

The situation of digital transformation of Vietnamese enterprises in the context of the Covid-19 epidemic

Luong Minh Huan

Ph.D, Enterprise Development Foundation, Vietnam Chamber of Commerce and Industry
Email: luongminhhuan@gmail.com

Nguyen Thi Thuy Duong

MSc., Institute of International Cooperation, Trade University
Email: nguyenthithuyduongbmt@gmail.com

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Abstract: *The Covid-19 epidemic has increased the awareness of enterprises in general and small and medium-sized enterprises in particular about digital transformation. Digital technologies have been most applied in management, logistics, marketing, and payment while less than adequate in production, which is the core activity of Vietnamese enterprises. Facing the unpredictable course of Covid-19, the digital transformation capacity of enterprises has been improved, however rather limited. The government should facilitate the digital transformation of firms by offering them more support in reducing costs and in establishing information infrastructure and information security.*

Keywords: Covid-19, Digital Transformation, Digital Transformation Capacity, Barriers in Digital Transformation, Enterprises, Vietnam

1. Introduction

Digital transformation is the process of applying advanced technologies to solve the daily problems of the society on the basis of digitalization of data and information in various industries. In Vietnam, digital transformation has begun to take place, particularly in sectors like finance, transportation, or tourism. The document of the Thirteenth National Congress of the Communist Party of Vietnam (2021) has regarded digital transformation as one among twelve strategic orientations for national

development in 2021-2030, which underpins the development of digital economy, one of the keys to renewing the country's growth model. The central and local governments have been adopting e-governance in the pursuit of digital government accordingly (Cameron et al., 2019). Awareness plays a critical role of in the process of digital transformation, as confirmed in the Prime Minister's Decision 749/QD-TTg dated June 3, 2020 on approving *the National Digital Transformation Program until 2025, towards 2030*.

The unpredictable spectrum of Covid-19 has brought about volatile consequences and unprecedented changes. Many businesses were forced to reduce their workforce or close down while others endeavor to adapt in a virtual working environment, resulting in drastic changes in their operating models. The Covid-19 epidemic has also set a new frame of mind, new consumer trends, and new lines of business that are based on remote commercial transactions to limit direct contacts. Positively put it, this is a once-in-a-hundred-year opportunity for accelerating the digital transformation and development of digital economy.

The paper employs data from the enterprise survey by the Vietnam Chamber of Commerce and Industry (VCCI) to analyze the current situation of digital transformation of Vietnamese firms in the Covid-19 era. The VCCI conducted its survey in 2020, using both face-to-face and online questionnaires. Out of over 400 respondents, a majority was from the Red River delta (38%) and the Southeast region (31.8%). These are also the top two regions for business concentration in the country. Meanwhile, the interviewed enterprises from the North Central and the Central Coast accounted for 14.6%, and the respective proportions for those from the Northern Midlands and Mountains, the Central Highlands, and the Mekong delta were 4.7%, 3.0%, and 7.9%. Concerning firm size, 63.9% of the respondents were micro, small, and medium sized enterprises (SMEs), among those

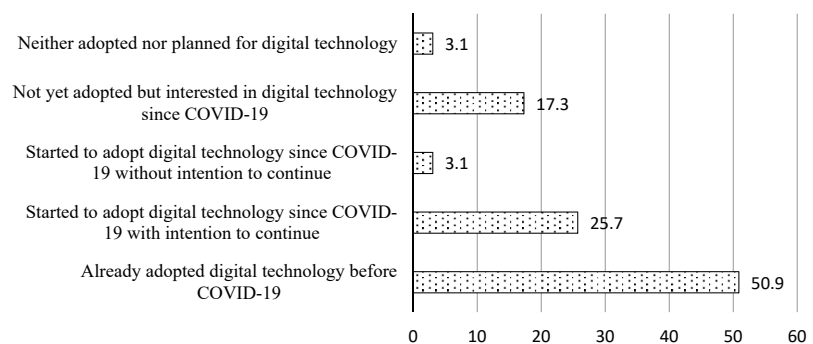
36.1% operating with less than 50 employees, 13.4% with 51-100 employees, and 14.4% with 101-200 employees. Businesses from processing and manufacturing sectors were dominant in number, accounting for 61.3%. This group of firms is capable of mastering production technology and techniques to become the driving force of the digital transformation in business for promoting quality of growth. Businesses in other sectors, such as agriculture, construction, trade, and services, which are collectively referred to as non-manufacturing firms, made up of 38.7%. Regarding ownership types, 72.7% of the interviewed enterprises were from private sector, 24.1% for FDI firms, and 3.2% for state-owned enterprises.

