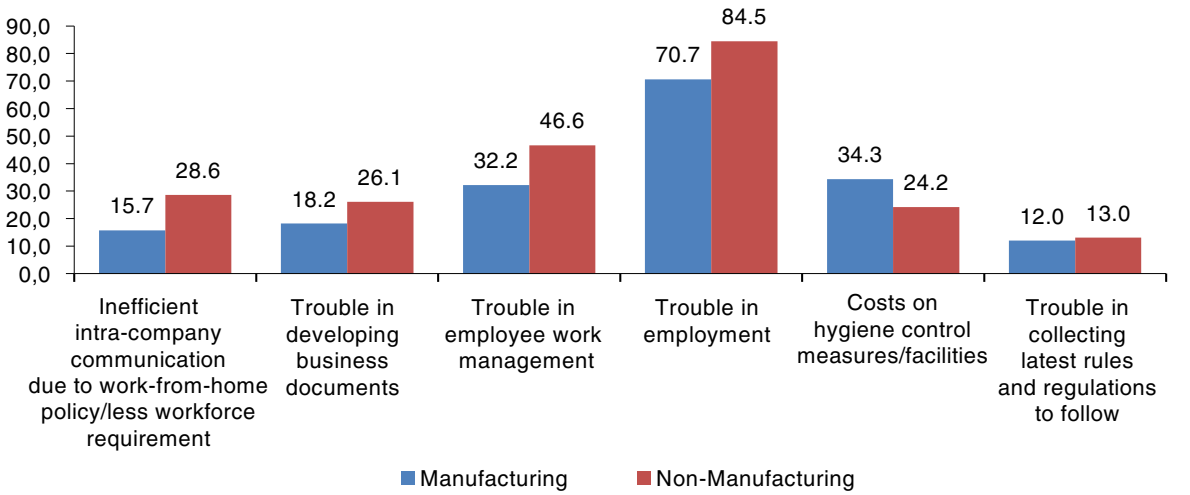
Source: Survey business, VCCI, 2020

Figure 1.3. The impact of Covid-19 to general business of enterprise group by size

1.1.4. Non-manufacturing enterprises suffered more negative effects from the Covid-19 pandemic than manufacturing enterprises

Figure 1.4 shows the difference in the degree of Covid's impact on business activities between manufacturing enterprises and non-manufacturing enterprises. The results showed that the enterprises' general business activities in the manufacturing and processing industry appeared to be less affected by the Covid-19 pande ic copared to non-manufacturing firms on most matters, except for *cots on h giene control measures/equipment*. In particular, the Covid-19 pandemic causes serious difficulties to the *trouble in employment (84.5%)* as well as manufacturing enterprises (70.7%). In addition, the Covid-19 pandemic also causes trouble for non-manufacturing eterprises in *trouble in employee work management (46.6%), inefficient intra-company communication due to work-from-home policy/less workforce requirement (28.6%), trouble in developing business documents (26.1%)*; enterprises with import-export activities have difficulties in *costs on hygiene control measures/facilities (34.3%), trouble in employee work management (32.2%).*

Unit: %



Source: Survey business, VCCI, 2020

Figure 1.4. The impact of Covid-19 on the general business of enterprise groups by field

1.2. THE IMPACT OF COVD-19 ON ENTERPRISES' PRODUCTION ACTIVITIES

1.2.1. Covid-19 causes the decline of enterprises' production capacity, the shortage of input material supplies and the difficulty in predicting stockpiling of goods

As for the production activities in enterprises, since most enterprises belong to manufacturing industries, most of the production stages require direct participation of workers. Therefore, when the government issued the social distancing and working-from-home directives, more than half of businesses (53.6%) suffered due to the decline in production capacity. Moreover, due to unpredictable changes of the pandemic, especially in the world, result in the fluctuation of the goods' demand on the market, so up to 40.9% of enterprises said that they have difficulties in controlling inventories and it is difficult to predict appropriate stock of goods.

Not only domestic travel restrictions, but also border lockdown orders of many countries as well as suspension of international flights to Viet Nam have resulted in the shortage of input material supplies for 37.5% of enterprises due to difficulties in domestic and international transportation. In addition, the input shortage of about a quarter of surveyed enterprises is also caused by domestic and international input supply partners having many difficulties in production and filling orders, especially being affected by the stagnant supply of components and accessories from China. Travel restrictions also cause certain delays in the maintenance/technical support works in businesses.

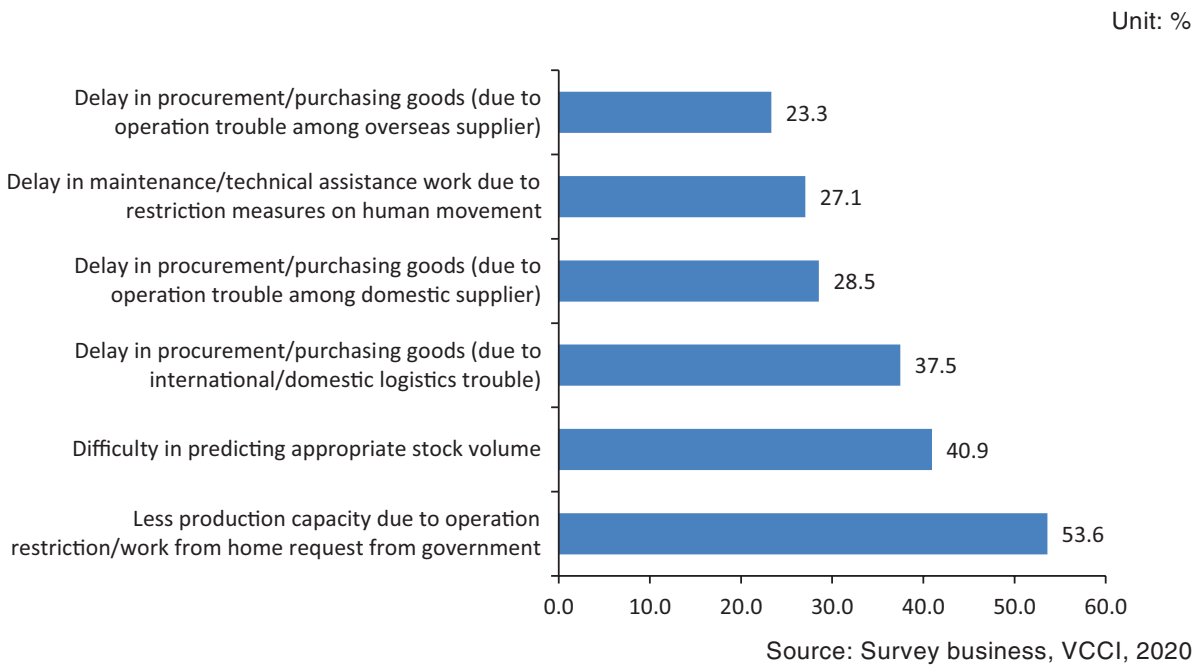


Figure 1.5. The impact of Covid-19 to enterprises' production activities

1.2.2. The FDI sector faces many difficulties in input material supplies, while the private sector has greatly reduced production capacity due to Covid-19.

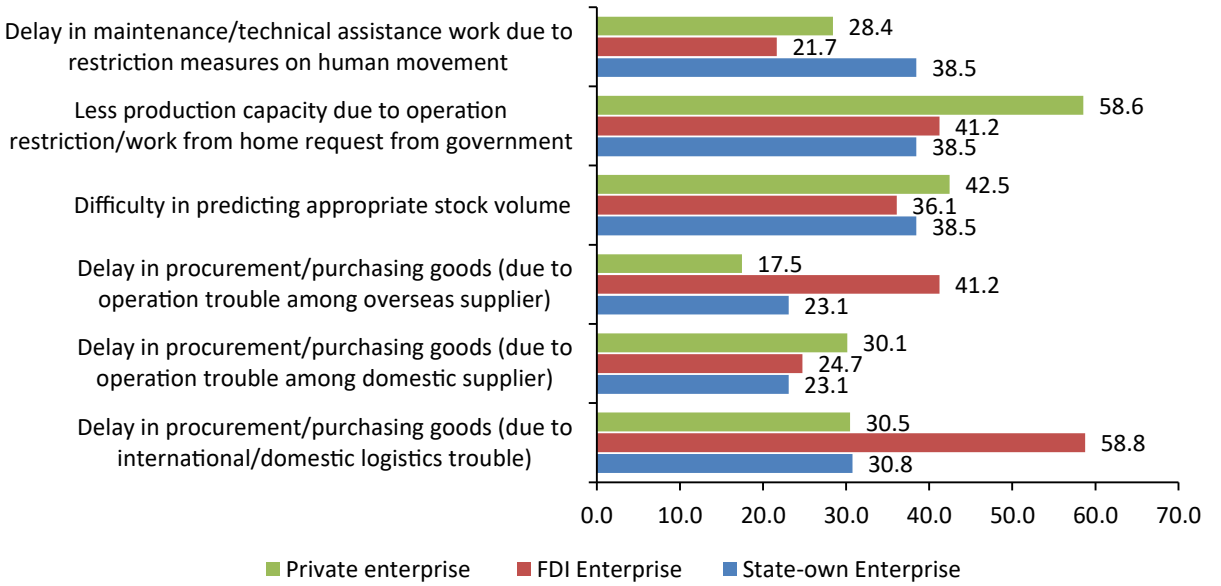
Figure 1.6 below describes the differences in the perception of Covid-19's impact on the businesses' production activities, comparing by type.

Considering the number of production-related issues with the largest proportion of enterprises impacted by the Covid-19 pandemic, the domestic private sector is the most affected (3 problems are *less production capacity due to operation restriction/work from home request from government (58.6%), difficulty in predicting appropriate stock volume (42.5%), Delay in procurement/purchasing goods (due to operation trouble among domestic supplier) (30.1%)*, followed by FDI enterprises (2 problems are *delay in procurement/purchasing goods (due to international/domestic logistics trouble) (58.8%), Delay in procurement/purchasing goods (due to operation trouble among overseas supplier) (41.2%))*, and finally state-owned enterprises *(1 problem is Delay in maintenance/technical assistance work due to restriction measures on human movement (38.5%)*).

In general, the issues affected by the Covid-19 pandemic in production activities have fairly similar proportions between business types. However, there are also problems in production activities that are particularly affected by business activities, for example, FDI

enterprises are more affected by *delay in procurement/purchasing goods (due to international/ domestic logistics trouble, or delay in procurement/purchasing goods (due to operation trouble among overseas supplier).*

Unit: %



Source: Survey business, VCCI, 2020

Figure 1.6. The impact of Covid-19 on production activities of enterprise group by type

1.2.3. Large enterprises are more affected by input material supplies, MSMEs suffer more on production capacity

Figure 1.7 below shows the difference between business groups by size when expecting the impact of Covid-19 on production.

Research results show that large enterprises are more affected than MSMEs in shortage problems of input material supplies due to difficulties in the problems of domestic/ international transportation (62.8%), difficulties of foreign suppliers (40%), difficulties of domestic suppliers (32.4%). In contrast, the Covid-19 pandemic has a greater impact on MSMEs than large businesses in problems of reduced production capacity due to limited activities/remote working due to the requirements of social distancing (59.7%), difficulty in predicting appropriate goods volume (43.0%), delay in maintenance/technical assistance due to travel restrictions (32.2%).

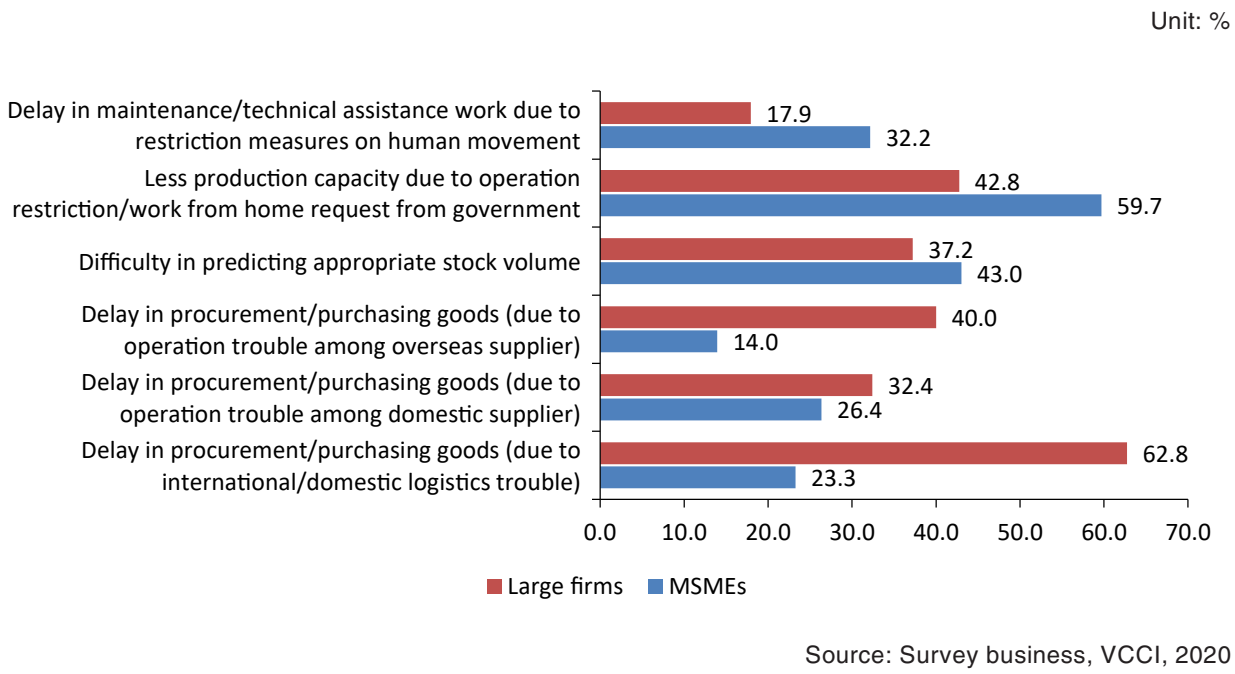


Figure 1.7. The impact of Covid-19 on production activities of group by size

On the other hand, large enterprises are most affected by Shortage of input materials supplies due to the difficulties of domestic/international transportation (62,8%), next is Declining manufacturing capacity (42,8%); MSMEs are mostly impacted by Declining manufacturing capacity due to the activities restrictions/remote working according to the necessity of social distancing (59,7%), then Difficulties in predicting appropriate goods volume (43,0%).

1.2.4. Export businesses have lost their input material supplies from foreign suppliers

Covid-19 affected more on enterprises whose import-export activities than enterprises that did not caused by *delay in procurement/purchasing goods (due to international/domestic logistics trouble) (56.0%), delay in procurement/purchasing goods (due to operation trouble among overseas supplier) (35.9%), and delay in procurement/purchasing goods (due to operation trouble among domestic supplier) (30.8%)*. In contrast, enterprises with no import-export activities were more affected by the Covid-19 pandemic than businesses with import-export activities in the problems of *less production capacity due to operation restriction/work from home request from government (66.3%), difficulty in predicting appropriate stock volume (43.2%), delay in maintenance/technical assistance work due to restriction measures on human movement (36.7%).*

Unit: %

Source: Survey business, VCCI, 2020

Figure 1.8. The impact of Covid-19 on the production activities of enterprise group by import-export activities

On the other hand, enterprises with import-export activities were mostly affected by the Shortage of input material supplies due to difficulties in domestic/international transportation (56.0%), followed by Declining production capacity due to limited activities/ remote working according to the requirements of social distancing (44.4%); enterprises that do not have import and export activities are mostly affected by declining production capacity due to limited activities/remote working according to the requirements of social distancing (66.3%) followed by Difficulty in predicting the appropriate volume of stockpile (43.2%).

1.3. THE IMPACT OF COVID-19 ON ENTERPRISES' SALES ACTIVITIES

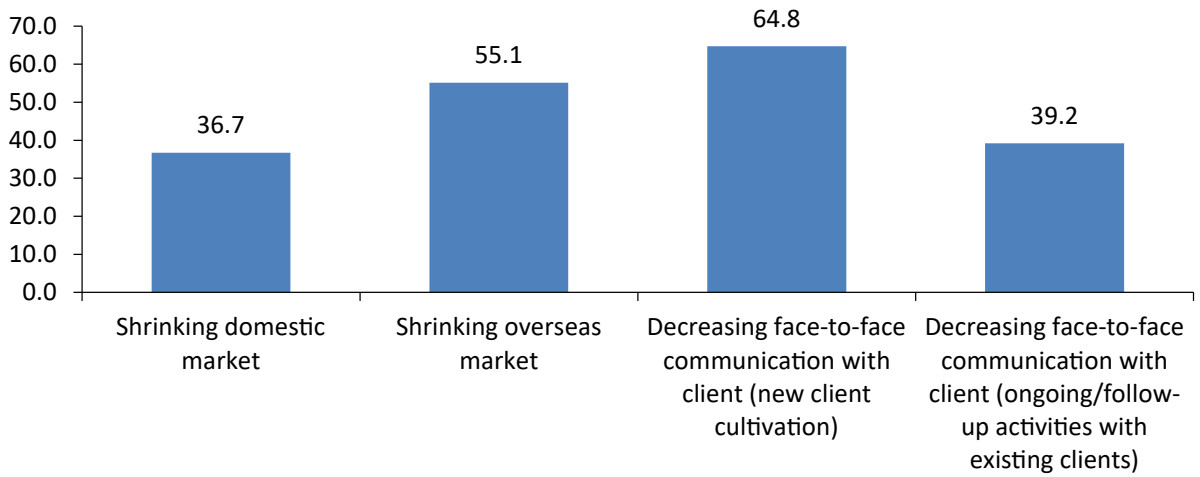
1.3.1. Covid-19 not only narrows the existing market but also causes trouble for businesses to find new markets

The Covid-19 pandemic has caused serious crises in the entire economy, the domestic consumer market stagnated while the enterprises' main export markets were frozen. The output market was narrowed, the old partners proposed to postpone or cancel signed

orders, the number of new orders dropped sharply because customers were still cautious amid the volatile economy makes sales activities and product consumption of businesses slow down significantly. Due to Covid-19, transactions between enterprises in general and between countries in particular are restricted. Therefore, sales activities, basically, based on communicating transactions, are likely to be affected.

Survey results in the figure 1.9 show that most businesses have decreasing face-to-face communication with client (new client cultivation) with the rate of 64.8%. This is completely understandable because the social distancing orders make meeting, exchange, and trade promotion activities impossible to happen. Businesses' opportunities to contact with new customers and partners to promote, introduce products as well as sign contracts are minimal. Businesses' communicating activities with existing clients to support and track also share similar difficulties.

Unit: %



Source: Survey business, VCCI, 2020

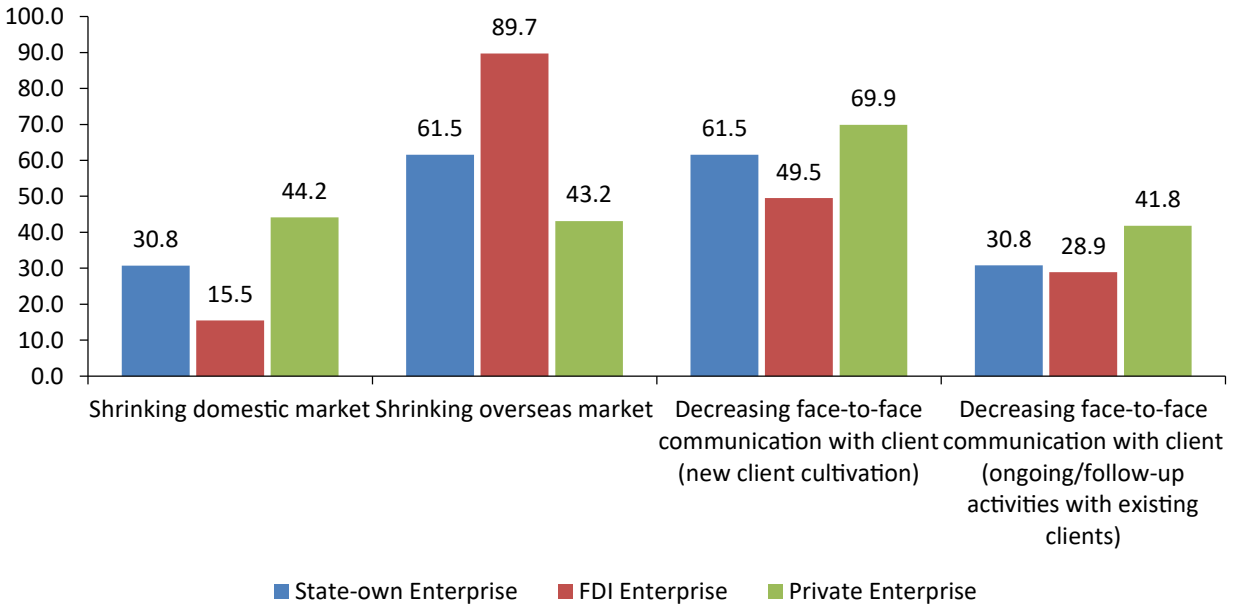
Figure 1.9. The impact of Covid-19 on sale activities of enterprise group

1.3.2. Covid-19 narrows the foreign market for FDI enterprises, narrows the domestic market for private sector enterprises

The problems in sales activities affected by the Covid-19 pandemic are quite particular due to the enterprises' business characteristics, for example FDI enterprises are mostly affected by *shrinking overseas market* or domestic private sector businesses are more

affected by *shrinking domestic market*. From a general perspective, *decreasing face-to-face communication with client (new client cultivation)* affects all businesses of the group most, but higher in domestic enterprises, especially the domestic private sector.

Unit: %

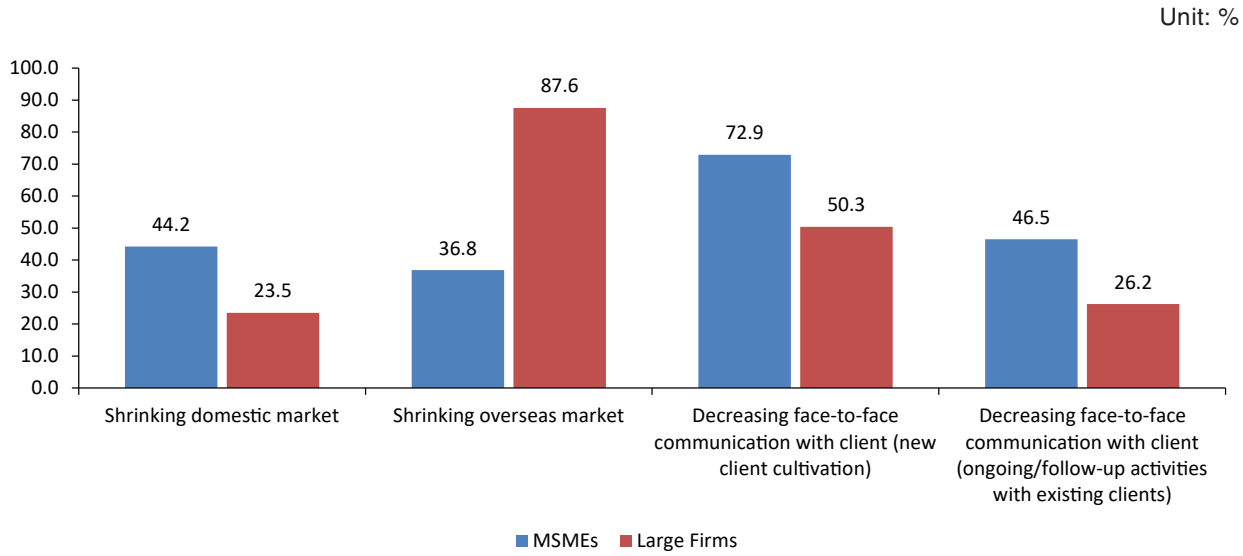


Source: Survey business, VCCI, 2020

Figure 1.10. The impact of Covid-19 on sales activities of enterprise group by type

1.3.3. Most MSMEs' sales activities are more affected than large enterprises, except for foreign markets.

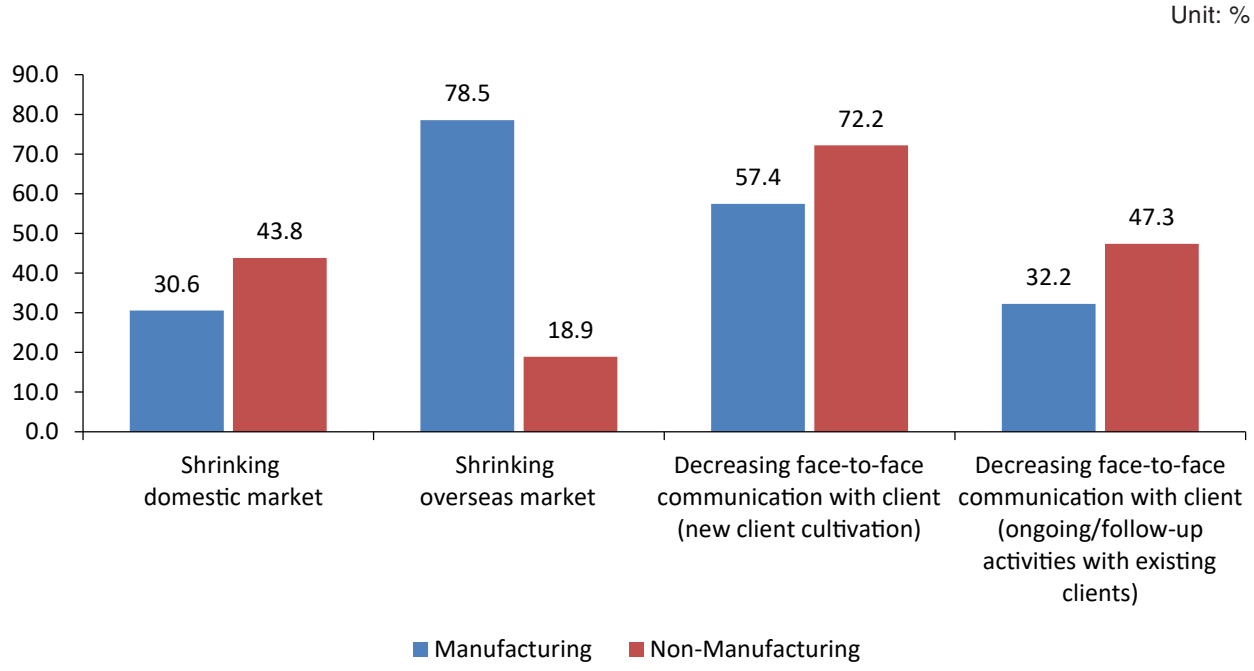
Comparing the impacts of the Covid-19 pandemic on issues related to enterprise sales activities shows that large business group is affected more than MSMEs in terms of *shrinking overseas market (87.6%)*. In contrast, MSMEs are affected by Covid-19, which has a greater influence than large enterprises in the problems of *decreasing face-to-face communication with client (new client cultivation) (72.9%), decreasing face-to-face communication with client (ongoing/follow-up activities with existing clients) (46.5%), shrinking domestic markets (44.2%).*



