



# GOING **DIGITAL**

From **Innovation** to **Inclusive**  
**Growth** in **Vietnam**



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*From Innovation to Inclusive Growth in Vietnam*

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# Executive Summary

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## The Digital Economy: Concepts, Characteristics and Impacts

The digital economy (DE) could be simply defined as “a broad range of economic activities that include using digitised information and knowledge as the key factor of production, modern information networks as an important activity space, and the effective use of Information and Communications Technology (ICT) as an important driver of productivity growth and economic structural optimisation”.

The DE is different from more commoditised, traditional markets featured in basic economics textbooks with regards to four prominent characteristics: *modularity, economies of scale and scope, dynamism, and the increasing role of data.*

At the micro level, the application of digital technologies could bring about significant efficiency gains for companies and organisations, and broadly contribute in improving consumer welfare. At the macro level, digitalisation is also recognised for its potential to contribute to addressing specific social or development challenges. Digitalisation of economic activities and transactions can help to overcome certain barriers to more inclusive development.

## Digitalisation and Vietnam

Digitalisation is increasingly recognised in Vietnam for its potential role *vis-a-vis* economic growth and social welfare. All stakeholders, i.e. the government, the business and the consumer, are thus enthusiastically adopting and applying digital technologies and the Internet. The infrastructure base is being developed, and though still modest, is rising up to match the growing demand of stakeholders.

The Government of Vietnam (GOV) is playing an active role in accelerating the development of the DE through policies, such as the E-commerce Master Plan and the (IT) Master Plan. In addition, several legislations have been and are being considered for the completion of the regulatory framework regarding the DE. Digital technologies are also being actively applied by the GOV to improve the delivery of public services and to increase operational efficiency of governmental institutions/processes.

In the *business* sector: ICT is one of the fastest growing industries in Vietnam. Other segments of the DE that are experiencing remarkable growth include software development, E-commerce, digital advertising, online games, over-the-top (OTT) services and fintech.

Vietnamese *consumers* also took to digital technologies and services with a lot of enthusiasm. The adoption of broadband Internet services, smart devices and mobile phones in Vietnam has steadily increased since 2003, higher than in neighbouring countries, such as India and Indonesia, though lower than the Philippines. In 2016, the Internet penetration rate is 52 percent, though rural and remote areas are still lagging behind as compared to urban centres and cities.

## Digitalisation of the Urban Mobility Market

The entry of digital ride-hailing apps, such as Uber and Grab was found to have *changed the competitive landscape* of the urban passenger transportation market in Vietnam, easing the former duopoly problem *vis-a-vis* taxi services here.

On the *consumers'* side, such entry helped to bring the fares down, in addition to more choice, increased convenience, fast and reliable services, and better handling of grievances. On the *drivers'* side, such entry resulted in more income generation opportunities with flexibility, and higher net income on an average. Taxi companies themselves also acknowledged that application of digital technologies help to reduce waste of resources and increase efficiency, thus contributed to *increasing total welfare*.

CUTS International undertook an electronic survey to validate these hypotheses, which attracted total 105 responses. Consumers' responses broadly confirmed all the aforementioned benefits of applying digital technology in this market. There is, however, a need on the side of the GOV to clarify and complete the regulatory framework for the further development of the sector.

## E-learning

Vietnam is identified as one of the fastest growing online education markets in the world, with a growth rate of 44.3 percent in 2013, and a forecast of 44 percent increase for the whole period from 2013 to 2018, which is promoted by the huge demand for learning new languages and skills, including digital skills. Since the year 2000, the GOV has identified E-learning as a key factor to drive educational growth, and several policies have been made in an effort to promote the development of E-learning in the country.

In this case study, we found that the application of digital technologies and Internet connectivity has made education and learning more affordable and accessible for all, including the poor, the physically challenged and those located in remote regions. Being able to study at one's own time and pace also makes it possible for the learners to pursue livelihoods and professional promotion in parallel. Moreover, being equipped with additional knowledge and skills, especially digital skills, would facilitate the poor's participation in the economy. All these attributes have proven to be applicable and relevant, as validated by the consumers/learners in Vietnam through our survey.

E-learning could help developing countries to attain the goals set under SDG#4. Towards this end, government, businesses and industry need to work together to ensure that digital education, in the greater sense, facilitates accessibility and wider societal inclusion.

## The Regulatory Framework and Other Challenges

Vietnam, similar to many other countries in the world, is striving to put in place a wide range of laws and regulations governing the DE. However, given the nascent stage of the DE in the country, its regulatory framework is still not yet fully developed and is faced with three broad types of problems:

- Lack/absence of necessary regulations to govern different aspects of the digital economy
- Discriminatory regulations might slow down the development of the digital economy and

- Certain existing or prospective regulations are not appropriate for the dynamic digital markets

Furthermore, the three big groups of stakeholders, i.e. the government, the business and the consumer, are also facing other challenges, such as:

- **Government:** The challenges facing the GOV range from *lack of political will, lack of regulatory capacity, or policy inertia*, to *regulatory capture and competing priorities*.
- **Business:** Challenges facing digital business in Vietnam include *regulatory uncertainty* due to the lack of governing regulatory framework, or the existence of archaic rules, discriminatory and inappropriate laws and regulations which *restrict competition, discourage innovation and raise the cost of doing business*. General businesses in Vietnam, however, are faced with such issues as *new forms of anticompetitive practices*, the risk of *digital disruption*, and *skills shortage* amongst the labour force.
- **Consumer:** Problems facing consumers in Vietnam, in the context of the DE, include: *data privacy and security*, low level of language (*English*) proficiency and *digital literacy*, *fraud and identity theft*, and *cyber bullying and stalking*.

## The Way Forward

To continue on its growth trajectory, and to further bridge that digital divide that still separates countries like Vietnam with more advanced economies, it is crucial that Vietnam continue to make progresses on three important fronts:

- developing the necessary infrastructure base;
- building up its human capital; and
- completing the regulatory framework.

As far as **infrastructure** is concerned, Vietnam needs to further ensure the stability and reliability of its backbone Internet network and extend the widespread coverage of mobile communications technologies.

In case of **human capital**, Vietnam needs to focus on training more qualified IT professionals, as well as to ensure that digital skills and knowledge are spread across the labour force and society. It is only then that the issue of digital disruption could be addressed, workers' employability remains and livelihood is guaranteed.

Last but not least, the country needs to **modernise and complete the regulatory framework** in response to the DE's characteristics and evolving nature. Vietnam would do well by learning from available best practices as well as policy failures from elsewhere, so as to choose the right steps ahead for itself. This would help the country to address the remaining challenges as well as reap the benefits of inclusive growth that the DE promises to offer.

# 1 Introduction

The proliferation of ICT has advanced at an unprecedented speed. According to estimates by the International Telecommunications Union (ITU), the number of people connected to the Internet worldwide increased from 0 in the year 1995 to 3.15 billion in 2015 (exceeding 3.5 billion in 2017)<sup>1</sup>. At the same pace, the number of mobile phone subscriptions more than double from 2.20 billion in 2005, to 5.29 billion in 2010, then to 7.18 billion in 2015, to approximately 7.74 billion in 2017<sup>2</sup>. Adoption of digital technologies is spreading to the farthest corners of the planet, and in some parts of the world, at an accelerating rate. If the current pace of technological innovation is maintained, most of the projected 8 billion people on earth will be online by the year 2025.

At every level of society, connectivity will continue to become more and more affordable and practical in substantial ways. Access to and use of the Internet has become critically important not just in terms of ICTs, but also in prospects for inclusive economic and social development, including achievement of the Sustainable Development Goals (SDGs).<sup>3</sup> In fact, as stated by the Organisation for Economic Development and Cooperation (OECD), in most of their Member States, the DE has become *the economy*.<sup>4</sup> The Internet and ICT permeate societies and economies at the global and local levels, blurring the line between what is an online activity and what is not. In this context, the issue is no longer about anticipating and preparing for the digitisation and digitalisation of societies: it is about how to harness the benefits of the DE and generate trust across all sectors, in a networked, complex and global ecosystem.<sup>5</sup>

Vietnam, as one of the fastest-growing economies in Asia, does not stay out of this global trend. The country's ICT industry includes more than 24,500 active enterprises, creating more than 780,000 jobs in 2016, with a total turnover of US\$67,693bn (increasing by 11.49 percent as compared to the year 2015), expected to contribute around 8-10 percent of Gross Domestic Product (GDP).<sup>6</sup> Vietnam ranked 89<sup>th</sup> out of 193 countries and territories in the United Nations' E-Government Development Index (EGDI) in 2016, moving up 10 ranks as compared to 2015, to join the group of countries with high EGDI of the year.<sup>7</sup>

According to the Global Information Technology Report 2016 of the World Economic Forum, Vietnam ranked 79<sup>th</sup> out of 139 countries with regards to the Networked Readiness Index (NRI), moving up six ranks as compared to the previous year.<sup>8</sup> However, more than half of the population, i.e. around 52 million people, still stay unconnected and only 25.9 percent of all households have Internet access (as compared to the rates of 45.5 percent of the Asia-Pacific

<sup>1</sup> ITU (2017), *Measuring the Information Society Report 2017 - Volume I*, available for download at <[https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2017/MISR2017\\_Volume1.pdf](https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2017/MISR2017_Volume1.pdf)>

<sup>2</sup> *Ibid.*

<sup>3</sup> See for example <<https://www.un.org/development/desa/en/news/administration/achieving-sustdev-through-icts.html>>

<sup>4</sup> OECD (2016), *OECD 2016 Ministerial Meeting on the Digital Economy: Innovation, Growth and Social Prosperity – Background Paper*, available for download at <<https://cdn.prod.internetsociety.org/wp-content/uploads/2017/08/bp-OECD2016-20160607-en.pdf>>

<sup>5</sup> *Ibid.*

<sup>6</sup> Ministry of Information and Communications (2018), *Vietnam ICT White Book 2017*, available for download at <<http://english.mic.gov.vn/Upload/ENGLISH/Statistics/ICT-WHITEBOOK2017-Final.pdf>>

<sup>7</sup> See for example <<http://english.vietnamnet.vn/fms/government/161727/vietnam-89th-in-un-e-government-development-index.html>>

<sup>8</sup> See more at <<https://widgets.weforum.org/gitr2016/>>

region and 51.5 percent of the world).<sup>9</sup> The use of digital technologies amongst business and individuals remains basic. For example, only 2.2 percent of all Vietnamese firms sold their goods or services online in 2011 (up from 0.6 percent in 2007).<sup>10</sup>

With a view to examining whether and how the deployment of the DE has actually benefited Vietnam as a country, and more specifically the Vietnamese people, most of all the poorer and marginalised segments of the society; CUTS Hanoi Resource Centre (CUTS HRC) prepared this report within the framework of a project entitled, “Regional Inclusive Growth” (<http://www.cuts-ccier.org/diginomics/>). The report aims to: document the development and the current state-of-play of the DE in Vietnam; identify the bottlenecks and barriers to its growth; and recommend appropriate policy and practice reforms. Through two case studies on *E-mobility* and *E-learning*, the report also serves to highlight how digital tools and platforms that have provided immense benefits to the consumers, by enabling the last mile consumers, facilitating access to affordable products and services, enhancing the consumers’ ability to compare and make informed choices, to stay connected socially, and to achieve relevant knowledge and skills on various aspects for better livelihoods opportunities.

The report is organised as follows:

Section 1 establishes the context and theoretical framework of the report, defining the DE, its components and characteristics as well as how it is expected to help enhancing consumer welfare, enabling inclusive growth, and achieving the SDGs. Section 2 traces the developments and growth of the DE in the specific context of Vietnam, the infrastructure base, relevant statistics as well as the developments made in various economic sectors and industries. Section 3 and 4 present the two case studies that were undertaken in the E-mobility and E-learning sectors in the country. Section 5 describes the current regulatory framework that the DE and its various participants in Vietnam are subject to, and identifies the challenges and bottlenecks which are currently hindering digital innovation in the country, and preventing it from reaching its full potential and delivering on promised benefits. The report is concluded by Section 6, where relevant recommendations on policy and practical reforms are provided.

## **The Digital Economy: Concept, Components and Characteristics**

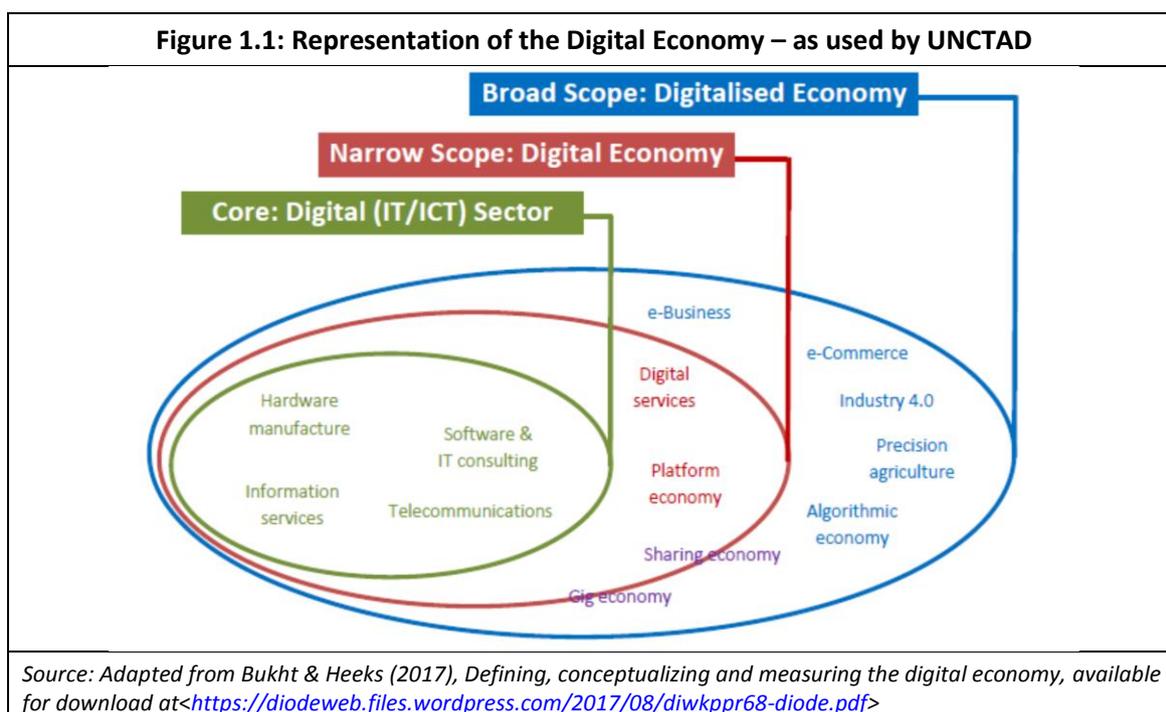
Widely used as it may seem – a simple Google search showed 5,360,000 results within 0.71 seconds, there is no single commonly-accepted definition of the term *digital economy*. Most current literature, however, are more or less similar in referring to it as ‘a broad range of economic activities that include using digitised information and knowledge as the key factor of production, modern information networks as an important activity space, and the effective use of ICT as an important driver of productivity growth and economic structural optimisation’.<sup>11</sup>

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<sup>9</sup> ITU (2017), *Measuring the Information Society Report 2017 - Volume II*, available for download at <[https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2017/MISR2017\\_Volume2.pdf](https://www.itu.int/en/ITU-D/Statistics/Documents/publications/misr2017/MISR2017_Volume2.pdf)>

<sup>10</sup> World Bank (2016), *World Development Report 2016 – Digital Dividends*, available for download at <<http://documents.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf>>

<sup>11</sup> According to the *G20 Digital Economy Development and Cooperation Initiative* <<http://www.mofa.go.jp/files/000185874.pdf>>



The United Nations Conference on Trade and Development (UNCTAD) uses a slightly different approach, which distinguishes between core, narrow and broad scopes. The core and narrow scopes relate to the ICT producing sector, and encompass various digital services (like outsourced call centre services) and platform economy services (like Facebook and Google). The broad scope includes the use of various digital technologies for performing activities, such as E-finance, E-commerce, automation and artificial intelligence (AI) – commonly referred to as the ‘algorithmic economy’, the ‘sharing economy’ (like Uber and Airbnb) and online labour platforms (such as Upwork and Amazon Mechanical Turk).<sup>12</sup> Needless to say, underpinning this whole structure are the Internet and broadband networks, which make up the foundation of the DE.

This approach, though not providing a definitive definition of the term, is very helpful in detailing out the DE’s various components. What should be noted is that the lines between these different parts are not always clear-cut as companies might simultaneously engage in several activities. For instance, companies building and operating the core network often also offer Internet access. Similarly, firms might engage in a variety of services. Prominent examples include Google, which operates a search engine, but also offers communication services, such as Gmail and Google+; and Facebook, which started as a social networking service but is now active in digital advertising, mobile messaging, etc. and even owns and operates its own network infrastructure.

The DE is different from more commoditised, traditional markets featured in basic economics textbooks with regards to four prominent characteristics: modularity, economies of scale and scope, dynamism,<sup>13</sup> and the increasing role of data. These characteristics have large implications

<sup>12</sup> UNCTAD (2017), *Information Economy Report 2017: Digitalization, Trade and Development*, available for download from <[http://unctad.org/en/PublicationsLibrary/ier2017\\_en.pdf?user=46](http://unctad.org/en/PublicationsLibrary/ier2017_en.pdf?user=46)>

<sup>13</sup> GSM Association (2016), *A New Regulatory Framework for the Digital Ecosystem*, available for download at <[https://www.gsma.com/publicpolicy/wp-content/uploads/2016/09/GSMA2016\\_Report\\_NewRegulatoryFrameworkForTheDigitalEcosystem\\_English.pdf](https://www.gsma.com/publicpolicy/wp-content/uploads/2016/09/GSMA2016_Report_NewRegulatoryFrameworkForTheDigitalEcosystem_English.pdf)>

on how regulatory policies could be designed to ensure that a conducive environment is established, for digital businesses to thrive, and for consumers to get the best deals, while avoiding the inherent risks to the best extent possible.

**Modularity:** A central feature of the evolving DE is the role of interoperable technology systems and platforms. The complexity of the technologies and embedded products and services means that no single company (or country) can control all system elements. They all have to rely on some combination of hardware, applications, content, and communications technologies in order to function. For consumers, modularity means both a challenge and an opportunity: a challenge, because they sometimes need to integrate multiple products to achieve the desired functionality, and an opportunity, because the ability to combine multiple product offerings in different ways gives them almost limitless variety and choice. However, regulators need to follow a holistic approach that addresses the diversity of all of the relevant technology systems and platforms.