2. Business awareness towards digital technology

2.1. A good grasp of digital adoption, particularly in the time of Covid-19

The survey results show a good sign as more than half of the business respondents had adopted digital technology before the occurrence of the pandemic (Figure 1). Digital transformation, as indicated by the Ministry of Information and Communications (MOIC, 2019), has produced a profound impact on economic structures and relationships on a global

Figure 1: Firms' knowledge of digital technology (%)



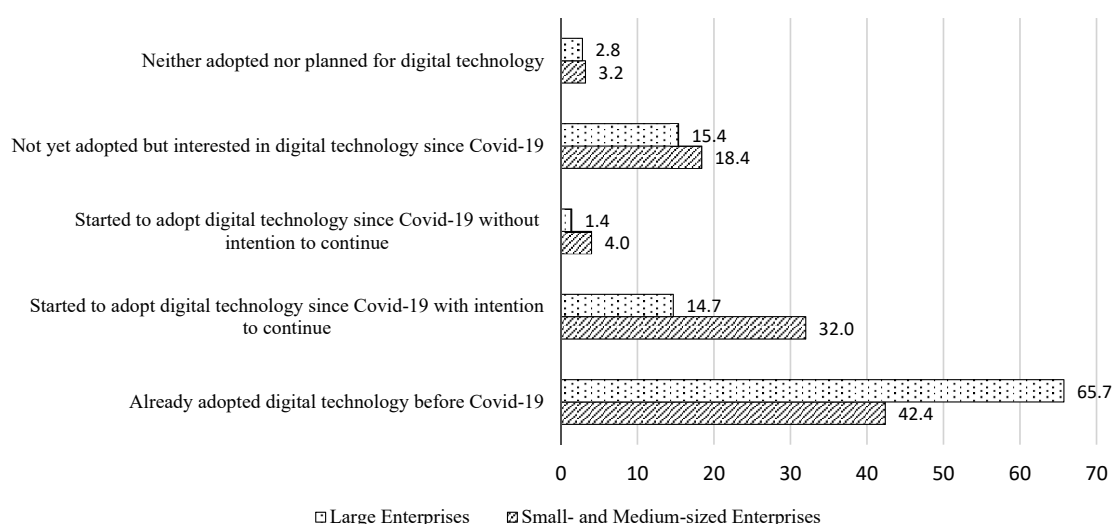
Source: VCCI's 2020 survey.

scale. Businesses in Vietnam have already felt the increasing pressure of going digital, which is even vital to the survival of many of them. The process would not just ensure higher productivity, optimal use of resources, and better customer experiences but improve competitiveness, enabling businesses to keep pace and even take the lead.

While the Covid-19 outbreak had affected severely the economy, it gave also a strong

businesses. Those who had adopted digital technology with intension of continuing the application in future accounted for 32% for SMEs and 14% for large enterprises. Although there were significant proportions of SMEs (18.4%) and large firms (15.4%) that had not applied digital technology, they had considered the possibility of going digital since the Covid-19 outbreak, which signifies higher awareness among firms towards digital technology (Figure 2).

Figure 2: Firms' knowledge of digital technology by firm size (%)



Source: VCCI's 2020 survey.

push to 25.7% of businesses in the survey, who had switched from having no interest of digital technology to having actually started adopting it. Whereas, those who were not using but showing interest in digital technology, especially since the pandemic, accounted for 17.3%.

2.2. More large firms going digital than SMEs

There were 65.7% of large firms against 42.4% of SMEs who had been aware of the need for applying digital technology prior to the pandemic. The outburst of Covid-19 epidemic, however, stresses further the significance of going digital among

3. Current state of digital adoption and expectations of firms

The application of digital technology, according to the survey results, had been started among businesses before the Covid-19 epidemic, particularly in the stages of production, payment, purchases and sales, marketing, warehouse management, logistics, cloud computing services, internal management, and e-commerce. Social distancing and mitigation measures due to Covid-19 epidemic had accelerated the digital adoption in businesses, nearly doubling the rate of those going digital (Table 1).

