

Foundations for Digital Transformation: The Case of Vietnam

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Abstract

Research purpose:

The purpose of this paper is to analyze the digitalization environment in Vietnam by investigating the foundations for digital transformation, from which enterprises can foresee the opportunities as well as challenges in the process of digital transformation.

Research motivation:

The motivation of this research is based on the observation that digital transformation is accomplished by a combination of people, businesses, and technology and it needs the guidance from a sound strategy, all of which are influenced by the nation's digitalization environment. Understanding this environment plays a critical role in shaping not only the future digital transformation of industries but also the digital transformation strategies of enterprises.

Research design, approach and method:

This study uses data analysis and synthesis methods, with data taken from World Bank, previously published studies, as well as Government's official statistical data...

Main findings:

Vietnam has laid solid foundations for digital transformation with the growing internet usage and large base of social network users; ambitious programs, directives and laws by the Government to promote a digitally empowered country; the rising of non-cash payment methods usage; an increasing number of technology-enabled logistics companies supporting digital economic activities like e-commerce... However, there are still challenges that enterprises will need to face, including the persisting majority of cash payments and the lacking of digital skills.

Practical/managerial implications:

Taking advantage of the opportunities along with overcoming the challenges in customer behavior and human resources will help Vietnamese businesses build an appropriate digital transformation strategy.

Keywords: digital transformation foundations, nation's digitalization environment

1. INTRODUCTION

The Industrial Revolution 4.0 has greatly impacted on almost all aspects of our lives, creating many profound shifts in the society, among which is the emergence of digital transformation. For these recent years, digital transformation has become a prime topic for many nations as well as enterprises across the globe.

Looking back on history, we have experienced various scientific and technological revolutions, every one of which is characterized by a change in the nature of production thanks to science and technology breakthroughs. The first industrial revolution, which started in 1780 and lasted for about 60 years, was about replacing human manual labor with mechanization, using steam power and engines. The second revolution from 1840 to World War I was the harnessing of electricity as well as a combination of other inventions from the late 19th century onwards. However, this revolution lasted only for 44 years: a shorter time but with higher speed of spread. Due to the devastation of two World Wars (1914 - 1918 and 1939-1945), countries

were forced to put their efforts into recovery rather than invest in research and development, causing the speed of science and technology's development globally to slow down. Therefore, not only until the 60s of the last century that the third industrial revolution, which was driven by important inventions in many fields such as materials, renewable energy, space technology, biotechnology... and especially information technology began to take place. This revolution took place at a faster speed, had a deeper impact and was an important premise for humanity to enter the next industrial revolution. With this third industrial revolution, humanity has changed from the era of manufacturing technology to the era of high technology led by information technology, from manual labor to intellectual labor, from the national market to the global and regional markets. Since the 2010s, the fourth industrial revolution with a fresh wave of internet of things (IoT), internet of system (IoS) and various innovations in such areas as driverless cars, 3D printing, artificial intelligence (AI), virtual reality (VR),

augmented reality (AR), social networking, Big Data... has marked the appearance of digital transformation and made the digital transformation process extremely powerful in our world nowadays. It is not exaggerated to say that the core of Industrial Revolution 4.0 is digital transformation with the integration of digitization, connectivity, hyperlinking and intelligent data processing. The entire real world of humans can now be transformed into a "copied version" in the digital world and as a result, can be examined and processed in all dimensions of space, time and speed in a subtle and intelligent way.

The term "Digital transformation" was first coined in 2011 by the consulting firm Capgemini in collaboration with the MIT Center for Digital Business. It was defined as "the use of technology to radically improve performance or the reach of businesses" (Westerman et al, 2011). Since then, this term has been so broadly used that there are currently diverse definitions as well as descriptions of digital transformation not only in academic but also in practitioner literatures. Some definitions could be mentioned include: "the extent to which an organization engages in any activity of IT" (Mithas et al, 2013), "a business model driven by the changes associated with the application of digital technology in all aspects of human society" (Henriette et al., 2015), "concerned with the changes digital technologies can bring about in a company's business model, which result in changed products or organizational structures or in the automation of processes" (Hess et. al, 2016), "the use of digital technology, in order to enable major business improvements in operations and markets such as enhancing customer experience, streamlining operations or creating new business models" (Paavola et al, 2017) ... To the scope of this paper, we don't focus on assessing the extent to which these definitions reflect the nature of digital transformation. In fact, what we want to emphasize on is the commonality in these definitions, that is the strong emphasis on the use of digital technologies.

However, it is important to note that although technology is an irreplaceable ingredient in digital transformation, technology, itself, is not the only force that drives digital transformation but a sum of factors which are presented in Figure 1.