**Economies of scale and scope:** A second distinguishing characteristic of the DE is the presence of strong economies of scale and scope on both the demand and supply sides of the market. Economies of scale and scope, including network effects, imply that one or a few companies are likely to have high market shares for particular products at any given time, even as they compete across multiple platforms, and also that beneficial new technologies can spread extremely rapidly. Therefore, on the one hand, regulation should be able to facilitate the realisation of economies of scale and scope that represent real savings for consumers. Whereas on the other, regulators should also be wary and watchful, should too much of economic powers are concentrated into the hands of a small number of companies.

**Dynamic competition** in the DE means that companies compete on the basis of their ability to create new products, enter new markets, and apply new technologies to provide existing services at much lower cost. Therefore, regulation should avoid creating artificial barriers to entry or raising the costs of innovation. Nevertheless, the accelerating rate of innovation means entire industries could be disrupted, resulting in job losses and unemployment, and widened income inequalities. Social protection and other adjustment measures will need to be appropriately designed, as a result.

**The increasing role of data:** In the DE, access to and analyses of data are becoming crucial for the competitiveness and expansion of companies across sectors. Manufacturers and exporters increasingly depend on data analytics, not only because they have digitalised their operations, but also because they use support services that require access to data, such as shipping and logistics, retail distribution and finance. This makes the handling of data an economic concern. Data no longer means just stocks of information, such as databases of names and other well-defined personal data, like age, gender, profession, income, and consumption habits, etc. that were collected primarily for the purpose of target advertising. The DE is more about analysing rapid real-time flows of often unstructured data: the streams of photos and videos generated by users of social networks, the reams of information produced by commuters on their way to work, or the flood of data from hundreds of sensors installed in our homes, at commercial stores and all other public places, and so on. Regulatory regimes, as a result, would have much to worry about the issues of privacy and security, while at the same time, have to ensure that they are not imposing unduly burdens on businesses.

## Relevance to Inclusive Growth, Consumer Welfare and SDGs

At the micro level, the application of digital technologies could bring about significant efficiency gains for companies and organisations, and broadly contribute to improving consumer welfare. Companies that engage in digitalisation can make their organisations more efficient, reach and serve customers more easily, speed up product development, produce products and provide services at lower cost. For consumers, the benefits are also evident: new and improved products and services, more information (i.e. lower search costs and time-saving), wider choice, and lower prices (to the extent of being *free*).

At the macro level, digitalisation is also recognised for its potential to contribute to addressing specific social or development challenges. In its ‘Overall Review of the implementation of the Outcomes of the World Summit on the Information Society’, the General Assembly of the United Nations committed to harnessing the potential of ICTs to achieve the 2030 Agenda for Sustainable Development, noting that ICTs could accelerate progress across all 17 SDGs.<sup>14</sup> Different digital technologies and the digitalisation of economic activities are of direct relevance to several of these goals, as highlighted in various reports.<sup>15</sup>

Digitalisation of economic activities and transactions can help to overcome certain barriers to more inclusive development. For example, ICTs, E-commerce and other digital applications can be leveraged to promote entrepreneurship – including the empowerment of women as entrepreneurs and traders (SDG#5, target b) – productive activities, creativity and innovation, as well as the creation of decent jobs. They can also encourage the formalisation and growth of micro, small and medium-sized enterprises (MSMEs), including through access to ICT-enabled financial services (SDG#8, target 3).

Digital solutions can be leveraged to increase access by MSMEs in developing countries to financial services (online and mobile payments) and markets (like leveraging virtual marketplaces), and enable their integration into value chains (SDG#9, target 3). Moreover, E-commerce will become increasingly important for achieving SDG#17, target 11 – to significantly increase the exports of developing countries, and to double the share of global exports of the least developed countries (LDCs) by 2020.

Digital technologies can facilitate access to basic services, such as health (like E-health services, SDG#3), and education (for example, E-learning, SDG#4). They can foster government transparency and effectiveness (like E-government, including approaches, such as the UN’s E-Government Development Index<sup>16</sup>) and support anti-corruption efforts.<sup>17</sup> They can help governments to better understand and respond to societal trends and developments, such as changes in migration patterns and migrants’ behaviour and needs. Moreover, they can facilitate the delivery of humanitarian and development assistance (for example, information management

<sup>14</sup> See <<http://workspace.unpan.org/sites/Internet/Documents/UNPAN95707.pdf>>

<sup>15</sup> See, for example, Internet Society (2015), *The Internet and Sustainable Development*, available at <<https://www.internetsociety.org/resources/doc/2015/the-internet-and-sustainable-development/>>; or Intel (2015), *SDG ICT Playbook: From innovation to impact*, available at <<https://www.intel.com/content/www/us/en/corporate-responsibility/sdgictplaybook.html>>; or Sachs JD et al (2015), *ICTs & SDGs: How information and communications technology can achieve the Sustainable Development Goals*, available at <[http://unsdsn.org/wp-content/uploads/2015/09/ICTSDG\\_InterimReport\\_Web.pdf](http://unsdsn.org/wp-content/uploads/2015/09/ICTSDG_InterimReport_Web.pdf)>

<sup>16</sup> For more information, see <<https://publicadministration.un.org/egovkb/en-us/#.WwVB00iFPIU>>

<sup>17</sup> See, for example, Transparency International (2016), *The use of ICTs in the fight against corruption*, available at <<https://www.u4.no/publications/literature-review-the-use-of-icts-in-the-fight-against-corruption/pdf>>

and communications can strengthen crisis response to environmental disasters, health pandemics and population displacements).

In general, digitalisation can expand choices and lower transaction costs in social and economic interactions; improve livelihoods by allowing users to create, access, utilise and share information; and boost individual empowerment and collective engagement through the use of social media.

Of course, challenges and risks remain. For example, the digital divide – caused by a lack of investment, skills and capacity – makes digitalisation a complex process, particularly for developing and LDCs. Governments must address not only concerns over the impact of digitalisation and automation on employment and inequality, but also new regulatory challenges, such as the protection of security and privacy.

Consumers also have other risks to consider, in addition to having their privacy for sale and used easily by any competent third parties. Likewise, big data analytics and AI could enable instantaneous and/or individualised price discrimination, where prices are adjusted constantly and in real time based on a consumers' behaviour, perceived need for the product or service, and willingness to pay. Analyses of shopping and purchasing histories, in the context of millions of prior purchases from shoppers with similar habits, can give firms a very high level of detailed information that could weaken consumers' bargaining power.<sup>18</sup>

In the following sections of the report, we would continue to present, in more specific details, the consumer welfare gains that the DE could bring about, with a focus on the last-mile consumers in Vietnam; as well as analyse the regulatory challenges that the Vietnamese government must address, in order to ensure that digitalisation could fuel economic growth and competitiveness, while maintaining social order, privacy and security. Prior to that, we would provide an overview of the DE developments in Vietnam as the contextual background.

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<sup>18</sup> Shiller (2014), *First degree price discrimination using big data*, available for download at <[http://benjaminshiller.com/images/First\\_Degree\\_PD\\_Using\\_Big\\_Data\\_Jan\\_27,\\_2014.pdf](http://benjaminshiller.com/images/First_Degree_PD_Using_Big_Data_Jan_27,_2014.pdf)>

## 2 Digitalisation and Vietnam

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Vietnam is one of the fastest-growing economies in Asia and the world, with an impressive GDP growth rate of around 6.5 percent per annum. The country achieved the World Bank's middle-income status in 2010, and is now the sixth-largest economy in the 10-member Association of Southeast Asian Nations (ASEAN) trading bloc.<sup>19</sup> It is also considered one of the world's outstanding development success stories, being one of the few countries to meet most of the UN Millennium Development Goals (MDGs) before 2015.<sup>20</sup>

Vietnam's economic transformation resulted from opening up the economy to the participation of the private sector and attracting high levels of foreign direct investment (FDI), creating new markets in Vietnam and for Vietnam's exports, modernising industry, maintaining strong government services and building infrastructure. Since Vietnam started its reform process in 1986, incomes and employment rates across the country have risen sharply, and over 40 million people have been lifted out of poverty.

With a view to continuing this growth momentum, Vietnam is enthusiastically embracing the digitalisation of its economy. In 2014, the PC Magazine described the country as South-East Asia's Silicon Valley, noting that a burgeoning start-up culture, international investments, and a young, educated workforce had been driving a growing economy and IT innovation here.<sup>21</sup>

In 2016, Vietnam was home to around 24,500 businesses spanning IT hardware, software and digital content. There are specialist training centres and technology parks for IT programmers and engineers in eight locations, including the major cities of Hanoi, Ho Chi Minh City and Da Nang. The ICT industry alone is expected to contribute around 8-10 percent of the country's GDP by 2020.<sup>22</sup> The GOV is playing an active role in accelerating the development of the DE through policies, such as the E-commerce Master Plan<sup>23</sup> and the IT Master Plan<sup>24</sup>. In addition, several legislations have been and are being considered for the completion of the regulatory framework regarding the DE.

The country currently has 47.3 million active Internet users (accounting for around 50 percent of the population), 35 million social media accounts, and 143mn mobile phone subscriptions. Vietnam's Internet connection speed is 9.5 Mbps, which is faster than in the Philippines (5.5 Mbps), India (6.5 Mbps), and Indonesia (7.2 Mbps). The country is ranked 13<sup>th</sup> globally in terms of the number of Internet users, and 21<sup>st</sup> out of 193 countries by the number of broadband Internet subscriptions.<sup>25</sup>

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<sup>19</sup> World Bank, *Vietnam Overview*, available at <<http://www.worldbank.org/en/country/vietnam/overview>>

<sup>20</sup> United Nations Development Program (2015), *Country Report – 15 Years Achieving the Vietnam Millennium Development Goals*, available at <<http://www.vn.undp.org/content/vietnam/en/home/library/mdg/country-report-mdg-2015.html>>

<sup>21</sup> See <<https://www.pcmag.com/article2/0,2817,2490579,00.asp>>

<sup>22</sup> See Footnote 6

<sup>23</sup> See, for example, <<https://en.vietnamplus.vn/ecommerce-development-master-plan-approved/97458.vnp?>>

<sup>24</sup> See, for example, <<http://english.vietnamnet.vn/fms/science-it/4755/it-master-plan-approved.html>>

<sup>25</sup> TMA Solutions, *Vietnam ICT Infrastructure*, available at:<<http://www.tmasolutions.com/files/infographic-vietnam-ict-infrastructure.pdf>>

## Infrastructure and Coverage

Considering that a stable and reliable infrastructure base is critical to the development of the DE in any country, Vietnam is putting considerable efforts into the modernisation and expansion of its telecommunication system. The existing infrastructure in the country has so far been able to cater to the extremely high demand for bandwidth, even though problems, such as undersea Internet cable ruptures, local network congestion, and poor mobile connectivity still persist.<sup>26</sup>

The backbone Internet network in Vietnam is built on fibre optic technology using dense wavelength division multiplexing and synchronous digital hierarchies. One overland and six submarine cables connect Vietnam to the rest of the world. The submarine cables include the Asia America Gateway (AAG) cable, which runs via Hawaii to the USA; the Intra Asia cable; the SMW3 cable (Southeast Asia, Middle East, Western Europe); and the TVH cable (Thailand, Vietnam, Hong Kong).<sup>27</sup> Most of the country's connectivity relies on the AAG cable.<sup>28</sup> Unfortunately, it seems to be the least reliable connection, and has already suffered serious outages.

Domestic Internet traffic is routed through the Vietnam National Internet Exchange (VNIX), which was launched in 2003, connecting service providers across three regions: the North (Hanoi), the Central region (Da Nang) and the South (Ho Chi Minh City). In April 2018, the VNIX bandwidth was 211 Gbps with total network traffic reaching 49 million gigabytes.<sup>29</sup>

Vietnam's first telecommunications satellite VINASAT-1 was successfully launched from the Kourou spaceport in Guyana on April 19, 2008. With a transmission capacity of 10,000 Internet or mobile telephone channels and 120 digital television programmes, VINASAT-1 is expected to help Vietnam to improve the national ICT infrastructure and quickly accomplish the provision of telecommunications, Internet and television services for all of the remote and far-flung islands and border areas.<sup>30</sup>

With regards to mobile services, there is extensive 2G coverage with 93 percent of households owning a mobile phone in 2014 (96 percent in urban areas and 91 percent in rural areas). Four 3G licences were awarded in 2009. Compared to other countries, Vietnam has been late in introducing Long-Term Evaluation (LTE).<sup>31</sup> Four 4G licences were issued in 2016, and most operators launched networks soon after that.<sup>32</sup> Vietnam also has plans to introduce 5G networks by 2020.<sup>33</sup> Nearly 42 percent of the population is mobile Internet user.<sup>34</sup> However, there remain

<sup>26</sup> See, for example, <<http://vietnamnews.vn/society/417144/internet-cable-ruptures-for-5th-time-in-2017.html#LVXjaz4280krR0x0.97>>, or <<http://www.amchamvietnam.com/internet-slow-yet-another-internet-cable-cut/>>

<sup>27</sup> Cameron, Pham & Atherton (2018), *Vietnam Today – First Report of the Vietnam's Future Digital Economy Project*, CSIRO, available for download at:

<sup>28</sup> See, for example, <<https://tuoitrenews.vn/news/features/20171113/the-internet-turns-20-in-vietnam-p7-fiber-optic-cable-gateways/42620.html>>

<sup>29</sup> Statistics by the Vietnam Internet Network Information Centre (VNNIC), available at: <<https://www.vnnic.vn/en?lang=en>>

<sup>30</sup> See <[http://www.space-travel.com/reports/VINASAT-1\\_First\\_Of\\_Many\\_Says\\_Vietnam\\_999.html](http://www.space-travel.com/reports/VINASAT-1_First_Of_Many_Says_Vietnam_999.html)>

<sup>31</sup> In telecommunications, Long-Term Evolution (LTE) is a standard for high-speed wireless communication for mobile devices and data terminals, based on the GSM/EDGE and UMTS/HSPA technologies. It increases the capacity and speed using a different radio interface together with core network improvements. LTE is commonly marketed as 4G LTE.

<sup>32</sup> See Footnote 9

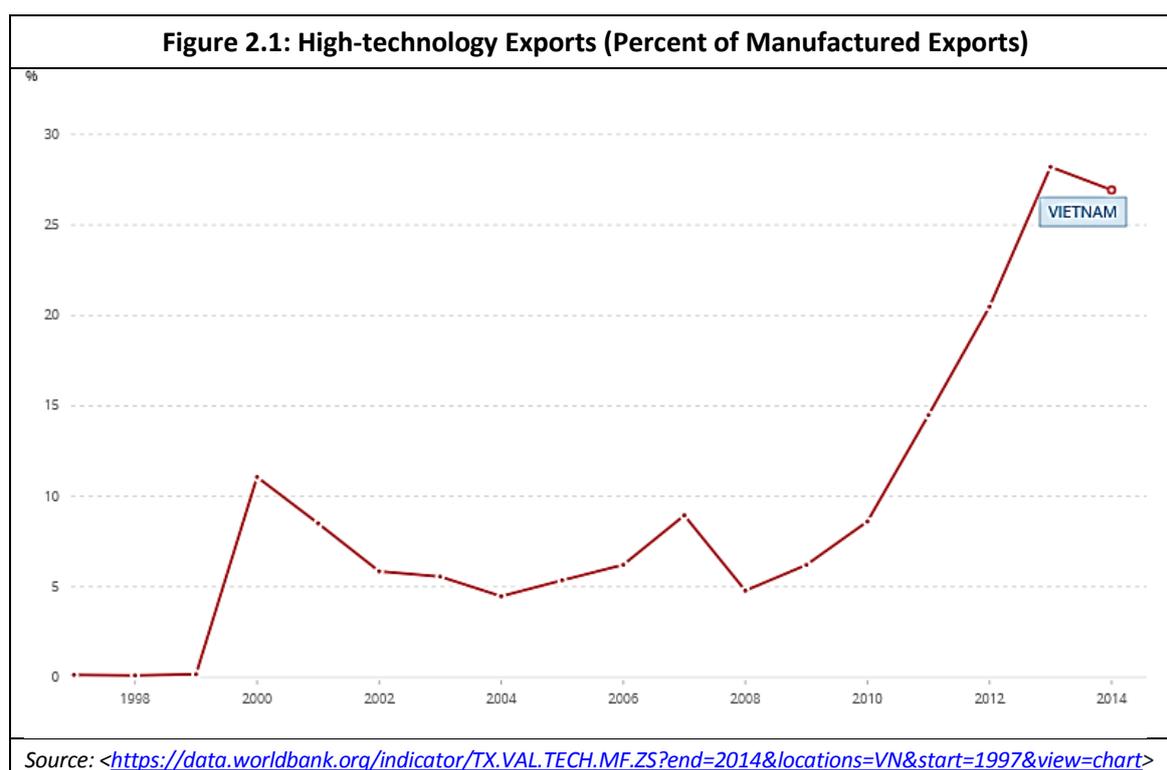
<sup>33</sup> See, for example, <<http://english.vietnamnet.vn/fms/science-it/151094/5g-networks-to-be-commercialized-in-2020.html>>

<sup>34</sup> See Footnote 25

large gaps with regard to access to mobile broadband services between urban areas and rural and remote areas.<sup>35</sup>

## A Booming ICT Industry

ICT is one of the fastest-growing industry sectors in Vietnam. In 2016, the total revenues from the ICT industry were US\$67.7bn, nearly ten times the figure in 2010 (US\$7.6bn). The hardware industry alone contributed around 85 percent of total revenues.<sup>36</sup>



High-technology goods accounted for around 26.9 percent of total exports from Vietnam in 2014, up from a mere 8.6 percent in 2010. At the more granular four-digit Harmonised Tariff System code level, Vietnam's most valuable exported products are mobile phones, followed by electronic integrated circuits, footwear, miscellaneous furniture, television/radio/radar device parts, then printing machinery. Leading manufacturers and exporters, such as Samsung, Intel, Dell and LG, are all expanding their businesses and increasing investments in the country.