Table 1. Adoption of digital technology in Vietnamese businesses (%)

Group	Digital tool	Adopted before Covid-19	Adopted after Covid-19
Internal Administration	Remote workforce management system	20.75	16.25
	Work and process management system	28.43	17.96
	Web conferencing system	32.17	19.75
	Cloud service; file/data share	41.25	19.50
	Internal approval system	19.20	11.25
	Online learning	14.21	11.25
Purchase	Electronic data exchange	21.95	6.00
	Online payment	52.24	14.54
Logistics	Delivery/documentation management software	39.25	7.25
	Warehouse management software	44.64	11.75
Production	IoT equipment	7.00	3.25
	Robots/Automation lines	8.48	3.00
	Manufacturing execution system (MES)	9.02	3.00
	Enterprise resource planning (ERP)	14.46	6.00
Marketing	Web conferencing system	26.87	10.25
	Social networks	40.55	9.75
	E-commerce	38.56	8.75
Sales	Electronic data exchange	20.20	3.50
	Social networks	36.57	8.75
	E-commerce	39.30	9.00
	Electronic payment	54.23	8.29

Source: VCCI's 2020 survey.

Above 70% of business respondents believed the adoption of digital technology in telephone services, online payment, sales and management software and applications, would result in production improvements and cost cutting in particular owing to time and labor reduction compared to traditional forms of operations (Figure 3). Besides, firms also expected the adoption of internet communication tools in daily transactions would lessen the paperwork (64.1%) and minimize direct contact (53.5%).

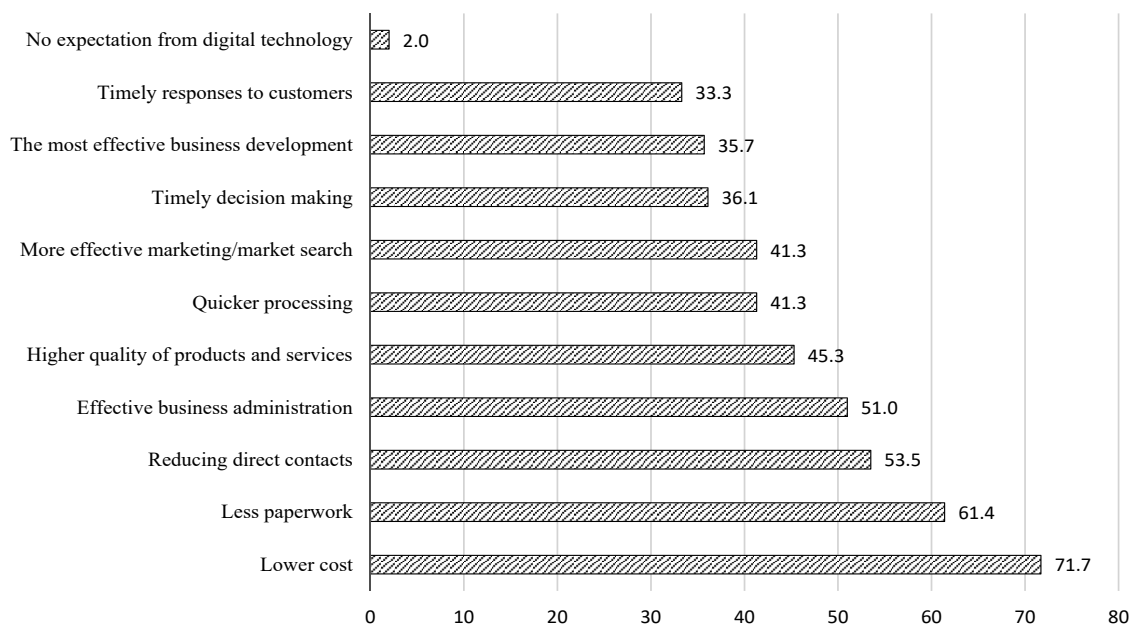
Meanwhile, production technologies such as robots, automation lines, or IoT devices could help advance modernization and increase value added to products as well as service and product quality (45.3%). The online platforms like cloud computing,

social networks, and e-commerce is expected to broaden customer reach of businesses and improve efficiency in marketing and searching for new customers (41.3%).