Source: Survey business, VCCI, 2020

Figure 1.11. The impact of Covid-19 on sales activities of enterprise group by size

1.3.4. Manufacturing enterprises are being narrowed their domestic market more than non-manufacturing enterprises due to Covid-19



Source: Survey business, VCCI, 2020

Figure 1.12. The impact of Covid-19 on the sale activities of enterprise group by field

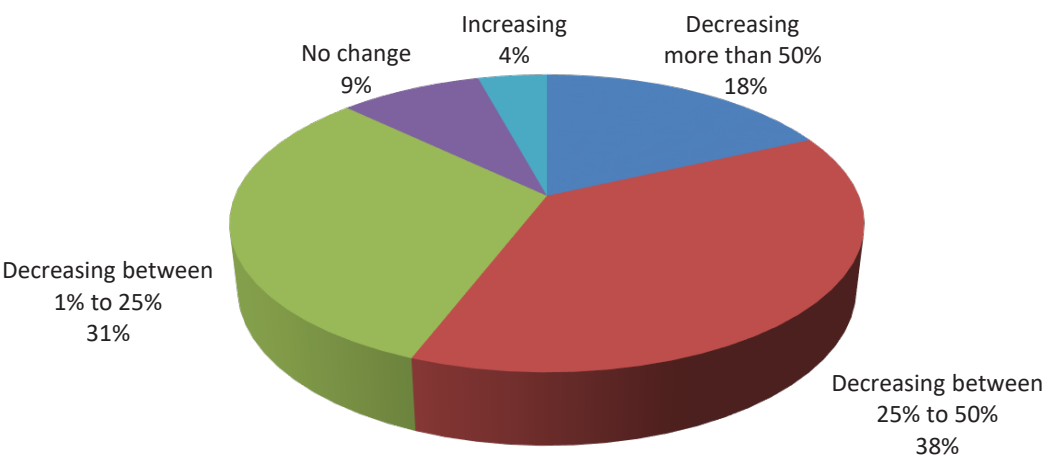
Comparing the impact of the Covid-19 pandemic on issues related to the enterprises' sales activities shows that the business group in the manufacturing and processing industry is affected more than the business group in the non-manufacturing industry in the matter of *shrinking overseas market (78.5%).* In contrast, enterprises in non-manufacturing industries suffer from Covid-19 greater than enterprises in manufacturing and processing industries in the problems of *decreasing face-to-face communication with client (new client cultivation) (72.2%), decreasing face-to-face communication with client (ongoing/follow-up activities with existing clients) (47.3%), shrinking domestic markets (43.8%).*

1.4. THE IMPACT OF COVID-19 ON ENTERPRISES' REVENUE

1.4.1. Most businesses reduced revenue due to Covid-19, even nearly one per five businesses reduced revenue by more than half in the first 6 months of the year

Most of the business performance of enterprises has faced many difficulties due to Covid-19, so the revenue in the first 6 months of the year also dropped significantly. According to the survey results, the rate of enterprises with increased revenue is very low, only 4.2%. The rest of more than three-quarters of businesses have reduced in revenue, of which businesses with revenue reduction rate from 1%-25% and 25%-50%, respectively, are 31.3% and 37.7%. More than 18% of businesses have reduced revenue by more than 50% because of the disease. These numbers show just how serious Covid-19 has impacted on businesses.

Unit: %



Source: Survey business, VCCI, 2020

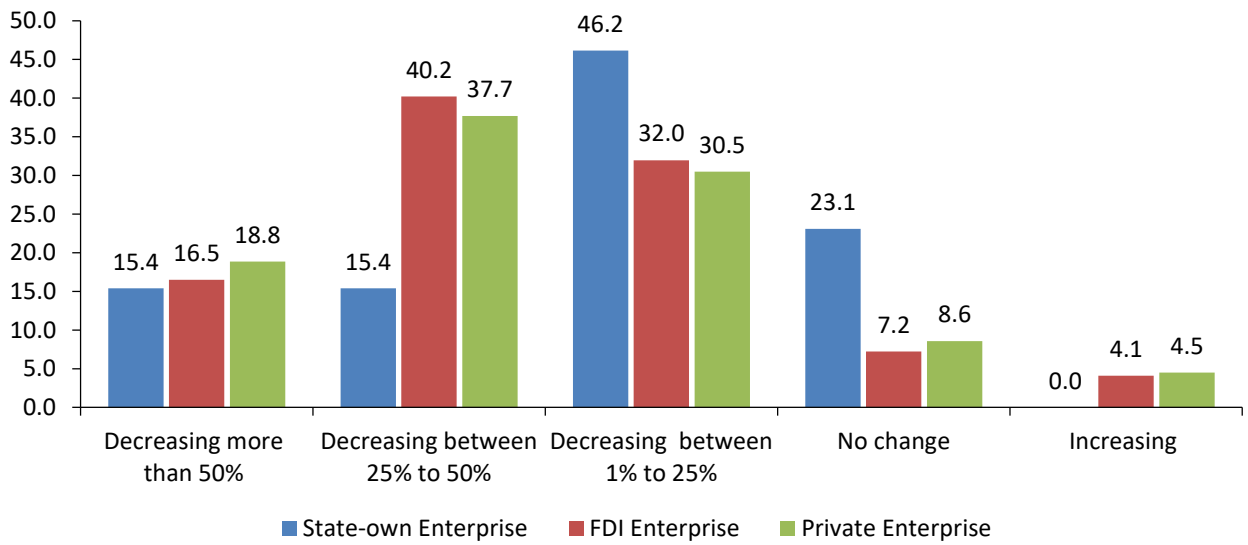
Figure 1.13. The impact of Covid-19 on enterprises' revenue

Most of the businesses today told that their products were sold slowly or even could not be sold. Unemployed workers had to take time off work or work in moderation. Moreover, China, Japan, South Korea, EU and the US are the main export markets for enterprises which are heavily influenced by Covid-19, causing the retail market to freeze, customers continuously reduce the number of orders of non-manufacturing goods, suspend shipments for already-manufactured orders, and at the same time prolong the payment of debts for shipped orders so the inventory keep piling up progressively. Service businesses include: transportation, hotels, restaurants, tourism, etc. face many difficulties due to the decline in purchasing power, travel restriction, so they are under pressure on ground rent, interest rates.

1.4.2. Revenue of private and FDI sector enterprises is more declining

Enterprises' revenue in the first 6 months of 2020 (compared to the same period in 2019) has certain differences between businesses' types. State-owned enterprises group had the highest proportion of enterprises with unchanged revenue compared to other group of enterprises (23.1%). The two groups of FDI enterprises (7.2%) and domestic private sector enterprises (8.6%) were considered to be equal in terms of the proportion of businesses with unchanged turnover.

Unit: %



Source: Survey business, VCCI, 2020

Figure 1.14. The impact of Covid-19 on revenue of enterprise group by type

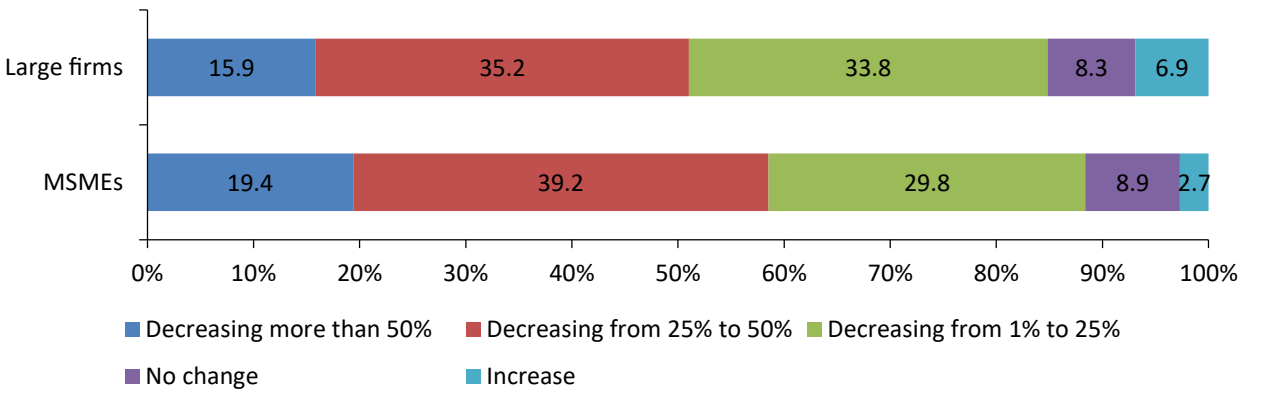
In the direction of revenue reduction, the two groups of FDI enterprises and domestic private enterprises have a larger proportion of enterprises with reduced revenue compared to the state-owned enterprises group. Specifically, for a revenue reduction of more than 50%, the domestic private sector has the highest proportion of businesses (18.8%); for the revenue reduction from 25% to 50%, the group of FDI enterprises has the highest percentage of enterprises (40.2%); for a revenue reduction from 1% to 25%, the state-owned group has the highest proportion of enterprises (46.2%).

1.4.3. Both large enterprises and MSMEs reduced revenue due to Covid-19

Enterprises' revenue in the first 6 months of 2020 has a certain difference between business groups with different labor sizes, but the difference is not much. Both MSMEs enterprises and large business group have similar proportions with unchanged revenue ranging from 8.3% to 8.9%.

In the direction of decreasing revenue, MSMEs seem to be affected more by Covid-19 than large enterprises. Specifically, for the revenue reduction of more than 50% or the revenue reduction of 25% to 50%, MSMEs have a higher proportion than large enterprises. For a revenue reduction of 1% to 25%, the group of large enterprises has a higher proportion than the MSMEs group.

Unit: %



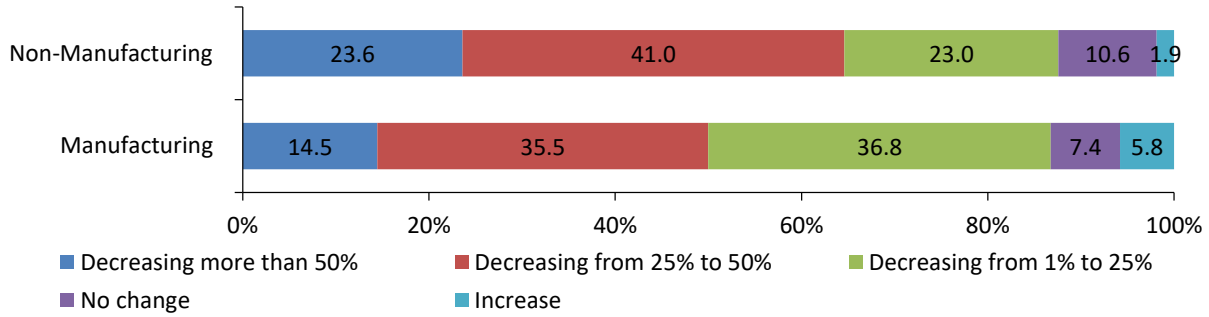
Source: Survey business, VCCI, 2020

Figure 1.15. The impact of Covid-19 on revenue of enterprise group by size

1.4.4. Revenues of non-manufacturing enterprises are more affected by Covid-19 than manufacturing enterprises

Enterprises' revenue in the first 6 months of 2020 has certain differences between business group in distinguished fields. Non-manufacturing enterprises are more likely to be affected by Covid-19 than enterprises in the manufacturing and processing industry. Specifically, for the revenue reduction of more than 50% or the revenue reduction of 25% to 50%, the group of enterprises in the non-manufacturing industry has a higher proportion than the group of enterprises in the manufacturing and processing industry. For a revenue reduction from 1% to 25%, the group of enterprises in the manufacturing and processing industry has a higher percentage compared to the non-manufacturing group of businesses.

Unit: %

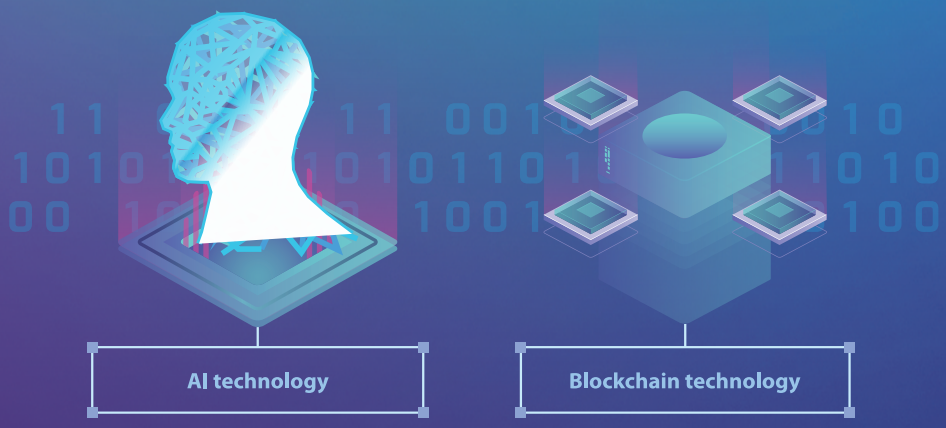


Source: Survey business, VCCI, 2020

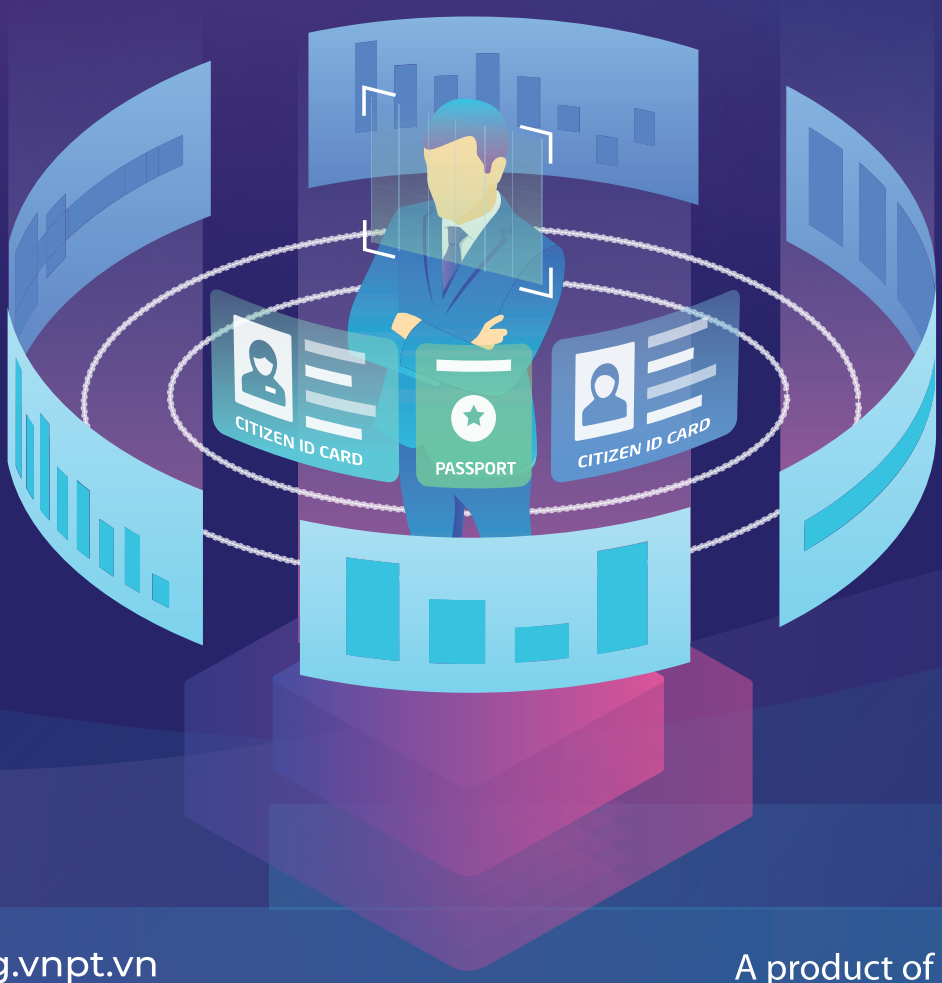
Figure 1.16. The impact of Covid-19 on revenue of enterprise group by field

VNPT eKYC

Electronic identification
and authentication solution



APPLYING THE MOST ADVANCED 4.0 TECHNOLOGY



www.idg.vnpt.vn

A product of VNPT

VNPT EKYC - DIGITAL IDENTITY SOLUTION MAKE IN VIET NAM

The VNPT eKYC e-identity platform is recognized as an indispensable technology in the 4.0 era. Therefore, VNPT's eKYC solution will help businesses confidently enter the digital transformation process and increase their competitive advantage in the market.

eKYC (Electronic Know Your Customer) is a method of identifying electronic customers, allowing businesses to identify customers 100% online. Accordingly, instead of going directly to the office or customer service center to compare paper documents, with eKYC, customers can verify information at home, using the services of the business at any time or anywhere. This solution is considered as an essential foundation for businesses to carry out digital transformation in the 4.0 era.

As a comprehensive identity solution package, VNPT eKYC provides 4 main features, including: Fraud check, Paper verification, Portrait authentication and Unsatisfactory paper detection. Besides, the VNPT eKYC solution also has additional custom features, in accordance with the requirements of each business such as: GPS navigation; Save video call; Change video call background and Multi language support...

To implement these outstanding features, VNPT has developed eKYC solutions based on the world's most modern technologies such as AI, Blockchain, Biometrics Authentication,...

In particular, AI technology is used for portrait authentication, based on the mechanism of matching real faces with faces on papers. This technology also has the function of separating text content on photos to save in the database, so that users do not have to enter data manually. Notably, the AI models used in the solution are self-researched, designed and developed by VNPT engineers team.

In addition, VNPT eKYC also uses Blockchain technology to store customer information on multiple storage places (Node) of the system, transaction information. In particular, the Blockchain feature also allows businesses to monitor and compare original data with modified data, ensuring absolute transparency and safety for customers.

With the above preeminent features, the VNPT eKYC solution package will help organizations and businesses save time, cost as well as improve information accuracy compared to manual methods that use the naked eye to observe the paperwork and compare actual customer portraits.

Especially, in the increasing personalization environment, the introduction of eKYC solutions will help businesses bring better service experiences to their customers. Therefore, businesses can reach more potential customers and improve business efficiency.

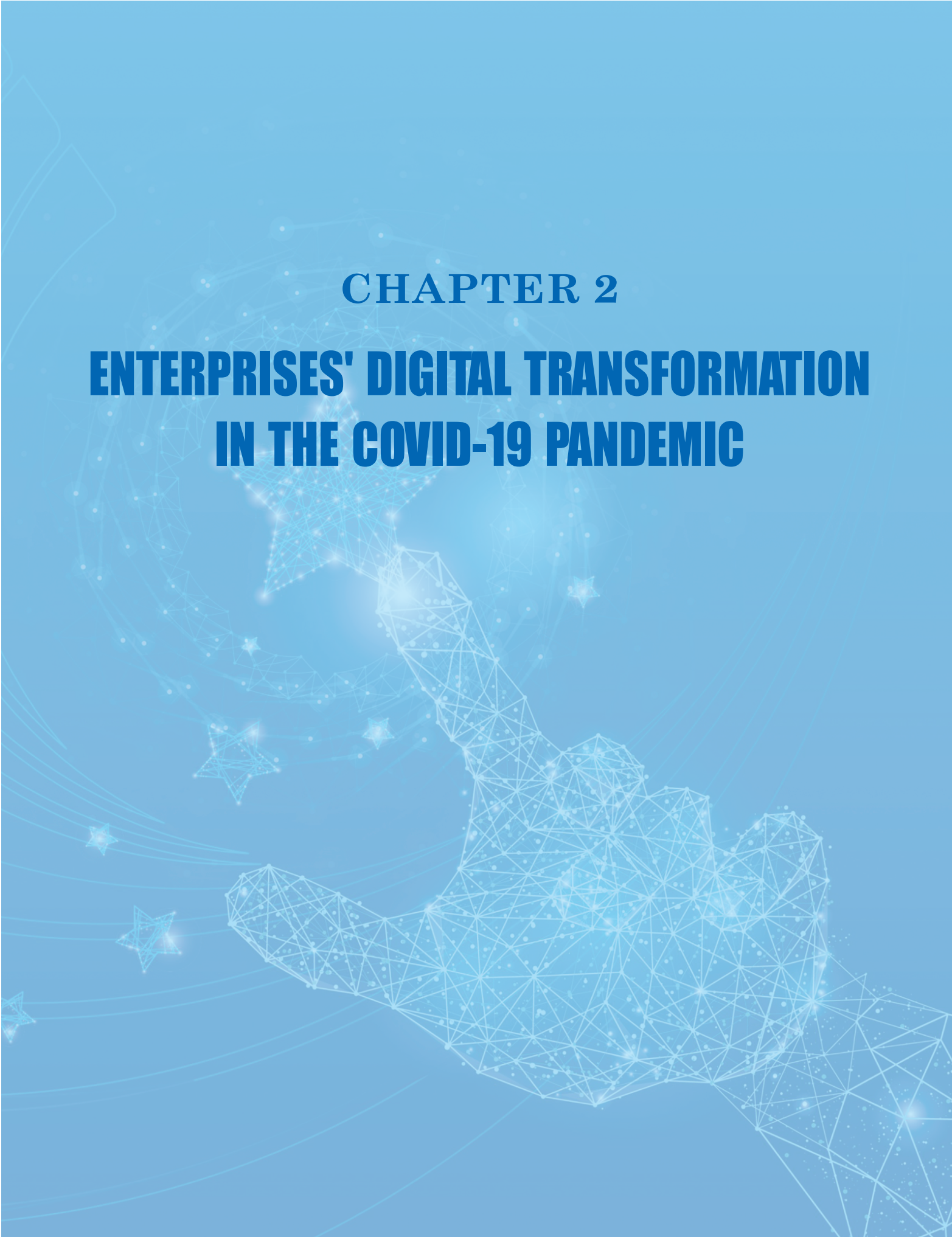
This solution is being operated by VNPT on website *https://ekyc.vnpt.vn/* according to SaaS model (Software-as-a-Service). Therefore, businesses can quickly deploy services anywhere, anytime.

Along with that, VNPT eKYC is supported for both Android and IOS platforms, to meet the maximum needs of customers.

VNPT's eKYC solution has received many domestic and international awards such as: Viet Nam Talent Award 2019, Breakthrough Award in using technology in customer care at the Asia-Pacific Stevie Awards 2020 and Access security & identity category for the 2020 International Business Stevie Awards.

CHAPTER 2

ENTERPRISES' DIGITAL TRANSFORMATION IN THE COVID-19 PANDEMIC



2.1. ENTERPRISES' OPINIONS AND PERCEPTIONS TOWARDS DIGITAL TECHNOLOGY

Digital transformation is the process of applying advanced technology to resolve society or everyday life problems based on the digitalization of data and information in different industries. In Viet Nam, digital transformation has begun to take place, especially in industries such as finance, transportation and tourism, etc. The government and authorities at all levels are making efforts to build E-government towards Digital government.

The Covid-19 pandemic happened with many unpredictable consequences and unprecedented changes in precedent. While many companies were forced to shut down and reduce their employees, others accepted to work in a virtual environment, the entire operating model of the company was completely changed. The impact of the Covid-19 pandemic also created new awareness, a shifting trend in consumer tastes, new commercial transactions on the principle of distance, minimizing contact; new online businesses appear based on digital economy, etc. This is considered as an opportunity, a hundred-year push for businesses to realize the superiority of the digital economy and more urgent requirements of digital transformation.

In respect of the Prime Minister's Decision No. 749/QD-TTg dated June 3rd, 2020 approving the National Digital Transformation Program to 2025, with a vision to 2030, awareness plays a decisive role in digital transformation. According to the Ministry of Information and Communications, cognitive transformation is the leading solution that creates the foundation for digital transformation, which sets perception of cognitive transformation for commission, necessity, and urgency of digital transformation in society.