Local companies in the ICT sector are also experiencing remarkable growth, especially the software industry. In 2016, a total of 7,433 businesses in Vietnam created digital software for sectors, such as finance, telecoms, smart agriculture and government. Moreover, IT outsourcing services generated around US\$3bn, out of which almost US\$740mn was from digital content.<sup>37</sup> Vietnam also boasts one of the six tech 'unicorns' so far in the whole Southeast Asia region – the

<sup>35</sup> Tran (2011), *Broadband in Vietnam: Forging Its Own Path*, Washington, D.C: infoDev / World Bank. Available at <<http://www.broadband-toolkit.org/>>

<sup>36</sup> See Footnote 6

<sup>37</sup> See Footnote 6

game developer VNG Corp, which is valued at US\$1bn and generates US\$180mn in revenues in 2017.<sup>38</sup>

**Table 2.1: Total Revenues of the Vietnam ICT Industry**

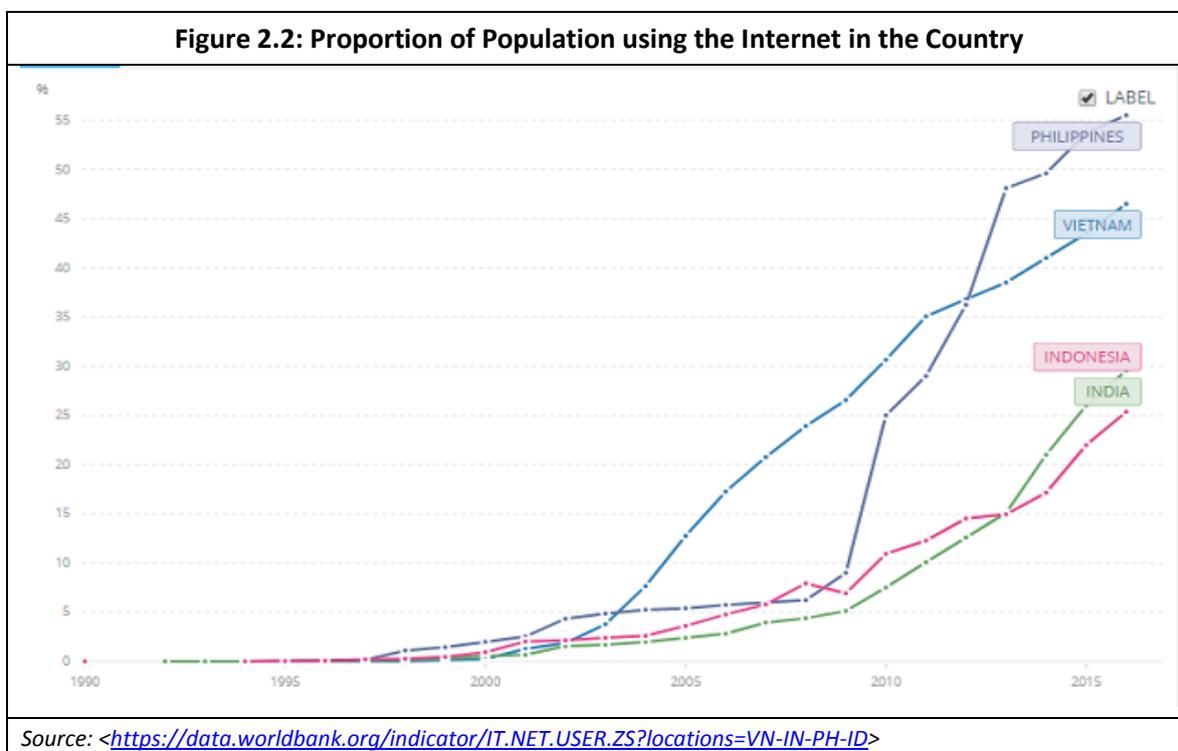
Revenue	2015 (US\$mn)	2016 (Estimated, US\$ mn)	Growth Rate (estimated)
From hardware, electronics industry	53,023	58,838	10.97%
From software industry	2,602	3,038	16.80%
From digital content	638	739	15.83%
From IT services (not including trade and distribution)	4,453	5,078	14.04%
Total revenue – IT industry	60,715	67,693	11.49%

Source: MIC (2017), Vietnam ICT White Book 2017, P.32

### Digital Adoption

Not just the government, Vietnamese people also took to digital technologies and services with a lot of enthusiasm. The adoption of broadband Internet services, smart devices and mobile phones in Vietnam has steadily increased since 2003, higher than in neighbouring countries, such as India and Indonesia, though lower than the Philippines. In 2016, the Internet penetration rate is 52 percent, though rural and remote areas are still lagging behind as compared to urban centres and cities.

**Figure 2.2: Proportion of Population using the Internet in the Country**



<sup>38</sup> Jefferies (2016), E-Commerce in ASEAN – Taking off, available for download at: <<https://www.jefferies.com/CMSFiles/Jefferies.com/files/Insights/EcommerceinASEAN.pdf>>

The adoption of broadband Internet services is also increasing in the business and government sectors of Vietnam. It was estimated that the share of manufacturing and service firms using the Internet for business activities rose to 71 percent in 2007 and 86 percent in 2011.<sup>39</sup> According to a 2016 survey conducted among export-import enterprises by the Vietnam E-Commerce and Information Technology Agency (VECITA), 32 percent of the enterprises have set up business relations with foreign partners through online channels, 11 percent have joined E-commerce floors and 49 percent owns a website.<sup>40</sup>

In 2016, 100 percent governmental agencies in Vietnam, from the central to provincial levels, have had their own websites, LAN, Intranet, Extranet and an internal unit/division specialised in ICT services. A total of 97,394 public services (Level I & II) have been digitalised and the rate of utilisation was quite high. A total of 11,251,439 tax declarations and 9,970,000 customs declarations were submitted and cleared online in the same year; whereas the government alone conducted 158,400 E-tenders.<sup>41</sup>

## Digital Businesses and E-Commerce

E-commerce is one of the fastest-growing segments of Vietnam's DE. According to VECITA, the country's E-commerce market is growing by 35 percent per year – 2.5 times faster, for example, than Japan. Vietnam's online retail revenues reached US\$5bn in 2016, more than double of 2013 (US\$2.2bn). VECITA expects the number of online shoppers will increase by 52 percent by 2020.<sup>42</sup>

By 2016, the number of Vietnamese member accounts on the website *Alibaba.com* has reached 500,000. Over the previous three years, the number of members has increased by 100,000 on an average each year, which is 10 times higher than that of the period before 2009.<sup>43</sup> Vietnamese small and medium enterprises (SMEs) that spent more than 30 percent of their budget on technological innovation grew nine times faster than those spending less than 10 percent.<sup>44</sup>

Vietnam's digital advertising industry is also growing rapidly. It was estimated that in 2017, Vietnamese businesses will spend around US\$1.5bn on advertising, 16 percent of which will go to online marketing channels.<sup>45</sup> According to the Vietnam E-Commerce Association (VECOM), in 2016, social networks overcame search engines to become the online advertising means most frequently used by Vietnamese enterprises with the corresponding percentages of 47 percent and 41 percent. Email remains to be an advertising channel preferred by a lot of enterprises (36 percent). Social networks are not only the most frequently used but also considered an advertising channel as effective as search engines. 46 percent of the enterprises consider that advertising on social networks is effective, while the percentage for search engines is 44 percent.<sup>46</sup>

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<sup>39</sup> See Footnote 10

<sup>40</sup> VECOM (2017), *Vietnam E-Business Index – 2017*, available at <<http://vecom.vn/wp-content/uploads/2017/02/Bao-cao-EBI-2017-Final.pdf>>

<sup>41</sup> See Footnote 6

<sup>42</sup> See, for example, <<http://vietnamnews.vn/economy/419533/viet-nams-e-commerce-market-booming.html#gsGL3lYT7wxVttSx.97>>

<sup>43</sup> See Footnote 40

<sup>44</sup> See Footnote 42

<sup>45</sup> See, for example, <<http://vietnamnews.vn/economy/374751/social-media-dominates-online-ad-market.html#Du8sTB3lboAUpPT3.97>>

<sup>46</sup> See Footnote 40

Over-the-top (OTT) services, such as Zalo, Skype and Viber are replacing traditional voice and SMS services. Mobile messaging via apps have now surpassed traditional messaging via SMS in Vietnam. Major operators including Viettel and VNPT are now shifting to offer their own OTT services, such as Viettel Mocha or Viettalk, to compete.<sup>47</sup>

Vietnam has also become one of the biggest markets for online games in Southeast Asia. In 2017, Vietnam ranked 28<sup>th</sup> out of 100 countries in total game revenues (US\$367mn), exceeding the Philippines and Singapore.<sup>48</sup> VNG Corp, Vietnam's largest provider of online games, is valued at US\$1bn and is soon to be the first Vietnamese company holding an initial public offering (IPO) in the US.<sup>49</sup> Flappy Bird, by Vietnam's Nguyen Ha Dong, was the most-downloaded free game in the iOS App store in 2014.<sup>50</sup>

Vietnam is also considered a market with good potential (though not yet fully exploited) for financial technology (fintech) services. By 2016, more than 30 fintech firms had been established in Vietnam and two-thirds of them provide mobile payment services in the context of the E-commerce boom. The total value of deals related to Vietnam's fintech start-ups was US\$129mn, accounting for 63 percent of total value of start-up deals in 2016. Analysts believe that mobile payment will be the 'bright spot' in the Vietnamese fintech market in 2017.<sup>51</sup>

In summary, the DE is flourishing in Vietnam, with all relevant stakeholders taking to digital technologies and services quite enthusiastically, from the government, to the business sector and the consumers. In the next sections, we would be taking a closer look at the scenario within two sectors in Vietnam: **urban transportation** and **education**, to see how digitalisation has been able to bring benefits to consumers, enabling economic participation, professional development and livelihoods creation.

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<sup>47</sup> See, for example, <<http://english.vietnamnet.vn/fms/science-it/170696/mobile-network-operators-shift-to-providing-content-services.html>>

<sup>48</sup> See <<https://newzoo.com/insights/rankings/top-100-countries-by-game-revenues/>>

<sup>49</sup> See <<http://techwireasia.com/2017/06/game-developer-vng-corp-first-vietnamese-tech-company-hold-ipo-us/>>

<sup>50</sup> See <<https://tuoitrenews.vn/business/24661/vietnamese-creator-of-flappy-bird-among-10-internet-millionaires-from-nowhere>>

<sup>51</sup> See, for example, <<http://english.vietnamnet.vn/fms/business/177005/vietnamese-fintechs-and-the--35-billion-dream.html>>

## 3

## Case Study 1: Digitalisation of the Urban Mobility Market

### Box 3.1: Key Takeaways

- Entry of digital ride-hailing apps has changed the competitive landscape of the urban passenger transportation market in Vietnam, easing the former duopoly problem *vis-a-vis* taxi services.
- On the consumers' side: Such entry helped to bring the fares down, in addition to more choice, increased convenience, fast and reliable services, and better handling of grievances.
- On the drivers' side: Such entry resulted in more income generation opportunities with flexibility, and higher net income on average.
- Taxi companies themselves acknowledged that application of digital technologies help to reduce waste of resources and increase efficiency, contributing towards increasing total welfare.
- There is a need to clarify and complete the regulatory framework.

The urban transport system provides access and mobility for people and goods, linking origins and destinations, both internal and external, to the urban area. It encompasses the following modes:

- public transport (collective transport, such as buses and urban railways);
- non-motorised transport (pedestrians, cyclists and tri-cycles);
- freight and commercial traffic (trucks, vans and taxis); and
- motorised private traffic (cars and motorbikes).

These transport services, in combination, cover a wide range of important social and economic activities, such as leisure trips, business journeys, commuting, shopping, trips to places of education, freight delivery, etc.

Taxi services (both by car and by motorbike) constitute an important part in the overall urban transport systems in big cities of Vietnam, due to a multitude of social and economic reasons. During the ongoing urbanisation process, Vietnamese cities have been expanding in both size and population, which means that the demands for mobility and access are increasing day by day.

The country, however, does not currently have a good public transport system in place; whereas non-motorised transport is becoming impractical due to the adoption of industrial lifestyles and schedules, changing traffic patterns and increasing traffic density. Except for using own private cars and motorbikes, which possibly means physical exhaustion and exposure to environmental pollution, most commuters would have to resort to the use of taxi cars or bikes for travelling. As a result, the urban taxi services sector in Vietnam could be said to have a lot of potential for growth.

Until 2015, taxi fares in Vietnam were considered as the highest in the entire Southeast Asia region.<sup>52</sup> This could be attributed to two main reasons: (1) Demand was substantially higher than supply; and (2) A highly concentrated market structure, dominated by two giant players *Mai Linh* and *Vinasun*, with a total of nearly 30,000 taxis nationwide.<sup>53</sup> The duopoly made it possible for these companies to dictate market prices.

Previously, there were also a lot of customer complaints about taxi scams, such as taking tourists and non-residents on circuitous routes, tampering with metres; or taxi drivers refusing relatively short rides, or refusing to use meters during rush hours and late nights. Other concerns included accidents and drunken driving, rude behaviours by taxi drivers, sexual harassments, or even rape, robbery and murder in some extreme cases. However, taxi drivers complained about hard and stressful work, in contrast to the low-to-medium pay.<sup>54</sup> More seriously, taxi drivers were under a high risk of getting robbed or murdered themselves, not to mention about rude behaviour by riders as well.<sup>55</sup>

The entry of digital ride-hailing apps,<sup>56</sup> such as Uber and Grab, into the urban mobility sector of Vietnam, in this context, has contributed considerably. It has not only improved consumer welfare in terms of choices, affordability and convenience, but has also generated more employment opportunities and additional income for drivers.

## Emergence of Ride-hailing Apps

The emergence of ride-hailing apps could be traced back to the development of the greater 'Sharing Economy' – an economic system in which assets or services are shared between private individuals, either for free or a fee, typically through the means of the Internet. Largely a technology-enabled movement, the general business model enables companies to help consumers find ways to rent rather than own an expensive asset – the sharing economy feeds on the preferences for 'experiences' over 'ownership', and 'additional income' over 'idle assets'.

'Ride-hailing' encompasses a wide range of companies and services, including traditional taxis and other transportation services, by cars or motorbikes. The overarching idea of ride-hailing is that a customer hires a driver to take them to desired destination, something accomplished by hailing a taxi from the street, calling up a car service on phone, or virtually hailing a car and driver from an app.<sup>57</sup> The app is just a free software-platform installed on a mobile device, which is connected to the Internet, matching consumer requesting rides with available drivers.

<sup>52</sup> It reportedly cost \$278,000 VND (US\$12.41) for a 20km taxi ride in Ho Chi Minh City, compared to \$98,000 VND (US\$4.38) to cover the same distance in Bangkok, and \$226,000 VND (US\$10.09) in Singapore. See <<https://tuoitrenews.vn/business/30425/vietnam-taxi-fare-highest-in-southeast-asia-data>> for more details.

<sup>53</sup> See <<http://vnmoney.nld.com.vn/vnmoney/thi-truong-xe-taxi-tp-hcm-ai-cam-lai-20140821092201522.htm>>

<sup>54</sup> See for example <<http://netnews.vn/Nghe-tai-xe-taxi-Ap-luc-thu-nhap-chua-toi-100000-dongngay-kinh-doanh-6-0-1028739.html>> or <<http://dantri.com.vn/viec-lam/tai-xe-taxi-nghe-vat-va-ap-luc-cao-20160311171858964.htm>>

<sup>55</sup> See <<https://vnexpress.net/kinh-hoang-cac-vu-cuop-taxi/topic-10209.html>>

<sup>56</sup> Apps here refer to Mobile Applications, Websites or Softwares.

<sup>57</sup> An associated concept, which is later on picked up and developed into a service option by technology companies, is "ride-sharing". Ride-sharing services connect regular drivers and passengers who would like to share long trips with each other. People travelling with extra seats could offer them up, and passengers then pre-pay to help with fuel and other travelling costs. In Vietnam, Uber started offering UberPool and Grab started with GrabShare in early 2017, but this service was later discontinued/prohibited by regulatory authorities in Vietnam.

EasyTaxi ([www.easytaxi.com](http://www.easytaxi.com)) was the first app to enter the urban transport market in Vietnam in December 2013, followed in February 2014 by Grab ([www.grab.com](http://www.grab.com)), and later by Uber ([www.uber.com](http://www.uber.com)), in June in the same year. Vietnam is seen as an attractive market with a lot of potential for growth. Therefore, competition is raging not only between the ride-hailing apps and traditional taxi companies, but also amongst the apps companies themselves.

At present, Grab is leading the market, formerly followed by Uber, which has very recently decided to swap its Southeast Asia business for a major stake in Grab, seeing more efficiency in a merger instead of cut-throat competition.<sup>58</sup> There are, however, talks about the arrival of Ryde ([www.rydesharing.com](http://www.rydesharing.com)) and Go-Jek ([www.go-jek.com](http://www.go-jek.com)) into the market in the immediate future. Meanwhile, local taxi companies also developed their own apps, such as Vinasun (<https://vinasunapp.vn/>), Taxi Mai Linh and Mai Linh Bike (<https://mailinh.vn>), Taxi-Group (<http://taxigroup.com.vn/>), Gonow (<https://gonow.vn>), etc., in response to competitive pressures from what is termed by Vietnamese public as ‘digital taxi companies’.

## Differences between Digital and Traditional Taxis

There are a number of differences between the services offered by ‘digital taxi companies’, such as Uber and Grab, and the apps that were later developed by traditional taxi companies in Vietnam.

**Table 3.1: Summary of Differences between Digital and Traditional Taxi Companies**

Heading?	Traditional Taxis	Digital Taxis
<b>Vehicle</b>	To be painted and identified with company logos	Use of personal vehicles
<b>Hailing</b>	Both through digital apps, call centres, and road-side physical hailing	Only possible through digital apps
<b>Pricing</b>	By meters, sometimes fares could be estimated using apps	Pre-calculated by the apps through the use of GPS
<b>Payment</b>	By cash or credit cards	By cash or credit cards
<b>Feedback</b>	Customers could only provide feedbacks by calling to the call centres of the companies.	Customers could provide feedbacks through feedback mechanism built in the apps.
<b>Grievance Redress Mechanism</b>	Customers could only call the companies’ call centres for complaints in case of being wronged. Complaints are rarely addressed by companies.	Drivers and riders are rated electronically through built-in features of the apps.
<b>Others</b>	<ul style="list-style-type: none"> <li>• Drivers are considered employees of the companies</li> <li>• Regular insurance policies apply</li> </ul>	<ul style="list-style-type: none"> <li>• Drivers are only considered as profit-sharing partners of the companies</li> <li>• Insurance policies are being developed</li> </ul>

<sup>58</sup> For more details, see <<https://www.cnbc.com/2018/02/16/uber-preparing-to-sell-southeast-asia-unit-to-grab.html>>

First and foremost, driver-partners for digital taxi companies are expected to use their personal cars (which need not be painted or carry logos/company names, as is the case with traditional taxis) to provide taxi services and earn income at flexible timing. Driver-partners only need to pass the tech companies' identity check, facility review, and background analysis, as well as obtain insurance for their vehicles and themselves.

Digital taxi companies' apps use Global Positioning System (GPS) technologies to identify the best route (fastest and shortest), and then use computer algorithms to pre-calculate the associated fare for each trip. This allows riders to know exactly how much they need to pay and drivers know how much they are going to earn, prior to or at the beginning of each trip, including in case of surge pricing. If there are large discrepancies later on, the riders could complain through the app, and if their complaints are verified as valid, riders get a refund. This eliminates the drivers' incentive to take a longer or circuitous route, as it usually happened in taxi scams.