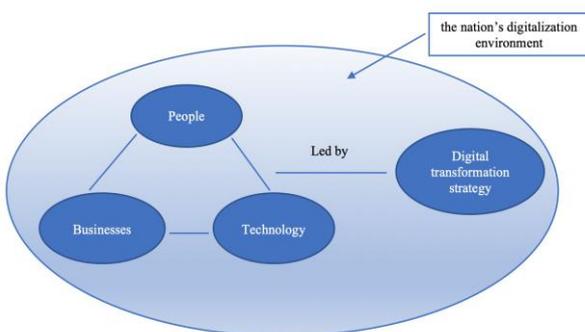


Figure 1. Factors affecting digital transformation

More specifically, digital transformation requires the alignment of a sound strategy and such factors as people, culture, mindset, talent development and leadership (Kane et al, 2015; Goran et al., 2017; Tabrizi et al., 2019; Nadkarni et al., 2020; Verhoef et al., 2021...). In other words, digital transformation is accomplished by a combination of people, businesses, technology and is led by a sound strategy, all of which are affected by the nation's digitalization environment because after all, any business, organization or individual exists in the environment and is affected by it. In addition, from the perspective of strategic management, understanding the external environment plays a critical role in not only shaping the future of industries but also the strategies of enterprises, including digital transformation strategies (Ansoff, 1987; Wholey & Brittain, 1989; Bettis & Hitt, 1995; Lumpkin & Dess, 1996...). Put it another way, so as to be ahead in the ongoing competition of the business world, it is a must for managers to keep adjusting their strategies to reflect changing trends of the external environment in which their enterprise operates in.

Being one of the very first countries in the world to issue a strategy on National Digital Transformation, Vietnamese government is putting the effort in exploiting the impact of digital transformation to open up new development opportunities for the country. The digital transformation process in Vietnam is taking place at a rapid speed under three pillars: digital government, digital economy and digital society. According to Cisco APAC SMB digital maturity index (2019), Vietnam ranks 14th. 64% of the enterprises are aware of and benefitted from the government's support in digital transformation. In terms of investments, 18% of the enterprises invested in cloud technology, 12.7% in security and 10.7% in upgrading IT software. This clearly shows that digital transformation is no longer a vision but has become a current and actual need that Vietnamese businesses need to implement and must be successfully implemented. Thus, the purpose of this paper is to analyze the digitalization environment in Vietnam by investigating the current situation of the foundations for digital transformation in the country, from which enterprises can foresee the opportunities as well as challenges they might have to face on the road of digital transformation in this 4.0 era.

This study uses synthesis method with data mainly taken from World Bank's data resources, data and figures that have been published in previous reports, studies as well as Government's official statistical data...

2. THE SIGNIFICANCE OF DIGITAL TRANSFORMATION IN VIETNAM

It can be said that from the enterprise's perspective, digital transformation will comprehensively change the way a business operates, increase cooperation efficiency, optimize work performance, and bring value to

customers. So how about from a national perspective? In this section, we would like to explain the reason why Vietnam needs to accelerate digital transformation within the country.

The concept middle-income trap was first coined by Indermit Gill and Homi Kharas in 2007 in the report "An East Asia Renaissance: Ideas for economic growth". It refers to a state that, although has been able to get out of poverty and joined the group of middle-income countries, but then failed to shift to the position of developed country even after decades. Today, Vietnam is considered as a development success story, one of the world's leading emerging markets. Along with the transition from the centrally planning economy to the socialist-oriented market economy, Vietnam has moved from the group of countries with lowest income in the world (underdeveloped countries) to the group of developing countries with low income. In 2009, Vietnam has one more time shifted its position to low middle-income countries when the average GNI per capita in 2008 was \$ 1,000 / person. Since then, this indicator has increased every year, but always remained within the lower middle income limit. Having just stepped into the middle-income threshold for 12 years, Vietnam is still in the first stage of the industrialization process. Therefore, the time factor is not long enough for us to confirm that Vietnam has fallen into the middle-income trap. However, this does not mean that this trap is not waiting for Vietnamese economy to fall into because historically, there are very few countries that could escape this trap. Besides, Vietnam's current path is quite similar to these countries', which is depending on current available competitive advantages and foreign factors without concerning the idea of intrinsic value creation. Meanwhile, up to now, business activities in Vietnam are still mainly "traditional", or to be more precise, a blend of the first three industrial revolutions. Technology and productivity have not yet become the growth drivers of the country. Moreover, Vietnamese businesses are still in a low position in the global value chain. In fact, to the current point of time, Vietnam is still a transitional economy, the institutional foundations of the market economy still need to be improved, not to mention having to meet the new requirements of deep integration into the era of Industry 4.0 and digitalization.

With all of the mentioned above characteristics of the economy, it is true to say that at the current time, Vietnam is really at a turning point in development – a turning point for innovation and creativity, which can be achieved through the digitalization of not only the economy, the society but also the government. Cheap, low-skilled, low-productivity labour and simple, low value-added manufacturing industries are no longer the right formula for development in this 4.0 era. In fact, embracing the economy with digital transformation, establishing new industries and enterprises and, most importantly, upgrading the workers' skills have become priority especially in helping countries to move out of the middle-income range to the advanced economy

status (Microsoft, 2019). To be more precise, digital transformation can not only help increase productivity and reduce costs, but also create new growth engines for the economy. McKinsey's research (2015) points out that by 2025, digital transformation could add up to \$ 2.2 trillion to US's annual GDP. In European countries, this figure is estimated to be € 2.5 trillion (McKinsey, 2016). According to Axiata and Kearney (2020), if ASEAN countries undergo a strong digital transformation, in 2030 ASEAN GDP will have an additional \$ 1 trillion. Thus, it can be seen that digital transformation has a great impact on GDP growth. In addition, Microsoft's research (2018) shows that, in 2017, the impact of digital transformation on labor productivity growth was about 15% and by 2020, this figure will be 21%. With aspirations to move into the group of upper-middle income countries by 2035 and preventing itself from falling into the middle-income trap, it is high time that Vietnamese government aimed toward the digital economy so as to power its next era of development.