As for management activities, enterprise resource planning (ERP) and manufacturing execution systems (MES), with versatile and integrated functions, are the most popularly adopted and considered critical tools to assist business owners in achieving higher management efficiency (51%), resolving issues more quickly (41.3%), and making timely decisions thereby (36.1%).

4. Barriers to businesses in digital technology adoption

According to the survey results, high cost is the biggest barrier to firms' application of digital technology (55.6%) (Figure 4). Businesses

Figure 3: Firms' expectation from digitalization (%)

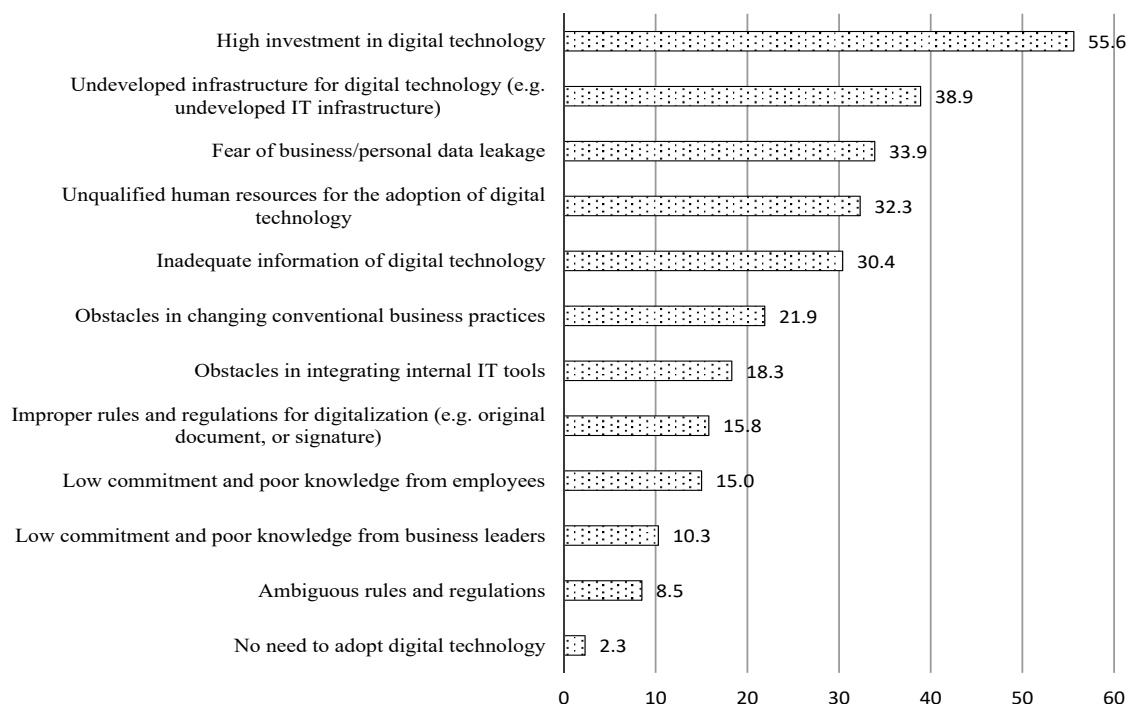
Source: VCCI's 2020 survey.

often need relatively large investments in new machinery or equipment, specialized management software, automation lines, or for renewing and synchronizing information technology (IT) infrastructure. The second biggest barrier is inadequate infrastructure of digital technology (38.9%), which is closely related to the first barrier. Outdated and inconsistent IT infrastructure would hinder the application and connection of IT software and other solution systems for management of employees, partners, and customers (ERIA, 2019).