Ride-hailing apps that were later developed by traditional taxi companies in Vietnam only allow an estimation of fares. Customers still need to pay according to the meter installed in the taxis, at the end of the trip, directly to the drivers through cash or cards. Therefore, the incentives to take longer/circuitous route or to tamper with meters are not eliminated.

The digital taxi companies' apps allow riders to pay for their journeys with either credit cards or cash. The credit card information may be saved on the app and the card may be automatically charged after the trip is completed. Thus, the rider may simply walk out of the taxi, without getting into the hassles of payment, making the process more convenient. There is no need for bargaining, even if the ride was done on motorbike,<sup>59</sup> and of course, there is no way the driver could tamper with any meter. However, in case of ride-hailing apps developed by local taxi companies, riders need to pay the exact amount shown on the meter through cash or card to the driver, which takes a few minutes time.

Digital taxi companies' apps allow both drivers and users to be identified and rated electronically, including leaving specific written feedbacks. This helps to improve the performance/behaviour of both groups, since if a driver or a rider gets a rating of less than 4.5 out of 5 stars, s/he is disallowed to participate on the system. Such a mechanism may be considered as a deterrent for drivers and well as rider to engage in bad behaviour, resulting in enhancing the overall experience for the platform. This also results in enhanced safety, for both drivers and customers. Such feature is not yet available with traditional taxi companies' apps.

Furthermore, there is a built-in grievance redressal mechanism in the digital taxi companies' apps, which allows customers to lodge their complaints (including *inter alia* drivers' failure to pick-up, rude behaviours by drivers, circuitous route, wrong fare, etc.) and have these complaints heard and addressed in real time. An SOS button in the digital taxi companies' apps also allows customers to call for help, in case of accidents or physically attacks. In the case of traditional taxi companies, customers' complaints could only be received via the call centres and are rarely addressed.

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<sup>59</sup> Riders could choose either UberMoto or GrabBike for more affordable ride by motorbikes. The same technologies and procedures apply.

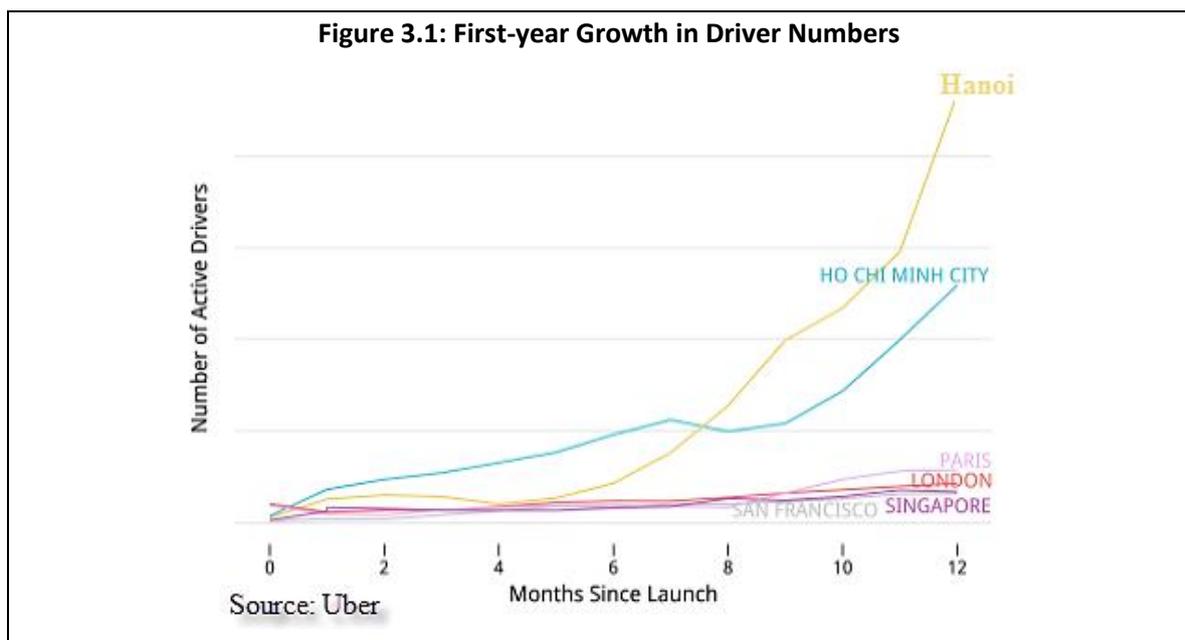
The digital taxi companies' pricing system, such as Uber's surge pricing system and Grab's dynamic pricing system, despite remaining opaque for consumers, does help to restore a balance between supply and demand. It helps in providing consumers a steady service, even in case of scarcity by incentivising drivers to reach out to areas with low supply, which may be in cases of unfavourable weather conditions and congested areas. Traditional taxi services, on the contrary, lack on these fronts, since they do not have an effective system (enabled by advanced digital technologies, such as pricing algorithms and heat maps) to regulate supply optimally.

Last but not least, the digital taxi companies' tiered product options also give riders a lot more control and flexibility. The following Table provides a glimpse into the transport options currently being provided in Hanoi and Ho Chi Minh City (HCMC) through ride-hailing apps including those by digital taxi companies and traditional taxi companies. It can easily be seen that the wider product range allows digital taxi companies to cater to the diversified needs of consumers.

**Table 3.2: Transport Options by Uber, Grab and Local Taxi Companies**

Uber App	Grab App	Traditional Taxi Companies' Apps
UberMoto: ride by motorbikes	GrabBike	Mai Linh Bike: recently started, could be booked through the Mai Linh app
UberX: ride by mid-size or full-size 4-door vehicle/car	GrabCar (4-seaters) JustGrab: ride with any car or taxi whichever is closest to you via Grab	Mai Linh Taxi, Vinasun, Taxi-Group: 4-seater taxis could be booked through apps
UberPOOL (now stopped)	GrabShare	NA
UberDELIVER: delivery of goods	GrabExpress	NA
UberBlack: ride by sedan, town car or crossover SUV that comfortably seats 4 passengers	GrabCar Plus	NA
Uber SUV: ride by a full-size SUV that comfortably seats at least 6 passengers	GrabCar (7-seaters)	Mai Linh Taxi, Vinasun, Taxi-Group: 7-seater taxis could be booked through apps
n.a	GrabTaxi: ride with normal taxis who have signed up as partners with Grab, riders pay according to meters	NA
Ride to the Airport with Uber (now stopped)	Long/inter-city/province ride with GrabCar	Gonow: Different types of cars, including minivans and minibus could be booked through the app for long/inter-city/province group ride Mai Linh Taxi, Vinasun, Taxi-Group: Airport taxis could be booked through apps

Due to additional and competitive features, such as tiered products and payment modes, the digital taxi companies have been able to penetrate and disrupt the urban mobility sector in Vietnam. Uber, for example, claimed that they provided 1.5 million rides after one year of being launched in Vietnam, establishing it one of its globally fastest growing markets (see the Figure below).<sup>60</sup> Grab is now present in five major cities in Vietnam, including Hanoi, HCMC, Da Nang, Ha Long and Nha Trang, announcing one (1) billion rides throughout Southeast Asia as of November 2017. Grab also announced that its app was installed in 68 million mobile devices, and offered 3.5 million rides per day.<sup>61</sup>



### Improving Consumer Welfare

The emergence of ride-hailing apps, including those for digital taxi companies and traditional taxi companies, has significantly helped in improving the urban mobility experience in Vietnam. In fact, the first and most significant impact of their advent was the reforms that local companies had to undertake, including the adoption and utilisation of ICT. Added to this has been their improved performance, to meet the competitive pressures posed by the digital taxi companies. As a result, consumer welfare was improved across the board.

The second benefit that is often acknowledged by public opinion about the arrival of the digital taxi companies' apps is that they have helped to bring the transportation fares down. Below is a simulated calculation of the fares using various modes/means of transport provided by Uber, Grab, and traditional taxis in Ho Chi Minh City, Vietnam, for the same distance. It could easily be seen that the fare by traditional taxi cabs is much higher than those offered by Uber and Grab cars. This, however, does not take into account the surge pricing/dynamic pricing, as well as any available promotions and discounts.

<sup>60</sup> <<http://english.vietnamnet.vn/fms/business/148982/vietnam-uber-s-secondfastest-growing-market.html>>

<sup>61</sup> <<https://www.grab.com/vn/press/business/grab-chinh-thuc-can-moc-1-ty-chuyen-xe/>>

**Table 3.3: Fare Comparison of Uber, Grab and Traditional Taxi Companies**

<b>Route: 6.7 km, 21 minutes from Hong Ha street to Ly Thuong Kiet street, Ho Chi Minh City, Vietnam (in normal traffic conditions)</b>		
<b>Mode of Transport</b>	<b>Estimated Fare in VND</b>	<b>Estimated fare in US\$</b>
UberMoto (motorcycle – 1 person)	28,765.73	1.266
GrabBike (motorcycle – 1 person)	29,677.60	1.3
GrabShare (shared ride by car, 2 people)	51,169 (1 <sup>st</sup> rider) 58,478 (2 <sup>nd</sup> rider)	2.25 (1 <sup>st</sup> rider) 2.57 (2 <sup>nd</sup> rider)
UberX (up to 4 people)	62,772	2.76
GrabCar (up to 4 people)	73,098	3.22
GrabCar 7-seater (up to 7 people)	87,402	3.85
UberBlack (luxury car, up to 4 people)	95,458	4.20
Uber SUV (SUV car, up to 6 people)	95,458	4.20
Traditional Taxi Cab (up to 4 people)	109,298.05	4.81
Source: <a href="https://ride.guru/">https://ride.guru/</a>		

Other benefits to riders/consumers, as already mentioned above, include the availability of fast and reliable service and increased convenience and safety. Urban riders in Vietnam do not have to worry about bargaining on fares, not being able to get a taxi in case of bad weather and taxi scams as before. Our own experiences showed that a pickup could usually be expected within twenty minutes after requesting a ride, with the average waiting time of less than four minutes.

For the purpose of verifying and validating these general analyses, an electronic survey was undertaken in January 2018 to examine the consumers' perceptions about the use of digital ride-hailing apps as compared to traditional taxi services for commuting within urban centres, such as Hanoi and Ho Chi Minh City in Vietnam. A 12-question questionnaire was developed and hosted on public portals, as well as disseminated through social media links, which generated in total 105 responses (see the Table below for the demographic information of respondents). Since the survey was electronically implemented, the sampling method chosen was random, and all respondents remained anonymous, except for information about age, gender, employment status, location, ownership of private vehicles and most common purpose for using taxi services. In the substantive questions, respondents were asked to indicate their level of agreement with a number of *pre-forma* statements, regarding the benefits and challenges of using ride-hailing apps for urban mobility purposes in Vietnam and some incremental differences/improvements as compared with traditional taxi services.

Out of these 105 respondents, 97 (approximately 92.38 percent) have used ride-hailing apps at least once to get rides as a customer, and only 8 (approximately 7.62 percent) have not. A few respondents skipped some questions, mostly those about gender, or open-ended questions about the other benefits and challenges that they have experienced, while using the ride-hailing apps, except for those already suggested in other questions of the survey.

**Table 3.4: Demographic Information of Respondents to 2018  
Consumer Survey on Urban Mobility**

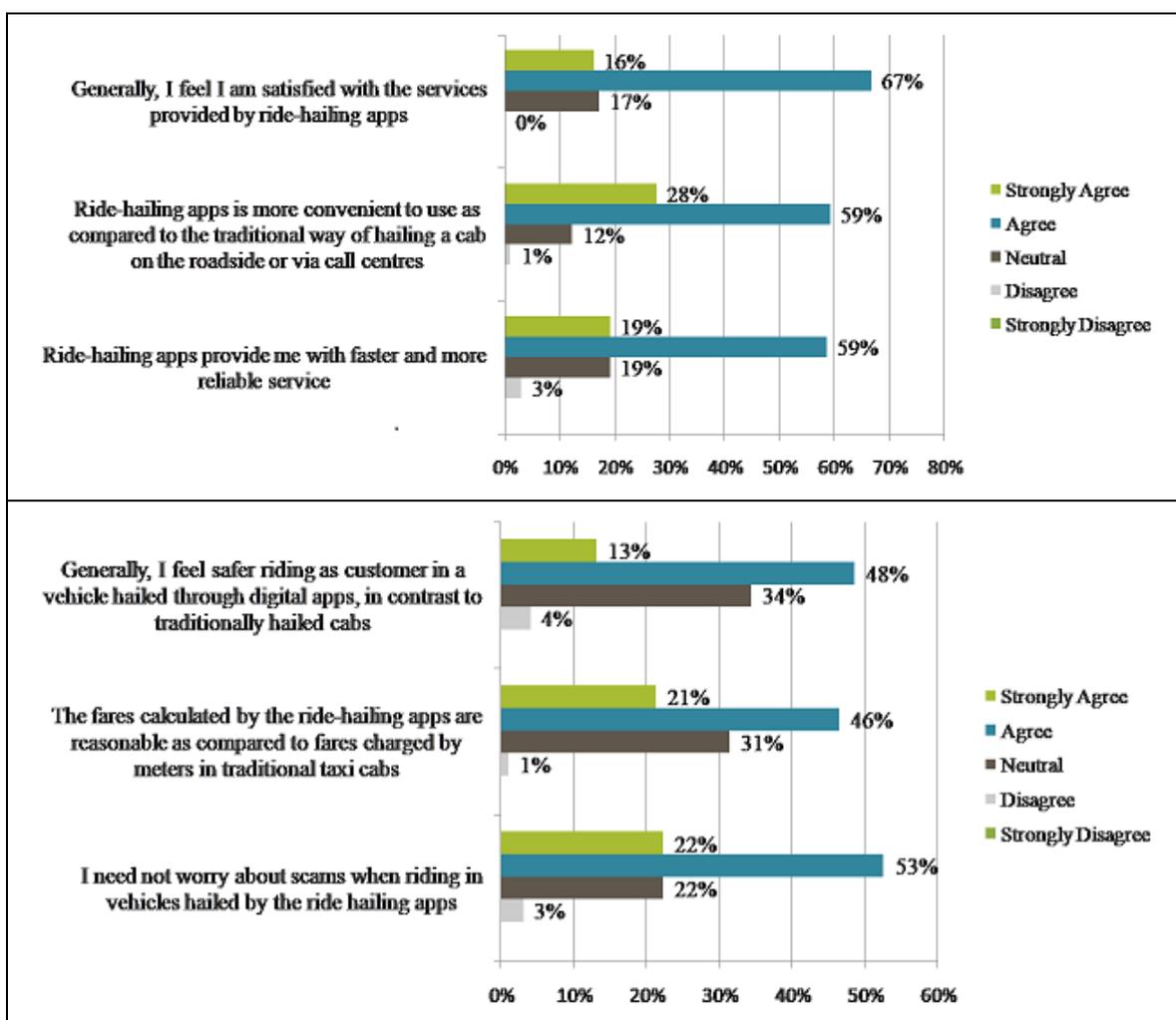
Details		Value (Total: 105)	Percentage (Total: 100%)
<b>Age</b>	Below 18yrs	0	0.00%
	18-24yrs	6	5.71%
	25-34yrs	55	52.38%
	35-44yrs	30	28.57%
	45-54yrs	7	6.67%
	55-64yrs	3	2.86%
	Above 65yrs	4	3.81%
<b>Gender</b>	Male	41	39.42%
	Female	62	59.62%
	Other	1	0.96%
<b>Employment Status</b>	Currently unemployed	2	1.90%
	Full-time employee	75	71.43%
	Part-time employee	2	1.90%
	Entrepreneur	10	9.52%
	Retired	3	2.86%
	Student	3	2.86%
	Housewives	1	0.95%
	Others	9	8.57%
<b>Location</b>	Hanoi	90	85.71%
	Ho Chi Minh City	9	8.57%
	Others	6	5.72%
<b>Ownership of Private Vehicle</b>	Yes	101	96.19%
	No	4	3.81%
<b>Most Common Purpose for using Taxi</b>	Commuting	48	45.71%
	Shopping	3	2.86%
	Short visits	5	4.76%
	Going out	32	30.48%
	Goods delivery	2	1.90%
	Others	15	14.29%

The survey results highlighted that respondents generally had a positive experience of using the ride-hailing apps for urban mobility purposes in Vietnam. Specifically, a majority of respondents of the survey thought that the ride-hailing apps have made urban commuting easier and more convenient (85 out of 105, equivalent to 80.95 percent); and that the ride-hailing apps is a good innovation in the digital age, which is enabling better urban mobility solutions to its predecessors (83 out of 105, equivalent to 79 percent). At least 85.7 percent said they would keep using ride-hailing apps in the future.

Narrowing the scope, most respondents quoted convenience of use (hassle-free) (30 out of 104, approximately 28.85 percent), safety (28 out of 104, nearly 26.92 percent), price (affordability) (24 out of 104, about 23.08 percent), and ease of use (access) (17 out of 104, around 16.35 percent) as the most important factors they considered while choosing a mode of transportation; while the rest ticked all the boxes. This probably explained why consumers/riders in Vietnam have taken to the entry of digital taxi companies with so much enthusiasm.

The apps used for hailing a ‘digital taxi’ are indeed easy to use and enabling fast pickups. The waiting time is short, while customers can get regular updates on the location of vehicles in real time as well as the expected arrival time, or if the drivers cancel the trip. Customers can also cancel the trip, or change the itinerary electronically, and pay a pre-calculated fare amount, without getting into the hassles of bargaining/arguing with the drivers. Safety is relatively guaranteed, as already analysed above. All these are further supported by the level of agreement, indicated by respondents to *pre-forma* statements, regarding convenience, safety, affordability and ease of use of digital ride-hailing apps, as shown in the snapshots below.

**Figure: 3.2: Snapshots of Survey Results  
Consumer Attitude and Perceptions towards Digital Ride-hailing Apps**



Other benefits quoted by respondents for using the digital ride-hailing apps included:

- Convenient payment method by credit card and cash (4 out of 52 respondents)
- Almost all drivers are friendly, enthusiastic and polite (6 out of 52 respondents)
- Possibility to retrieve an item left in vehicle (3 out of 52 respondents)
- The provision of promo codes by the digital taxi companies, which further reduces the fares paid by riders (10 out of 52 respondents)
- Possibility to use the points earned to redeem for e-vouchers, promotions, discounts, free gifts, promotion codes and other benefits offered by the taxi companies and/or third-party merchants (6 out of 52 respondents)
- Almost all vehicles are clean, new and nice (5 out of 52 respondents)

Some remaining challenges were pointed out, for example 10 out of 58 answers complained that drivers sometimes cancel the rides without notifying customers or do not accept rides due to close distance between pick-up and drop-off points or traffic jams. Eight respondents said that the fares are sometimes calculated incorrectly and higher than traditional cabs, while six respondents thought it was difficult to hail a ride on rainy days or during the rush hours. Most notably, four respondents said that the apps and connectivity (3G, wireless Internet connection) are sometimes slow or unstable, which negatively affects the possibility to hail a ride or calculate fares correctly.