2.1.1. Vietnamese enterprises have soon recognized the role of the digital technology application, especially amid the Covid-19 pandemic

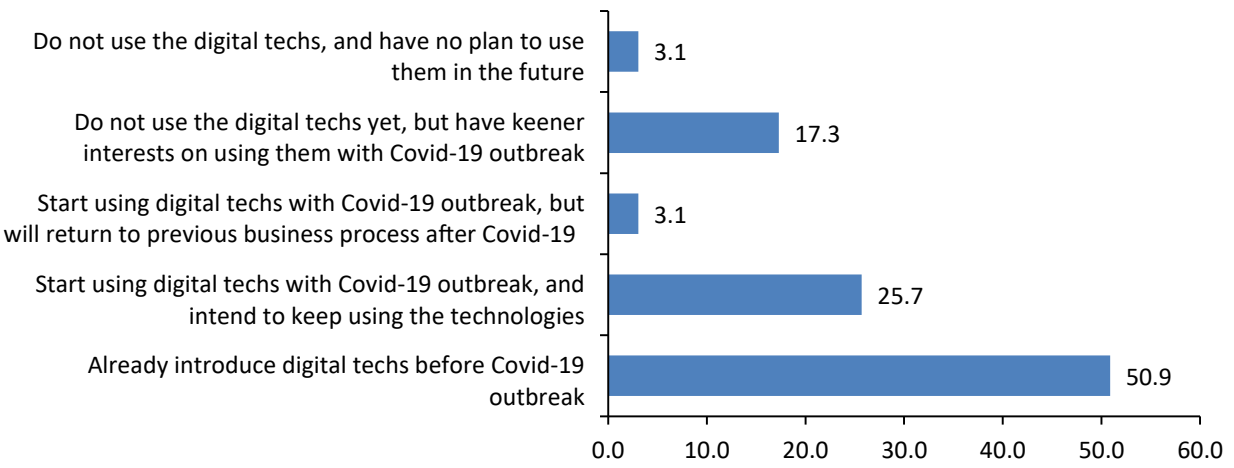
According to the survey outcome, the encouraging signal is that more than half of enterprises said that they had applied digital technology before Covid-19 happened. Before Covid-19, the benefits that digital technology contributes to enterprises is clear. In Viet Nam, the Ministry of Information and Communications also stated that: Digital transformation is having a profound impact on the structure and relationships in the global economy. With Viet Nam, pressure from digital transformation is increasing, even "vital" for the existence of many businesses. Effects by digital transformation are not only improving productivity, optimizing resources, increasing customer experience, but also

help businesses build competitiveness, catch up on time and lead the trend. (Ministry of Information and Communications, 2019).

The outbreak of Covid-19 has caused serious consequences on the economy, making a powerful push that 25.7% of surveyed enterprises, which previously have not interested in the digital technology application, were initially applied and intend to continue to use these technologies in the future. At a slightly lower rate accounting for 17.3%, some businesses said that they have not applied digital technology yet but are now interested since Covid-19. It can be seen that although there has not been a real change in action, Covid-19 has also contributed to the transformation of cognition - the most important factor of an enterprises' part in the digital transformation phase.

In addition, a small percentage (3.1%) of surveyed enterprises said that they had started using digital techs with Covid-19 outbreak, but will return to previous business process after Covid-19. Some other companies said that they have not used the digital techs, and have no plan to use them in the future (3.1%). Digital transformation requires organizations to have a determination to change from its "root", constantly challenge the habits, endlessly experiment new things and learn to get used to failure. Therefore, many businesses find it difficult in the digital transformation process because it is impossible to change the traditional way of working that has existed for many years.

Unit: %



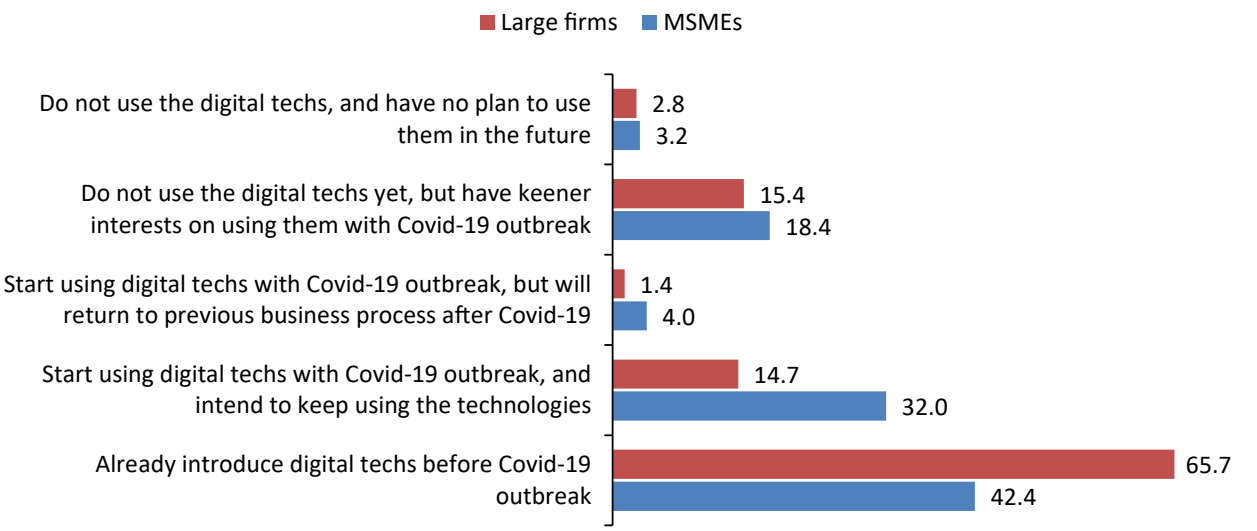
Source: Survey business, VCCI, 2020

Figure 2.1. Enterprises' attitudes and perceptions towards digital technology

2.1.2. The proportion of large businesses applying digital technology is higher, but MSMEs have gradually caught up since Covid-19

It can be seen that large enterprises are soon aware of the role of digital technology than MSMEs. According to the survey data, before Covid-19, there are 42.4% of MSMEs that have applied digital technology, but that number of large enterprises is up to 65.7%. Data analysis also shows that Covid-19 has had a strong impact on enterprise sector, especially for MSMEs in the awareness of the digital technology's importance. Specifically, 32% of MSMEs and 14.7% of large enterprises have started using digital techs with Covid-19 outbreak, and intend to keep using the technologies. While a much smaller proportion of about 4% of MSMEs and 1.4% of large firms started using digital techs with Covid-19 outbreak, but will return to previous business process after Covid-19. However, there is also a significant proportion of about 18.4% of MSMEs, 15.4% of large enterprises have not use the digital techs yet, but have keener interests on using them with Covid-19 outbreak. This is also a significant sign of corporate perception of digital technology. A small percentage about 3.2% of MSMEs and 2.8% of large enterprises have not applied digital technology, and have no plans to do so in the future. Thus, the vast majority of enterprises have a high awareness of digital technology, large firms are soon more aware of digital technology than MSMEs and Covid-19 has a significant impact on digital cognition of the MSMEs sector.

Unit: %



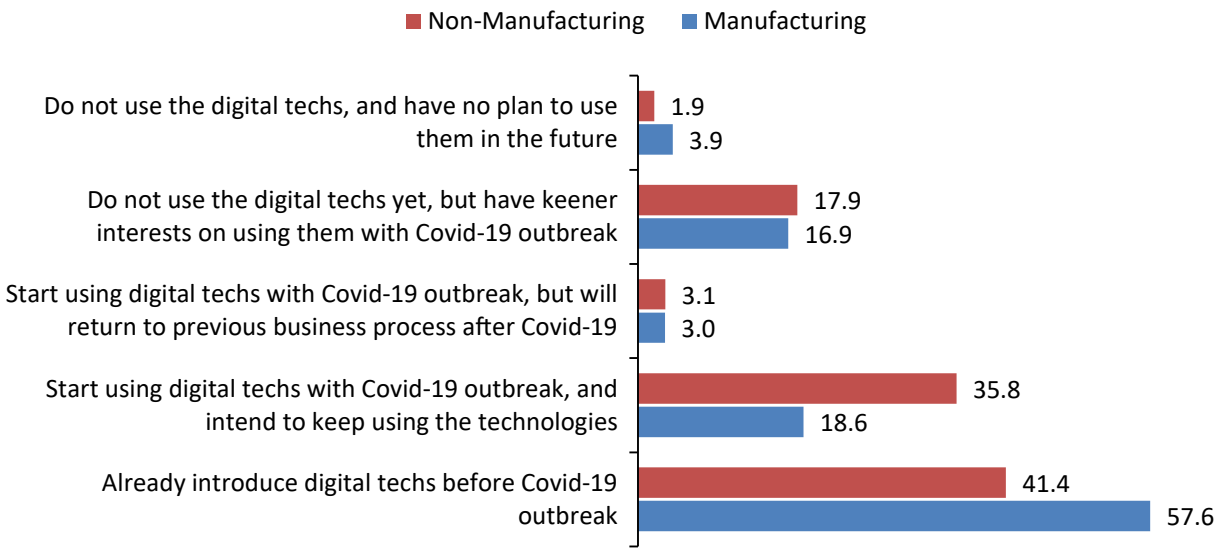
Source: Survey business, VCCI, 2020

Figure 2.2. Enterprises' attitudes and perceptions towards digital technology - the differences between businesses by size

2.1.3. Manufacturing enterprises are soon acknowledged the role of digital technology application

By analyzing the survey data, it can be seen a significant sign that a relatively large proportion of enterprises are soon aware of the role of digital technology, in which manufacturing and processing enterprises have early awareness of the technology than non-manufacturing businesses. According to the survey data, before Covid-19, 41.4% of non-manufacturing enterprises applied digital technology, while 57.6% of manufacturing enterprises already did.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.3. Enterprises' attitudes and perceptions towards digital technology – the differences between businesses by field

Data analysis also showed that Covid-19 had a strong impact on the enterprises sector, especially for non-manufacturing enterprises in awareness of the digital technology's importance. Specifically, there are 35.8% of enterprises in non-manufacturing industry but 18.6% of manufacturing enterprises have started to apply digital technology since Covid-19 pandemic and will intend to continue using this technology. While a much smaller proportion of about 3% of enterprises in manufacturing began to adopt digital technology since Covid-19 makes an appearance, they will return to their former

structure after Covid-19 ends. However, there is also a significant proportion of about 17.9% of enterprises in non-manufacturing industry, 16.9% of enterprises in manufacturing and processing have not applied digital technology but have been interested in digital technology since Covid-19, which once again confirms a positive sign of corporate perception of digital technology. A small percentage about 3.9% of manufacturing and processing enterprises and 1.9% of non-manufacturing enterprises have not applied digital technology, and have no plans to apply in the future.

Thus, the vast majority of enterprises have a high awareness of digital technology, enterprises in manufacturing and processing industry are more aware of digital technology than non-manufacturing enterprises and Covid-19 had a significant impact on digital perception for non-manufacturing enterprises.

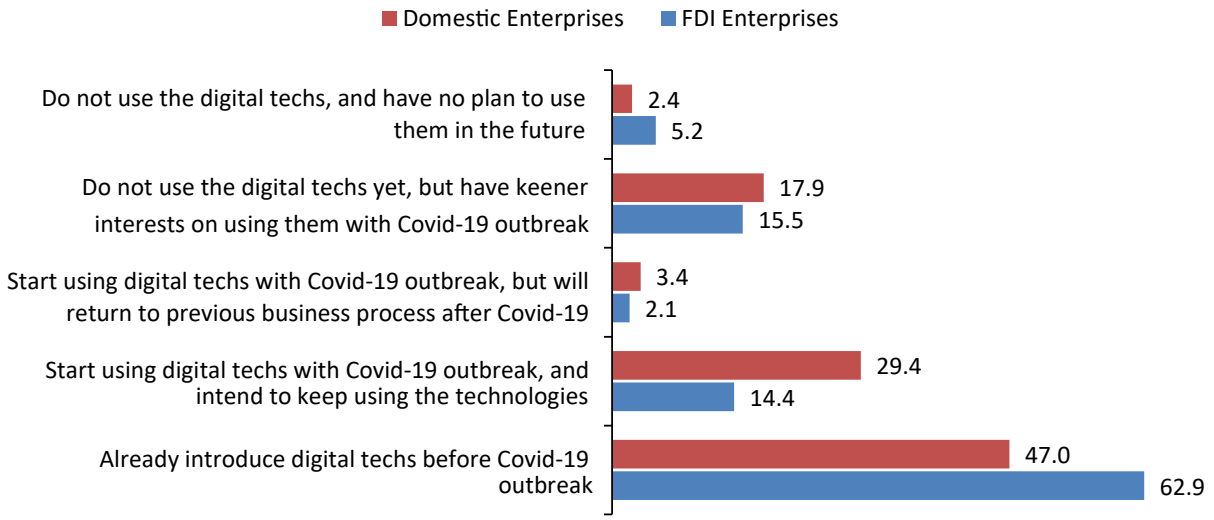
2.1.4. FDI enterprises soon became aware of digital technology, but Covid-19 also promoted the domestic enterprises' awareness

FDI enterprises had early awareness of digital technology than Domestic enterprises. According to the survey data, before Covid-19, about 62.9% of FDI enterprises have applied digital technology and about 47% of Domestic enterprises have applied digital technology.

Data analysis also shows that Covid-19 has had a strong impact on the business sector, especially for domestic enterprises in the perception of the importance of digital technology. Specifically, there are 14.4% of FDI enterprises, while 29.4% of Domestic enterprises have started to apply digital technology since Covid-19 and will intend to continue using this technology. Whereas a much smaller proportion of about 2.1% of FDIs and 3.4% of Domestic enterprises have started to adopt digital technology since Covid-19, they will return to their former structure after the end of Covid-19. However, there is also a significant proportion of about 15.5% of FDI enterprises, 17.9% of Domestic enterprises have not applied digital technology but have been interested in digital technology since Covid-19, this again confirms significant signs of corporate perception of digital technology. A small percentage of about 5% of FDI enterprises and 2% of Domestic enterprises have not applied digital technology and have no plans to apply in the future.

Thus, the vast majority of enterprises have a high awareness of digital technology, early FDI enterprises are more aware of digital technology than Domestic enterprises and Covid-19 has a significant impact on digital recognition for non-FDI businesses.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.4. Enterprises' attitudes and perceptions towards digital technology - the differences between business by type

2.2. THE STATE OF DIGITAL TOOLS APPLICATION IN VIETNAMESE ENTERPRISES

2.2.1. Application of general digital tools application in enterprises

Digital transformation is currently a hotly-debated issue, not only for Viet Nam but also internationally. This trend has only appeared for more than 10 years and has increasingly been confirmed as an inevitable development trend of the era. It becomes a measure of fierce competition to see who will get ahead and who will fall behind. For businesses, digital transformation is the application of digital technologies in all stages of their operations.

According to the survey results, Vietnamese enterprises have also begun to realize and apply digital technologies in stages such as internal management, purchasing, logistics, manufacturing, marketing, sales and payment.

Before Covid-19, many aspects of business operations were applied with digital technology, for example electronic payments in buying or selling, using social networks in marketing campaigns, warehouse management software, logistics services, cloud services in internal management or e-commerce in sales.

The Covid-19 pandemic appeared with limited exposure and the implementation of social distancing measures, forcing businesses to apply more digital technologies in their operations, especially in internal management, electronic payment, online marketing. In some activities, Covid-19 has made the proportion of enterprises applying digital technologies as high as the proportion of enterprises that have applied in the past, particularly in human resource management from distance, online conferencing, only studying, internal approval, etc.

Table 2.1. Digital technology application in Vietnamese enterprises

Unit: %

Group	Digital tools	Digital technology used before Covid-19	Digital technology newly introduced during while Covid-19
Internal administration	Remote HR management system	20.75	16.25
	Work & process management system	28.43	17.96
	Online conferencing system	32.17	19.75
	Cloud-computing service: file/data sharing	41.25	19.50
	Internal approval system	19.20	11.25
	Online studying	14.21	11.25
Purchasing	Electronic data exchange	21.95	6.00
	Online Payment	52.24	14.54
Logistic	Management software for commodity /document delivery	39.25	7.25
	Warehouse management software	44.64	11.75
Production	IoT device	7.00	3.25
	Robot/Automation chains	8.48	3.00
	Factory production operating system	9.02	3.00
	Enterprise resource planning system	14.46	6.00
Marketing	Online conferencing system	26.87	10.25
	Social Network	40.55	9.75
	e-commerce	38.56	8.75

Group	Digital tools	Digital technology used before Covid-19	Digital technology newly introduced during while Covid-19
Sales	Electronic data exchange	20.20	3.50
	Social Network	36.57	8.75
	e-commerce	39.30	9.00
	Online payment	54.23	8.29

Source: Survey business, VCCI, 2020

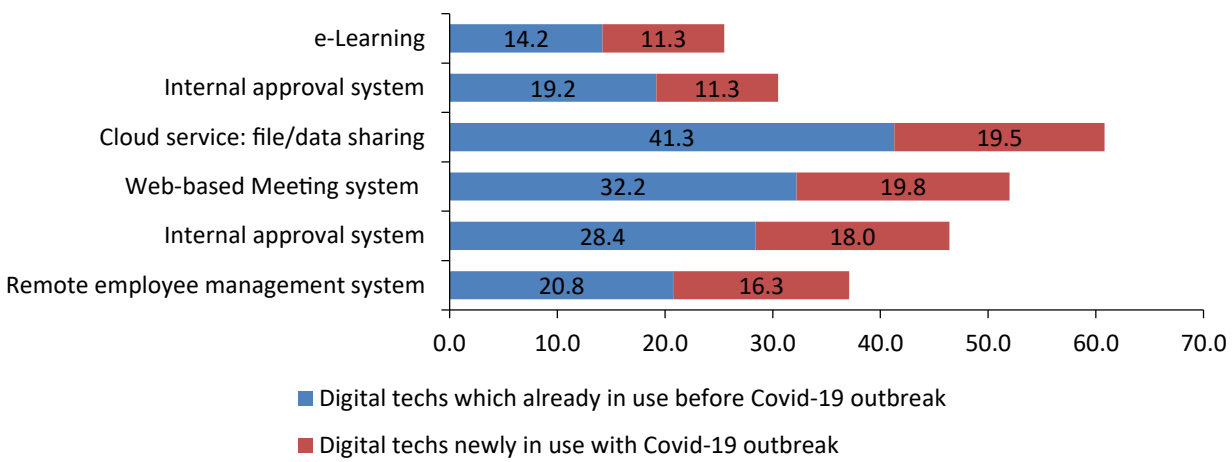
Details of the current situation of digital technology application in all stages of production and business activities of enterprises will be presented specifically below.

2.2.1. Digital tools application in internal management

According to the survey results obtained, in the field of internal management, cloud computing is the most technical tool used by many Vietnamese enterprises before, during and after Covid-19 with 41.3% of enterprises that applied before the outbreak, 19.5% of enterprises only used it since Covid-19.

Next is the Online conferencing system and the Work & process management system with approximately 30% of businesses that applied these tools in their operations before Covid-19 and approximately 19% of the total enterprises have started to use these tools since the pandemic.

Unit: %



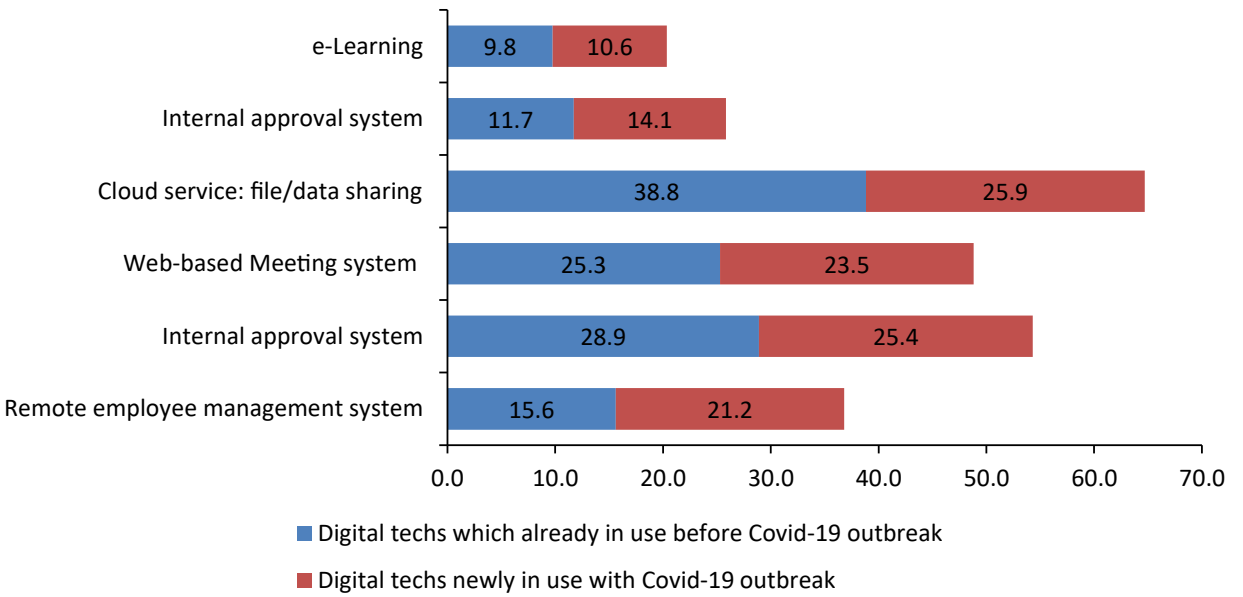
Source: Survey business, VCCI, 2020

Figure 2.5. The state of enterprises' digital tools application in internal management

The remote personnel management system and the internal approval system were used by some enterprises before and during Covid-19 with approximately 20%. Online learning is the least used tool by enterprises with 14.2% of enterprises applied before Covid-19, 11.3% has applied since Covid-19. In business, communication is an important key to smooth work, especially increasing the connection between members, while helping leaders manage better productivity of employees.

The current situation of applying digital tools of an enterprise in internal management of MSMEs is described as figure 2.6.

Unit: %



Source: Survey business, VCCI, 2020

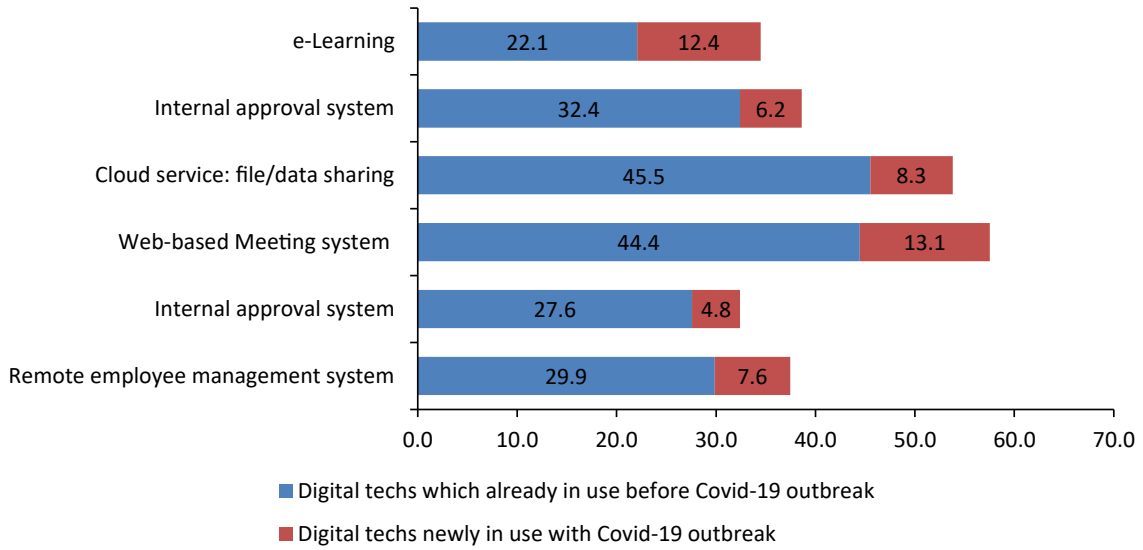
Figure 2.6. The state of MSMEs' digital tools application in internal management

From data analysis, it can be seen that the cloud computing service is being evaluated as important in the field of internal management by MSMEs before, during and after the Covid-19 period. In particular, Covid-19 has prompted MSMEs to change their internal governance structure. According to the survey data, a significant percentage of about 25.9% of businesses apply cloud computing services, 25.4% of businesses apply work and process management systems, and 23.5% of businesses apply online conferencing. At the same time, 21.2% of businesses have applied the personnel management system since Covid-19.

The current situation of applying digital tools of an enterprise to internal corporate governance is described as figure 2.7.

From data analysis, it can be seen that digital technology is considered as important by large enterprises in the internal field, especially in cloud computing services, online conferencing system. Data also shows that although Covid-19 has had an overall impact on economies as well as businesses, the impact is not too great on large enterprises in the field of internal governance, the rate of digital tools application is much smaller than before Covid-19.

Unit: %



Source: Survey business, VCCI, 2020

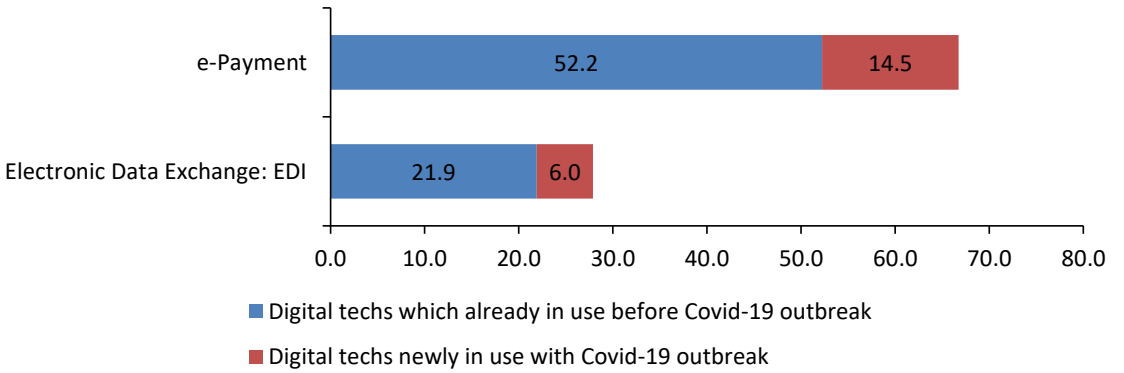
Figure 2.7. The state of large enterprises' digital tools application in internal management

2.2.2. Digital tools application in purchasing

In the field of purchasing, online payment is the most applied tool by businesses with 52.2% used before Covid-19, 14.5% started to apply when there is Covid-19. Non-cash payment is the policy that Vietnamese government has been promoting for a long time. Approved the issuance of Decision No. 2545/QD-TTg approving the Development Project of Non-Cash Payment in Viet Nam in the 2016-2020 period, changing the habit of using cash into using non-cash or online payment methods. Trade centers activities in Viet Nam in recent years have also developed strongly, forming many technology companies to support payment services, payment intermediaries. The legal environment for this activity is

more and more complete. Therefore, businesses cannot be left out in this changing trend of the economy.