The period starting from the end of 2019 until now, along with the pandemic Covid 19, has brought about the risk of another trap for Vietnam besides the middle-income trap: the Covid-19 economic trap, referring to the fact that this pandemic will most likely increase poverty and inequalities as well as pressure on the economic development of the country. In the "Asian Development Outlook Report", The Asian Development Bank (ADB) estimated that global damage caused by Covid-19 could be up to \$ 4,100 billion, equivalent to nearly 5% of world GDP. At the United Nations Conference on Trade and Development (UNCTAD), experts warned that the new corona virus strain could cause global economic growth to drop to below 2.5%, a point which can be considered as a recession with the world economy. As an indispensable fact, Vietnam does not lie outside this "spiral" of damage. Vietnam's GDP growth rate in the first half of 2020 was only 1.8%, the lowest in the past 3 decades. FDI inflows decreased by 15% to \$ 16 billion pledged. Budget revenue decreased by 35% in June (YoY). The service sector was affected the most, with the growth rate of only 0.6%. Covid - 19 also affected 30 million people, almost half of the workforce. The urban unemployment rate increased by 33% to nearly 4.5% (World Bank, 2020b). However, there are always two sides of a coin. Viewing in another perspective, this can be considered as an opportunity for the economy to regenerate, if we see it as an inevitable cycle, or a natural selection. For Vietnamese businesses, Covid-19 is a push that led us to be forced into a situation of change. Covid-19 for the digital economy is a significant boost, especially for businesses to engage in digital transformation from corporate governance to online sales. Reality is that many Vietnamese businesses have never sold products online; many Vietnamese customers have never bought products online; yet, now, all have started to go online for their survival. Even many high-value items which have never been able to be sold online, can now be found on the online

marketplace. When facing with the urgent need to recover rapidly, inclusively and sustainably, the major goal of Vietnamese government is to build a digital economy, digital government and digital society.

More than ever before, Industrial Revolution 4.0 and digital transformation can make a major contribution to the achievement of this long-term sustainable growth goals. Speaking at the opening ceremony of the ITU Digital World 2020, which was officially held in Hanoi on 20th October 2020, Deputy Prime Minister Vu Duc Dam has emphasized the vital role of telecommunications and information technology in the context of the complicated Covid-19 pandemic. Digital technologies have become an important tool to help countries not only control the Covid-19 but also adjust and adapt to the new context during and after this pandemic. Deputy Prime Minister also affirmed that the Government of Vietnam considers digital infrastructure development and information technology one of the top priorities and considers digital transformation as a national strategic programme, an important solution to bring the country a fast and sustainable development.

3. FOUNDATIONS FOR DIGITAL TRANSFORMATION IN VIETNAM

In terms of the nation’s digitalization environment, besides the supportive macroeconomics and business climate, there are five major factors that can shape the digital transformation within the enterprises as well as industries, including: internet connectivity, digital skills, digital payment, logistics, digital policies and regulations. These factors are presented in Figure 2.

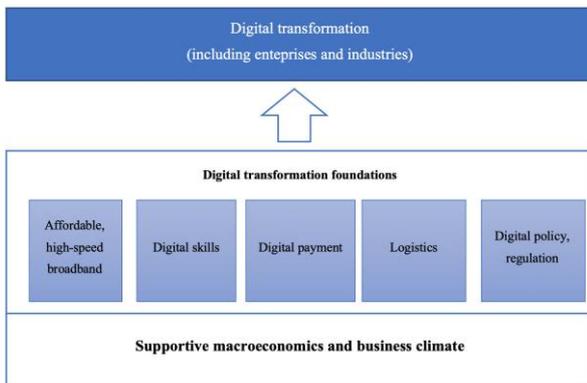


Figure 2. Foundations for digital transformation

With digital technologies underpinning its transactions, the digital economy is undeniably inseparable from digital infrastructure. It is true that digital infrastructure in general, internet connectivity in specific is fundamental for digital economic growth, especially when stable and affordable connection can be considered to be a prerequisite for the development of digital economy. Besides, many countries nowadays, are facing the challenge of a clear division between the rural and urban areas in terms of internet access, which can be considered as a hinder for the thorough development of digital economy. Without developing a

digital infrastructure system with internet being its basis, there cannot be any fundamental change in any technology sector at the national level in the world of global competition. That is why the countries that advanced in technology all come along with a solid background of information technology and digital technology.

Another not less important factor is digital skills. The diffusion of digital technology as well as the digitalization of business processes in any country requires the consideration of its people’s ability. Along with the emergence of the Industrial Revolution 4.0 is the appearance of many new industries as well as the continuous changing of workplace demands, requiring more adaptive human resources, especially with new digital and managerial skills. This has made it significant for the establishment of what is called “the right skill mix” which can only be achieved through the restructuring of the education system and the promoting of lifelong learning.