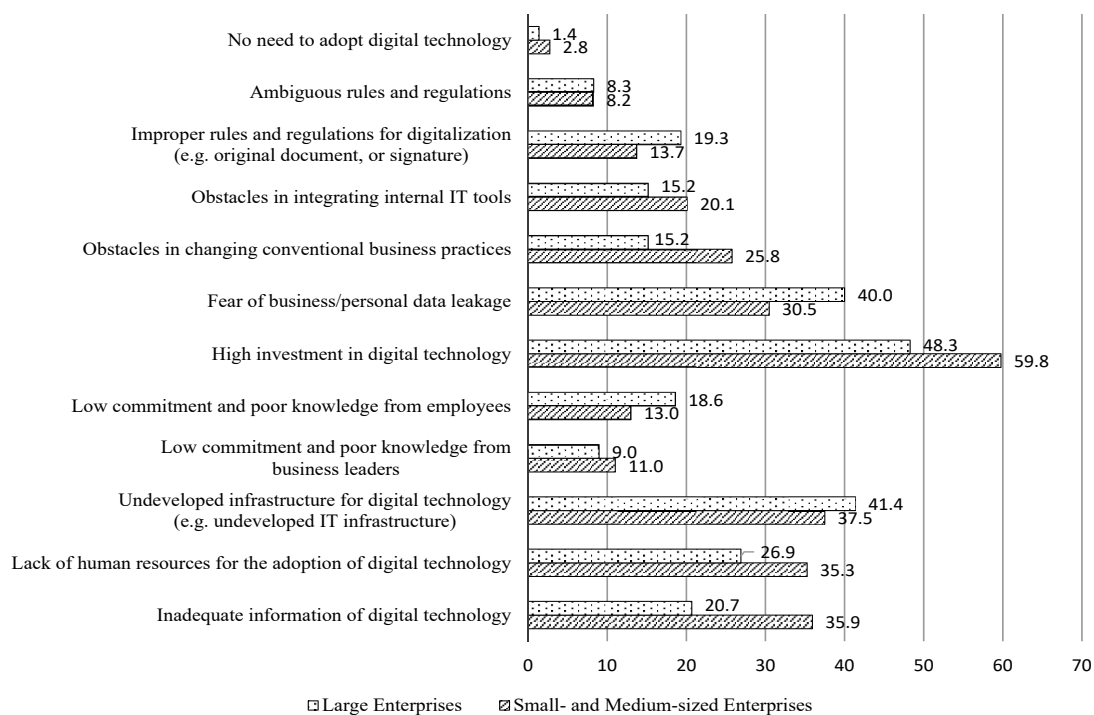
The third biggest barrier is information and data security (33.9%). Rapid IT development has been a key driver of socio-economic development but created risks of cybercriminals and illegal activities at the same time. Yet, most Vietnamese firms are not fully aware of necessary investments in solutions to improve information security. Other major barriers include the lack of human resources (32.3%) and knowledge

of digital technology (30.4%). Going digital requires businesses to employ qualified laborers who could be able to run modern machinery, equipment, and software, to resolve problems and errors, and to carry out regular maintenance. Meanwhile, middlemen and service providers in digital technology remain limited in number, resulting in inadequate market knowledge and slow updates of technology trends.

In addition, limitations in resources and awareness and psychological barriers also keep businesses out of the current trend of digitalization. There must be a willingness to switch from traditional operation models to newer and more modern ones, which would lead to re-establishment of business processes and elimination of cumbersome and intermediary stages to make way for the application of digital technology. The fear of change and abandonment of long-standing business practices has obstructed 21.9% of businesses in the survey to conduct

Figure 4: Barriers to firms' digital adoption (%)

Source: VCCI's 2020 survey.

Figure 5: Barriers to firms' digital adoption by firm size (%)

Source: VCCI's 2020 survey.

digital transformation. Other barriers include lack of commitment and knowledge among employees (15%), among leaders (10.3%), improper rules and regulations for digitalization (15.8%), and ambiguous rules and regulations (8.3%). A small number of businesses (2.3%) reported that they did not find digitalization necessary. (Figure 4).