Unit: %



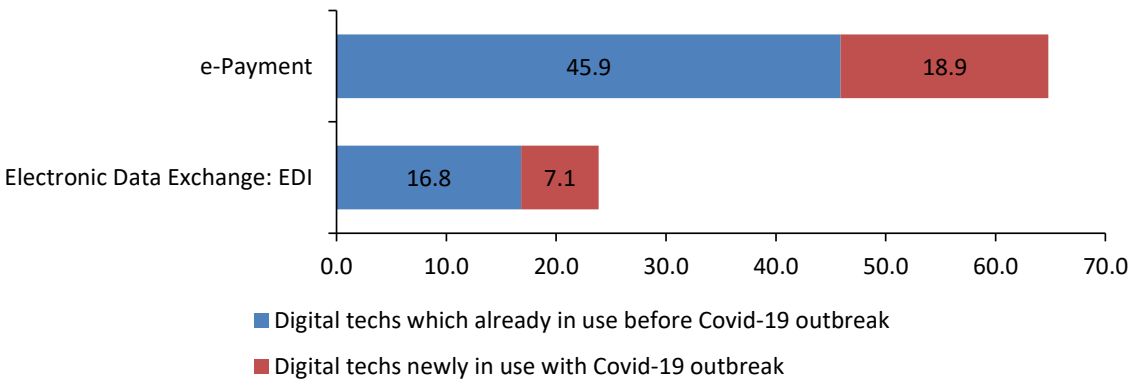
Source: Survey business, VCCI, 2020

Figure 2.8. The state of enterprises' digital tools application in purchasing

Electronic data exchange is also a digital tool used to support business purchasing. However, according to the survey, the proportion of enterprises applying this tool is not high, only 21.9% applied before Covid-19, 6% started to apply when Covid-19 presents. It can be seen that in Viet Nam, information security on online platforms still contains many risks such as data loss, problem related to data security and privacy, is a factor that make businesses still afraid to apply this tool.

The current situation of applying digital tools of MSMEs in purchasing is shown in the following figure 2.9.

Unit: %



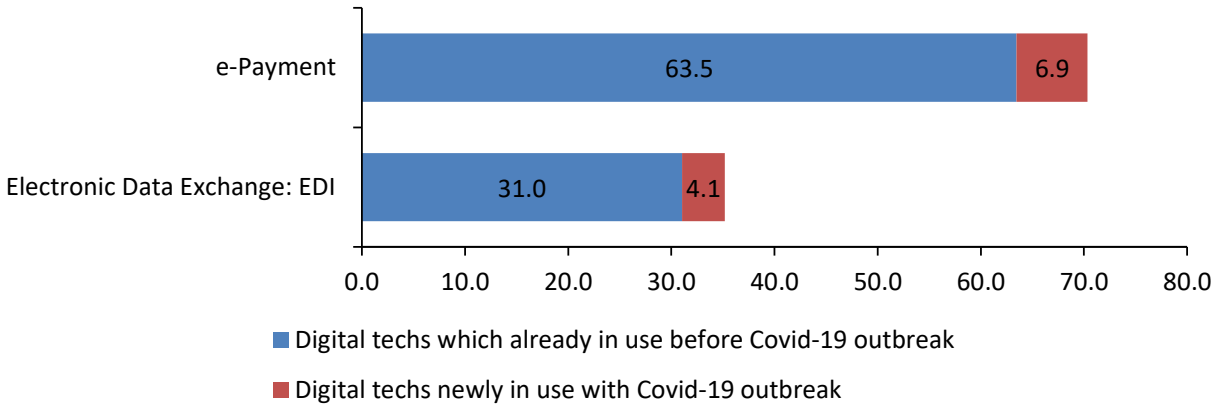
Source: Survey business, VCCI, 2020

Figure 2.9. The state of MSMEs' digital tools application in purchasing

In MSMEs, online payment tools are applied much more than electronic data exchange, this is completely consistent with the policy of the government. Prior to Covid-19, about 45.9% of enterprises applied this tool, and during Covid-19, the proportion of enterprises that applied it significantly increased about 18.9% of new enterprises applying.

The current use of digital tools in purchasing in large enterprises is described following figure 2.10.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.10. The state of large enterprises' digital tools application in purchasing

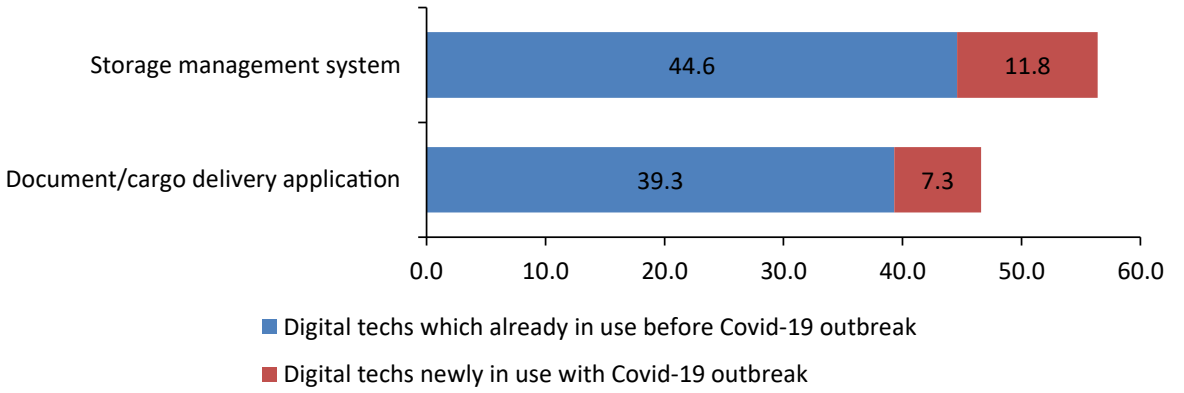
In large enterprises, online payment tools are applied twice as much as electronic data exchange, this is completely consistent with the policy of the government. Prior to Covid-19, about 64% of enterprises applied this tool, while 31% of enterprises applied data exchange technology. Covid-19 does not have much impact on the sales of large enterprises, the rate of application enterprises has increased slightly by about 7% of new businesses applying when Covid-19 presents.

2.2.3. Digital tools application in Logistic

General, in logistics, goods/document delivery management software and warehouse management software are two familiar digital tools and have been used in many businesses before Covid-19, accounting for 39.3% and 44.6% respectively. The regulations on social distancing, restriction of concentration, and priority to work from home during the Covid-19 pandemic have posed many obstacles in the management of business production and activities, thus create motivation for some businesses to start applying

technology in their logistics process, with 11.8% starting to use warehouse management software since the outbreak of Covid-19 and 7.3% for the soft forwarding management of goods/documents.

Unit: %

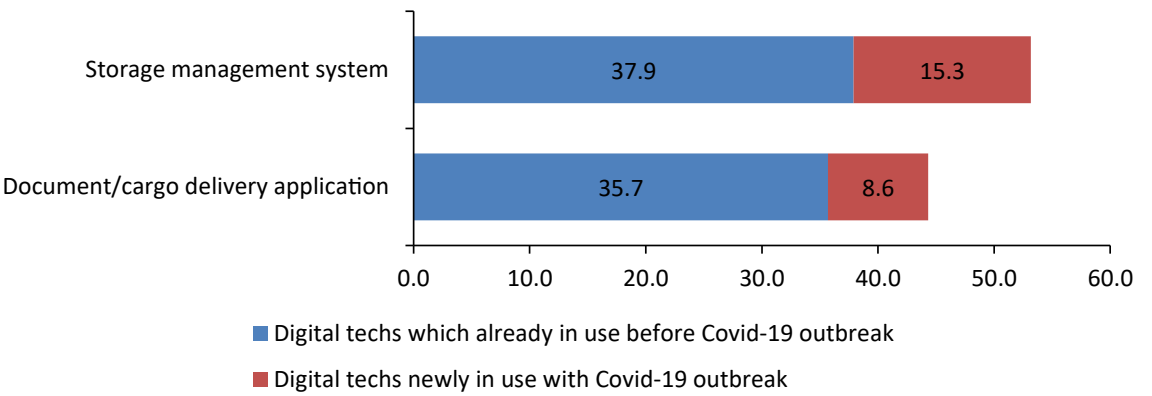


Source: Survey business, VCCI, 2020

Figure 2.11. The state of enterprises' digital tools application in logistics activities

Data analysis shows that MSMEs are aware of the importance of digital technology in the logistics field, before Covid-19, up to 35-37% of enterprises applied digital technology; the Covid-19 does not significantly affect the application of digital technology in the logistics sector of MSMEs. However, the Covid-19 pandemic also helps businesses recognize the importance of digital tools in logistics, the proportion of businesses considering using digital tools this year and still continuing to use after Covid-19 is quite high.

Unit: %

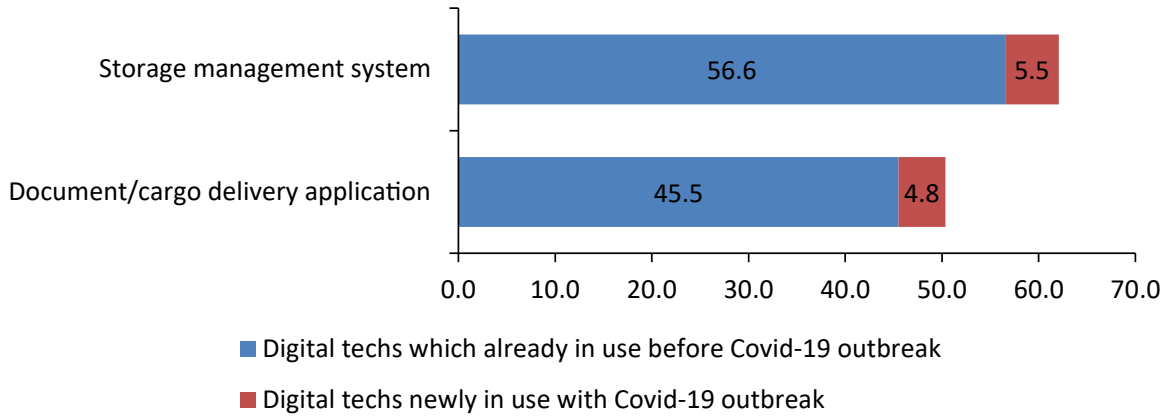


Source: Survey business, VCCI, 2020

Figure 2.12. The state of MSMEs' digital tools application in logistics activities

Similar to MSMEs, large enterprises are aware of the importance of digital technology in logistics, before Covid-19, 45-56% of enterprises have applied digital technology. The Covid-19 pandemic did not significantly affect the application of digital technology in the logistics field of large enterprises, but enterprises were still aware of the role of digital tools in the logistics field because of the proportion of enterprises considering using the technology this year and still continue to use after Covid-19 was much greater than that in the Covid-19 period.

Unit: %

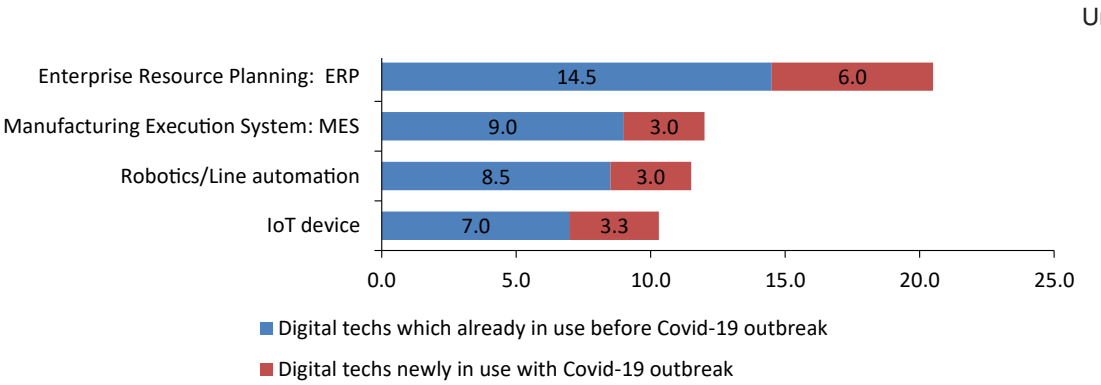


Source: Survey business, VCCI, 2020

Figure 2.13. The state of large enterprises' digital tools application in logistics activities

2.2.4. Digital tools application in production

The enterprise resource planning system (ERP) is a digital tool applied by a high proportion of enterprises in their production activities, with 14.5% already applying before the outbreak of Covid-19. ERP is known as a tool supported by computer software and performs automatic processing procedure, helping businesses to systematically manage key activities, such as accounting, financial analysis, purchase management, inventory management, personnel management, etc. Currently, the trend of deploying enterprise management software is starting to develop. The application of ERP has brought many positive effects for businesses, especially increasing the efficiency of management activities significantly in the context of Covid-19, which poses barriers to contact and exchange of work among departments in enterprises. However, this tool also sets the requirements for the possession of highly qualified human resources and huge investment costs, causing many businesses to only plan to apply, but have not implemented in practice, while some others decided to stop using this tool after Covid-19.



Source: Survey business, VCCI, 2020

Figure 2.14. The state of enterprises' digital tools application in production

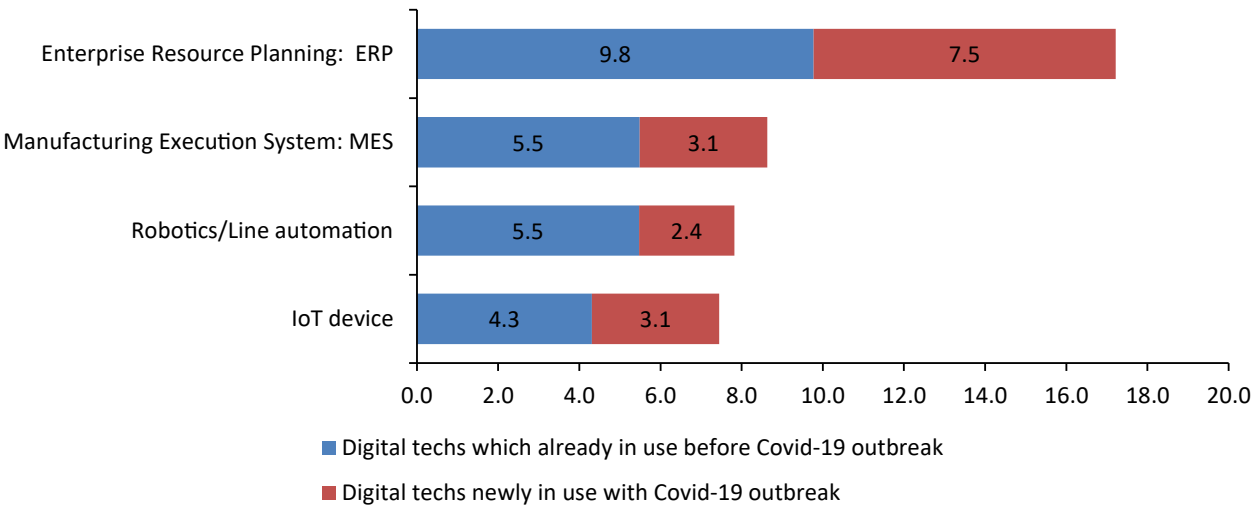
MES factory production operating system is a tool similar to ERP, but focuses on monitoring the production area, helping businesses grasp the current situation of using production chains, analyzing work performance, and managing machinery maintenance. According to the survey, 9% of enterprises have applied this tool before Covid-19, 3% have just started using it. Although ranked second in the level of application in production activities of enterprises, the rate of this tool application in Vietnamese enterprises is still relatively low. The reason is that the MES system requires high synchronization of production equipment in enterprises while most Vietnamese enterprises are still using old machines and equipment, many types of which make it difficult to standardize data and connection.

The IoT device and Robot/Automation chains are the two tools with the lowest level of application with 7.0% and 8.5% of enterprises applied before Covid-19, respectively. However, the number of businesses interested and planned to apply this year is higher with 12.7% of businesses, while this figure in the Robot/Automatic chains is only 9.5%. The benefits of the IoT - the Internet of Things is ubiquitous in all sectors. However, in addition to the application of IoT, there are still many difficulties, such as: Huge investment costs lead to an increase in product cost; People are still indifferent in using technology products that require thinking and creativity; The ability of IoT devices to automatically communicate makes security and information security a top concern, making privacy assurance more difficult, etc. Automatic Robot/Automatic Chains also face difficulties when being applied such as high investment costs, dependence on imported machinery from abroad, insufficient human resources capability to operate equipment, etc.,

leading to a situation that many businesses still choose the form of manual production, labor-intensive production instead of investing this tool in production activities.

The implementation of digital art application of MSMEs is shown in figure 2.15.

Unit: %



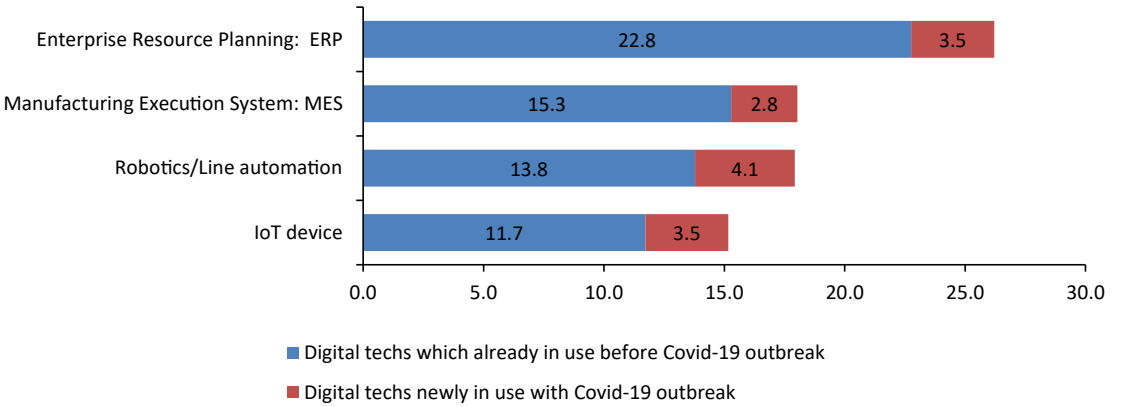
Source: Survey business, VCCI, 2020

Figure 2.15. The state of MSMEs' digital tools application in production

Although digital technology helps businesses grasp the current situation of using production chains, analyze work performance, manage machinery maintenance, etc., the application of digital technology in MSMEs is quite limited, less than 10% enterprises applied this tool in the manufacturing sector. The proportion of enterprises applying digital tools in the manufacturing sector at the time of Covid-19 is the lowest in four periods. This is, in part, because the relatively high cost of implementing digital tools hinder the adoption of digital technology. However, the proportion of enterprises considering the application of digital tools in the manufacturing sector this year is quite high compared to the figure before Covid-19 and during a pandemic.

Digital technology helps businesses grasp the current situation of using production chains, analyzing work performance, managing machinery maintenance, etc. The application of digital technology in large enterprises also has a significant proportion of 12-23% of enterprises applied in the field of production before Covid-19. During the Covid-19 pandemic, the proportion of large enterprises using digital technology was not high, but the application review this year was much larger than during the pandemic.

Unit: %



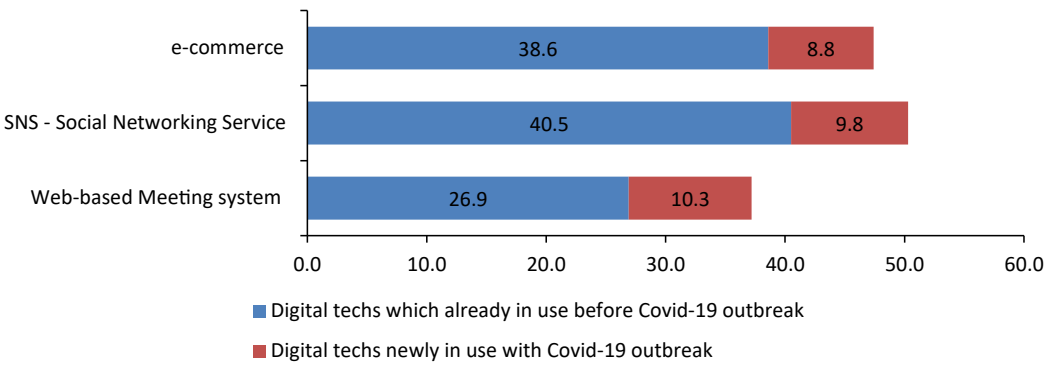
Source: Survey business, VCCI, 2020

Figure 2.16. The state of large enterprises' digital tools application in production

2.2.5. Digital tools application in Marketing

Marketing is one of the key activities in the business production process, so it is not out of the digital transformation trend of businesses today. The most known digital tools in marketing activities of enterprises are e-commerce, Social networks and Online conferencing systems. In particular, marketing through social networks and e-commerce has become very popular in the Vietnamese market in the past few years with the explosion of Facebook, Google and e-shopping transaction sites. Because the level of efficiency in increasing the relationship between businesses and customers, increasing the shopping experience of customers, does not require high investment costs or too modern technology, and is easy to apply, therefore, these tools have a high level of use in enterprises.

Unit: %



Source: Survey business, VCCI, 2020

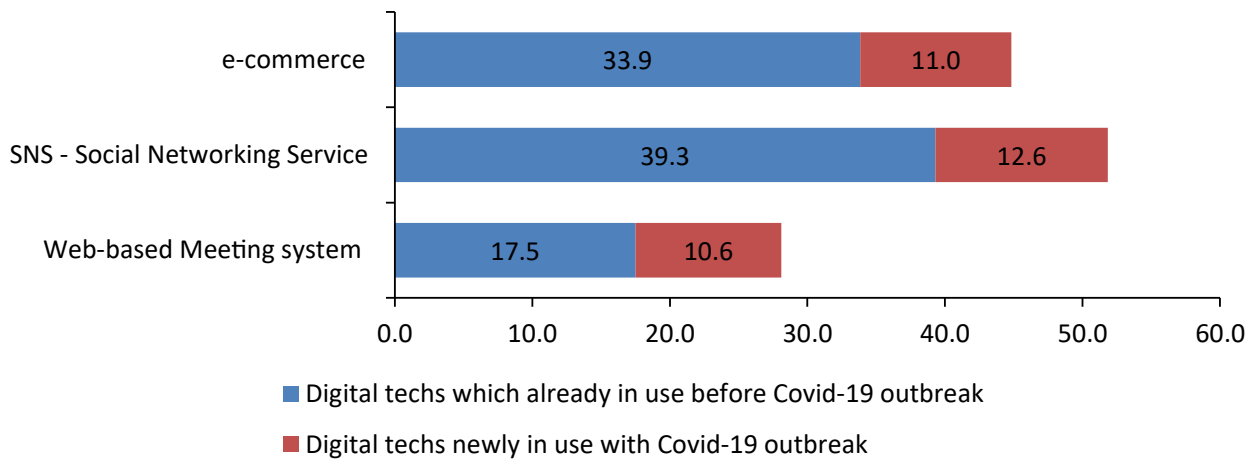
Figure 2.17. The state of enterprises' digital tools application in marketing activities

Typically, e-commerce and social networks had approximately 40% of enterprises applied before Covid-19. Especially, when product promotion and direct shopping exchange between enterprises and customers face difficulties due to the barrier of Covid-19, some enterprises have started to apply these tools (approximately 10%) or plan to use these tools this year. Most of these businesses said they would continue to use these tools in the future even after the pandemic ended.

Online conferencing system is also one of the digital tools used for marketing business activities. However, due to the basic limitations of the equipment system, the transmission capacity cannot meet the needs of a large number of participants to use and access, leading to difficulties in the implementation of conferences on online platforms. Many businesses do not really give priority to this tool in supporting Marketing activities. Therefore, the proportion of enterprises that applied this tool before Covid-19 is lower than the other two tools, accounting for 26.9%. Due to the pandemic limiting traditional marketing methods, 10.3% of enterprises have started to use the online conferencing system since the outbreak of Covid-19.

The current situation of digital tool application in MSMEs is depicted in figure 2.18.