### **Increasing Efficiency, Generating Employment and Income**

The ride-hailing apps, using ICT to match drivers with customer requesting a ride, have enhanced efficiency.<sup>62</sup> Informal interviews with Uber and Grab drivers showed that they complete at least one (01) to three (03) trips per hour. Representatives of traditional taxi companies also stated that the use of ICT, ever since they were forced to rise up to the challenges of digital taxi companies, has helped in saving time, reducing fares and intermediary costs, thus increasing overall efficiency.

In the past, once a customer called the taxi call centres to book a ride, at least two-four taxis stationed close to the location were called at the pickup location. However, only one of them successfully got to do the trip eventually. In worse scenarios, customers even went for another taxi without cancelling the booking. The application of ICT helps in eliminating wastage of resources, hence increasing efficiency, reducing traffic jams and environmental pollution.

According to a taxi company's calculation, around \$100,000 VND (about US\$4.4) could be saved per car per day in terms of fuel costs and depreciation, owing to the use of ride-hailing apps on smartphones. The time saved, as compared to the traditional method of booking via call centres is around 30-50 percent, and is also associated with higher success rate. This also helps to reduce the distance covered by empty cars/taxis by 60 km per day.<sup>63</sup>

The entry of digital taxi companies also opened opportunities for everyone in Vietnam owning a vehicle (car or motorbike) or knowing how to drive, to earn income with higher flexibility. Many drivers and vehicle-owners in Vietnam stated that they could drive while juggling other commitments (family and business alike) or could choose to drive when demand was high.

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<sup>62</sup> See for example <<http://sggpnews.org.vn/business/traditional-taxi-firms-turn-to-technology-70134.html>>

<sup>63</sup> See <<http://basaotaxi.com/chay-dua-ap-dung-cong-nghe-trong-dieu-hanh-taxi/>>

The entry barriers were also lowered. In the past, many taxi companies in Vietnam signed deals with hotels, restaurants and popular places to have exclusive access to people frequenting these places. Taxi drivers and motorbike drivers also formed cartels or entered into deals with local mafias to be able to park their vehicles in waiting and pick up customers from certain areas. Now pickup is not in control of the hotels, restaurants, mafias, etc. anymore, so anyone may join, and of course, consumers in these locations now enjoy a much wider choice.

Finally, from the simple calculation below, it is easy to see that the digital taxi companies' drivers earn on average much more than the traditional taxi drivers or motor-bikers. This was further evidenced by the higher rate of new drivers signing up to partner with/work for digital taxi companies. It was recently estimated that there were about 24,000 Uber and Grab cars operating in HCMC, and 25,000 operating in Hanoi. This is almost twice the number of traditional taxis operating in these two cities.<sup>64</sup>

**Table 3.5: Comparison of Drivers' Income**

Taxi Drivers	Average Net Income per Month (VND)	Average Net Income per Month (US\$)
UberMoto driver	From 6,000,000-8,000,000	US\$264-352
GrabBike driver	From 7,000,000-9,000,000	US\$308-396
Local bike driver	From 4,500,000-6,000,000	US\$198-264
UberX driver	From 15,000,000 to 18,000,000	US\$660-792
UberBlack driver	From 18,000,000-20,000,000	US\$792-880
GrabCar driver	From 24,000,000-30,000,000	US\$1,056-1,320
Local taxi driver (Mai Linh)	From 10,000,000-12,000,000	US\$440-528
Local taxi driver (Vinasun)	From 10,300,000-13,500,000	US\$453-594

*Note: 1. The driver income is the net income retained by drivers after deducting fuel costs, 20-30 percent of fares for Uber/Grab/the taxi companies and other types of cost.  
2. The income of Uber and Grab driver is calculated for those driving their own vehicles. For local taxi drivers, the calculated incomes could be applicable for both those driving their own vehicles and those driving company cars.  
3. The income is for full-time drivers. We have not included any personal income tax to be paid by the drivers themselves.*

*Source: Compiled and calculated from various sources*

Drivers are also more assured now about occupational safety than before. Rude, aggressive and disruptive customers are automatically weeded out of the digital platforms, because if customers can rate their drivers, drivers can rate their customers as well. The accounts of those customers with consistently low ratings or those reported for unsafe behaviours towards drivers can be deactivated by the digital taxi companies.

<sup>64</sup> See <<http://cafef.vn/so-luong-xe-uber-va-grab-cham-muc-50000-chiec-gan-gap-doi-taxi-tai-ha-noi-va-tphcm-20171013103624032.chn>>

## Limitations and Challenges

Along with the benefits mentioned above, there are inevitably some downsides as well. For the riders, the highest cause for concern is the system of ‘surge pricing’ or ‘dynamic pricing’, which is not necessarily comprehensible for a layperson, despite their benefit of regulating demand and supply. There is also the risk of ‘differential pricing’ or ‘monopolistic pricing’ by the companies/apps. The survey results highlighted that 44 (nearly 41.9 percent) respondents thought that the surge/dynamic pricing mechanisms used by digital taxi companies lacked transparency, while 39 (about 37.1 percent) remained neutral. However, at the moment, competition is too fierce amongst apps and between the digital taxi companies and the traditional taxi companies. Both consumers and drivers could still multi-home, especially the consumers could still choose to use their private vehicles, which eventually add another layer of competitive pressure on the apps.

While for riders, low fare is an advantage; for drivers, low fares impact their earnings. Moreover, with the continued intake of new drivers by digital taxi companies, added by cut-throat price competition, drivers’ average earnings are expected to be pushed downward. This means that drivers might have to work longer hours to earn an income comparable to what they earned a year or two years ago. Unfortunately, while this means that there is a larger supply of drivers – longer hours behind the wheel will jeopardise the safety of both drivers and passengers. These conditions, coupled with customer trip cancellations, can cause a driver to miss opportunities of making money during the busiest hours, and can have a negative impact on drivers’ earnings and morale.

In Vietnam, it has also been complained that the digital taxi companies engaged in unfair competition, predatory pricing (using their deeper pockets to offer many promotions and discounts to lure customers) and tax evasion.<sup>65</sup> More recently, there were reported cases of violence, sexual harassment, theft and rape by digital taxi companies’ drivers.<sup>66</sup> Many were concerned that the procedures used by the digital taxi companies to recruit drivers are insufficient to ensure passengers’ safety. However, the feedback system and SOS alarm, pre-installed in digital taxi companies’ apps, have helped to ease these concerns to some extent.

Finally, Uber has attracted a lot of criticisms when it was revealed that its app continues to track customers even after their rides had ended.<sup>67</sup> Customers in many countries have expressed concerns about their privacy, though not many seemed to be fully aware about this or had raised this issue in Vietnam so far. Only 3 (around 2.86 percent) respondents in the survey stated that their reason for not using the digital ride-hailing apps is because they do not want to share their geo-data and other personal data with these companies.

<sup>65</sup> See for example <<https://baomoi.com/uber-grab-bi-kien-tron-thue-bo-tai-chinh-phan-xu/c/22768981.epi>>, <<https://kinhdoanh.vnexpress.net/tin-tuc/doanh-nghiep/grab-uber-bi-kiem-tra-thue-3611754.html>>, and <<https://www.talkvietnam.com/2017/12/uber-accused-of-violating-vietnamese-regulations/>>

<sup>66</sup> See for example <<https://news.zing.vn/nu-hanh-khach-bi-tai-xe-uber-danh-can-xin-loi-khong-doi-boi-thuong-post797893.html>>, <<https://thanhvien.vn/thoi-su/lai-xe-om-uber-cuop-hiep-dam-khach-hang-909535.html>>, and <<http://cand.com.vn/Ban-tin-113/Tam-giu-doi-tuong-lay-trom-tai-san-cua-nguoi-nuoc-ngoai-452464/>>.

<sup>67</sup> See for example <<http://www.latimes.com/business/technology/la-fi-tn-uber-ftc-20170815-story.html>> and <<https://9to5mac.com/2017/08/29/uber-tracking-riders-five-minutes/>>

## **Conclusions on Case Study 1**

The positive impacts of the DE, in this case a new business model and more efficient use of ICT, are quite evident. Consumer welfare, in terms of more affordable price, wider choice, better access, and more convenience and safety, was significantly improved by the entry and successful competition of the digital taxi companies in the Vietnam market. The overall taxi industry has also benefited in terms of innovative ideas and increased efficiency, since the traditional taxi companies had to rise to the competitive challenges posed by digital ride-hailing apps. Benefits for the general society, except for those accrued specifically to the consumers, included less environmental pollution, additional employment, higher occupational safety, and income generation at flexible schedule for drivers. Consumer experiences, as gauged from the survey results, supported these conclusions.

Vietnam is currently in the process of completing the legal framework to better regulate this new business model/industry sector, which hopefully will ensure a fair business environment and protecting consumers' interests, while making the best use of benefits that the digital economy has to offer. In this context, it is important to be abreast of the perceptions, experiences and views of all relevant stakeholders, including consumers and drivers – those who have benefited from/affected by the deployment and development of ICT, while formulating the governing policies.

Furthermore, the government should continue its support to fostering a vibrant start-up culture, in which new home-grown businesses and business models could emerge and grow. It is only then that a 'truly' DE could be developed in Vietnam, to the benefits of consumers, entrepreneurs and workers alike.

## 4 Case Study 2: E-Learning

### Box 4.1: Key Takeaways

- Adoption and application of digital technologies could help developing countries to attain the goals set under SDG#4 which is to “Ensure inclusive and quality education for all and promote lifelong learning”.
- E-learners benefit from better accessibility, more flexibility and affordability. This in turns enables human development and societal inclusion.
- Acquiring digital skills and knowledge is important to more meaningful participation in the DE.
- There is a need to facilitate access to technologies and foster cultural/social acceptance, in order for E-learning to deliver its promised benefits.

In recent years, governments around the world have invested heavily in ICT in schools. The quality of schools’ educational resources, including ICT and connectivity, has increased greatly as a result. However, it has been alleged that the introduction of digital technologies in schools has not resulted in the promised improved efficiency through better results at lower costs. There is a weak or even negative association between the use of ICT in education and students’ performance in mathematics and reading for example, even after accounting for differences in national income and in the socio-economic status of students and schools.<sup>68</sup>

Part of the explanation for this must lie with the dominant focus on hardware, technology and connectivity, both among suppliers of goods and services and among policy makers. Schools and the conventional education system are not yet ready to realise the potential of technology. Gaps in digital skills, of both teachers and students, difficulties in locating high-quality digital learning resources and software from among a plethora of poor-quality ones, a lack of clarity over learning goals, and insufficient pedagogical preparation on how to blend technologies meaningfully into lessons and curricula, have driven a wedge between expectations and reality.

Despite these challenges, the potential of using digital technologies for improving education and learning could not be completely negated. One of the most visible ways is through the spread of E-learning, the availability and use of open educational resources and new forms of courses (massive open online courses - MOOCs) which are made available for teachers, schools and individuals to engage in self-directed learning.

E-learning is reputedly the innovation of the digital age that has garnered the highest level of venture capital investment so far. It is also said to promise a revolution in pedagogy, for being customised, self-paced and problems-based. It extends learning beyond the realm of formal education systems, facilitating corporate training programmes, and adult (or rather life-long) learning. Last but not least, E-learning has the potential to transform distance education, and to make education more inclusive, by reaching the last-mile and under-privileged citizens.

<sup>68</sup> OECD (2016), *Innovating Education and Educating for Innovation: The Power of Digital Technologies and Skills*, OECD Publishing, Paris <<http://dx.doi.org/10.1787/9789264265097-en>>

E-learning is therefore likely to have a greater potential in developing countries than in developed nations, due to the great need for education to speed-up development and the potential for enrolment. As a result, it could turn out to be a powerful instrument for the attainment of the 4<sup>th</sup> Sustainable Development Goal (SDG#4) which is to “Ensure inclusive and quality education for all and promote lifelong learning”.<sup>69</sup>

## Concept

E-learning, simple as it may seem, is still a broad concept in search of consistent definition. In general, E-learning refers to the use of ICT to support learning and/or deliver education, either in a synchronous or asynchronous format. Synchronous format is a condition where lessons are carried out in real-time and led by instructor(s), while asynchronous format is self-paced whereby each individual progresses according to one’s own pace.

Mostly, when people mention E-learning, they still assume the reference relates to distance education, or education delivered on the Web. In fact, the most successful forms of E-learning are the courses delivered on the Internet – courses that teach a particular subject; courses that are part of a degree programme, most often at the graduate or professional level; and finally, courses that offer certification for a vocational or technical skill. More broadly, E-learning could also embrace the development and expansion of learning management systems (LMS), such as BlackBoard and WebCT, that organise courses and present materials online; and the development of learning materials and resources that involve electronically mediated learning in a digital format, which is interactive but not necessarily remote.

In particular, in the last five years, online education has found its peak moment with the emergence of MOOCs. MOOCs are fully fledged courses of lectures made available online without charge to a very large number of people. True to their name, MOOCs are usually delivered on a significant scale. According to data collected by Class Central, the total number of students who signed up for at least one MOOC has crossed 35 million in 2016, up from an estimated 16-18 million in 2015.<sup>70</sup>

## Benefits

E-learning has grown steadily in recent years as a complementary option for formal education within the traditional school system, especially *vis-a-vis* higher education. It is increasingly being viewed not only as a means for delivering education, but also as a means of acquainting students in using ICT tools and platforms, i.e. digital literacy, which is highly required in the context of the DE gaining supremacy all over the world. MOOCs, in particular, appear to be well-suited to enable people to enhance their competencies over their lifetime by overcoming time and resource constraints. The clearest evidence of the benefits that E-learning could potentially bring about is probably shown by the massive adoption by consumers/learners,<sup>71</sup> as well as the amount of private investment going into educational technology (EdTech)<sup>72</sup> companies.

<sup>69</sup> For more information see <<https://sustainabledevelopment.un.org/sdg4>>

<sup>70</sup> Docebo (2016), *E-learning Market Trends and Forecasts 2017-2021*, available for download at <<https://eclass.teicrete.gr/modules/document/file.php/TP271/Additional%20material/docebo-elearning-trends-report-2017.pdf>>

<sup>71</sup> *Ibid.*

<sup>72</sup> Investopedia (<https://www.investopedia.com/>) defines EdTech as softwares designed to enhance teacher-led learning in classrooms and improve the outcome of student education. EdTech encompasses everything from the simple use of computers to teach maths

In 2013, it was estimated that the global market for 'self-paced e-learning'<sup>73</sup> generated a total revenue of US\$42.7bn, which is expected to reach US\$53bn by 2018.<sup>74</sup> According to another study, the size of the global E-learning market was estimated to be over US\$165bn in 2015 and is likely to grow by 5 percent between 2016 and 2023, exceeding US\$240bn. EdTech start-ups attracted 416 funding deals in 2016, worth a total of US\$1.7bn.<sup>75</sup>

Specifically, E-learning could be said to offer the following benefits:

- **Accessibility:** E-learning offers the opportunity for information to be presented in various forms – text, sound, pictures, etc. More than that, it affords the opportunity for the information to be stored in various media and formats over long periods of time and accessible over long distances. Compared to face-to-face learning, these media can provide means of revision several times over in a day and over a period in a manner more accurate and convenient to students/learners who are at the centre of the teaching and learning activity. These facts are not only true for primary education; their relevance spans all levels of education, and even extends to corporate training.
- **Flexibility:** E-learning offers great flexibility in learning. This flexibility, provided by the various forms in which the learning material can be presented, allows the students a variety of options to learn from at their own pace and time. In a digital setting, it may be possible to adapt the pace of learning to the learner, not only in terms of total time to complete a course or programme, but also the route each learner takes to arrive at the end of the course. When courses are designed around learning objects, for example, students may choose to skip lessons on topics they have already mastered or to view lessons in a different order. In this respect, the learner enjoys more freedom than would generally be the case in a conventional environment, to the degree of having the learning experience completely 'individualised'.<sup>76</sup>
- **Affordability:** E-learning also offers lower cost to students. As mentioned above, there are different e-learning products and packages, and students have the option to select products and packages that suits their budget, instead of paying standard tuition fees. Some of these are often one-off purchase or payments which place little or no burden on the student who needs to learn. Learners could also register for the free-of-charge MOOCs developed and put online everywhere around the world.

All these three attributes of affordability, accessibility and flexibility mean E-learning has the potential of making education more inclusive than it has been in the past. It helps to bridge geographical limitations, especially for people living in remote areas; and overcome financial resource constraints, particularly in the context of developing or least-developed countries where a majority of students/learners could ill-afford the tuition fees due to poverty.

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and reading to children in elementary schools, to the submission of homework online, entire online degree platforms, informal mobile learning applications, gamification or virtual reality techniques, but the concept is most relevant in expressing the application of new-generation digital technologies in learning and education.

<sup>73</sup> For reference, the self-paced e-learning market is part of the larger e-learning market and includes LMS, authoring tools, packaged content, and services related to the three main categories.

<sup>74</sup> Ambience Insight (2014), *The 2013-2018 Asia Self-Paced E-Learning Market*, overview available at

<<http://www.ambientinsight.com/Resources/Documents/AmbientInsight-2013-2018-Asia-Self-paced-eLearning-Market-Executive-Overview.pdf>>

<sup>75</sup> See Footnote 70

<sup>76</sup> For a more detailed discussion on this, see Viktor Mayer-Schonberger & Kenneth Cukier (2017), *Big Data – The Essential Guide to Work, Life and Learning in the Age of Insight*, ISBN 13: 9781473647206

Furthermore, E-learning also provides more avenues for human development and increased educational opportunities. After the initial educational experience at the primary and secondary levels, people aspire for more specialised educational experience for their professional life. But often because of working conditions and problems with funding, many people are unable to pursue higher education at the tertiary level. E-learning provides a variety of avenues for human development. People of all ages with little or much experience in formal education can develop themselves through the opportunities afforded by E-learning. All of these, in no small terms, ensure a knowledgeable society in a fast growing digital world.