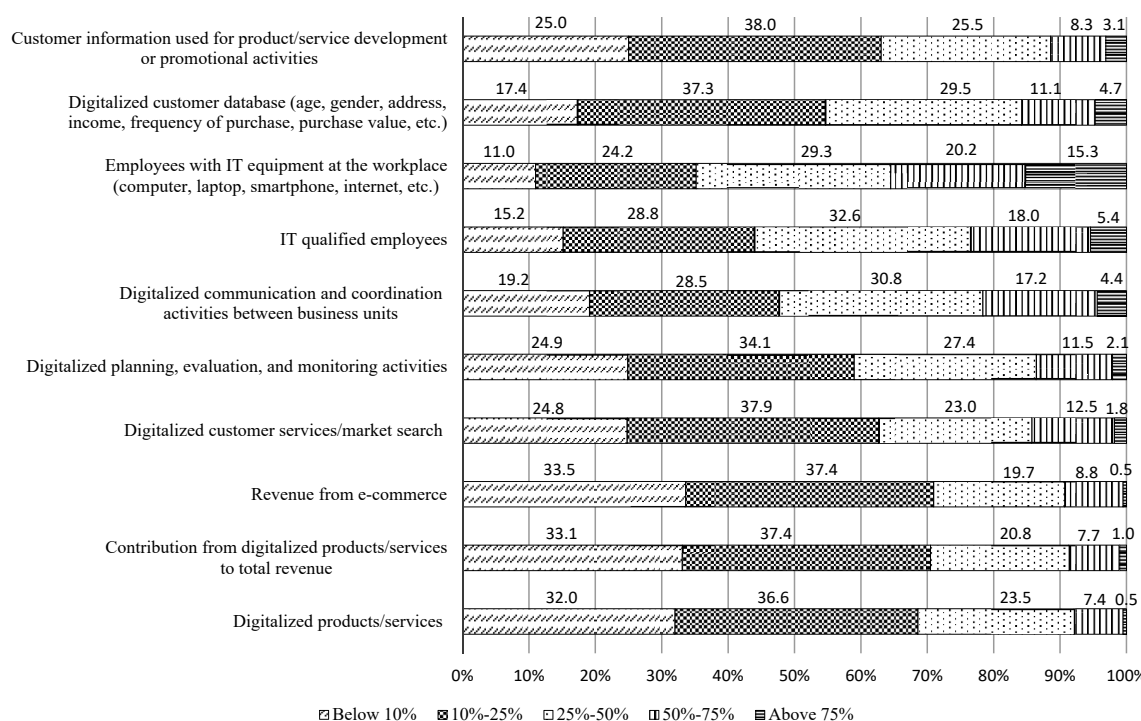
While SMEs often encounter more internal barriers to digitalization, like high costs, unqualified human resources, inadequate knowledge of technology, and so forth, large firms' problems seem more external. Major barriers to their digitalization include poor infrastructure of digital technology, information and data security, and inappropriate rules and regulations.

5. Capacity of businesses for digital transformation

Our analysis of VCCI's data indicates weak capacity of businesses for going digital before

the Covid-19 outbreak. A majority of firms had scored below 25% for all criteria of digitalization while only a small number of them had reached 50% and even fewer for over 75%. Levels of digital transformation also varied between criteria. Nearly half of enterprises had equipped over 50% of their employees with IT knowledge, skills, and tools at the workplace. Those who had digitalized more than half of their customer database and their customer services and market search accounted for 11.6% and 11.3% respectively. Quite similar rates of digitalization had been for "communication and coordination between units" and "planning, evaluating, and monitoring". More than 50% of the business respondents had only scored less than 10% for the criteria of "contribution of digitalized products and/or services to the firm's revenues" and "proportion of the firm's digitalized products and/or services" (Figure 6).

Figure 6: Firms' capacity for digital adoption (%)



Source: VCCI's 2020 survey.

Nevertheless, capacity for digital transformation of firms, regardless their size, has been improved against the Covid-19 backdrop, which signifies the impact of the pandemic on businesses in terms of their digitalization capacity. More enterprises reached the levels of digitalization for 50% and above 75%. Highest scores were still for providing employees with IT knowledge, skills, and tools at the workplace. The gaps between scores for other criteria have been gradually narrowed down and the number of enterprises having less than 10% for “contribution of digitalized products and/or services to the firm’s revenues” and “proportion of the firm’s digitalized products and/or services” also decreased to about one-third.