Unit: %



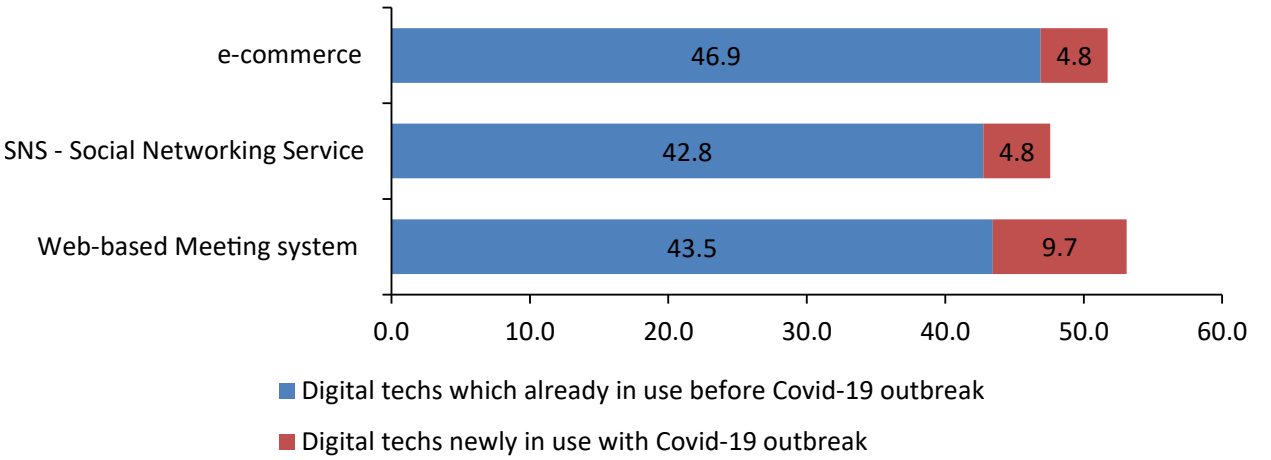
Source: Survey business, VCCI, 2020

Figure 2.18. The state of MSMEs' digital tools application in marketing activities

As mentioned in the general analysis on the use of digital tools in marketing, MSMEs also applied digital tools in this area a lot before Covid-19, especially e-commerce and social networks tools. Covid-19 pandemic also has a significant impact on this business sector in

the field of marketing, the total rate of businesses starting to apply since the outbreak of the disease and this year is about 22-32%.

Unit: %



Source: Survey business, VCCI, 2020

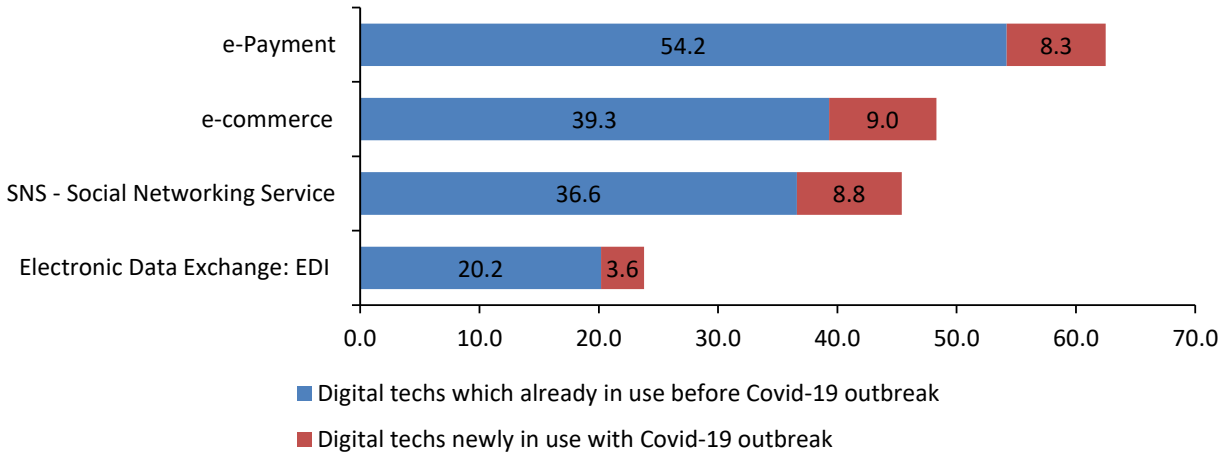
Figure 2.19. The state of large enterprises' digital tools application in marketing activities

Similar to MSMEs, large enterprises have a quite large rate of digital technology application in the marketing field, even in three tools prior to the Covid-19 pandemic. Unlike MSMEs, large enterprises are less affected by Covid-19 on the application of digital technology in the marketing field, the proportion of large enterprises considering the application during the pandemic and during this year is much smaller than the figure before the pandemic.

2.2.6. Digital technology application in Sales

Similar to buying activities, in sales, electronic payment is still a digital tool with the largest proportion of businesses applied by more than half before Covid-19 happened, while this rate in e-commerce tools and social networks is lower, at 39.3% and 36.6%, respectively. When the pandemic broke out, trading and transaction activities were turned upside down, all three tools above all attracted a number of businesses to use it, approximately 9% for each tool.

Unit: %

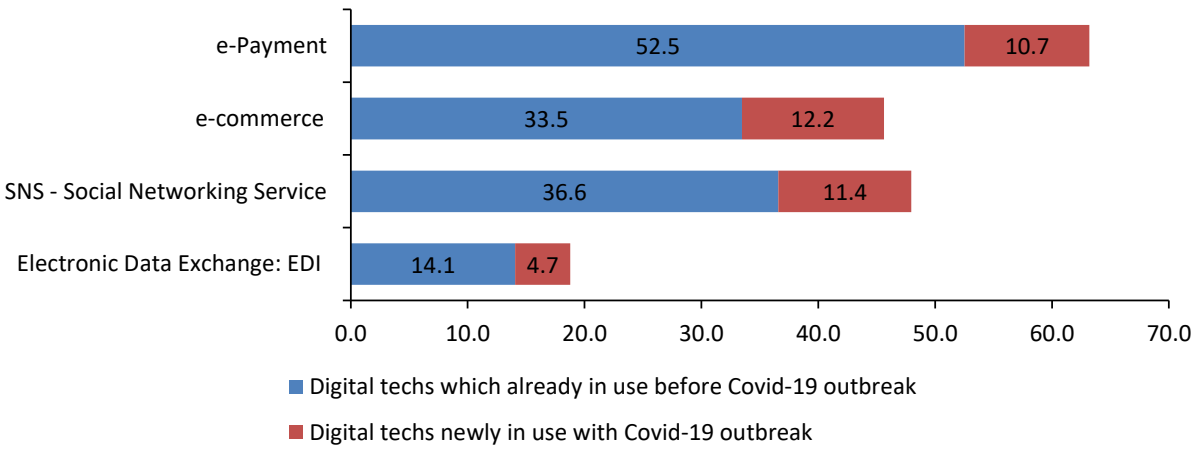


Source: Survey business, VCCI, 2020

Figure 2.20. The state of enterprises' digital tools application in sales activities

Electronic data exchange is still the least applicable tool in enterprises with only 20.2% of them already using before Covid-19 and a very low percentage of enterprises that intend to apply this year. However, most businesses will not continue to use this tool after the pandemic ends. Information security and confidentiality continue to be a major barrier for Vietnamese enterprises when applying technical tools to exchange data through online platforms.

Unit: %

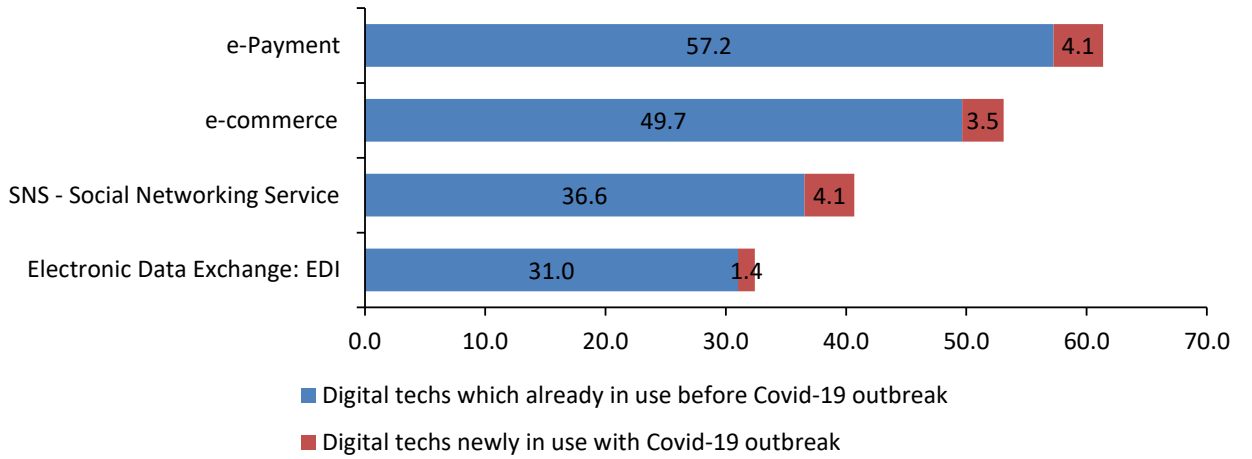


Source: Survey business, VCCI, 2020

Figure 2.21. The state of MSMEs' digital tools application on sales activities

Electronic payment is used by a large proportion of MSMEs in the field of sales before and during the pandemic, this year or after the presence of Covid-19. Social networks and e-commerce are also quite important for this business sector, the proportion of these businesses applying before Covid-19 is about 33-36% and still maintaining their applications is also relatively high.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.22. The state of large enterprises' digital tools application on sales activities

Unlike small enterprises, the proportion of large enterprises not only applied high digital technology equally to technical tools before Covid-19, but this pandemic did not significantly affect the application of digital tools in large enterprise sales areas.

2.3. ENTERPRISES' EXPECTATIONS ON DIGITAL TOOLS

2.3.1. Cost reduction is enterprises' biggest expectation in digital technology application

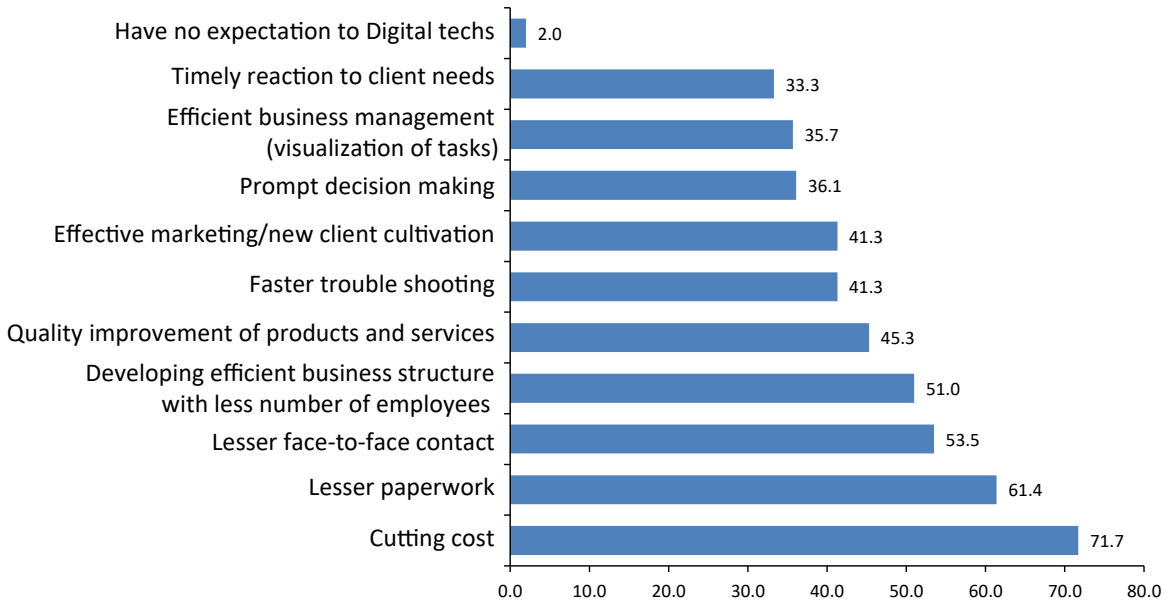
The vast majority of businesses expect to apply digital technology in production and business, which will give them outstanding production and business activities, accounting for 98%. The biggest expectation of businesses in the application of digital technology is the ability to help reduce costs, accounting for more than 71% of businesses choosing. From telephone services, online payment, sales management software and remote management computer applications, businesses do not need to waste time and manpower to operate these tasks in the form of traditional joint venture form, significantly saving management costs and labor costs.

Also because of these changes in the work process, digital technology is expected to help businesses limit paperwork (61.4%) by being replaced by electronic document management software and reducing direct contact (53.5%) when using online tools to communicate in daily work.

For production activities, digital tools such as Robots/Automation Chains, IoT Devices are expected to help businesses easily modernize, add supplement value to products, and improve the quality of products and services (45.3%). Besides, thanks to machinery and equipment, businesses can also reduce inefficient manual labor. Online platforms with the presence of Cloud Computing, Social Networks, and E-commerce are expected to help businesses more easily access customers, thereby improving the efficiency in Marketing and the search for new customers (41.3%).

For management activities, enterprise resource planning systems ERP and factory production operating system MES are typical tools used to improve management efficiency in enterprises. With versatile utilities, integrating with solving many tasks in management, they are expected to be the key to developing efficient business structure with less number of employees (51%) and faster troubleshooting (41.3%) and Prompt decision making (36.1%).

Unit: %



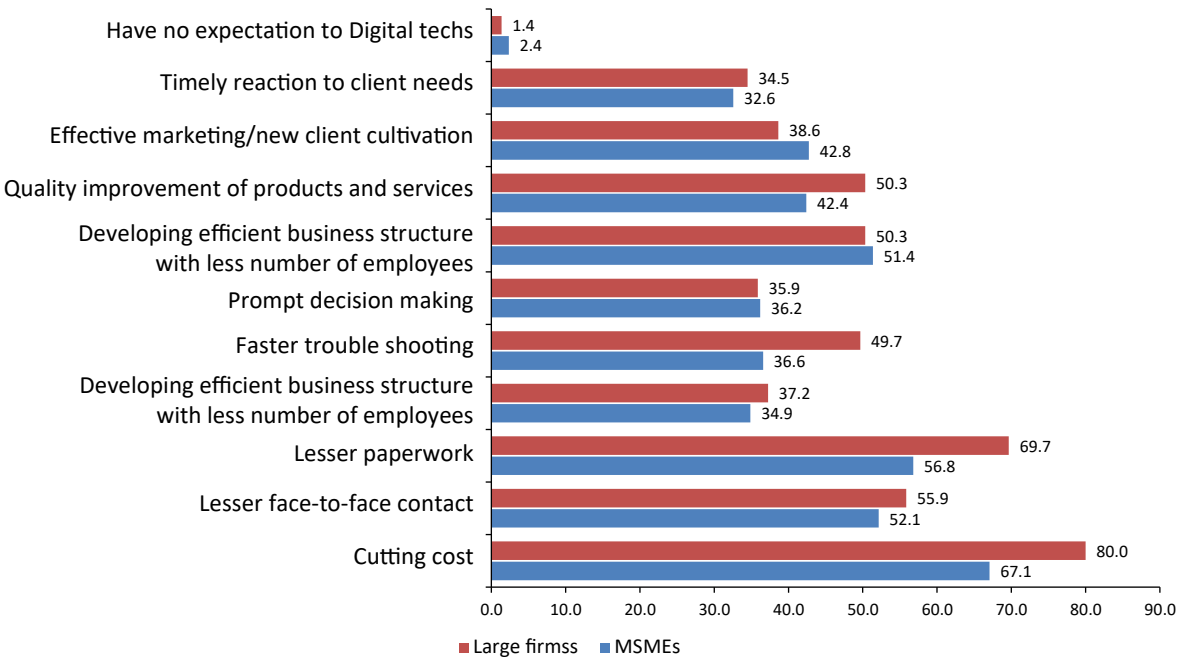
Source: Survey business, VCCI, 2020

Figure 2.23. Enterprises' expectations in digital technology application

2.3.2. Large enterprises expect more in digital technology application

As the general analysis shows that all businesses appreciate the importance of digital technology, large and MSMEs have little different expectation of technology application except for some indicators such as: the biggest expectation of two businesses in digital technology application is to cut cost in operations of up to 80% of large enterprises and 67.1% of MSMEs on this issue, the second biggest expectation is to lesser paperwork with 69.7% of large enterprises and 56.8% of MSMEs. There are some criteria that small businesses expect larger than large ones, but the gap is not significant.

Unit: %



Source: Survey business, VCCI, 2020

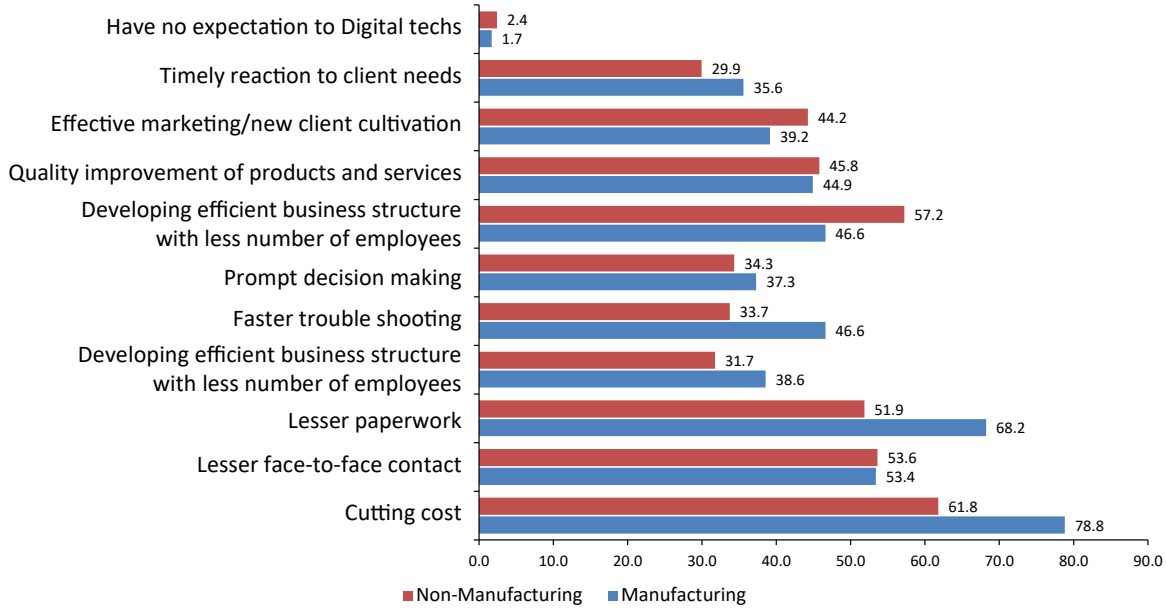
Figure 2.24. Enterprises' expectations in digital technology application by size

2.3.3. Manufacturing businesses expect more in digital technology application

In general, according to data analysis, manufacturing and non-manufacturing enterprises have no different expectations for technology application in most criteria except for some indicators such as: the greatest expectation for most enterprises in digital technology applications is to reduce costs in business operations. Up to 78.8% of businesses in manufacturing and 61.8% of businesses in non-manufacturing industries expect this

problem. The second biggest expectation is reducing paperwork and reducing direct exposure. Some other criteria have small differences between enterprises in these two sectors.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.25. Enterprises' expectations in digital technology application by field

2.4. BUSINESSES' BARRIERS IN DIGITAL TECHNOLOGY APPLICATION

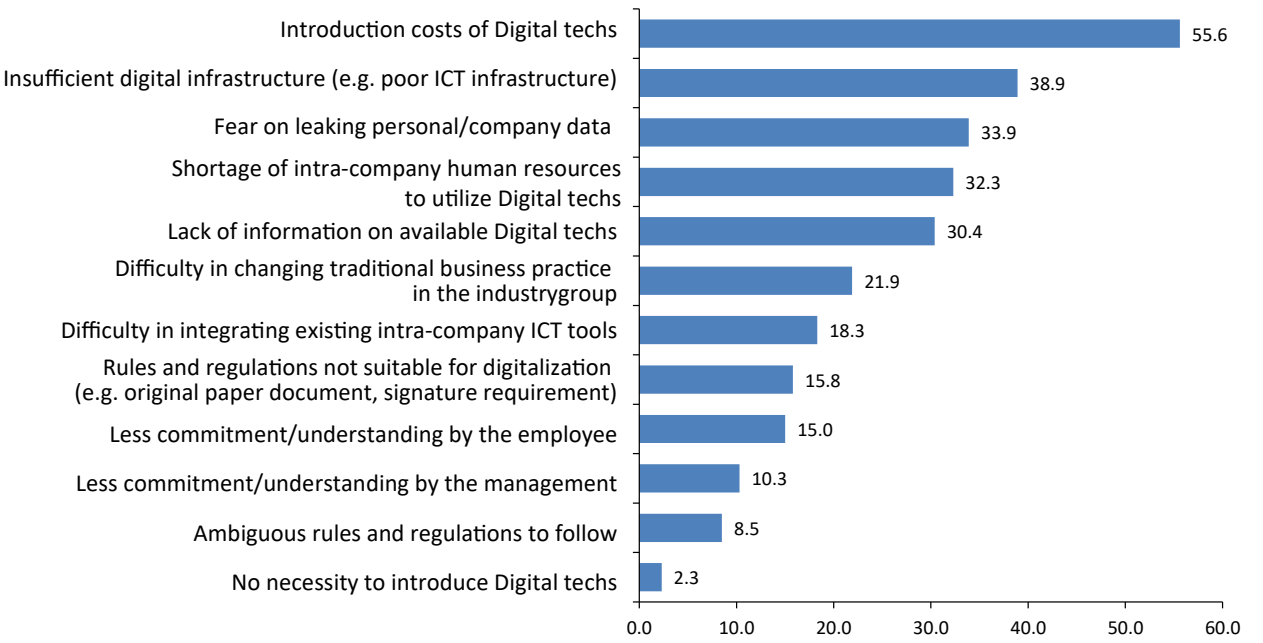
2.4.1. Expense is the biggest barrier in the enterprise's digital technology application

According to the surveyed results, 55.6% of enterprises said that the barrier they encounter when applying digital technology is due to the high cost of digital technology application. To apply digital tools, specialized management software sometimes requires businesses to spend a relatively large amount of costs, especially investing in the purchase of new machinery or modern automation chains as well as synchronizing information technology infrastructure in enterprises. Lack of infrastructure for digital technology also becomes the next major barrier that makes businesses difficult, with 38.9% of businesses choosing. Outdated, asynchronous IT infrastructure will hinder the application and connection of IT solution systems and IT software for employees, partners and customers related activities. Machines and equipment of various types are also the reason why many businesses find it difficult to comprehensively integrate internal IT tools (18.3%).

The third biggest barrier for businesses is the risk of personal/business data leakage, accounting for 33.9% of the businesses choosing. The rapid development of information technology creates a driving force for socio-economic development, but also raises risks of security holes, enabling cybercriminals to take advantage of and commit activities in violation of the law. Meanwhile, most Vietnamese enterprises are not fully aware of the importance of investing in applying support solutions to information security in enterprises.

Lack of internal human resources to apply digital technology and lack of information about digital technology are the next two major barriers, accounting for 32.3% and 30.4% respectively. In order to apply digital tools in the production and business process, not only do it require employees in enterprises to know how to use modern machinery, equipment and software systems, but it also has to ensure the repair function when errors arise and carry out regular maintenance activities. Organizations in charge of brokerage and services in the technology market to connect between technology supply and demand are limited, leading to a lack of updates and understanding of new technology trends.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.26. Enterprises' restraints in digital technology application

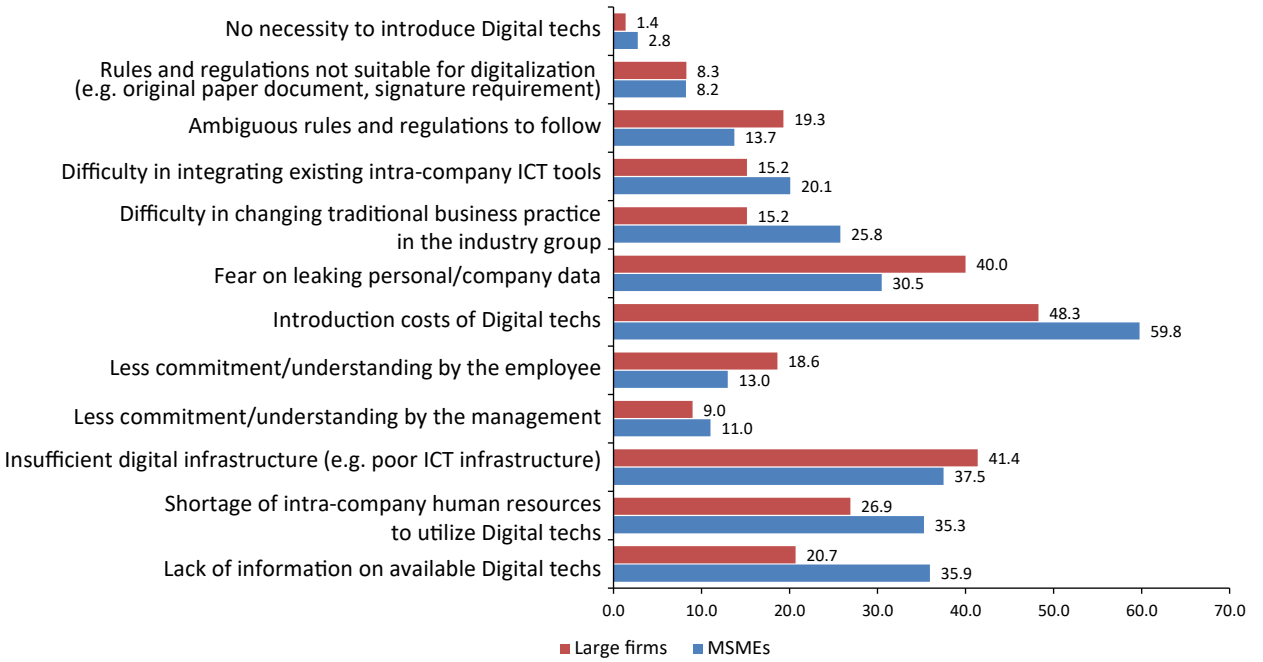
Besides the limitations of resources, the limitation in perception and psychology are the barriers that many businesses are choosing to stay out of the current digital transformation trend. Digital transformation requires businesses to be willing to change, ready to give up traditional business models to set up new ones, re-establish work processes, and eliminate cumbersome intermediaries on the basis of digital technology application. The fear of change and giving up traditional business practices that have been maintained for many years makes 21.9% of enterprises find it difficult in the process of digital transformation. In addition, less commitment/understanding by the employee (15%), less commitment/understanding by the management (10.3%), rules and regulations not suitable for digitalization (e.g. original paper document, signature requirement) (15.8%) and ambiguous rules and regulations to follow (8.5%). A small percentage of enterprises (2.3%) said that they do not necessity to introduce Digital techs.