Finance is not only the enabler of digital economy but also the sector that has changed significantly as a result of digitalization. Being the means of payment for goods and services from a distance, digital payment is one of the main supports for the achievement of digital economy’s potential, especially e-commerce. Besides, the development of digital payment system can also assist people where access to financial services is limited.

Like finance, logistics sector is also being impacted greatly by digital technology and at the same time, is an enable factor for the widespread of digital economy. Most importantly, the increasing efficiency of logistics sector also means the improvement of e-commerce supply chain.

Last but not least is the government’s digital policies and regulations, with the main aim to promote trust among the people when conducting internet or digital activities as well as bring about supportive mechanism or a clear legal framework for digital economy’s development through national programs.

In this part, we will discuss the current situation of these factors in Vietnam.

3.1 Internet connectivity

November 19th, 1997 is the first day when Vietnam was integrated into the global internet. Since then, Vietnam's internet has grown from scratch to 68.17 million internet users in January 2020. In other words, about 70% of the population of Vietnam are now online, marking a significant increase from 30.65% just a decade ago (see Figure 3). From 2019 to 2020, the total number of internet users in Vietnam increased by 6.2 million, indicating an increase of more than 10% (Hootsuite, 2020).

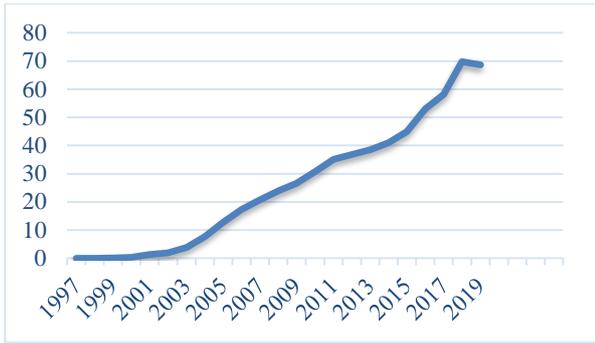


Figure 3. Individuals using the Internet (% of population) (World Bank, 2020)

In fact, Vietnam is currently one of the countries with the fastest growth and use of internet and social networks in the world, with an average of 6 hours 42 minutes spent on internet every day. Specifically, Vietnamese users spend an average of 2 hours and 32 minutes using social networks, 2 hours 31 minutes watching live streams or online videos and 1 hour 01 minutes listening to music (Hootsuite, 2020). Information technology, including social networks, has been widely used in the life and socio-economic activities in Vietnam. Figures in January 2020 show that there were 65 million social media users in Vietnam. This number increased by 5.7 million (about 9.6%) between April 2019 to January 2020, accounting for 67% of the total population (Hootsuite, 2020). Currently Vietnam has 240 social networking sites and 63 integrated digital news outlets, among which Facebook is the most popular (Ministry of Information and Communications, 2017). According to Kepios (2018), Vietnam ranks 7th in terms of largest user base on Facebook, with 58 million active users. Along with Facebook, other social networking sites have also appeared in Vietnam, typically Zalo, a “Made-in-Vietnam” social network released by VNG since 2012, with a user base of up to more than 100 million people worldwide (mainly from Vietnam, USA, Myanmar, Japan, Korea, Taiwan...) (Minh Son (Vietnam+), 2019). Table 1 below shows that top three social media platforms in Vietnam as compared to other countries in the region.

Table 1. Leading social media platforms in Asia (2016) (RVC, 2016)

Country	Ranking of top three social media platforms
China	(1) WeChat (2) Ozone (3) Line
India	(1) Facebook (2) WhatsApp (3) Facebook Messenger
Indonesia	(1) Blackberry Messenger (2) Facebook (3) WhatsApp
Philippines	(1) Facebook (2) Facebook Messenger (3) Skype
Vietnam	(1) Facebook (2) Zalo (3) Facebook Messenger

Thailand	(1) Facebook (2) Line (3) Facebook Messenger
Korea, Rep.	(1) TALK (2) Facebook (3) KakaoTalk
Japan	(1) Line (2) Facebook (3) Twitter

One more undeniable fact is that the Internet has also become an important tool in information exchange among enterprises, especially import-export enterprises. In 2016, nearly half of Vietnamese businesses (49%) own websites and about one third (32%) have established relationships with foreign partners through online channels (Vietnam E-Commerce and Information Technology Agency, 2016).

When having to choose between fixed broadband and wireless, a majority of Vietnamese would probably go for wireless. As analyzed by Cameron (2019), “Vietnam’s internet use is dominated by mobile phones”. By January 2020, Vietnam had 145.8 million mobile connections. This represents 150% of the total population (Hootsuite, 2020). Reality is that many Vietnamese owns more than one mobile subscription. Figure 4 below shows the development trend of number of mobile subscriptions in Vietnam from 1997 to 2019. The number of mobile subscriptions in 2019 increased by 16.3 million comparing to 2017, with more than half of the mobile phones used being smartphones with Internet access.