## Challenges

Despite these obvious benefits, many challenges exist which, unless being carefully addressed, could potentially turn E-learning into another ‘thwarted innovation’<sup>77</sup> just like the initial application of ICT in the education system. In addition to ensuring the good quality and attractiveness of the curriculum, course content and/or learning materials, the availability of feedback mechanisms, proper monitoring and evaluation (M&E), etc., the following challenges need to be addressed to ensure the successful deployment of E-learning in any country:

- First and foremost, for successful implementation and widespread adoption of E-learning, **having access to technology** is a crucial factor. Access here implies the physical access to a computer, an Internet connection, the reliability of the connection and bandwidth, as may be needed to access the full range of the content offered. In poorer countries, many individuals and institutions might have little or no access to computers and other technologies like the Internet. Even if the contents can be disseminated via second storage devices, they still do not have the means to read the content.
- The **cost of the technologies needed** in setting up E-learning systems and materials is another important factor. This is in particular a concern where developing-country governments or public institutions want to embrace E-learning and provide educational opportunities to citizens free or with low charges. This limitation, however, could be overcome by entering into partnership with the private sector, or using open-source technologies and other open educational resources already made available on the Internet.
- A third major challenge in this regard is the **cultural/social acceptance or attitude towards E-learning** and ICT. The beliefs and attitudes of decision-makers in a political system will affect the growth of both technology and e-learning in a country. The political backing and support from policymakers will ensure that appropriate policies are adopted and will also encourage schools to adopt E-learning. Some research findings show that, at times, both teachers and students question the credibility of E-learning courses with the perception of E-learning being inferior to traditional courses. The situation is worse when non-acceptance is extended to the professional setting or the workplace. If employers and recruiters do not recognise online degrees, or see knowledge and skills attained digitally as being inferior to those provided by established educational institutions, the learners’ motivation and incentives would be negatively affected and ultimately the appeal of E-learning would be corroded, partially or completely.

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<sup>77</sup> See for example Zemsky & Massy (2004), *Thwarted Innovation: What Happened to E-Learning and Why*, available for downloads at <[https://www.immagic.com/eLibrary/ARCHIVES/GENERAL/UPENN\\_US/P040600Z.pdf](https://www.immagic.com/eLibrary/ARCHIVES/GENERAL/UPENN_US/P040600Z.pdf)>

## E-learning Scenario in Vietnam

Since the year 2000, the GOV has identified e-learning as a key factor to drive educational growth; and several policies have been made in an effort to promote the development of E-learning in Vietnam.<sup>78</sup> The GOV then signed an agreement with the telecom operator Viettel to improve the school systems' ICT infrastructure, which provided free Internet access (72 percent of which was broadband) to all 29,500 schools reaching over 26 million students and teachers in the country.<sup>79</sup> In May 2014, the Ministry of Education and Training (MOET) and Viettel signed the Phase 2 Agreement to use the deployed infrastructure to enhance E-education with various ICT applications such as E-books, E-schools, and E-learning in the period 2014-2020.<sup>80</sup>

However, E-learning deployment within the academic system in Vietnam has not really taken off, mostly due to the over-focus on hardware and remaining confusion between digitisation of educational contents and online education. It is only when the private sector stepped in and turned the sector on its head, focusing more on the learners and viewing education increasingly as a profitable customer service, that the E-learning market in Vietnam started to boom.

Ambient Insight's report *Asia-Pacific Self-paced E-Learning Market* identified Vietnam as one of the fastest growing online education markets in the world with a growth rate of 44.3 percent in 2013, and a forecast of 44 percent increase for the whole period 2013-2018, which is promoted by the huge demand for learning new languages and skills.<sup>81</sup> Another push came with the promulgation of the Circular No. 19/2015/TT-BGDĐT by the MOET about changing diploma regulations, which repealed the different displays of programmes and terminated the discrimination between full-time degree and distance learning<sup>82</sup>. E-learning became more attractive for those who wish to pursue a diploma and EdTech companies in Vietnam immediately rose up to capture the opportunities.

Early movers in the E-learning market in Vietnam include companies such as Bach Kim (<https://violet.vn/>), hocmai.vn, TOPICA (<https://topica.edu.vn/>), etc., which started well before the year 2010, but focused mostly on foreign language (English) training and the K-12 segment (additional tuition, test/exam preparation, etc). TOPICA, in particular, is one of the first E-learning providers in Vietnam which promote and operate E-learning in the higher education segment and issue bachelor degrees on Business Administration, Accounting, and Business Law, by entering into partnership with several universities in the country. Then in 2015 FUNiX (<https://www.funix.edu.vn/>), a new E-learning centre of FPT University, the leading ICT University in Vietnam, was launched officially.

The first MOOCs in Vietnam were developed by GiapSchool (<https://giapschool.com/>) in 2013. This segment then further grew with the participation of FUNiX and then Sedu (<http://hoc.sedu.vn/>), a non-for-profit project currently implemented by a group of independent experts and volunteer for the purpose of further promoting E-learning in Vietnam.

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<sup>78</sup> See for example Anh H. S. (2012), *E-learning for Vietnam high school student*, retrievable from <<http://chuyenquangtrung.edu.vn/bai-viet-ve-khoa-hoc-giao-duc>>

<sup>79</sup> See Footnote 74

<sup>80</sup> See BaoMoi.com (2014), *MOET and Viettel Corporation signed a cooperation agreement on comprehensive IT and telecommunications*, retrievable from <<http://www.baomoi.com/Bo-GDDT-va-Tap-doan-Viettel-ky-thoa-thuan-hop-tac-toan-dien-ve-CNTT-va-vien-thong/59/13926258.epi>>

<sup>81</sup> See Footnote 74

<sup>82</sup> See the Circular at <[http://moi.gov.vn/vbpg/lists/vn%20bn%20php%20lut/view\\_detail.aspx?itemid=30693](http://moi.gov.vn/vbpg/lists/vn%20bn%20php%20lut/view_detail.aspx?itemid=30693)>

By the end of 2016, Vietnam had in total 309 projects investing into the educational technology sector, with the total amount of registered capital exceeding US\$767 million.<sup>83</sup> By 2015, at least 67 edTech start-ups have received venture capital investment, with about three to four projects in E-learning. The top five E-learning providers in Vietnam currently are TOPICA, FUNiX, Kyna (<https://kyna.vn/>), Tienganh123 (<https://www.tienganh123.com/>) and eGroup (<http://egroup.vn/>), amongst which Kyna is standing out with its niche online courses on soft skills development.<sup>84</sup>

## E-Learners as Consumers

Even with all the aforementioned hypes, e-learning could only be truly successful and bring in the much-needed innovations and improvements to learning and education in general if it is embraced and adopted by learners/students, i.e. consumers in the market. For this to happen, the learners/consumers need to be able to appreciate the many benefits that E-learning has to offer, including cost-effectiveness, convenience, flexibility, easier access and lifelong learning opportunities, etc., as mentioned above.

They also need to be able to overcome the inherent challenges (with or without support) to participate in E-learning in a meaningful way for knowledge attainment, skills upgrade and personal/professional development. Support, for example, could range from localisation of learning materials and course content (due to the limited English capability of Vietnamese learners in general), to promoting formal recognition of diplomas and certifications obtained online (to motivate/incentivise E-learners), or infrastructure development to ensure access to technology, especially in remote and poorer regions of the country.

In order to gauge consumers' adoption, as well as their perceptions and views towards e-learning in Vietnam, with a view to validating the aforementioned analyses on the benefits and challenges of E-learning, CUTS HRC undertook a consumer electronic survey within the framework of this project from February till April 2018. A 16-question questionnaire was developed and hosted on public portals, as well as disseminated through social media links, which generated in total 71 responses (see the table below for the demographic information of respondents). Since the survey was electronically implemented, the sampling method chosen was random, and all respondents remained anonymous, except for information about age, gender, employment status, location, and the highest level of education achieved. The respondents were all residents of Vietnam, who have either taken online courses, earned online degrees/certificates or participated in MOOCs.

Respondents were first queried about the types of E-learning they have taken so far, their means/mode of access, their purpose/s for engaging in E-learning, whether the purpose/s had been successfully achieved or not. Then in the more subjective questions, respondents were asked to indicate their level of agreement with a number of *pre-forma* statements, regarding their personal motivations to choose E-learning (such as convenience and flexibility, accessibility, and affordability, etc.); their actual experiences with E-learning (with regards to relevance of

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<sup>83</sup> See <<http://www.antconsult.vn/news/education-startup-will-flourish-in-vietnam.html>>

<sup>84</sup> See Nhipcaudautu.vn (2017), *Online Education: Which Model?*, retrievable from <<http://nhipcaudautu.vn/cong-nghe/ict/giao-duc-truc-tuyen-mo-hinh-nao-se-thanh-cong-3318137/>>

learning topic, content of learning materials, interactions, availability of feedback and evaluation mechanisms, and acceptance in the job/professional market as compared to formal/traditional degrees/training, etc.); as well as the overall state-of-play of the E-learning market in Vietnam.

Finally, respondents were asked whether or not they would continue with E-learning in the future, whether they thought E-learning could entirely replace conventional education or could be a useful complement to make the educational system in Vietnam better than before, as well as their recommendations on how to improve and promote inclusive education using digital technologies in the country. Most respondents answered the questionnaire in full, only with some skipping the open-ended questions about perceptions and recommendations, or when their answers were not included in the list of responses available.

**Table 4.1: Demographic Information of Respondents to 2018 Consumer Survey on E-learning**

<b>Demographic Information of Respondents to 2018 Consumer Survey on E-Learning</b>			
		<b>Value (Total: 71)</b>	<b>Percentage (Total: 100%)</b>
<b>Age</b>	Below 18yrs	1	1.41%
	18-24yrs	16	22.54%
	25-34yrs	31	43.66%
	35-44yrs	19	26.76%
	45-54yrs	4	5.63%
	55-64yrs	0	0.00%
	Above 65yrs	0	0.00%
<b>Gender</b>	Male	25	64.79%
	Female	46	35.21%
	Other	0	0.00%
<b>Employment status</b>	Currently unemployed	1	1.41%
	Full-time employee	43	60.56%
	Part-time employee	3	4.23%
	Entrepreneur	6	8.45%
	Retired	0	0.00%
	Student	14	19.72%
	Housewives	0	0.00%
	Others	4	5.63%
<b>Location</b>	Hanoi	58	81.96%
	Ho Chi Minh City	2	2.82%
	Others	11	15.22%
<b>Highest level of education achieved so</b>	Primary school	0	0.00%
	Secondary school	1	1.41%
	High school	5	7.04%

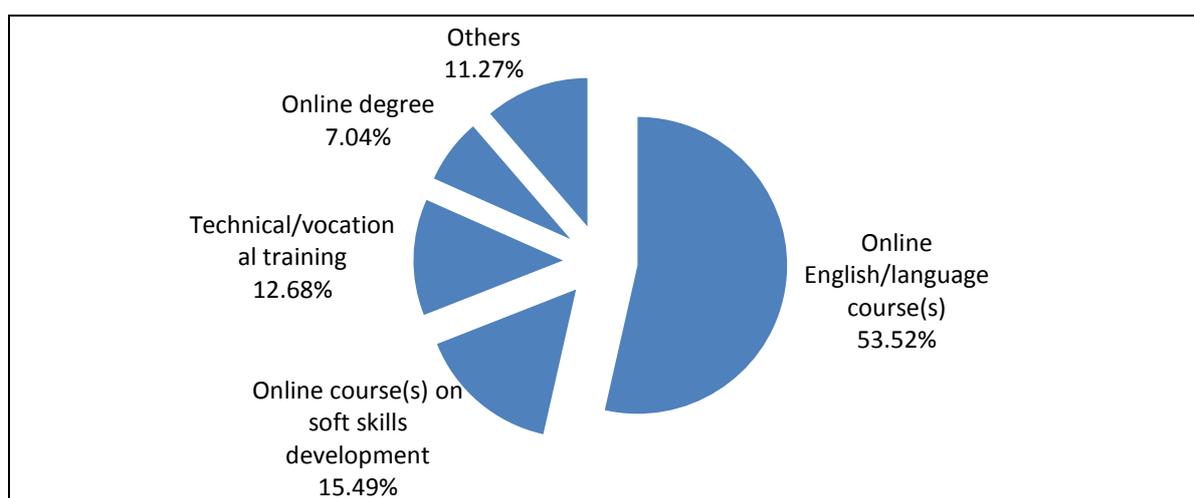
Bachelor degree	52	73.24%
Technical/Vocational certificate	4	5.63%
Master degree	9	12.68%
Doctoral degree	0	0.00%

The personal profile of respondents in our survey showed that most e-learners in Vietnam are between the age of 18 and 44 years old, which is also the peak time where people are most likely to engage in learning to obtain diplomas and degrees, or seek knowledge development and skills upgrading for professional promotion. More than 60 percent of respondents already had full-time employment, 73.24 percent already possessed a bachelor degree, which tend to indicate that they engaged in E-learning for adult/life-long educational purpose; whereas the 2<sup>nd</sup> most common category of learners are no doubt students.

Interestingly, even though most respondents indicated they are from the Hanoi area, quite a few are from the smaller provinces in Vietnam, with two from the mountainous areas (Bac Giang and Phu Tho provinces) and one from Phu Quoc island, which shows to some extent the potential of E-learning to deliver education in a more inclusive manner.

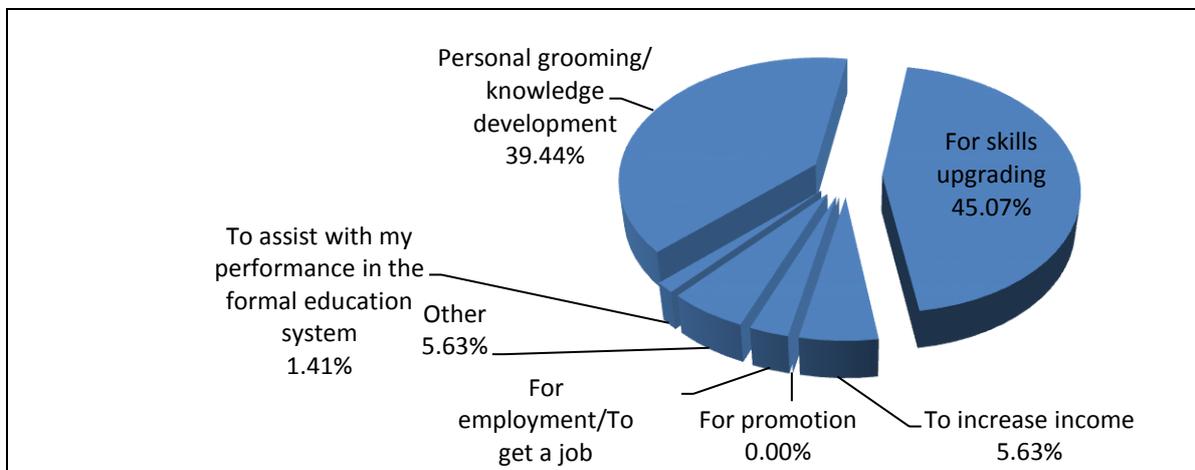
On the most popular topics/theme for E-learning, the survey results concurred with the literature review results on E-learning scenario in Vietnam presented earlier. A majority of E-learning courses that the respondents have taken so far are online English/language courses (53.52 percent). On the second place are courses on soft skills development, whereas five respondents have even pursued online degrees.

**Figure 4.1: What Type of E-learning have you been engaged in so far?**



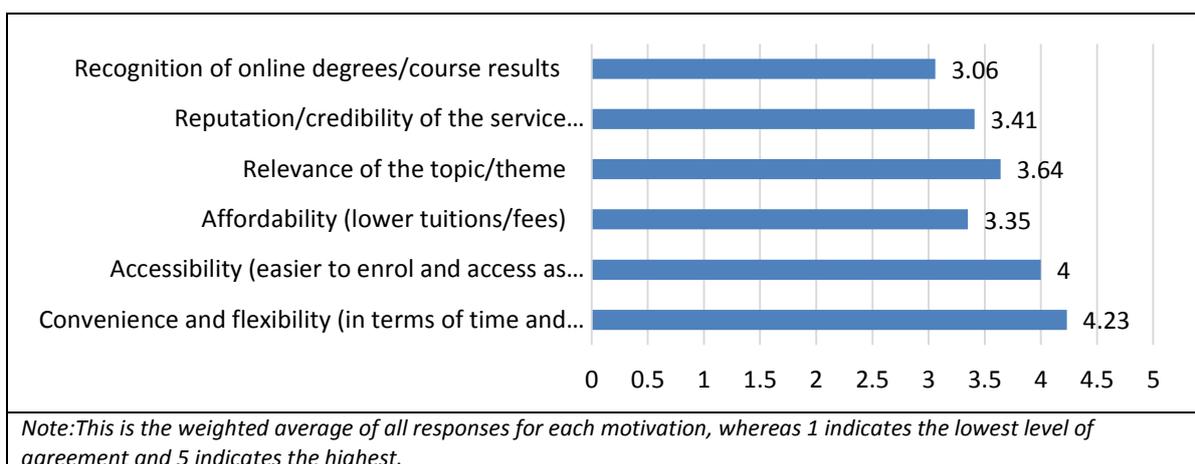
Close to 41 percent of all respondents used their laptops as the means of access to E-learning courses, while 31 percent used their PCs, and the rest used their smartphones, or both laptops and smartphones. As for the purpose for engaging in E-learning, a majority of respondents chose 'For skills upgrading/enhancement' (45.07 percent), and 'For personal grooming/knowledge development' (39.44 percent). This is in line with the conclusions we drew above based on the personal profiles of respondents.

**Figure 4.2: For What Purpose have you been engaged in E-learning?**

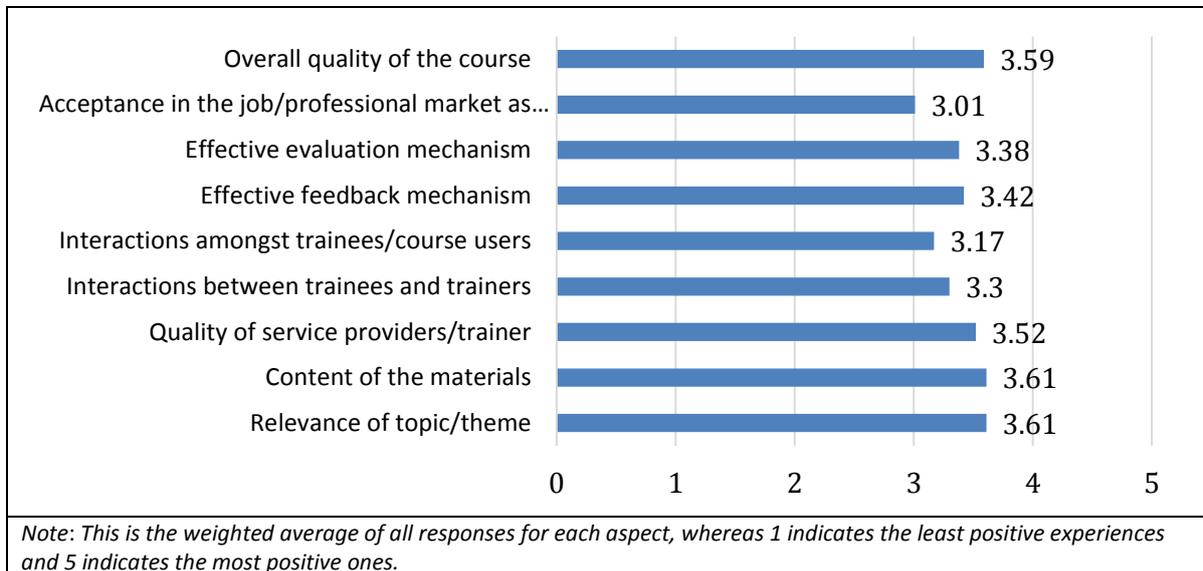


Most respondents have successfully achieved their stated purposes (73.91 percent), finding their participation in e-learning courses useful for expanding knowledge as well as upgrading skills, finding E-learning, as a mode of educational delivery, convenient and time-saving. Around 26 percent of respondents did not achieve their purposes due to time constraints and lack of personal commitments and motivation. Only a few respondents found E-learning, as a mode of educational delivery, inefficient and unsuitable. This result corresponds well enough with the motivations that respondents said to have incentivised them to choose E-learning, in response to the next question. Respondents tend to view E-learning as more convenient and flexible, accessible and affordable as compared to other more conventional forms of education.