2.4.2. While MSMEs face more difficulties related to internal resources issues, large businesses fear more about external problems when digital technology is applied.

Most MSMEs face more barriers in the application of digital technologies than large ones, except for some barriers such as: Lack of digital infrastructure (e.g., undeveloped IT infrastructure development); Lack of workers' commitment/understanding; Fear of personal/business data leakage. Regarding Inappropriate regulations and rules, large enterprises face more barriers than MSMEs.

In particular, introduction costs of Digital techs is the biggest barrier for both MSMEs as well as large enterprises. 59.8% of MSMEs, 48.3% of large ones have difficulty in this issue. In addition, for MSMEs, the lack of digital infrastructure and the fear of personal data leakage is a big barrier; for large enterprises, lack of internal manpower to apply digital technology is also a significant barrier to the application of digital technology.

Unit: %

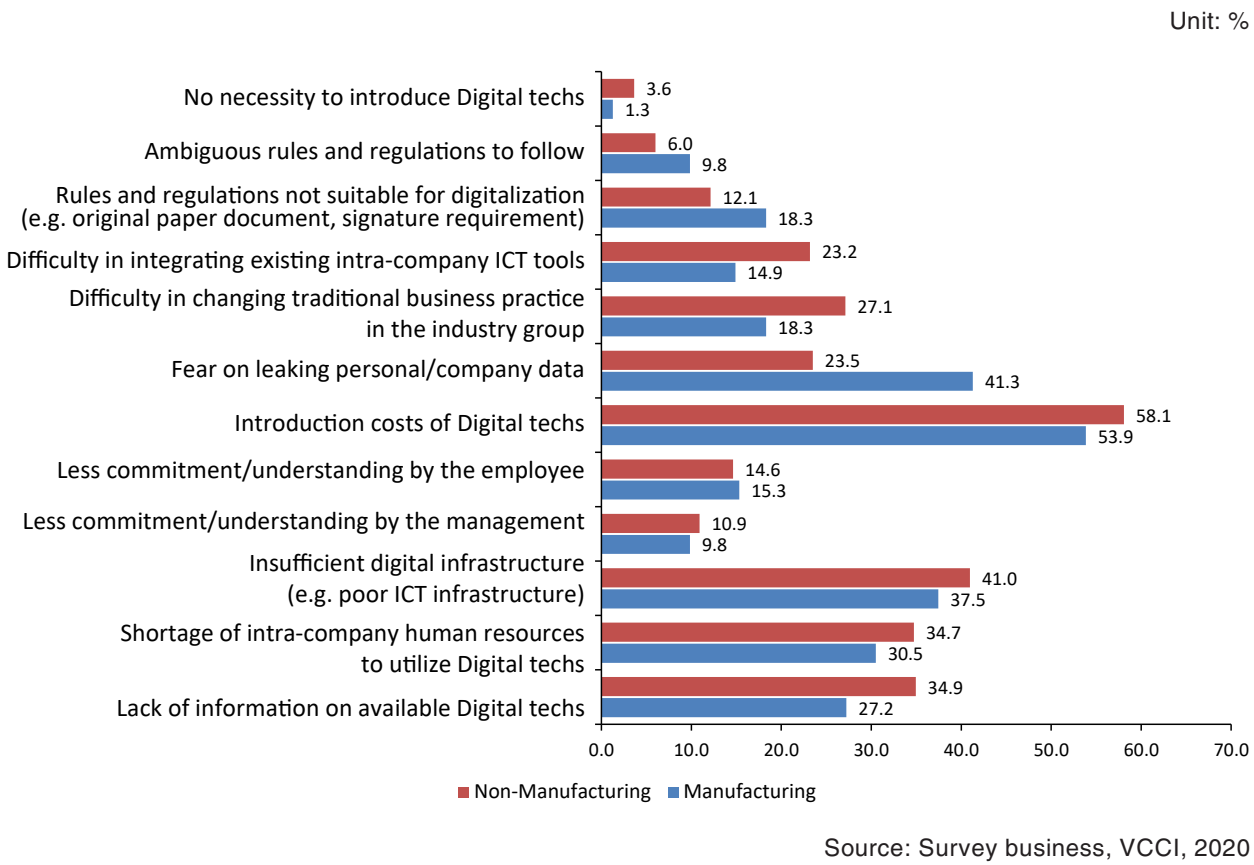


Source: Survey business, VCCI, 2020

Figure 2.27. Enterprises' restraints in digital technology application by size

2.4.3. Non-manufacturing businesses face more barriers than manufacturing businesses in digital technology application

Most non-manufacturing businesses have greater barriers in the application of digital technology than manufacturing and processing ones except for some barriers such as: Fear of personal/enterprise data leakage; Unsuitable regulations and rules are frequently faced by manufacturing enterprises than non-manufacturing ones. In particular, introduction costs of Digital techs is the biggest barrier for manufacturing and non-man facturing enterprises, (about 53.9% of manufacturing and processing enterprises, 58,1% of non-manufacturing ones. In addition, two significant barriers in the application of digital technology for businesses in these industries are: Lack of internal manpower to apply digital technology; Lack of digital infrastructure (e.g., underdeveloped IT infrastructure).



Source: Survey business, VCCI, 2020

Figure 2.28. Enterprises' restraints in digital technology application by field

2.5. ENTERPRISES' DIGITAL TRANSFORMATION CAPACITY

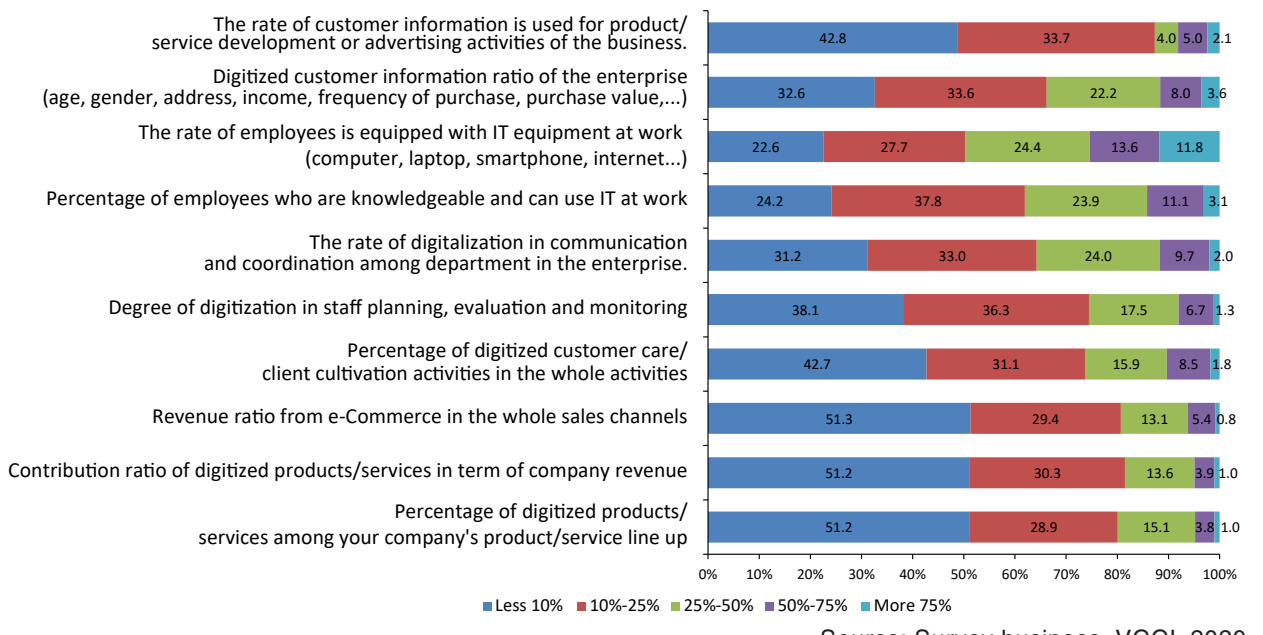
The assessment of the enterprises' digital transformation capacity is evaluated in two phases, including: *before Covid-19 and Currently.*

The transformation capacity evaluation criteria include: (1) Percentage of digitized products/services among your company's product/service line up; (2) Contribution ratio of digitized products/services in term of company revenue; (3) Revenue ratio from e-commerce in the whole sales channels; (4) Percentage of digitized customer care/client cultivation activities in the whole activities; (5) Degree of digitization in staff planning, evaluation and monitoring; (6) The rate of digitalization in communication and coordination among department in the enterprise; (9) Digitized customer information ratio of the enterprise (age, gender, address, income, frequency of purchase, purchase value,...); (10) The rate of customer information is used for product/service development or advertising activities of the business.

2.5.1. Enterprises' digital transformation capacity before Covid-19

Before Covid-19, the digital transformation capacity of the enterprise was not high. In all evaluation criteria, most of the digitization rate of fields in enterprises is only below 25%, the number of businesses with the rate of digitizing fields over 50% is low and very few enterprises with a digitalization rate of over 75%. The degree of digital transformation between fields is also differentiated. In particular, the improvement in the employee's digital transformation capacity is the most appreciated criterion, with nearly half of the enterprises having the rate of more than 50% of the employees equipped with IT equipment at the workplace as well as having knowledge and capability to use IT. Building customer databases, customer care and marketing activities are the next most appreciated areas in terms of digitalization with 11.6% of enterprises having a rate of over 50% digitized customer information of enterprises; 11.3% of enterprises have the proportion of over 50% digitized customer care activities and/the search for new customers in all operations. In addition, the indicators of the Digitalization rate in communication and coordination among departments in the business and the Degree of digitization in planning, evaluating and monitoring employees are also assessed at the same level. At the lowest level are the ratios of the contribution of digitized products/services to the company's revenue and the ratio of digitalized products/services among the product/service lines of the enterprises, with more than 50% of enterprises rated these figures only below 10%.

Unit: %



Source: Survey business, VCCI, 2020

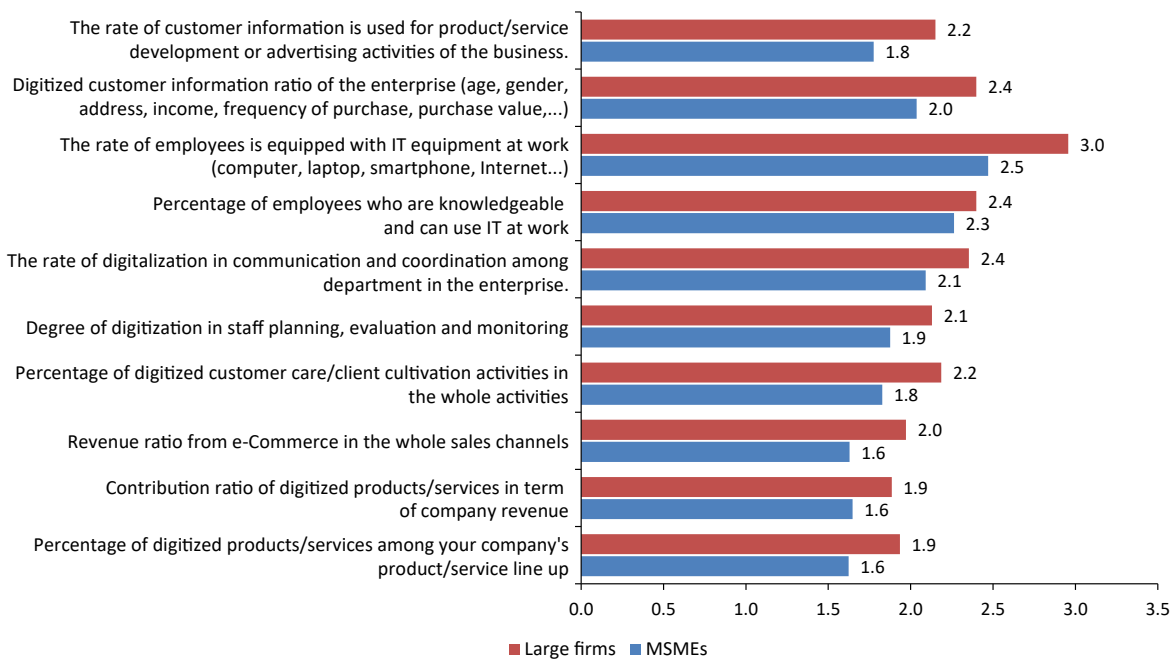
Figure 2.29. Enterprises' digital transformation capacity before Covid-19

2.5.1.1. Enterprises' digital transformation capacity before Covid-19 by size

Statistical analysis shows that MSMEs rated on size 1 (transformation capacity less than 10%) and size 2 (transformation capacity from 10-25%) accounted for a higher percentage than Large enterprises, especially the rate of assessment on this size for both enterprises is very high, accounting for about 70% on both scales. However, the proportion of large businesses rated on scales 4 and 5 is much higher than that of MSMEs, but the proportion of large businesses rated on scales of 3, 4 and 5 is still low, only about 30%. on all three size.

This shows that before the outbreak of Covid-19, MSMEs are less likely to digitally transform than large ones, and neither MSMEs nor large ones have high digital transformation capacity. In particular, digital technologies such as: The rate of employees is equipped with IT equipment at work (computer, laptop, smartphone, Internet...); Digitized customer information ratio of the enterprise (age, gender, address, income, frequency of purchase, purchase value,...); The rate of digitalization in communication and coordination among department in the enterprise applied in large enterprises is much higher than that of MSMEs before Covid-19. In addition, the average transformation capacity by size can be shown below.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.30. The average digital transformation capacity before Covid-19 by size

Figure 2.30 can be interpreted that the digital transformation capacity of large enterprises is higher than that of MSMEs before Covid-19. In general, businesses are giving priority to the proportion of employees equipped with IT devices at the workplace (computers, laptops, smartphones, Internet ...), accounting for the highest percentage. average nearly 25-50%.

Table 2.2. Enterprises' digital transformation capacity before Covid-19 by size

Unit:%

Criteria	MSMEs					Large enterprises				
	<10%	10-25%	25-50%	50-75%	>75%	<10%	10-25%	25-50%	50-75%	>75%
1) The products/services are digitized among the product/ service lines of the business	54.75	29.37	13.9	2.38	0.4	44.6	28.06	18.71	6.47	2.16
2) The share of products/ services are digitized in the business's revenue	54	30.8	12	2.8	0.4	46.03	29.5	16.55	5.76	2.16
3) Revenue percentage from e-commerce in the entire sales channel	56.57	27.89	12.35	2.39	0.8	41.60	32.12	14.60	10.95	0.73
4) The percentage of customer care and/ new customer search activities is digitized across the entire operation	47.39	30.52	14.86	6.43	0.8	34.29	32.14	17.86	12.14	3.57
5) The level of digitization in employee planning, evaluation and monitoring	40.16	38.55	15.26	5.62	0.41	34.53	32.37	21.58	8.64	2.88
6) The ratio of digitization in communication and coordination among departments in the business	32.54	35.32	23.81	7.14	1.19	28.77	28.78	24.46	14.39	3.6
7) The percentage of employees having knowledge and ability to use IT at work	23.90	40.24	23.51	10.36	1.99	24.64	33.33	24.64	12.32	5.07
8) The percentage of employees having IT equipment in the workplace	23.90	23.07	24.30	9.56	9.17	20.14	17.99	24.46	20.86	16.55

Criteria	MSMEs					Large enterprises				
	<10%	10-25%	25-50%	50-75%	>75%	<10%	10-25%	25-50%	50-75%	>75%
9) The proportion of digitized customer information of the business (age, gender, address, income, ...)	35.73	34.54	21.69	6.43	1.61	26.81	31.88	23.19	10.87	7.25
10) The percentage of customer information used for products/services development or advertising activities	47.13	34.02	14.75	2.46	1.64	35.25	33.09	19.42	9.36	2.88

Source: Survey business, VCCI, 2020

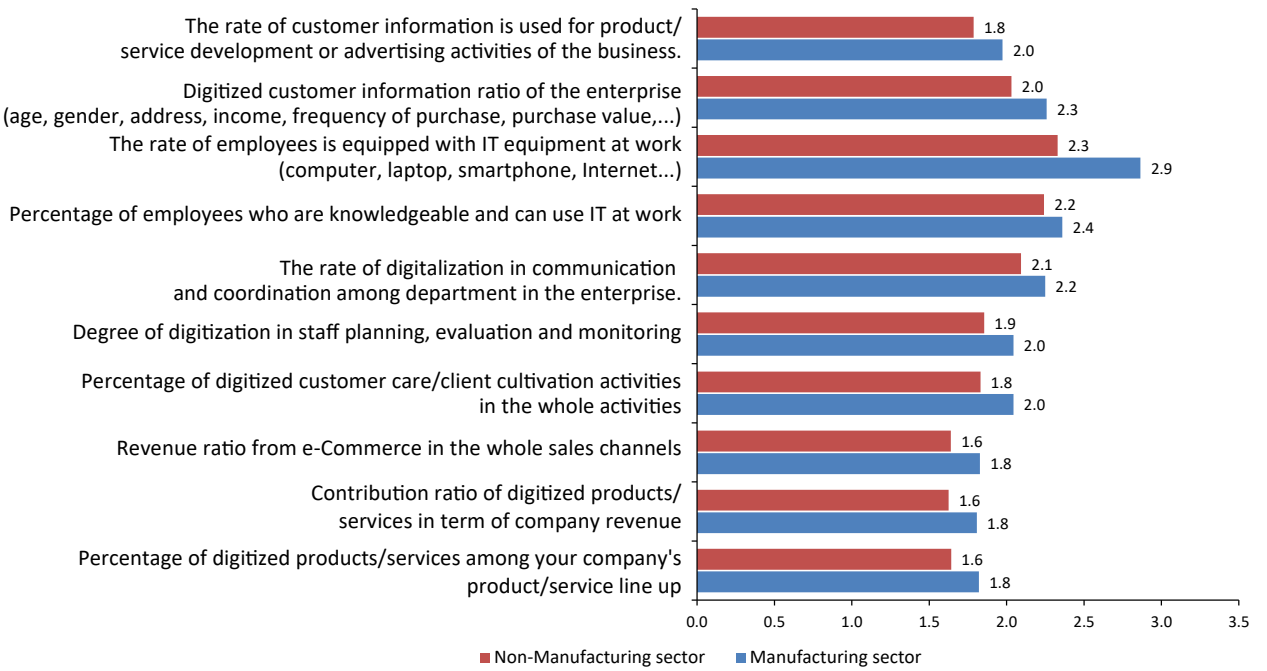
2.5.1.2. Enterprise's digital transformation capacity before Covid-19 by field

The analysis shows that manufacturing and processing enterprises rated the transformation capacity on size 1 (transformation capacity below 10%) and size 2 (transformation capacity from 10-25%), accounting for a lower rate compared to non-manufacturing ones. In both manufacturing and non-manufacturing enterprises, the proportion of enterprises rated on scales 1 and 2 is relatively high with a total of about 70%. However, the proportion of manufacturing and processing enterprises rated their capacity to transform digitally on scales 3 and 4 was significantly higher than that of non-manufacturing ones, and the proportion of enterprises in industries rated in the scales 3, 4 and 5 are quite low, with a total rate of about 30% on all three scales.

This shows that, before the Covid-19 pandemic, manufacturing and processing enterprises had higher digital transformation capacity than non-manufacturing ones, but their digital transformation capacity was still not high. In particular, digital technologies such as: percentage of employees equipped with IT gadgets at work (computers, laptops, smartphones, Internet, etc.); proportion of digitized customer information of the business (age, gender, address, income, frequency of purchase, purchase value, etc.); The rate of digitization in communication and coordination among departments in the enterprise applied in manufacturing and processing enterprises is higher than that of non-manufacturing ones before Covid-19. In addition, the average transformation capacity by size can be expressed as follows.

Through the analytical Figure, we can see that the pre-Covid-19 digital transformation capacity of manufacturing and processing enterprises is higher than that of non-manufacturing enterprises. In general, businesses are giving priority to the proportion of employees equipped with IT equipment at work (computers, laptops, smartphones, Internet, etc..), accounting for the highest average of nearly 25 -50% for manufacturing and processing enterprises and 10-25% for non-manufacturing ones. This is appropriate and practical, especially in the context of a thriving digital technology. If an enterprise wants to apply digital technology, it must equip its employees with the minimum necessary gadgets. In addition, employees also need to be knowledgeable and able to use digital tools for processing applications at work.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.31. The average digital transformation capacity before Covid-19 by field

Table 2.3. Enterprise's digital transformation capacity before Covid-19 by business field

Unit: %

Criteria	Manufacturing and processing enterprises					Non-manufacturing enterprises				
	<10%	10-25%	25-50%	50-75%	>75%	< 10%	10-25%	25-50%	50-75%	> 75%
1) The products/services are digitized among the product/ service lines of the business	48.03	28.38	17.90	4.8	0.87	55.56	29.63	11.11	2.47	1.23
2) The share of products/ services are digitized in the business's revenue	46.72	31.44	17.03	3.93	0.87	57.50	28.75	8.75	3.75	1.25
3) Revenue percentage from e-commerce in the entire sales channel	47.13	30.84	14.10	7.93	0	57.14	27.33	11.80	1.86	1.87
4) The percentage of customer care and/ new customer search activities is digitized across the entire operation	39.73	30.57	17.03	10.92	1.75	46.86	31.88	14.38	5.00	1.88
5) The level of digitization in employee planning, evaluation and monitoring	36.24	33.62	20.96	7.86	1.32	40.88	40.25	12.58	5.03	1.26
6) The ratio digitization in communication and coordination among departments in the business	28.38	34.93	22.27	12.23	2.19	35.19	30.25	26.54	6.17	1.85
7) The percentage of employees having knowledge and ability to use IT at work	22.81	36.40	25.88	11.84	3.07	26.08	39.75	21.12	9.94	3.11
8) The percentage of employees having IT equipment in the workplace	19.65	22.27	26.64	14.85	16.59	26.70	35.40	21.12	11.90	4.97
9) The proportion of digitized customer information of the business (age, gender, address, income, ...)	29.39	32.89	25	7.89	4.83	37.10	34.59	18.24	8.18	1.89
10) The percentage of customer information used for products /services development or advertising activities	38.16	35.96	17.98	6.14	1.76	49.68	30.32	14.19	3.23	2.58

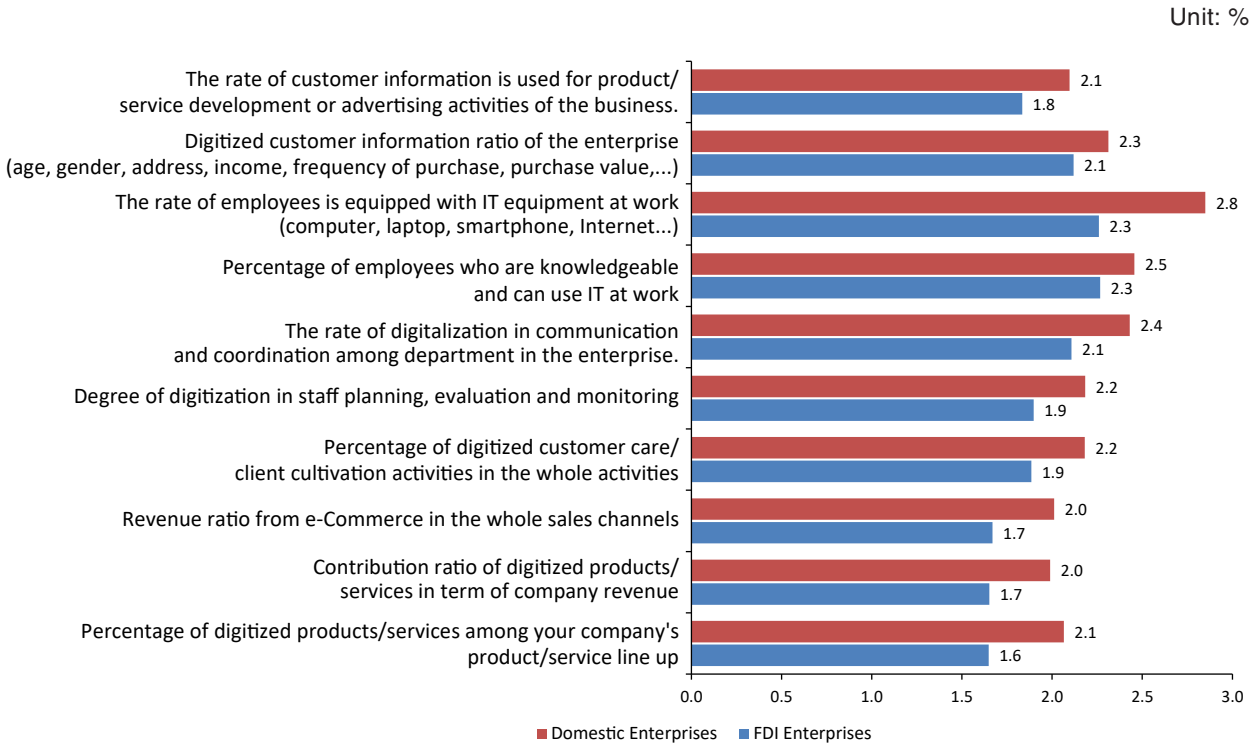
Source: Survey business, VCCI, 2020

2.5.1.3. Enterprises' digital transformation capacity before Covid-19 by business type

The digital transformation capacity of FDI enterprises and Domestic enterprises is described in table 2.4.