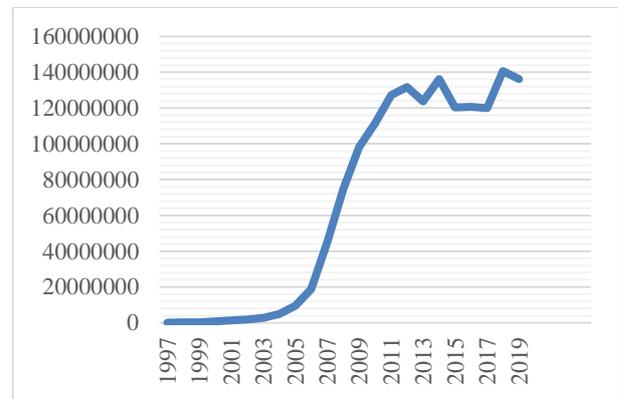


Figure 4. Mobile subscription in Vietnam (1997 – 2019) (World Bank, 2020)

Not only in terms of quantity, Internet in Vietnam has also expanded in terms of quality. In 2020, Vietnam ranks 64th in the world for mobile speeds and 60th for broadband speed with the average download speed in mobile phones to be 33.18 MBPS and upload speed in mobile phones to be 18.28 MBPS; the average speed for fixed broadband is 56.83 MBPS and 57.84 MBPS, respectively (Speedtest global index, 2020). In 2009, 3G mobile wireless services were launched in Vietnam, and later in the beginning of 2016, 4G services were licensed. Vietnam also is on its way to introduce 5G network in the near future. Currently, 4G networks covers over 95% of the country’s population (see Figure 5). Of course, there is still a gap between the rural or

mountainous areas and urban areas.

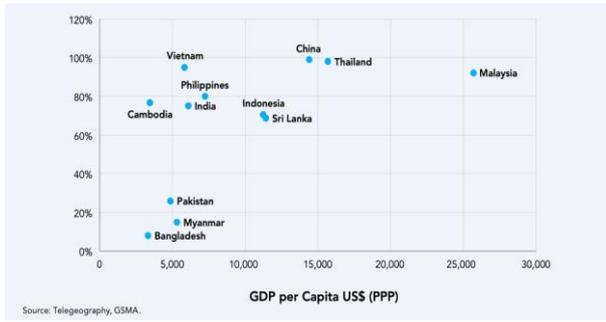


Figure 5. 4G network coverage in 2016 (World Bank, 2019)

3.2 Digital skills

Industrial revolution 4.0 or digital transformation is emerging and one fact that cannot be denied is along with it, there will be a wave of strong impacts on the labors. In fact, these effects will come very quickly. When the majority of Vietnamese people are still asking each other what the Industry revolution 4.0 is, the impact of this revolution has come very close. A study by the International Labor Organization in 2016 estimated that Vietnam, Cambodia, Indonesia, Philippines and Thailand are at highest risk of displacement by automation in production in Southeast Asia for the next decade to come. Among these countries, Vietnam is classified as facing the highest risk with the rate of 70%. In the 5 main manufacturing industries in Southeast Asia, Vietnam's textile and apparel industry is at the risk of up to 86%.

Even though among Southeast Asian countries, Vietnam is the second largest labor market, Vietnam is perceived as still being lag behind high-income countries in terms of digital skills and AI. In the Global Talent Competitiveness Index 2020, with the main theme of Global Talent in the Age of Artificial Intelligence, Vietnam ranks 96th out of 132 countries. In fact, the country has fallen five positions comparing to 2019 and nine positions comparing to 2018. So as to proactively deal with the emergence of AI and digital technology in the workplace, what is crucial for Vietnamese government at this stage is to prepare the future workforce with digital skills as well as reskill the existing workforce. The scope for improvement would probably lie in vocational and technical skills, where the ranking is rather low in comparison with other countries in the region (see Table 2).

Table 2. Global Talent Competitiveness Index 2020

	GTCI Ranking	Global Knowledge Skills	Vocational and Technical Skills
Singapore	3	1	5
Malaysia	26	33	15

Brunei Darussalam	38	37	25
Philippines	46	32	61
Indonesia	65	84	55
Thailand	67	61	86
Vietnam	96	59	117
Laos	98	48	100
Cambodia	117	112	125

As the foundation for digital skills development, it can be said that the next generation of Vietnam's work force is believed to be rather productive, showing in the high human capital index. Vietnam's HDI is the second highest in the region (only behind Singapore) (see Table 3). As defined by the World Bank, HDI consists of three main components: Survival, School, and Health, which are converted into ratios that contribute to future expectations and is a decisive factor to the adoption of new technology. Thus, it affects the economic growth in general and digital economy's growth in specific. With approximately 0.69 point, Vietnam's future workforce will not meet much difficulty when adopting new digital skills as well as adapting to the digital economy.