**Figure 4.3: Motivation for Choosing E-learning**



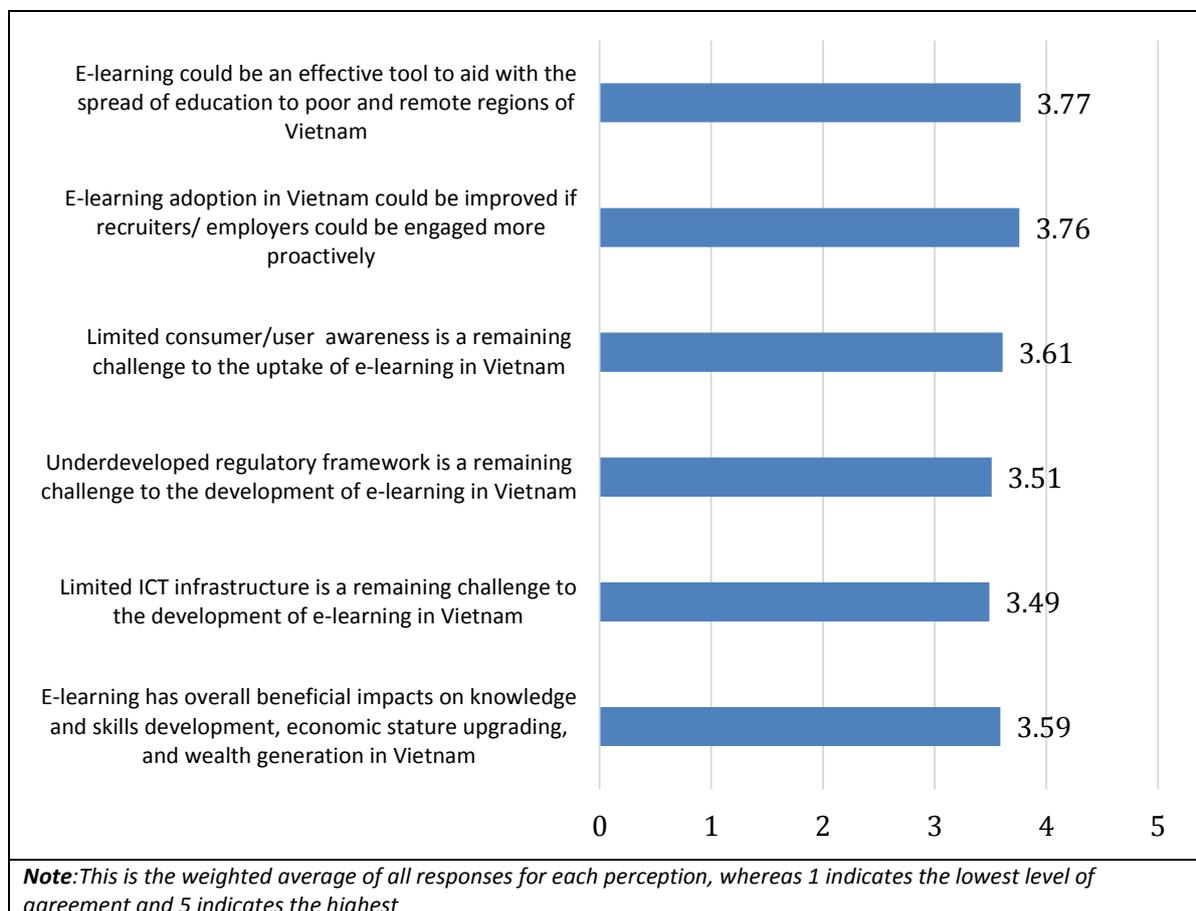
The overall experiences with E-learning have been towards the positive side for most respondents as well. Those aspects that were given the highest grades include the overall quality of the course, relevance of topic/theme, content of the materials and the quality of service providers/trainers. The respondents seem to worry most about the acceptance in the job/professional market of online certificates and degrees as compared to those obtained via conventional education channels, which is hardly surprising given that this is a challenge most commonly encountered against successful deployment and adoption of E-learning.

**Figure 4.4: Your E-learning Experiences**

In summary, the survey results indicate that most learners/consumers believed that E-learning could be an effective tool to aid with the spread of education to poor and remote regions of Vietnam, in other words, making education more inclusive. It is also believed to have overall beneficial impacts on knowledge and skills development, economic stature upgrading, and wealth generation.

However, the deployment and adoption of E-learning is still being constrained by a certain number of factors, such as limited ICT infrastructure, in particular the availability of bandwidth Internet access in rural and remote areas, limited consumer/user awareness and the under-developed regulatory framework. As a result, most respondents (88.06 percent) said they would continue to engage in E-learning in the future, believing it would greatly complement the conventional education system in Vietnam (96.88 percent).

**Figure 4.5: General Consumer Perceptions about E-learning Development in Vietnam, its Potential Benefits and Remaining Challenges**



## Conclusions on Case Study 2

In this case study, we have touched upon several aspects of learning in the digital age: the potentials of applying digital technology to innovate and improve education mechanisms for school education and life-long learning, the benefits of E-learning in delivering quality and inclusive education especially in the context of developing and least developed countries, the necessity of having digital skills and knowledge for meaningful participation into the DE, and the remaining challenges hindering the full deployment and adoption of E-learning across the board.

The DE has the potential to benefit the last-mile consumers and promote inclusive growth. And as evidenced in this specific case, the application of digital technologies and Internet connectivity has made education and learning more affordable and accessible for all, including the poor, the physically challenged and those located in remote regions. Being able to study at one’s own time and pace also makes it possible for the learners to pursue livelihoods and professional promotion in parallel. And certainly being equipped with additional knowledge and skills, especially digital skills, would facilitate the poor’s participation in the economy. All these attributes have proven to be applicable and relevant, as validated by the consumers/learners in Vietnam through our survey.

However, for E-learning in particular, and for the DE in general, to deliver their promised benefits, it is crucial that conducive conditions are created and maintained. These would include political support; enabling policies and laws; well-established infrastructure; and partnership between the government, public institutions and the private sector.

Furthermore, social acceptance needs to be fostered by raising the awareness of the consumers themselves, along with other stakeholder groups. While the overall quality of E-learning needs to be constantly improved, and the possibility to issue degrees and certificates for E-learning courses is guaranteed, what is equally important is that employers and recruiters recognise the value of E-learning and treat candidates with online education and degrees equally as those trained by the conventional education system.

E-learning could help developing countries to attain the goals set under SDG#4. In order for that to happen, government, businesses and industry need to work together to ensure that digital education, in the greater sense, facilitates accessibility and wider societal inclusion, so that every individual learner, of whatever age and background, has access to the opportunity for digital learning and the benefits which digital technologies can offer in this sector.

## 5

## The Regulatory Framework and Other Challenges

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In the previous sections, we have examined how the development of the digital economy in Vietnam has brought about immense benefits for consumers and providers of goods and services alike. We have also seen how, in recognition of this fact, the people, the business sector as well as the GOV have been enthusiastically embracing digitalisation, resulting in the further booming of the DE in the country. This takeoff, however, could also be attributed in part to the efforts of the GOV in building up a conducive policy environment for the ICT sector, as well as digital businesses and products, to thrive. Nonetheless, challenges remain with regards to how an appropriate regulatory framework could be designed and effectively implemented, as well as other problems, such as the low level of digital literacy, disruptions, cyber-crimes and security, data privacy, etc.

### The Regulatory Framework

Talking about regulatory challenges *vis-à-vis* the DE, it might be helpful to recall the commitment made by members of the OECD at their ministerial meeting in 2016 to *inter alia* “reduce barriers to investment in and adoption of the DE in all sectors [...], develop privacy and data protection strategies at the highest level of government, while also encouraging the availability and use of data, including public sector data, [...] adopt technologically neutral frameworks that promote competition, [...] reduce impediments to E-commerce within and across borders with policies that strengthen consumer trust and product safety”.<sup>85</sup> The problem is that these policy goals, for example of (1) enabling the DE (2) promoting competition and (3) protecting privacy and consumers more generally, are potentially conflicting and could pose serious regulatory challenges. Some of the challenges are given as follows:

- The existence of economies of scale and scope, including network effects, in the digital economy means that we are likely to see the emergence of more firms with dominant market positions. Such firms may adopt pricing practices and other strategies that may be seen as incompatible with basic competition rules and yet bring large overall benefits to consumers and producers. If we rigorously apply our traditional antitrust rules against these firms, we might run the risks of reducing their incentives to invest and innovate in the sector.
- Preserving intellectual property rights (IPRs) to provide incentives for innovation and new investment might reduce competition, which might, in turn, impede the dynamic development of the DE.
- While stronger consumer and privacy protection might help to preserve trust in the DE, and thus enable its further uptake, it might also slowdown innovations that rely on data as an increasingly critical resource.
- Current regulations were designed to suit specific business models, and thus might be used to prevent the emergence and growth of newer models. In other words, there is

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<sup>85</sup> OECD (2016), *Ministerial Declaration on the Digital Economy*, available at <<https://www.oecd.org/internet/Digital-Economy-Ministerial-Declaration-2016.pdf>>

problem of discriminatory regulations for similar services (though different probably in the delivery modes – digital versus analog) and competing companies (i.e. between digital and traditional firms).

- The modularity of the DE means that several sector regulators might be involved in drafting regulations for certain digital activities, resulting in regulatory overlaps as well as conflicts, posing the need for cross-sectoral coordination and cooperation.
- Last but not least, the dynamic nature of the digital economy means market conditions and technologies are constantly changing in ways that are difficult or impossible to predict. This means regulations imposed today may no longer be appropriate or may even become obsolete tomorrow, or next year. If we do not move fast enough to change to a dynamic *ex post* approach for regulations, in place of prescriptive, complex *ex ante* rules, we ultimately would end up with regulatory structures and policies that are mismatched to market realities.

Irrespective of these general considerations, countries all over the world have already put in place a wide range of laws and regulations governing the DE. Vietnam is also moving in this direction, as shown by the GOV's various strategy and policy documents, such as the E-commerce Master Plan and the IT Master Plan. However, given the nascent stage of the DE in the country, its regulatory framework is not yet fully developed. Here below in this section, we would briefly list the major laws and regulations pertaining to digital businesses and activities in Vietnam, and then focus on providing a critical assessment of the Vietnamese regulatory framework, from three broad perspectives:

- lack/absence of necessary regulations to govern different aspects of the DE
- how discriminatory regulations might slow down the development of the DE and
- how certain existing or prospective regulations are not appropriate for the dynamic digital markets

**Table 5.1: Major Laws and Regulations Concerning the Digital Economy in Vietnam**

1.	Law on Information Technology No 67/2006/QH11 of June 29, 2006
2.	Law on Telecommunications No. 41/2009/QH12 of November 23, 2009
3.	Law on Network Information Security No. 86/2015/QG13 of November 19, 2015
4.	Law on Radio Frequency No. 42/2009/QH12 of 23 November 2009
5.	Decision No. 05/2017/QD-TTg of March 16, 2017, providing for emergency response plans to ensure national cyber security
6.	Law on E-transactions No.51/2005/QH11 of November 29, 2005
7.	Law No. 21/2008/QH12 on High Technologies
8.	Law No. 50/2005/QH11 of November 29, 2005 on Intellectual Property
9.	Law No. 27/2004/QH11 of December 03, 2004 on Competition
10.	Law No. 59/2010/QH12 of November 15, 2010 on the Protection of Consumer Interests
11.	Decree No. 52/2013/ND-CP of May 16, 2013 of the Government on E-commerce
12.	Draft Cyber-Security Law (to be adopted in 2018)
<i>Source: Author's own compilation</i>	

## Lack of Necessary Regulations

A direct result of applying digital technologies into economic activities is that a host of new business models might appear in the market, sometimes providing the same products and services as the traditional firms (and thus competing rigorously with them and serving consumers in ever-more efficient ways), sometimes providing completely new products and services. Many such examples could be cited here:

- ‘Digital taxi companies’, such as Uber and Grab are competing with traditional taxi companies in the urban transportation market.
- Airbnb, an online marketplace and hospitality service for people to lease or rent short-term lodging, is competing with traditional hotels and real estate providers. In Vietnam, there are also a big host of other specific online accommodation and tour booking sites, such as *Agoda.com*, *Booking.com*, *Traveloka*, *Chudu24.com*, *Mytour.com*, etc., that are now operating in the market.
- Amazon, an electronic commerce and cloud computing company, is competing with traditional supermarkets, department stores and other retailers all over the world. The E-commerce sector in Vietnam is currently dominated by companies such as *Tiki.vn*, *Alibaba’s Lazada*, *Zalora*, etc., not to mention the likely entry of Amazon in the near future. Recently, even Facebook became a very dynamic marketplace preferred by small vendors and price-sensitive consumers in the country.
- Tech firms like Facebook, Google and Microsoft are competing successfully with traditional telecoms services providers, not just with regards to OTT services, but also in operating network infrastructure, etc.

The emergence of new business models or new products and services in the DE, while undoubtedly benefiting consumers in many ways, are putting Vietnamese regulators in a difficult position. New regulations have to be crafted, but at times, it is not clear how to categorise these firms, products and services. The urban mobility sector, as described in Case Study 1, is a good example. Even after a two-year pilot scheme to study how the services of Grab and Uber and the likes could be best regulated, the Ministry of Transport (MoT) of Vietnam was still not yet close to a resolution whether to treat them as contract vehicles, or taxis running on electronic platforms. In the meantime, Grab and Uber both claimed that they were only technology companies, and not transportation ones, and thus should not be subject to the regulatory power of the MoT.<sup>86</sup>

Taxation is another area where the regulatory framework is lagging behind as compared to the developments of the DE. The GOV has been struggling with finding appropriate measures to collect taxes on multimillion-dollar revenues from global Internet giants, such as Google and Facebook. No official statistics are available as to how much Facebook and Google have made from their operations in Vietnam, because neither company has an official representative office or licensed entity here.

However, the Ho Chi Minh City Tax Department recently examined revenue data related to the companies stored at a bank headquartered in District 3, HCM City, which showed that 423,000

<sup>86</sup> See, for example, <<http://sggpnews.org.vn/business/regulations-must-be-revised-to-manage-grab-uber-minister-73032.html>>, <<http://vietnamnews.vn/economy/422588/vietnamese-taxi-company-sues-grab-for-unfair-business-practices.html#xDOopzziUksQ3Ysp.97>>, and <<http://english.vietnamnet.vn/fms/business/192626/vietnam-to-review-uber--grab-legal-status.html>>

transactions worth a total \$672.8bn VND (approximately US\$29.64mn) were made in 2016. According to this bank and three other credit institutions, a total of \$1,052bn VND (nearly US\$46.34mn) were sent to Facebook and Google headquarters as earnings in Vietnam, in the same year, made via advertising and other commercial activities were made by the Vietnamese companies on their platforms. Local tax authorities, however, were unable to collect a single penny due to lack of appropriate tax regulations.<sup>87</sup>

Consumer protection is another case in point, where the lack or absence of clear rules regarding product quality and liability, and dispute settlement mechanisms for digitally-made transactions, might potential erode consumers' trust and affect the long-term growth of the E-commerce sector. At present, the regulatory framework for this area includes only the Consumer Protection Law 2010, and some provisions of the Law on Information Technology 2006 and the Decree No. 52/2013/ND-CP of May 16, 2013 of the Government on E-Commerce (see Table 5.1), which provide for the basic principles in protecting consumer interests in the DE. These comprise of the definitions and different types of E-commerce activities, online contracts, and protection of consumers' personal information, etc.<sup>88</sup> However, they are far from completion and also lack teeth.

## Discriminatory Regulations

Another problem with the digital 'tech' companies and the services they provide is that they are typically regulated under general competition and consumer protection regimes, while the traditional companies and their offerings are generally still subject to industry-specific rules and regulations, *in addition to* competition and consumer protection laws. This means the DE participants face much lower regulatory burdens, which might lead to disruptions and dissidents with grave social consequences. The protest of traditional taxi companies in Vietnam is a case in point. Vietnamese traditional taxi companies complained that they have to comply with at least 13 different government regulations, whereas companies such as Uber and Grab only have to deal with three types, thus creating unfair competition.<sup>89</sup>

Another example is the dispute between traditional telecommunications service providers and OTT applications and services. In May 2015, the European Commission stated in its Digital Single Market communication, "Telecoms operators compete with services which are increasingly used by end-users as substitutes for traditional electronic communications services, such as voice telephony, but which are not subject to the same regulatory regime".<sup>90</sup> In response, the Commission was going to re-examine a wide array of policies that affect the Internet sector, including cable and broadcasting, privacy, cyber-security, and the regulatory framework governing telecoms providers and Internet platforms.

<sup>87</sup> See, for example, <<https://tuoitrenews.vn/news/business/20171214/vietnam-taxman-has-self-to-blame-for-failure-to-have-facebook-google-pay-taxes/43146.html>>, and <<http://sggpnews.org.vn/national/tax-payment-of-google-facebook-in-vietnam-considered-not-sufficient-74380.html>>

<sup>88</sup> See Hogan Lovells (2013), *New Decree on E-Commerce: For a Deeper and Stronger Regulation of E-Commerce in Vietnam*, available for download at: <[http://www.hoganlovells.com/files/Uploads/Documents/Vietnam%20newsflash%20New%20Decree%20on%20E-commerce%20For%20a%20Deeper%20and%20Stronger%20Regulation%20of%20E-commerce%20in%20Vietnam%20HKGLIB01\\_1050055.pdf](http://www.hoganlovells.com/files/Uploads/Documents/Vietnam%20newsflash%20New%20Decree%20on%20E-commerce%20For%20a%20Deeper%20and%20Stronger%20Regulation%20of%20E-commerce%20in%20Vietnam%20HKGLIB01_1050055.pdf)>

<sup>89</sup> See, for example, <<https://www.straitstimes.com/asia/se-asia/vietnams-taxi-company-sues-grab-for-unfair-business-practices>> and <<https://tuoitrenews.vn/news/business/20180309/vietnam-to-put-grab-uber-under-taxilike-regulations/44444.html>>

<sup>90</sup> European Commission (2015), *A Digital Single Market Strategy for Europe*, available at <<http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=144773803386&uri=CELEX%3A52015DC0192>>

In Vietnam, the Ministry of Information and Communications (MIC) was drafting a regulation which was expected to bring foreign messaging applications under government control to be able to continue operating in the country. Under the proposals, OTT services, such as Viber, Line, Skype, and WhatsApp must install servers in Vietnam or sign deals with local telecommunications companies in order to use and monetise from their networks.