From the statistics presented in table 2.4, it is shown that Domestic enterprises rated transformation capacity on a size of 1 (transformation capacity less than 10%) and size 2 (transformation capacity from 10-25%) account for a much higher proportion than FDI enterprises. Specifically, the proportion of enterprises rated on a size of 1 and 2 accounts for about 80% for Domestic enterprises and approximately 65% for FDI enterprises. However, the proportion of FDI enterprises evaluating their digital transformation capacity on a 3, 4 and 5 size is much higher than non-FDI ones, but the proportion of enterprises assessed on these scales remains quite low, accounting for about 35% for FDI enterprises and about 20% for Domestic enterprises. This shows that, before Covid-19, FDI enterprises had higher capacity for digital transformation compared to Domestic enterprises, although the digital transformation capacity was not high, at less than 10% or 10-25% which is a high percentage. In particular, digital technologies such as: percentage of employees equipped with IT equipment at work (computers, laptops, smartphones, Internet ...); Proportion of digitized customer information of the business (age, gender, address, income, frequency of purchase, purchase value, ...); The rate of digitization in communication and coordination among business departments applied in FDI enterprises is higher than that of Domestic enterprises before Covid-19.

Through the graph, it can be seen that the pre-Covid-19 transformation capacity of FDI enterprises is significantly higher than that of non-FDI ones. This is entirely appropriate because the biggest barrier to digital technology application for businesses is the cost of equipment investment and staff who are knowledgeable and capable of applying digital tools. Thus, FDI enterprises are expected to have richer financial resources as well as qualified human resources compared to Domestic enterprises. On average, most digital transformation capacity is at level 2, which means the digital transformation capacity is 10-25%, except for the rate of standard employees who have knowledge and can use digital tools at 25-75%. This is also a good sign for the proper development of businesses that want to develop, the first step is to invest in human resources.



Source: Survey business, VCCI, 2020

Figure 2.32. The average digital transformation capacity before Covid-19 by type

Table 2.4. Enterprises' digital transformation capacity before Covid-19 by type

Unit: %

Criteria	Domestic Enterprises					FDI Enterprises				
	<10%	10-25%	25-50%	50-75%	>75%	<10%	10-25%	25-50%	50-75%	>75%
1) The products/services are digitized among the product/service lines of the business	54.70	29.87	12.08	2.86	0.67	39.78	25.81	24.73	7.53	2.15
2) The share of products/services are digitized in the business's revenue	53.72	31.76	11.15	2.36	1.01	43.00	25.81	21.51	8.60	1.08
3) Revenue percentage from e-commerce in the entire sales channel	54.39	29.39	11.82	3.72	0.68	41.30	29.35	17.39	10.87	1.09
4) The percentage of customer care and/ new customer search activities is digitized across the entire operation	45.76	31.53	12.88	8.14	1.69	32.98	29.79	25.53	9.57	2.13
5) The level of digitization in employee planning, evaluation and monitoring	40.67	37.29	14.92	5.76	1.36	30.10	33.33	25.81	9.68	1.08
6) The ratio of digitization in communication and coordination among departments in the business	33.22	33.56	24.16	7.38	1.68	24.73	31.18	23.66	17.20	3.23
7) The percentage of employees having knowledge and ability to use IT at work	23.91	40.74	22.22	11.11	2.02	25	28.26	29.35	10.87	6.52
8) The percentage of employees having IT equipment in the workplace	22.90	30.97	22.56	12.46	11.11	21.51	17.20	30.11	17.20	13.98
9) The proportion of digitized customer information of the business (age, gender, address, income, ...)	33.67	34.69	21.09	7.14	3.41	29.03	30.11	25.81	10.75	4.30
10) The percentage of customer information used for products/ services development or advertising activities	44.83	34.83	14.48	3.79	2.07	36.56	30.11	22.58	8.60	2.15

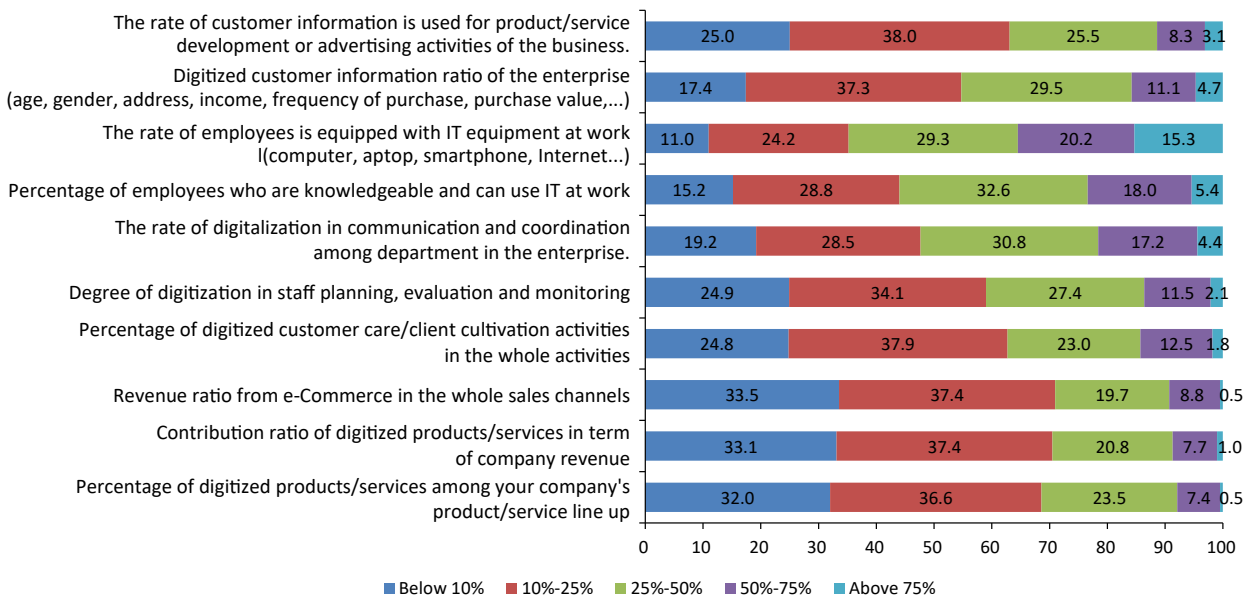
Source: Survey business, VCCI, 2020

2.5.2. Enterprises' current digital transformation capacity amid the Covid-19 pandemic

The current enterprises' digital transformation capacity in general is described evidently in figure 2.33. The Covid-19 outbreak has caused great disturbances in all aspects and fields of socio-economic life. Business operations must be continually adjusted to unprecedented challenges. Enterprises have begun to see the need for the coordination of business operations and the digital aspect to help business adapt and return to normal situations. Therefore, on all criteria, the rate of digitalization in many areas of the business has increased significantly compared to the time before Covid-19 with a larger number of businesses achieving the rate of digitization in all fields over 50% and over 75%.

Some criteria continue to lead in the level of digital transformation such as Percentage of employees equipped with IT equipment in the workplace or Percentage of employees with knowledge and ability to use IT in the business. The other criteria, although there are no significant changes in the order of high and low, are gradually becoming more synchronous in digital transformation, no longer differentiated as before Covid-19. Some criteria such as the contribution of digitized products/services to the company's revenue or the ratio of digitized products/services among the company's product/service lines has changed significantly in a positive way, the number of enterprises rated these criteria below 10% only accounts for about one third.

Unit: %



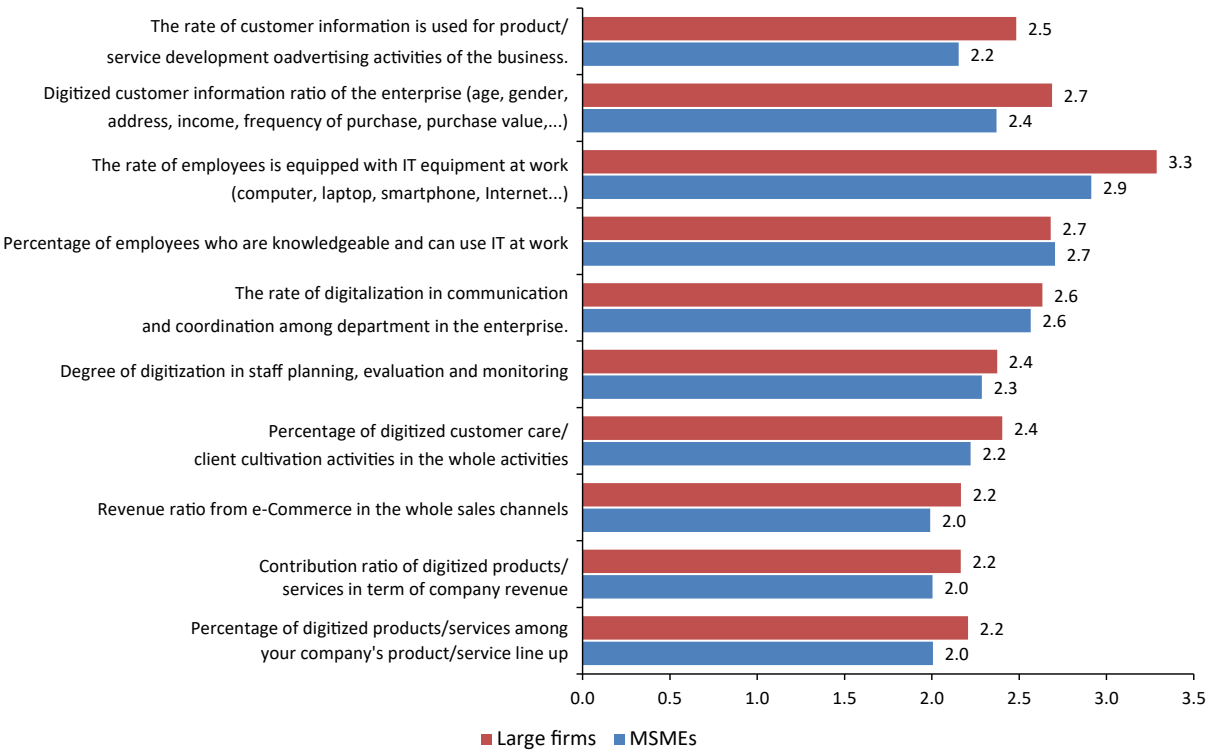
Source: Survey business, VCCI, 2020

Figure 2.33. The current enterprises' digital transformation capacity

2.5.2.1. Enterprises' current digital transformation capacity by size

The average digital transformation capacity of MSMEs and large enterprises is depicted in the following figure 2.34.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.34. The current enterprises' average digital transformation capacity by size

From statistical analysis, the data shows that large enterprises are now more likely to transform than MSMEs. However, on the criterion of "Percentage of employees who are knowledgeable and can use IT at work" in MSMEs has a higher average score, or in other words, the ratio of employees who are more knowledgeable and able to use information technology is higher. This is suitable because MSMEs have limited financial resources, so they must choose investment for efficiency, therefore, human resource investment is the top key factor that MSMEs choose.

The analysis also shows that digital transformation capacity in areas such as the proportion of employees equipped with IT devices at work (computers, laptops, smartphones, Internet, etc) is the highest; followed by the capacity in these criteria: Rate of digitized

customer information of the business (age, gender, address, income, frequency of purchase, purchase value,...); The proportion of employees with knowledge and ability to use IT at work; The ratio of digitization in communication and coordination among departments in the business. It is inevitable that according to the law of development, in order to develop a business based on digital technology, the minimum equipment of digital tools must be installed.

The data also shows that the enterprises' current average digital transformation capacity including MSMEs and large enterprises is significantly higher than the figure before Covid-19. This can confirm that Covid-19 really has an impact on most businesses in terms of digital transformation capacity.

Table 2.5. Enterprises' current digital transformation capacity by size

Unit:%

Criteria	MSMEs					Large Firms				
	<10%	10-25%	25-50%	50-75%	> 75%	<10%	10-25%	25-50%	50-75%	> 75%
1) The products/services are digitized among the product/ service lines of the business	32.94	40.47	19.84	6.35	0.40	30.21	29.50	30.22	9.35	0.72
2) The share of products/services are digitized in the business's revenue	32.27	42.23	19.12	5.58	0.80	34.53	28.78	23.74	11.51	1.44
3) Revenue percentage from e-commerce in the entire sales channel	33.20	41.70	18.22	6.48	0.40	34.04	29.71	22.46	13.04	0.75
4) The percentage of customer care and/ new customer search activities is digitized across the entire operation	24.21	41.2	23.81	9.52	1.26	25.90	31.65	21.58	17.99	2.88
5) The level of digitization in employee planning, evaluation and monitoring	2.70	34.26	29.88	9.96	1.20	25.18	33.81	23.02	14.39	3.60
6) The ratio of digitization in communication and coordination among departments in the business	18.73	29.08	32.66	15.94	3.59	20.14	27.34	27.34	19.42	5.76
7) The percentage of employees having knowledge and ability to use IT at work	14.34	28.69	33.47	19.12	4.38	16.67	28.99	31.15	15.94	7.25

Criteria	MSMEs					Large Firms				
	<10%	10-25%	25-50%	50-75%	> 75%	<10%	10-25%	25-50%	50-75%	> 75%
8) The percentage of employees having IT equipment in the workplace	10.28	28.06	32.41	18.58	10.67	12.23	17.27	23.74	23.02	23.74
9) The proportion of digitized customer information of the business (age, gender, address, income, ...)	18.55	40.32	29.03	9.68	2.42	15.22	31.88	30.43	13.77	8.70
10) The percentage of customer information used for products/ services development or advertising activities	27.24	39.42	25.61	6.10	1.63	21.01	35.51	25.36	12.32	5.80

Source: Survey business, VCCI, 2020

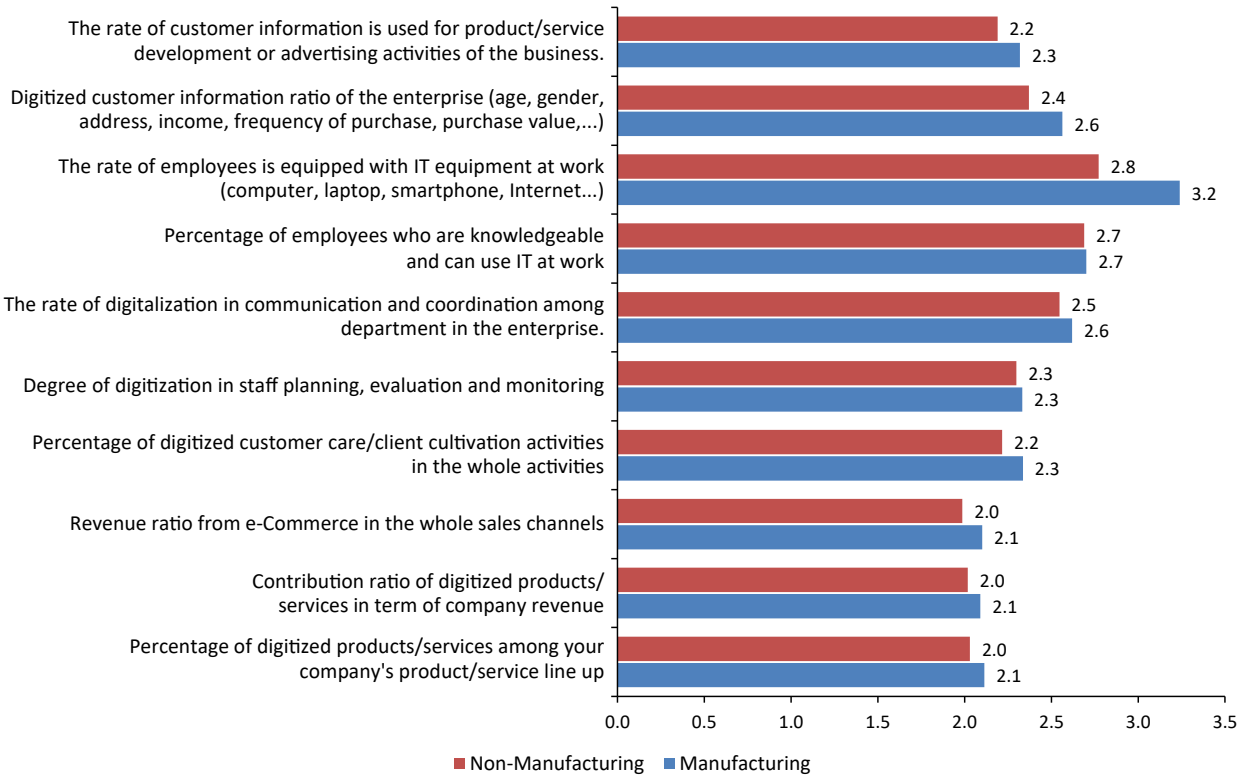
2.5.2.2. Enterprises' current digital transformation capacity by industry

The average digital transformation capacity of manufacturing enterprises versus non-manufacturing enterprises is described in the following figure 2.35.

From the descriptive statistics, the manufacturing and processing enterprises now have higher transformation capacity than the non-manufacturing enterprises at all of the survey criteria. Criteria are: Percentage of employees with knowledge and can use IT at work; The ratio of digitization of communication and coordination among departments in the business; and Percentage of employees equipped with IT equipment in the workplace (computers, laptops, smart phones, Internet...) being processed by manufacturing enterprises and non-manufacturing businesses boosted from 25%-50% and the remaining criteria accounted for 10%-25%.

From statistical analysis, it also affirms that the digital transformation capacity of enterprises including manufacturing and processing industry and non-manufacturing industry is now significantly higher than before Covid-19. This can also confirm that Covid-19 has undeniably affected all industries including manufacturing or non-manufacturing, and it also shows the digital tools usage. Enterprises are expected to be able to overcome the difficulties amid the widespread pandemic.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.35. *The current enterprises' digital transformation capacity by field*

Table 2.6. Enterprises' current digital transformation capacity by field

Unit: %

Criteria	Manufacturing					Non-Manufacturing				
	<10%	10-25%	25-50%	50-75%	>75%	<10%	10-25%	25-50%	50-75%	>75%
1) The products/services are digitized among the product/service lines of the business	31.88	34.05	25.33	8.30	0.44	32.10	40.12	20.99	6.17	0.62
2) The share of products/services are digitized in the business's revenue	32.61	35.65	22.17	9.13	0.44	33.75	39.99	18.75	5.63	1.88
3) Revenue percentage from e-commerce in the entire sales channel	32.60	36.12	19.82	11.45	0.01	34.81	39.24	19.62	5.06	1.27

Criteria	Manufacturing					Non-Manufacturing				
	<10%	10-25%	25-50%	50-75%	>75%	<10%	10-25%	25-50%	50-75%	>75%
4) The percentage of customer care and/ new customer search activities is digitized across the entire operation	25.33	34.93	22.27	15.72	1.75	24.07	41.98	24.07	8.02	1.86
5) The level of digitization in employee planning, evaluation and monitoring	25.76	33.19	24.89	14.41	1.75	23.60	35.40	31.06	7.45	2.49
6) The ratio of digitization in communication and coordination among departments in the business	17.90	30.57	27.95	18.78	4.80	21.12	25.47	34.77	14.91	3.73
7) The percentage of employees having knowledge and ability to use IT at work	16.67	26.75	32.46	17.98	6.14	13.04	31.68	32.92	18.01	4.35
8) The percentage of employees having IT equipment in the workplace	10.48	18.78	28.38	20.96	21.40	11.66	31.90	30.67	19.02	6.75
9) The proportion of digitized customer information of the business (age, gender, address, income, ...)	14.98	37.44	29.52	12.33	5.73	20.75	37.11	29.56	9.43	3.15
10) The percentage of customer information used for products/ services development or advertising activities	22.57	40.26	23.45	10.18	3.54	28.48	34.81	28.48	5.70	2.53

Source: Survey business, VCCI, 2020

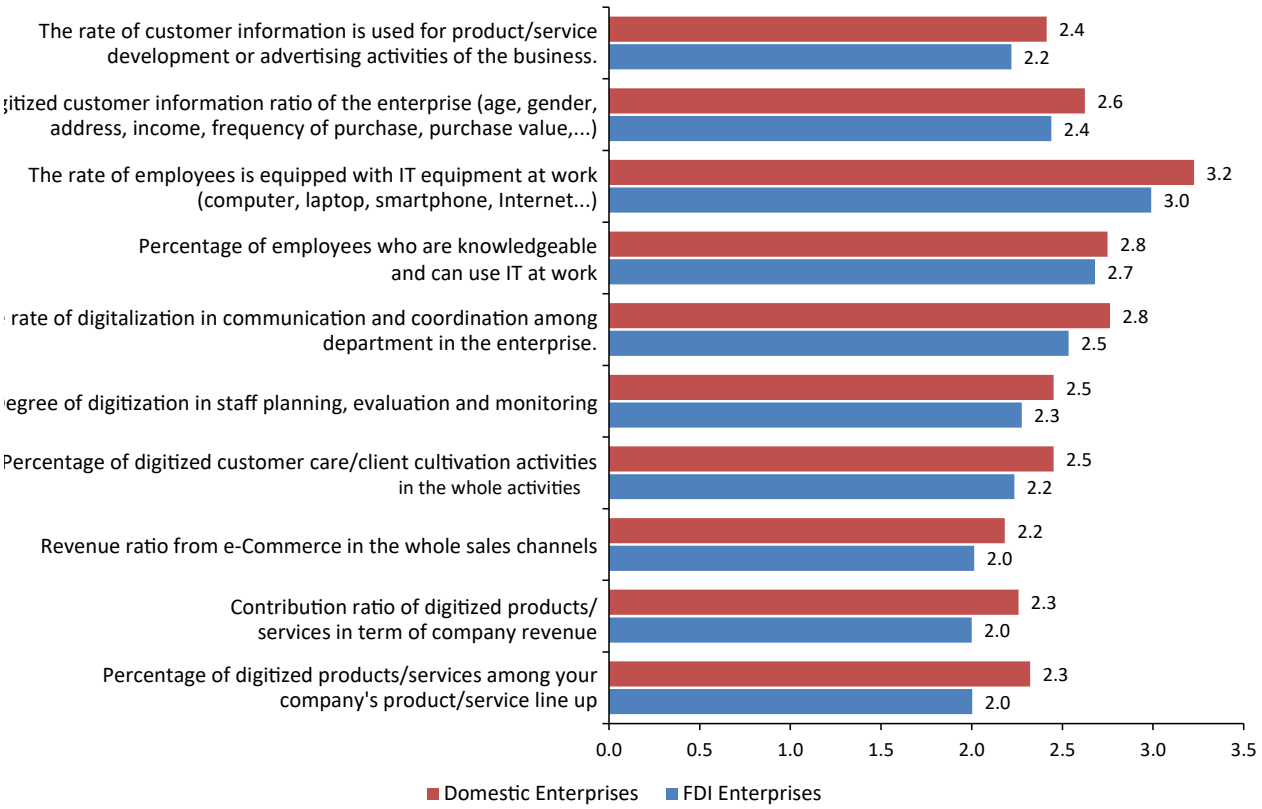
2.5.2.3. The digital transformation capacity of enterprises by type

The average digital transformation capacity of FDI and Domestic enterprises is described in the following figure 2.36.

From statistical analysis, it shows that FDI enterprises now have significantly higher capacity for digital transformation compared to Domestic enterprises in all survey criteria. In which, the criteria: the proportion of employees with knowledge and ability to use IT at work; proportion of employees equipped with IT devices at work (computers,

laptops, smartphones, Internet...) and the digitized ratio in communication and coordination among departments in businesses are being promoted strongly by businesses from 25-50% and the remaining criteria account for 10%-25%. This conforms to the principle of joint development amid the digital technology is prioritized for development and is a common trend of all types of businesses.

Unit: %



Source: Survey business, VCCI, 2020

Figure 2.36. The current enterprises' digital transformation capacity by type

With the statistical results describing the data, it can also be seen that the average digital transformation capacity of enterprises by type, such as FDI or state-owned, private or other enterprises were both significantly higher than before Covid-19. This can also be confirmed, Covid-19 has contributed to promoting the digital tools application for businesses. This is also a positive sign, because businesses acknowledge the important role of digital technology in the process of their existence, competition and development.

Table 2.7. Enterprises' current digital transformation capacity by sector

Unit: %

Criteria	Domestic Enterprises					FDI Enterprises				
	Under 10%	From 10-25%	From 25-50%	From 50-75%	Above 75%	Under 10%	From 10-25%	From 25-50%	From 50-75%	Above 75%
1) The products/services are digitized among the product/ service lines of the business	34.23	37.58	22.15	5.70	0.34	24.73	33.33	27.96	12.90	1.08
2) The share of products/ services are digitized in the business's revenue	34.68	38.04	20.88	5.39	1.01	27.96	35.48	20.43	15.05	1.08
3) Revenue percentage from e-commerce in the entire sales channel	34.59	37.33	20.55	7.19	0.34	30.11	37.63	17.20	13.98	1.08
4) The percentage of customer care and/ new customer search activities is digitized across the entire operation	25.17	38.92	24.83	9.40	1.68	23.66	34.41	17.20	22.58	2.15
5) The level of digitization in employee planning, evaluation and monitoring	25.93	33.67	29.29	9.09	2.02	21.51	35.48	21.51	19.35	2.15
6) The ratio digitization in communication and coordination among departments in the business	20.54	27.61	32.32	16.84	2.69	15.05	31.18	25.81	18.28	9.68
7) The percentage of employees having knowledge and ability to use IT at work	14.81	29.97	31.99	18.86	4.38	16.30	25.00	34.78	15.22	8.70
8) The percentage of employees having IT equipment in the workplace	10.37	27.42	29.10	19.06	14.05	12.90	13.98	30.11	23.66	19.35
9) The proportion of digitized customer information of the business (age, gender, address, income, ...)	19.11	35.49	31.40	10.24	3.76	11.83	43.00	23.66	13.98	7.53
10) The percentage of customer information used for products/ services development or advertising activities	27.40	35.96	26.71	7.19	2.74	17.39	44.56	21.74	11.96	4.35

Source: Survey business, VCCI, 2020

VNPT E-INVOICE
Hóa đơn kỷ nguyên số

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VNPT E-INVOICE BRINGS BENEFITS TO BUSINESSES

VNPT E-Invoices will bring many benefits to businesses when they are required to use electronic invoices, replacing traditional paper invoices from July 1st, 2022.