Table 3. Human Capital Index (World Bank, 2020)

	2010	2017	2018	2020
Vietnam	0.65664 2	0.66 6	0.68723 9	0.68996 5
Singapore	0.84718 6	0.88 4	0.88708 4	0.87912 6
Malaysia	0.58434 5	0.62 2	0.63257 9	0.61097 6
Myanmar	..	0.47 3	0.47183 3	0.47765 2
Brunei Darussalam	0.62639 1
Philippines	..	0.54 8	0.54901 6	0.51596 2
Indonesia	0.49636 1	0.53 5	0.53795 7	0.54003 8
Thailand	0.58498 5	0.60 4	0.61686 1	0.60931 1
Lao PDR	..	0.45 2	0.45681 5	0.45666 5
Cambodia	..	0.49 3	0.49068 5	0.49159
Timor-Leste	0.41066 6	0.43 4	0.45305 2	0.45431 5

3.3 Digital payment

As can be seen from Figure 6, from 2011 to 2017, the number of account ownership at a financial institution or with a mobile-money-service provider (as % of population ages 15+) increased from 21.37% to 30.79%. However, this number is still low comparing to other countries in the region, for example, Singapore, Malaysia or Thailand ... More specifically, the period from 2014 to 2017, while almost all other countries

witnessed a modest growth in accounts held at a financial institution, Vietnam, indeed, didn't see any increase.

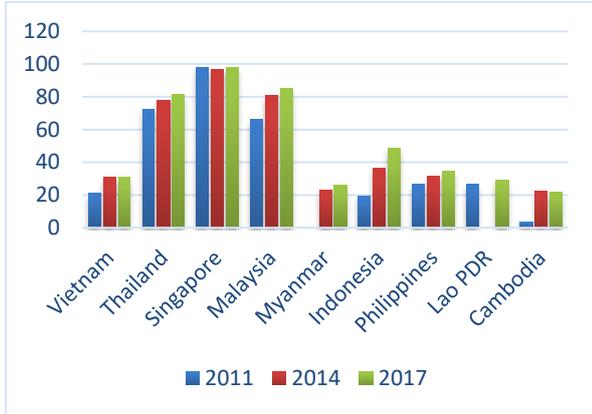


Figure 6. Account ownership at a financial institution or with a mobile-money-service provider (as % of population ages 15+) (World Bank, 2020)

One of the main reasons behind this fact is that Vietnamese consumers tend to prefer cash as their main method of payment. According to World Bank (2019), only 10% of Vietnamese users pay online to buy goods on the Internet, which is significantly lower than Indonesia and Malaysia (see Figure 7). This means that 90% of e-commerce consumers in Vietnam use cash to buy online.

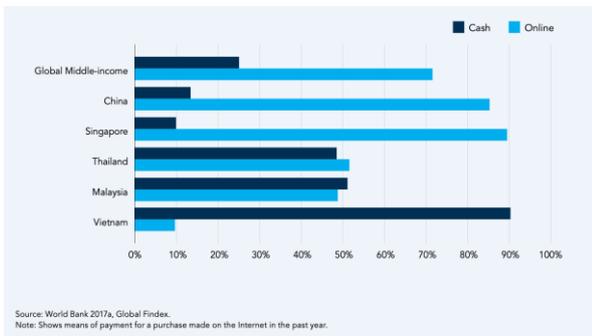


Figure 7. Means of payment by internet purchase (World Bank, 2019)

Despite this fact, with the support from the Government, the current form of electronic payment in Vietnam is changing in a more positive direction. It is not exaggerated to say that digital payment is evolving in Vietnam in such a rapid way, along with the strong development of both traditional and modern electronic payment applications with more than 78 organizations, Internet payment service providers and 45 organizations providing mobile payment services. Some major online payment service intermediators in Vietnam are listed in Figure 8 below. Specifically, revenue from the electronic payment market in 2020 has grown by 14.2% over the same period last year, the revenue achieved is US \$ 8,904 million. The number of users also grew to 36.2 million, up 12.1% from last year (TopDev, 2020).

According to the APEC e-Payment Index, Vietnam currently ranks 20th in the level of readiness and potential to engage and reap the benefits of e-payments (Singapore ranks second, Malaysia ranks 10th, Brunei Darussalam ranks 11th, Thailand ranks 15th, Indonesia ranks 16th, the Philippines ranks 17th).



Figure 8. “Major online payment service intermediators in Vietnam” (TopDev, 2020)

3.4 Logistics

Along with the rising of digital economy, logistics sector in Vietnam has also grown rapidly at an average rate of 14% - 16% (\$40 billion - \$42 billion) per year (Ministry of Industry and Trade of Vietnam, 2017) with the emergence of such new types of logistics services as door-to-door delivery, last-mile delivery...

According to World Bank's Logistics Performance Index (LPI) in 2018, Vietnam's performance in logistics shows a considerably rise from 64 in 2016 to 39 in 2018, lying among the top 25% in LPI (see Figure 9). Most importantly, many of the enterprises in this field are transforming from a traditional type to digital type. In other words, the number of logistics enterprises apply technology in their operation as determined by Vietnam Logistics Business Association has increased from 15% - 20% to 40% - 50% (Vietnam Logistics Business Association).

In addition, as can be seen from Figure 10, the quality and competence of logistics services in Vietnam is relatively strong in comparison with the world's average or India's performance. However, in general, Vietnam still falls low comparing with China's logistics services.