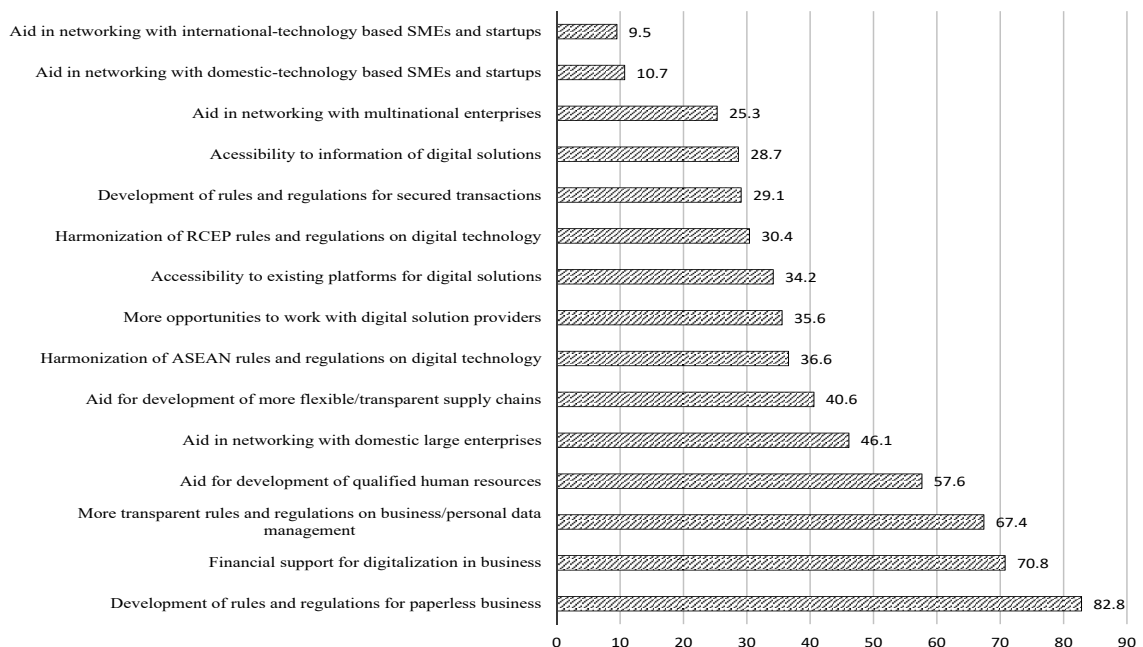
6. Recommendations from businesses for higher digitalization

It is hoped that the Vietnamese government would carry out an institutional reform in order to facilitate the digital transformation in business. More than 80% of business

respondents expected stronger involvement of all-level authorities in making rules and regulations to promote “paperless business”. Nearly 70% of enterprises suggested to build more transparent rules and regulations on the management of individual and business data. In practice, despite the active implementation of e-governance, online management of records and documents exposes deficiencies and has not been synchronously executed nationwide. Some enterprises reported troubles and difficulties due to their archives of both paper and digital documents and proposed a complete removal of printed documents from the production and business procedures. Some others suggested more seminars to be held by the government on e-governance and e-documents in order to improve the procedure uniformity.

As the lack of finance and qualified human resources remain the key hindrances faced by businesses, they proposed that the government should provide financial

Figure 7: Firms’ suggestions for higher digital adoption (%)



Source: VCCI’s 2020 survey.

supports (70%) and aids for development of digitally skilled labor (57.6%) (Figure 7). In addition, a harmonization between the international and Vietnamese rules and regulations on digitalization is also suggested. The current institutional systems and policies regarding law enforcement and dispute resolution for the development of digital economy are still weak. In particular, there remains the absence of a legal framework for the construction of e-government, including regulations on database management and connections, confidentiality of personal information, electronic authentication and identification, electronic archives, etc. The Vietnamese government needs to be more proactive in adapting its legal framework to fit in both regional and global realms of digitalization. Furthermore, about 30% of surveyed enterprises requested access to existing digital platforms for information and instructions on digital solutions to meet their operational requirements. Some businesses expected the government to assist them in connecting them with partners and digital solution providers and to popularize digital software for production and business management.

7. Conclusion

Our study indicates an increasing awareness of Vietnamese businesses regarding digital transformation when comparing the number of firms going digital before and after the occurrence of Covid-19 epidemic. It also shows that digital technology so far has been mostly adopted in governance, logistics, and marketing rather than in production, creating less value added to products. Most businesses have been prepared for digital transformation but only at an elementary level given the low rates of

digitalization in production and services and insignificant contribution of digitalized products and services to the total revenue. The identified barriers to businesses in digital transformation include high costs of digital applications, inadequate infrastructure, poor security of information and enterprise data, and lack of qualified human resources.

Against those issues, respondents of the survey proposed for support from the government in order to accelerate digitalization in business. The promotion of paperless business procedures, financial aid for the application of digital technology, and more transparent rules and regulations on data management are most expected by businesses for a strong boost of digital transformation in Vietnam in the near future □

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