According to Law on Tax Administration No. 38/2019/QH14 from July 1st, 2022, businesses are required to use electronic invoices. This is considered as a drastic policy, enhancing transparency and helping tax authorities monitor, as well as supervise economic activities, ...

In particular, on the business side, the use of e-invoice will bring several core benefits, from cost savings to innovation in the way of operation.

- ***Save time & cost***

To use traditional paper invoices, businesses will have to invest a lot of expenses such as printing, transporting, storing invoices, ... According to survey data of the General Department of Taxation, the highest cost that enterprises using self-printed invoices is about 2,500 VND/bill. The highest cost to order printing invoices is 2,000 VND/bill.

Meanwhile, an e-invoice only costs from 300 VND. Not to mention that businesses will not incur shipping or storage costs. It is estimated that this type of invoice will help businesses save 80% of costs compared to paper bills.

Along with that, the time to deliver - receive invoices will be shortened from a few days to a few minutes because the whole process of writing and issuing invoices are worked on computers. After a few clicks, receivers will receive invoices anywhere, as long as an Internet connection is required.

- ***Prevent bill counterfeiting***

For e-invoice, the tax authority will use a separate authentication code. Specifically, the seller will issue an invoice, digitally sign it and send it to the tax authority's system. Then, this agency will issue a unique code and attach it to that e-invoice. So this is the kind of invoice that cannot be counterfeited.

Businesses can also easily check the origin of invoices through the above code by accessing the webstite of the e-invoice service provider to compare and check.

- ***Reduce administrative procedures***

One of the jobs that takes a lot of time and effort in those businesses is reporting on the use of invoices every quarter. However, with the e-invoice, businesses do not need to make the above report because all information is stored by the General Department of Taxation through the software system.

- ***Electronic invoice solution won the International Gold Award***

As a pioneer in the digital transformation in Vietnam, VNPT Group has built and developed many modern and preeminent technology solutions, including VNPT E-INVOICE.

This solution allows customers to quickly connect with available software of the business such as sales software, accounting software. Thanks to that, the invoice issuance process is quick and convenient. At the same time, businesses can statistic, report, export data to tax declaration programs such as HTKK, TVAN, ... thereby saving significantly time in making tax returns.

VNPT E-INVOICE. is developed based on modern security technologies, increasing the safety of customer data.

Specifically, corporate data will be stored on servers located in VNPT's IDC system that meeting international Tier3 standards and multiple Firewall security layers. So, data is automatically backed up, never lost and can be re-downloaded at any time. Especially, when using VNPT E-INVOICE, businesses will be kept free of charge data for 10 years.

As an affirmation of the outstanding quality of VNPT E-INVOICE, this solution has just won the Gold award in the Financial Management Breakthrough Award category at the Asia-Pacific Stevie Awards 2020. This is an award. prestigious international awards, marking the breakthrough of Vietnamese technology solutions to the world market.

CHAPTER 3

BUSINESS PROSPECTS AND SOLUTIONS TO PROMOTE DIGITAL TRANSFORMATION FOR ENTERPRISES

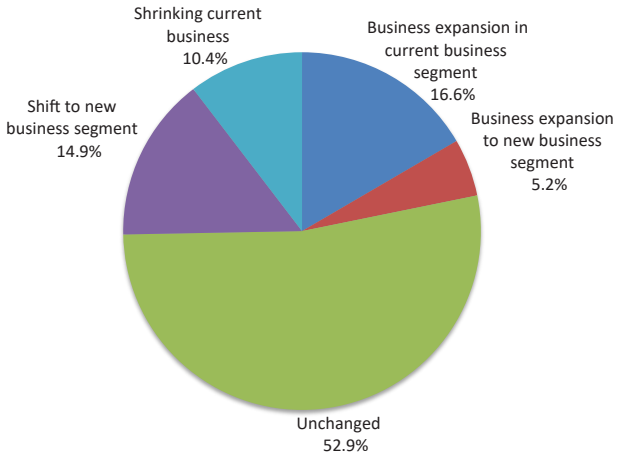
3.1. ENTERPRISES' BUSINESS PLAN FOR THE LAST 6 MONTHS OF 2020

Although the disease situation in the country began to show positive signs, the pandemic in the world is still happening in a complicated and prolonged way, especially in countries that are important partners of Viet Nam such as America, Japan, Europe, etc. Therefore, the situation of discontinuing the supply and value chain that cannot be overcome immediately in the coming time, will continue to have a great impact on businesses, especially those whose input and output depend on international markets, deeply participating in production networks, global value chains such as textiles, footwear, tourism, airlines, restaurants, hotels, logistics, etc. This makes more than 10% of businesses plan to narrow their business in the near future.

Besides, the survey results also show that more than half of enterprises said that in the second half of 2020 they will continue to maintain their current business status. The pandemic situation in the world has not been completely controlled, the economy still contains many risks, so most businesses still have a cautious mentality and don't take risks. In addition, although Viet Nam had to receive the second wave of pandemic, the Government still endeavors to control the situation and try to prevent economic activities from being disrupted excessively, at the same time measures to help enterprises overcome Covid-19 gradually take effect. Therefore, the mentality of some businesses has become more stable and optimistic, even a large percentage of businesses plan to expand their business in the current field or move into a new business phase, accounting for 16.6% and 14.9% respectively.

Statistics show that 5.2% of businesses plan to expand their business into new areas. Although being affected by the pandemic, this is also an opportunity for businesses to renew themselves, find new directions in accordance with market needs to survive and thrive. Some businesses will transition from "freezing" to immediately seizing new opportunities for development.

Business plan for the second half of 2020 show significant differences between business group, with SOEs having the largest disturbance in business plan among enterprises with more than 60% of state businesses has changes, particularly 30.8% of SOEs have plans to expand their business in the current field, 15.4% of SOEs have plans to expand their business into new areas and 15.4% of SOEs intend to move into a new business phase.

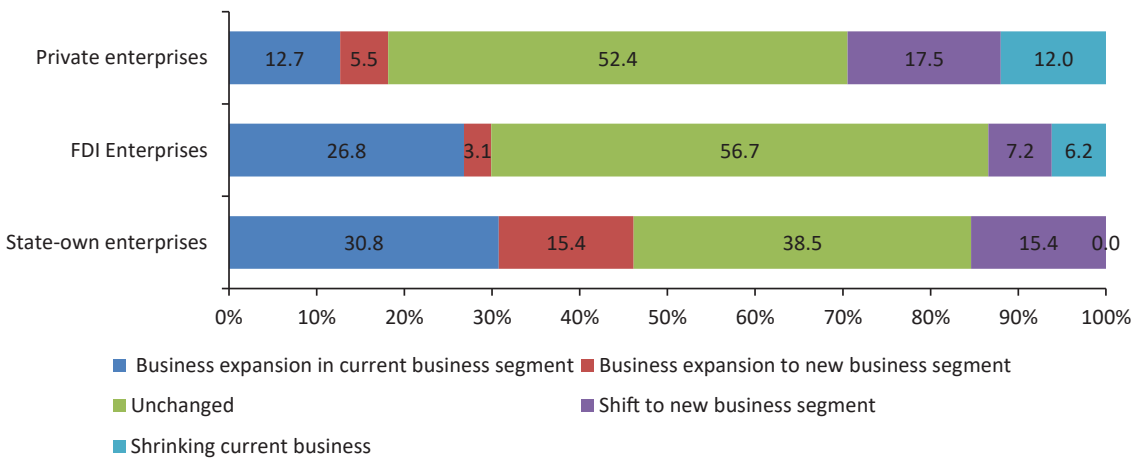


Source VCCI's 2020 enterprises surveyed data

Figure 3.1. Business plan for the last 6 months of 2020

About 50% of enterprises in the domestic private sector also have a change in business plans, but most of these businesses plan to move into a new business phase (17.47%), the proportion of domestic private sector enterprises aiming to expand their business in their current field (12.7%) is quite similar to that of domestic private sector enterprises intending to narrow business in the current area (12%). Only about 40% of FDI businesses have a change in business plans and it seems that Covid-19 helps them see business opportunities in the current field because 26.8% of FDI enterprises will have plans to expand their businesses in the current area.

Unit: %

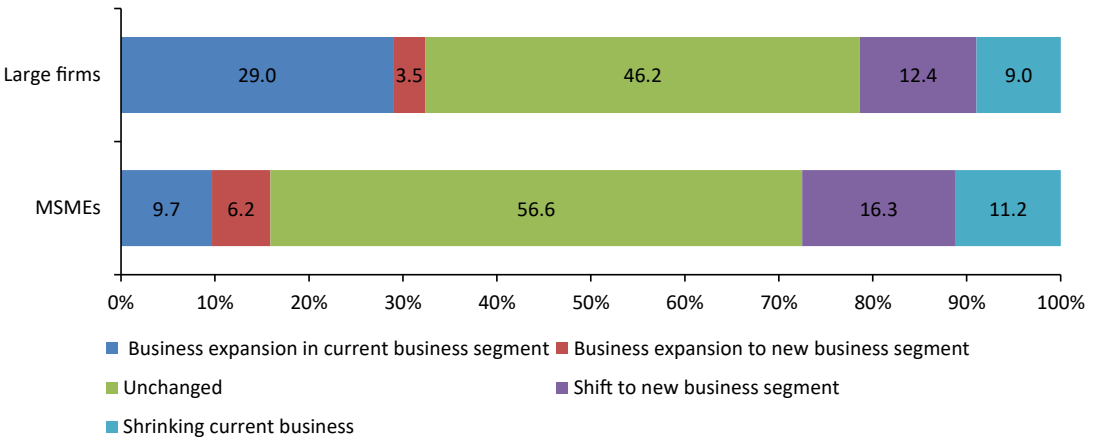


Source: Survey business, VCCI, 2020

Figure 3.2. The impact of Covid-19 on business plans of business group by type

Figure 3.3 shows the differences in business development options in the coming period between enterprises of different scale. Business plans for the second half of 2020 for MSMEs appear to be more stable than large enterprises with 56.6% of MSMEs having no change in business plans while only 46.2% of large enterprises don't change their business plan.

Unit: %

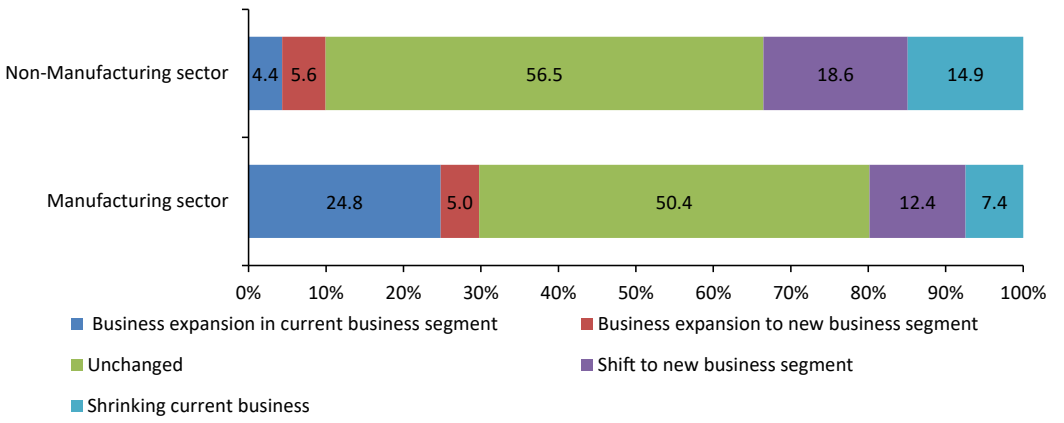


Source: Survey business, VCCI, 2020

Figure 3.3. The impact of Covid19 on business plans of business group by size

The change of business plans of most enterprises focuses on expanding business in the current field (29%) while changing business plans of MSMEs. are inclined to move to a new business stage (16.3%) or narrow the current business (11.2%).

Unit: %



Source: Survey business, VCCI, 2020

Figure 3.4. The impact of Covid-19 on business plans of business group by field

Business plans for the last 6 months of 2020 of manufacturing and processing enterprises and enterprises in non-manufacturing industries are opposites. If the business plans of enterprises in the manufacturing and processing industry change in the direction of expanding their business in the current field (24.8%) and moving to a new business phase (12.4%) then business plans of non-manufacturing enterprises change in the direction of moving to a new business stage (18.6%) and narrowing down business in the current area (14.9%).

3.2. ENTERPRISES' PRIORITY CONTENT AMID THE COVID-19 PANDEMIC

Suffer from the economic crisis caused by the Covid-19 pandemic, this time is an opportunity for a number of Vietnamese enterprises to focus on renovating equipment and technology with cheaper costs, reducing product costs/services (32.8%), while promoting domestic supply network linkages, restructuring supply chains (7.9%), improving supervision in supply chain management (18.4%), reduce dependence on foreign countries. Some businesses focus on research to improve the quality of products and services to take advantage of opportunities to quickly dominate and consolidate market share (57.8%).

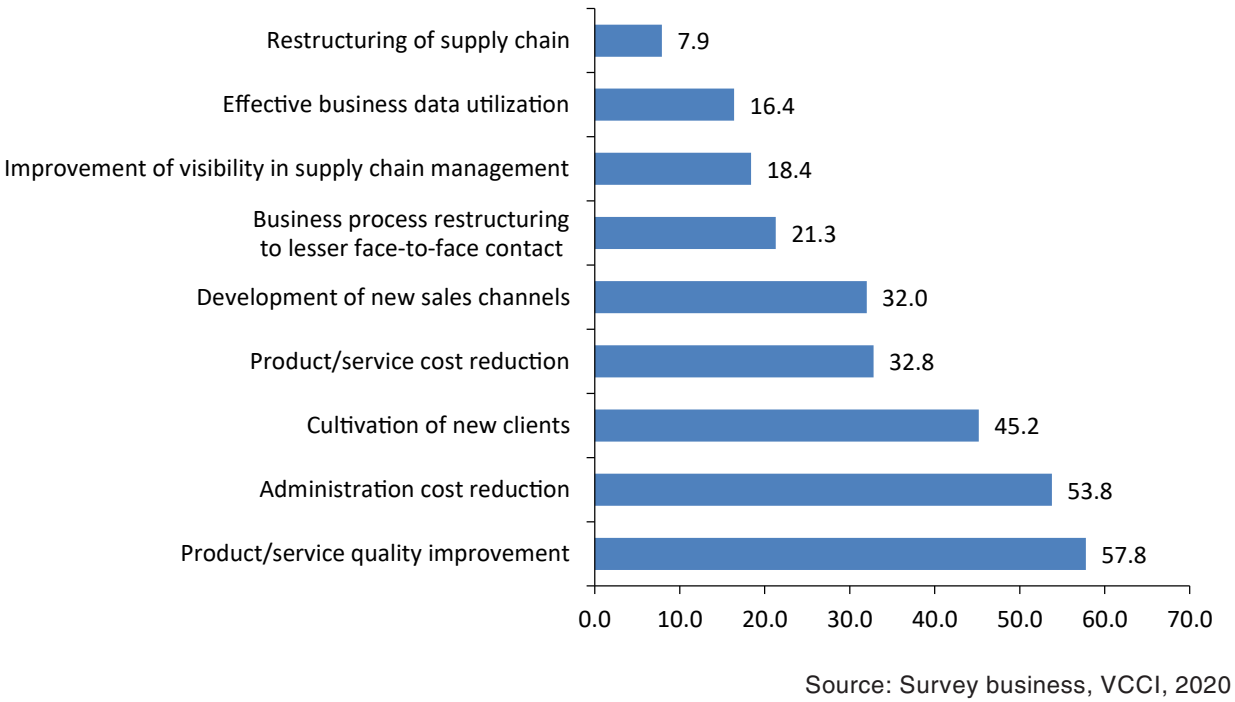


Figure 3.5. Priorities in the current stage of enterprises

Vietnamese enterprises also take this opportunity to self-acknowledge and re-examine their capacity, resilience, and adaptation to market fluctuations; reviewing, evaluating, structuring input materials sources, customers and finding new directions to be more proactive, developing plans to renovate production models, develop new sales channels and newly effective sale strategies (32%). The problem of optimizing management and rising costs is also set by more than half of the enterprises (53.8%) to ensure financial resources to be strong enough to sustain and recover when the Covid-19 pandemic comes to an end. Some enterprises proceed to change their business processes not only to take advantage of digital platforms and business data effectively (16.4%), but also to limit direct contact activities (21.3%).

The impact of Covid-19 also created new awareness, a shifting trend in consumer tastes and new commercial transactions on the principle of remote, limited contact.

3.3. ENTERPRISES' PROPOSALS TO FACILITATE THE DIGITAL TECHNOLOGY USAGE

According to survey results, businesses' biggest expectation for the Government in facilitating the digital technology usage lies in the area of institutional reform. In which, more than 80% of enterprises expect more participation from authorities at all levels to Build up rules and regulations to promote paperless business, nearly 70% of enterprises demand for Transparency of rules and regulations on personal/business data management. In fact, despite actively implementing e-government development, the management of records and documents in the network environment still remains many shortcomings, limitations and is not widely disseminated on a national scale. Some businesses reported that they still had to simultaneously store both types of documents, original paper documents and electronic data, leading to many difficulties in storage and processing. They also suggested the government eliminate paper documents out of enterprises' business production process completely. Many businesses petitioned the Government to have more Seminars on using digital technology to guide businesses in a methodical and widespread way.

Due to the immense difficulties that businesses face when applying digital technology lie in the lack of costs and high-quality internal human resources, more than 70% of enterprises have proposed to the Government for financial support and 57.6% expect to receive assistance in developing highly qualified human resources to meet the requirements of operating and using new technologies in enterprises.

Unit: %

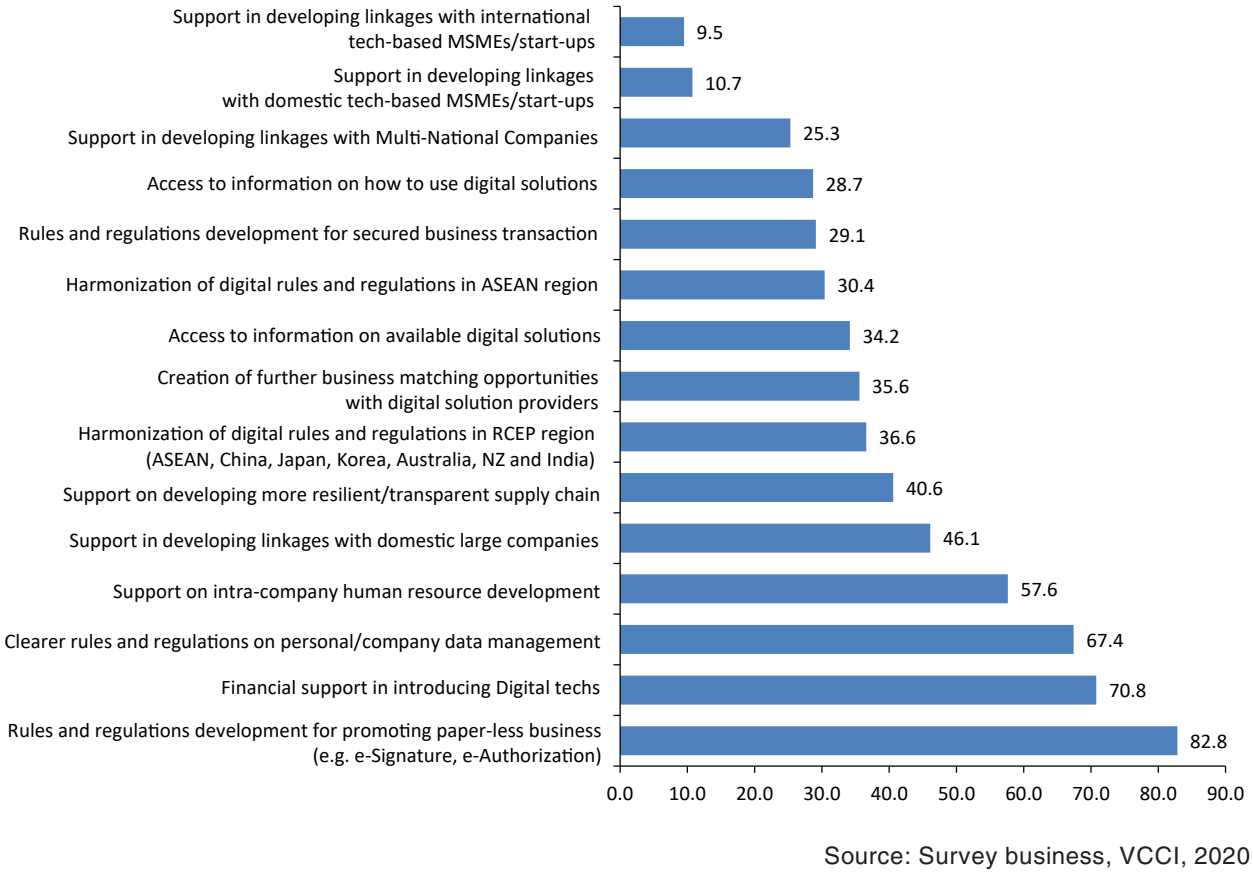


Figure 3.6. Enterprises' proposals to facilitate the digital technology usage

In addition, proposals related to the harmonious development of the system as well as digital technology rules and regulations between Viet Nam and other countries in the region and the world have also been pointed out by many enterprises. At present, the institutional system, policy as well as institutional enforcement, dispute settlement and validity of enforcement agencies related to digital economy development are weak. Specifically, we still lack a synchronized legal framework for building e-government such as regulations on database management and connection; personal information security; authentication and electronic identity; electronic storage, etc. The Vietnamese government needs to be more proactive in participating in building a legal framework in harmony with digital technology in the region and the world.

Furthermore, about 30% of businesses also expressed the need to be allowed to access information on existing digital platforms and how to use digital solutions to meet production and business activities. Some businesses expect government support in connecting businesses to business partners, digital solution providers based on technology needs, as well as promoting information referral, support and popularize digital software in management and production to enterprises.

CONCLUSION

First of all, the report has summarized the relatively comprehensive Figure of the impacts that the Covid-19 pandemic brought to enterprises in many different aspects, both in production, sales activities and revenue. Research results show that, in production, the problem of declined production capacity due to limited activities/remote working is the biggest difficulty for enterprises. In which, large enterprises are more affected by the shortage of input material supplies. In contrast, MSMEs are affected by Covid-19 more heavily in the problems of reduced production capacity due to limited activities/remote working, difficulties in predicting appropriate goods volume, delay in maintenance/technical support due to travel restriction measures.

Regarding sales activities of enterprises, it shows that large enterprises are affected more than MSMEs in Narrowed foreign markets. In contrast, the Covid-19 pandemic has a greater influence on MSMEs than large enterprises in the problems of: difficulties in communication to find new customers, difficulties in communication to support and track existing customers, narrowed domestic market.

Regarding revenue, only a small proportion of businesses witness a growth in revenue, the rest of more than three-quarters of enterprises see a decrease in revenue, in which businesses have a reduction rate of 1-25% and 25-50% of them achieve a high rate. More than 18% of enterprises have reduced revenue by more than 50% because of the disease. These numbers show just how serious Covid-19 has impacted on businesses.

Covid-19 caused far-reaching influences on production and business activities, once again ringing the alarm bell that warning enterprises must quickly catch up with the digital transformation trend to promptly overcome the pandemic. The report shows that the perception of digital transformation among Vietnamese enterprises has had positive signs through a large proportion of them applying digital technology before Covid-19 happened. However, the report also indicates remarkable points when digital technology is mainly applied by businesses to management, logistics, and marketing activities, etc. while the most important stage - production is not focused on, this makes the percentage of science and technology not transformed to create supplemental value for the product.

Although most businesses are equipped with certain capacities to implement the digital transformation process, they are only at the basic and primitive level, the proportion of

digitalization in products and services is low, the contribution rate of digitized products and services in total revenue is not high. The main restraints that make it difficult for businesses to transform digitally are the high cost of digital technology application, lack of infrastructure, fear of leaking business data, lack of qualified employees, etc. In which, the high cost is the biggest barrier.

Facing the aforementioned difficulties, enterprises have made many proposals desiring the government provide more support to make it easier for businesses in digital transformation. In which, building rules and regulations to promote paperless business, financial support for digital technology application and transparency of rules and regulations on data management are three most desired recommendations by businesses. They expect that this will make a big change in the Vietnamese digital transformation trend in the coming time.

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Headquarters: 6th floor, Radio Frequency Department Building No. 115 Tran Duy Hung, Cau Giay District, Ha Noi City

Editorial phone: 84-24.35772143 Publication Phone: 84-24.35772138

Fax: 84-24.35579858 E-mail: nxb.tttt@mic.gov.vn

Ho Chi Minh City Branch: 211 Nguyen Gia Tri Street, Ward 25, Binh Thanh District, Ho Chi Minh City

Phone: 84-28.35127750, 35127751 Fax: 84-28.35127751 E-mail: cnsg.nxbtttt@mic.gov.vn

Da Nang City Branch: No. 42 Tran Quoc Toan, Hai Chau District, Da Nang City

Phone: 84-236.3897467 Fax: 84-236.3843359 E-mail: cndn.nxbtttt@mic.gov.vn

Tay Nguyen Branch: No. 46, Y Jut Street, Buon Ma Thuot City, Dak Lak Province

Phone: 84-262.3808088 E-mail: cntn.nxbtttt@mic.gov.vn

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