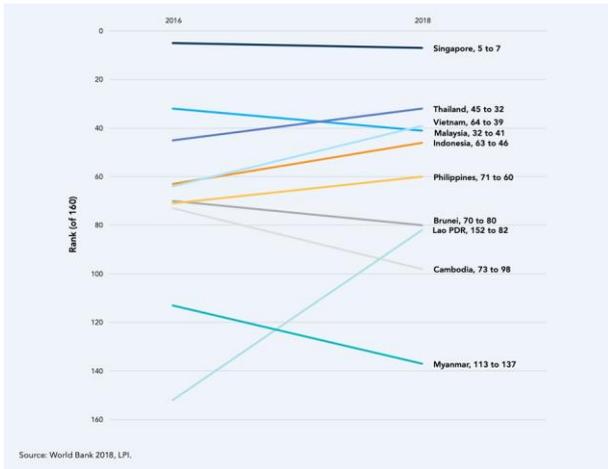


Figure 9. Logistics performance index ranking (World Bank, 2019)

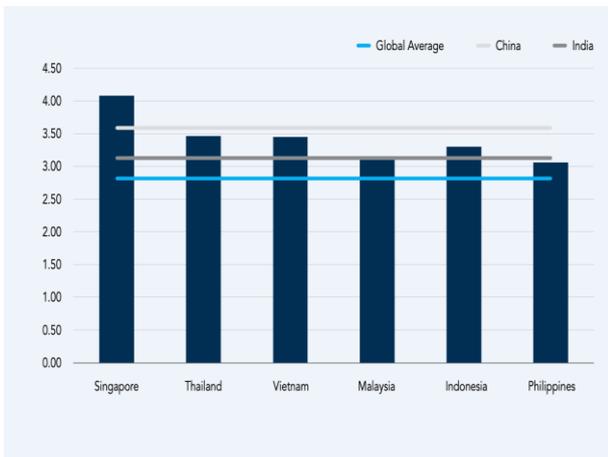


Figure 10. Logistics quality and competence in 2018 (World Bank, 2019)

3.5. Digital policies and regulations

2020 is the year when Vietnam declares its national digital transformation strategy - a year of deep and comprehensive national digital transformation. Prime Minister Nguyễn Xuân Phúc signed the first Directive in January 2020 - Directive No. 01 / CT-TTg - on promoting the development of digital technology enterprises in Vietnam. The directive clearly states that, based on the foundation of many new technologies whose core is digital technology (artificial intelligence, big data, blockchain, cloud computing, Internet of things ...), digital transformation is creating a new development space - digital economy, digital society, e-government. "In particular, digital transformation opens up great opportunities for Vietnam to develop a breakthrough, quickly catch up with developed countries, which have only just begun the digital transformation process," the Prime Minister stated in the Directive. Also, according to this Directive, models of some countries with developed economies based on digital technology enterprises show that, by 2030, Vietnam needs at least 100,000 digital technology enterprises to develop its digital economy, smart cities,

e-government, apply digital technology achievements widely in socio-economic fields and carry out national digital transformation. On June 3rd 2020, the Prime Minister issued Decision No. 749 / QĐ-TTg approving the "National Digital Transformation Program to 2025, with an orientation to 2030" with the goal that Vietnam will be among the top 50 countries in e-Government (EGDI). The National Digital Transformation program aims at both developing digital government, digital economy, digital society, and forming Vietnamese digital technology enterprises with global capacity. Regarding digital economic development, improving the competitiveness of the economy, the target by 2025 is that the digital economy will account for 20% of GDP; the proportion of digital economy in each branch or field will reach at least 10%; annual labor productivity increases at least 7%; Vietnam will be in the group of 50 countries leading in information technology (IDI), in the group of 50 countries leading in the competition index (GCI), in the group of 35 countries leading in innovation (GII) ...

Reality is that before 2020, Vietnamese government has recognized the great potential of an economic growth model based on science, technology and innovation, in which digital economic development is seen as an inevitable trend to create economic growth engine for Vietnam in the context of the current strong Industrial Revolution 4.0 wave. This can be proved in the government's numerous decisions as well as directives and laws in order to prepare the foundation for digital economy's development within the country. Some of the current major policies are listed on but not limited to table 4 below.

Table 4. Vietnamese government's digital policies and regulations

Law	
	<ul style="list-style-type: none"> • Law on e-transaction (2005) • Law on intellectual property (2005) • Law on information technology (2006) • Law on high technology (2008) • Law on technology transfer (2008) • Law on telecommunication (2009) • Law on radio frequency (2009) • Law on network information security (2015) • Law on cybersecurity (2018)
Decrees, directives and decisions	<ul style="list-style-type: none"> • Decision No. 74/QĐ-TTg (2006): approving the program on the provision

	<p>of public telecommunications services toward 2010</p> <ul style="list-style-type: none"> • Decree No. 35/ND-CP and No. 27/ND-CP (2007) on e-banking and e-finance • Decree No. 97/ND-CP (2008) on internet services and electronic information on the internet • Decision 418/QĐ-TTg (2012): approving the science and technology development plan 2011-2020 with emphasis on digital technologies • Decree No. 52/ND-CP (2013) on e-commerce • Decision No. 1168/QĐ-TTg (2015) and No.868/QĐ-TTg (2018): The program on the provision of public telecommunications services until 2020 • Decision No. 392/QĐ-TTg (2015): setting targets on information technology development through to 2020 with a vision toward 2025; • Decision No. 149/QĐ-TTg (2016): setting goals for broadband and telecommunications infrastructure development through to 2020; • Directive 16/CT-TTg (2017): strengthen progress towards Industry 4.0. • Decision No.1563/QĐ-TTg (2017): approving the overall plan for e-commerce development 2016-2020 • Decision No.1072/QĐ-TTg (2018): establishing the national e-government committee • Resolution No. 17/NQ-CP (2019) regarding certain key tasks and measures of development of the 		<p>electronic government for the period 2019- 2020, with vision towards 2025</p> <ul style="list-style-type: none"> • Resolution No.1/ NQ-CP (2019) on key measures to implement socio-economic development plan and State budget estimate in 2019; issue the National strategy on implementing Industrial revolution 4.0; Resolution on improving capacity to approach Industry 4.0 toward 2025; and Solution to develop national human resources to meet the requirements of Industry 4.0. • Resolution No.2/NQ-CP (2019) on continued implementation of major tasks and solutions for improving the business environment and national competitiveness in 2019 and orientation to 2021: develop the scheme for the National Innovation Center; develop solutions to master key Industry 4.0 technologies, deploy the scheme “Developing the Digitalized Knowledge System” and promote e-payment
		<p>Master plans and initiatives</p>	<ul style="list-style-type: none"> • Vietnam post, telecommunications and information technology strategy until 2010 and orientations toward 2020 • Master plan on Vietnam’s electronics industry up to 2010, with a vision toward 2020 • National planning on development of IT security through 2020 • The target program on IT development through 2020, with a vision toward 2025 • The program on development of broadband telecommunications infrastructure through 2020 • Scheme to support the national innovative

	startup ecosystem through 2025 <ul style="list-style-type: none"> • Vietnam strategy on ICT development till 2010 and orientations toward 2020
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In terms of government agency that is directly in charge of the supporting and regulating of the digital economy, it has to be said that at the moment, all such aspects of digital economy in Vietnam are directed by multiple agencies ranging from Ministry of Science and Technology; Ministry of Information and Communication; Ministry of Education and Training; Ministry of Labor, Invalids and Social Affairs; Ministry of Finance; Ministry of Industry and Trade; Ministry of Planning and Investment; People committees of provinces... to National committee for Information Technology Application. In other words, at the moment, no single agency governs all aspects of digital economy in Vietnam. On 5th October 2017, Vietnam E-commerce and Digital Economy Agency was established. This department is an organization under the Ministry of Industry and Trade, performing the function of advising and assisting the Minister of Industry and Trade in state management and law enforcement in e-commerce and digital economy activities; organize and manage public service activities in the scope of the Department's management according to the provisions of law and the decentralization and authorization of the Minister (iDEA, 2017). Further on, what Vietnam needs in the near future when the 4th industrial revolution, with the core of digital transformation, changes the entire economy, society and national governance, is the establishment of Ministry of Digital economy. This ministry should be in charge of building digital infrastructure, platforms ... for the digital economy as well as for economic and social sectors (Vneconomy, 2019).

4. CONCLUDING THOUGHTS

In an updated report on the world economic outlook released on July 2021, the International Monetary Fund (IMF) forecasted that global growth would remain the same at 6% for 2021, however, there will be a huge disparity between the developed economies with many emerging markets and the developing economies. When looking at economic recovery from crisis, the image that we can use for visualization is that if a boat is solid enough, even when a thunderstorm comes, it will still pass. The Covid-19 pandemic has made us realize one fact that the success when dealing with any crisis does not come from whether enterprises react quickly or slowly, but from whether they have prepared a solid foundation or not. Reality has proven that the world's current undeniable trend is to develop a competitive advantage from digital transformation. In other words, in today's world, the agility competitive advantage of nations in general and enterprises in specific can only be achieved through digital transformation. About 15 years ago, people did not have any clear

concepts and ideas related to digitalization, digital transformation, or even digital economy, but now, embracing technology, transforming the management and operation model into a higher level of efficiency is the matter of survival not only to nations but also to any organizations and enterprises. It is difficult to have a general formula for an organization to be digitalized successfully because each business will have different needs and goals for digital transformation. The formula of success in one business does not mean success in another. What is most appropriate is that an enterprise must have a thorough understanding of the nation's broad digitalization environment so as to identify the possible opportunities as well as threats before thinking about digital transformation. The key to building a sustainable digital transformation strategy is to understand what the landscape of digital transformation in the country is.

When looking at the digital transformation process in Vietnam toward the development of a digital economy, a digital society, and a digital government, one fact that can be seen is that Vietnam has created for itself a solid foundations with many opportunities coming from the soaring of internet usage with large user base of social network and affordable, high-speed broadband; ambitious programs, directives and laws by the Government to promote a digitally empowered society, economy and government; the rising of non-cash payment methods usage; an increasing number of technology-enabled logistics companies as a support to digital economic activities, e.g. e-commerce. However, there are still challenges that enterprises will need to face when deciding to go for digital transformation, including the characteristics of Vietnamese society, which is still cash dominated; and most importantly, the lacking of digital skills, especially in comparison with other high-income countries. As a matter of fact, taking advantage of the opportunities from the digital transformation environment along with overcoming the challenges in customer behavior and human resources will be the very first steps to help Vietnamese businesses to build an appropriate digital transformation strategy.

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