This policy move was clearly motivated by local telecom service providers in Vietnam (mostly State-owned) who have been lamenting about unfair competition from OTT services. “While Vietnamese companies providing telecom services have to strictly follow Vietnamese laws, pay tax and fulfill many other duties, foreign OTT firms are providing services on the country’s broadband infrastructure and do not have to undertake any obligations”, a senior executive of a large mobile network in Vietnam reportedly said.<sup>91</sup>

The draft regulation by MIC is obviously very close to other proposals by Internet Service Providers (ISPs) to their respective regulators around the world, allowing them to charge OTT services for using their networks, which are much criticised by digital businesses. In the US, uncertainty about whether and how the Federal Communications Commission (FCC) would intervene in relations between OTT providers and ISPs has persisted for more than a decade. The Commission’s prior efforts to regulate have twice been overturned by the courts.<sup>92</sup> The DE businesses, however, generally advocated that ‘when competitors are subject to differing regulatory obligations, parties should seek to facilitate trade by applying the least burdensome regulatory obligations to all such competitors’.<sup>93</sup> In other words, they seek to de-regulate as much as possible, instead of creating new regulations that subject them to the same regulatory regime as traditional businesses.

These examples are not intended to argue whether it is unnecessary or inappropriate to regulate the DE. Validity aside, discriminatory regulations and the corresponding lack of legal certainty at present would result in costs for both the consumer and the market, as well as the government. Consumers would suffer from confusion regarding which measures of protection apply to which types of products and services. The market would also bear some costs, since discriminatory regulations would ultimately result in less competition, which might deter entry and slow down innovation in some segments, inhibiting overall long-term growth. And finally, the government would also suffer because it would become more difficult and costly to achieve the legitimate public interest objectives of regulations, given the different conflicting claims made by different industry groups. The draft regulation on OTT services in Vietnam might not have seen the light after four years in the making due to this very reason.

## **Inappropriate Regulations**

Finally, in the search for the right regulatory framework for the DE, countries should try not to end up with inappropriate regulations. Inappropriate regulations will increase the cost of doing business, limit innovation, hamper growth and ultimately result in lessened consumer welfare.

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<sup>91</sup> See, for example, <<https://www.telecomstechnews.com/news/2014/dec/05/draft-bill-bring-ott-apps-under-control/>>, <<http://vietnamlawmagazine.vn/ott-service-providers-subject-to-stricter-requirements-1715.html>>, or <<http://vietnamnews.vn/economy/262825/circular-regulates-ott-services.html#t4fdGhb0siwr1T02.97>>

<sup>92</sup> See Kendall (2015), *Appeals Court to Hear Arguments over FCC’s Net Neutrality Rules*, Wall Street Journal, available at <<https://www.wsj.com/articles/appeals-court-to-hear-arguments-over-fccs-net-neutrality-rules-1438640757>>

<sup>93</sup> See, for example, <<http://cloud.chambermaster.com/userfiles/UserFiles/chambers/9078/File/ICT/2015/VietnamOTTCircular-USABC-ITILetterFINAL.pdf>>

Policymakers should make sure they are able to collect and respond adequately to all feedbacks and concerns of relevant stakeholders in the DE, to ensure acceptance and achievement of desired policy outcomes at a later stage. The draft Cyber-Security Law in Vietnam provides a good illustration in this regard.

The current draft Cyber-Security Law of Vietnam was proposed by the Ministry of Public Security (MoPS) in June 2017, and scheduled to be passed in May 2018.<sup>94</sup> The draft law was thought to echo a similarly-called law in neighbouring China in that it requires all foreign online service providers (including Facebook, Google and Twitter) to store their Vietnamese users' data exclusively in Vietnamese data centres, a practice known as 'data localisation'. Foreign tech firms would likely need Vietnamese partners to run their local data centres, manage domestic service sales and handle government requests for user data. The proposal has sparked a heated debate between those who believe in its benefits and those who warn against its serious threats to economic development.<sup>95</sup>

For proponents of the draft law, the opening of local data centres is expected to improve access to online services for local users and would generate a booming demand for high-skilled IT professionals in Vietnam. The extra cost of data localisation would be only marginal as compared to the attractiveness of the Vietnamese market. In a broader context, the proponents of the draft law also see the mandate as part of a global effort to protect data privacy and to stop multinationals from pursuing tax avoidance strategies. As most countries are searching for ways to stop tax avoidance by multinational tech companies, the MoPS sees data localisation as a promising solution when it is combined with the recent proposal by the Ministry of Finance (MoF) of Vietnam requiring all cross-border payments to be made via domestic payment gateways.

Unfortunately, the businesses, Vietnamese and foreign alike, do not hold the same views as the GOV.<sup>96</sup> The businesses see this requirement on data localisation as well as other restrictive rules set by the draft law as potentially conflicting with Vietnam's market liberalisation commitments under the country's World Trade Organisation (WTO) membership and its participation in the Trans-Pacific Partnership (TPP) Agreement, as well as being a major setback for Vietnam's emerging DE.

The DE businesses, in particular, argued that cloud services operated by global cloud services providers according to international best practices would typically be more secure than local networks. Therefore, restricting the storage of user data geographically might prevent Vietnam from benefitting from a more resilient, secure, and reliable system.

Furthermore, forced localisation will limit the business's capacity to access infrastructure and tools necessary to support business operations, employees, and networks around the world. It will inhibit global operations through restricting the mobilization of user data from region to region. Increased costs for companies to comply with requirements to send data to specific locations would undermine efficiency and productivity of these businesses and ultimately burden users, making technology more expensive and less secure. Finally, in their views, data security

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<sup>94</sup> This law has now been passed as of July 2018.

<sup>95</sup> See Phan Le (2018), *Vietnam's new internet law will make the economy lag*, available at <[www.eastasiaforum.org/2018/02/22/vietnams-new-internet-law-will-make-the-economy-lag/](http://www.eastasiaforum.org/2018/02/22/vietnams-new-internet-law-will-make-the-economy-lag/)>

<sup>96</sup> See, for example, <<https://tuoitrenews.vn/news/business/20171103/draft-law-requires-facebook-google-to-open-data-centers-in-vietnam/42438.html>>, and <<http://www.amchamhanoi.com/8422-2/>>

depends on the quality controls and management processes rather than a server's physical location. And geographic neutrality with regard to data storage enables all companies, particularly small ones, to employ cost-effective information security solutions.

## Other Challenges

In short, for a developing country like Vietnam, the DE has much opportunity to offer, but along with it, there are also many challenges. Some of these challenges, from the perspectives of three broad stakeholder groups: the government, the business and the consumer, are discussed below.

### Government

The main challenge facing the GOV, and many other governments alike, especially in the developing world, stem from the novel and dynamic nature of the DE. The emergence of new business models and the unprecedented pace at which the market is moving and changing means the existing regulatory framework would be forever getting archaic or becoming irrelevant, while new regulations are needed, as discussed in the previous part of this section.

Due to various reasons, such as **lack of political will**, **lack of regulatory capacity**, or **policy inertia**, policymakers and regulators may fail to undertake necessary reforms or adopt appropriate regulations. In other cases, such as that of **regulatory capture**, policymakers and regulators may choose to look the other way, or adopt discriminatory regulations, under the influence of special interest groups. Or the government may simply be split between **competing priorities**, such as in the case of the latest Cyber-Security Law discussed above.

In finding solutions to such challenges, the GOV should diligently undertake Regulatory Impact Assessment (RIA) as required by law, before adopting any new laws and regulations or amending the existing ones, and during this process, to listen to the perceptions and feedbacks of all business and consumers. Furthermore, new regulations should be designed on the basis of modern regulatory principles, to ensure fairness, flexibility, and neutrality.

### Business

The problems outlined above with regard to the regulatory framework as well as the government could negatively affect the business sector's uptake of the DE in Vietnam. Archaic rules, discriminatory and inappropriate laws and regulations would **restrict competition**, **discourage innovation** and **raise the cost of doing business**; while **regulatory uncertainty** would undoubtedly shy away existing and potential investors.

Vietnamese business, in particular, could be faced with other challenges, such as **anticompetitive practices**. The increasing role of data as well as the presence of strong network effects in many digital markets means that the current competition law framework of the country might be ill-equipped to deal with anticompetitive practices here. An example in this regard is the recent acquisition of Uber's Southeast Asia operations by Grab, which sparked competition concerns in several countries in the region, including Vietnam.<sup>97</sup> Other potential anticompetitive practices

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<sup>97</sup> See for example <<http://phcc.gov.ph/6007-2/>>, <<https://www.cccs.gov.sg/media-and-publications/media-releases/grab-uber-merger-pid>>, and <<http://www.vca.gov.vn/NewsDetail.aspx?ID=3878&CateID=1>>

include algorithmic price-fixing, and abuse of dominance by platform businesses, etc. which, if not handled properly, would hurt the legitimate rights and interests of other market players, especially the smaller enterprises and reduce market contestability.

Last but not least, the advent of robotics and automation in different sectors, such as manufacturing, transportation as well as various service sectors means Vietnamese enterprises have to **rise up to new competitive challenges** and make the best use of digital technologies themselves. Otherwise, they would lose out in the competitive game and taste the bitter fruit of **digital disruption**.

While labour productivity must rise through technological innovation, rapid job losses due to job replacement would pose a significant risk for the Vietnamese economy. The International Labour Organisation (ILO) reports that around 70 percent of jobs in Vietnam are at high risk of being replaced through automation over the next two decades. Vietnam was identified as the country most at risk of digital disruption in the five ASEAN nations examined by ILO – the other four being Philippines, Thailand, Indonesia and Cambodia.<sup>98</sup> This is due to the high levels of employment in the manufacturing sector in Vietnam, particularly in the clothing, agricultural and retail sectors. The occupations identified to be most at risk include shop sales assistants, garden labourers and sewing machine operators. Women, workers with less education and those in low-paying jobs are more likely to be impacted by automation than other parts of the workforce.<sup>99</sup> A large part of the Vietnam workforce will need to be reskilled and new industries will need to develop to avoid rises in unemployment.

Piling on top of this challenge is the problem of **skills shortage**. In Vietnam, unskilled workers still made up a substantial portion (38 percent) of the labour force in 2016,<sup>100</sup> despite large demand for skilled labour. Across nine sectors, between 50 percent and 88 percent of employers reported problems with recruiting due to lack of required skills.<sup>101</sup> Demand for IT workers is increasing by 47 percent per year, and to meet this demand Vietnam will need an estimated one million more workers in the sector by 2020.<sup>102</sup> If this demand is not met, undoubtedly the digital competitiveness of Vietnamese business would suffer.

## Consumer

With regards to the consumers, a challenge that could not be ignored, probably applicable for all countries but particularly serious for Vietnam is that of **data privacy and security**. Even though the GOV has been trying to put in place several legislations regulating data flows and protecting online users' personal information, the overall regulatory framework on data privacy and security is still quite weak and deficient as compared to other countries (see Table below). Privacy issues are also not yet recognised by the majority of consumers in Vietnam for their significance in the modern digital age, and are not commonly talked about in the mass media.

<sup>98</sup> International Labour Organization (2016), *ASEAN in Transformation: How Technology is Changing Jobs and Enterprises*, available for download at <[https://ilo.userservices.exlibrisgroup.com/view/delivery/41ILO\\_INST/1243549910002676](https://ilo.userservices.exlibrisgroup.com/view/delivery/41ILO_INST/1243549910002676)>

<sup>99</sup> *Ibid.*

<sup>100</sup> General Statistics Office (2016), *Statistical Yearbook of Vietnam 2016: Annual employed population at 15 years of age and above by occupation and year*, available for download at <[http://www.gso.gov.vn/default\\_en.aspx?tabid=462&idmid=2&ItemID=18533](http://www.gso.gov.vn/default_en.aspx?tabid=462&idmid=2&ItemID=18533)>

<sup>101</sup> World Bank (2011), *Skills for Productivity: An Analysis of Employer Skills Survey 2011*, available for download at <[microdata.worldbank.org/index.php/catalog/2569/download/37451](http://microdata.worldbank.org/index.php/catalog/2569/download/37451)>

<sup>102</sup> According to the Ministry of Information and Communication of Vietnam, see <<http://english.mic.gov.vn/Pages/TinTuc/133206/Vietnam-lacks-high-quality-IT-workforce.html>>

Table 5.2: Legislations on Data Flows around the World

Proposed requirements	Brazil	China	EU-28	India	Indonesia	Korea Rep.	Vietnam
Data localisation requirement	No	Yes	No	Partial	Yes	Partial	Yes
Consent required for data collection	Yes	Yes	Yes	Yes	Yes	Yes	No
Consent required for transfer to third parties	Yes	Yes	No	Yes	No	Yes	No
Right to review	No	No	Yes	Yes	Yes	Yes	No
Right to be forgotten	Yes	Yes	Yes	No	No	Yes	Yes
Breach notification	No	Yes	Yes	No	Yes	Yes	No
Impact assessment	No	Yes	Yes	No	No	No	No
Appointment of data privacy officers	No	No	Yes	No	No	Yes	No
Sanctions for non-compliance	Yes	Yes	Yes	Yes	Yes	Yes	No
Government access required	Yes	No	No	Yes	No	No	Yes
Data retention requirement	Yes	No	No	Yes	No	No	Yes

Source: World Bank (2016), World Development Report 2016 – Digital Dividends, available for download at <http://documents.worldbank.org/curated/en/896971468194972881/pdf/102725-PUB-Replacement-PUBLIC.pdf>

Other challenges that Vietnamese consumers face in the DE include:

- **Digital literacy and language barrier:** Except for the younger generations and urban populations, the level of digital literacy in older adults and a majority of the population located in rural and remote areas remain low and insufficient for meaningful participation in the DE. Vietnamese consumers' low English proficiency also means they are not able to access a lot of resources freely available in the Internet, such as the MOOCs offered by globally renowned service providers, such as Coursera and edX.
- **Fraud and identity theft:** Vietnamese consumers face increasing risk of online fraud and identity theft, which could mean hefty losses, especially in the financial sector. In 2016, the State Bank of Vietnam (SV) issued a plan that required local commercial banks to make the switch from magnetic stripe cards to chip cards no later than December 31, 2020 since chip cards store data on integrated circuits protected by complex cryptographic algorithms and provide better security against fraud compared to magnetic stripe cards. Although Vietnamese commercial banks received the State bank's directives more than two years ago and despite the advantages of chip cards to both banks and consumers, they have been reluctant to forward with due to concerns over the high

transition costs.<sup>103</sup> Security experts have warned that Vietnam's delayed transition to chip technology will actually put the banks at greater risk since they will have to accept greater fraud write-offs, which will dramatically affect their profitability. One expert noted that delays will put the country at risk to become a 'haven' for card criminals from all over the world, as it is among the few countries where the use of magnetic swipe cards are still dominant.

- **Cyber bullying and stalking:** Cyber bullying, which is on the worrying rise in Vietnam, has left permanent psychological scars on the victims and, under extreme circumstances, it has driven them to their breaking point, or even suicide.<sup>104</sup>

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<sup>103</sup> See, for example, <<https://www.vietnambusiness.tv/technology/1094/vietnamese-consumers-face-increased-risk-of-fraud-identity-theft>>

<sup>104</sup> See, for example, <<https://dtrangvo.wordpress.com/2015/12/06/cyberbullying-in-vietnam-should-we-blame-for-facebook/>>, and <<https://tuoitrenews.vn/news/society/20180330/online-privacy-invasion-cyberbullying-spread-in-vietnam-experts/44821.html>>

## 6 Conclusions and Recommendations

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Vietnam has transformed rapidly over the last three decades, and the next 20 years are likely to see it transform at an even greater pace, with significant contributions from digital industries and technologies. It is not only the GOV which views digital transformation across the broader economy as critical to continued growth and prosperity, businesses and consumers in the country have also wasted no time in adopting and adapting to this global trend, seeing a lot of potential benefits to be accrued along the way.

For the consumer, the DE has brought about innovative products and services, better choice and more affordable prices. For the business, participating in the DE and applying new technologies means increased efficiency, higher productivity, niche new markets, access to a wider clientele which is not bounded by borders, and the opportunity to move up the global value chain. Even governmental agencies in Vietnam themselves have been using digital technologies to improve their own efficiency in delivering public goods and services and getting value for money in government procurement. The statistics, examples and case studies presented in the previous chapters of this report have all pointed to these conclusions.

More importantly, Vietnam's digital growth has also proved to be inclusive, providing benefits to the last-mile consumers, while enabling small businesses, producers and workers to participate in the economy, availing themselves with opportunities, employment and livelihoods. The case study on E-learning of the report shows that even the poor, physically-challenged and/or geographically-isolated citizens of the society would get to enjoy education, and acquire digital knowledge and skills thanks to the deployment of technologies. As a result, they could either use their learning results, knowledge and skills acquired for employment, professional development or participating more meaningfully and successfully in the economy in this digital age. Meanwhile, the case study on urban mobility of the report shows that not only the consumers/riders, but the workers/drivers also get a better deal thanks to technologies.

To continue on its growth trajectory, and to further bridge that digital divide that still separates countries like Vietnam with more advanced economies, it is crucial that Vietnam continue to make progresses on three important fronts:

- developing the necessary infrastructure base
- building up its human capital and
- completing the regulatory framework

Regarding **infrastructure**, Vietnam needs to further ensure the stability and reliability of its backbone Internet network, and extend the widespread coverage of mobile communications technologies. Over 95 percent of households in Vietnam are now covered by 4G networks, and the country aims to introduce 5G by 2020. In many areas, 5G wireless connectivity will negate the need to install costly fibre-to-the-premises infrastructure. It will also enable a new generation of IoT technologies. The most promising use cases for 5G in Vietnam are connected healthcare, smart cities, autonomous vehicles, industrial IoT and fixed wireless connections.<sup>105</sup>

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<sup>105</sup> ITU (2017), *5G: Asia-Pacific market will lead commercial deployment*, available at <<http://news.itu.int/5g-asia-pacific-deployment/>>

The answer to the question of **human capital** is quite obvious. Vietnam needs to focus on training more qualified IT professionals, as well as to ensure that digital skills and knowledge are spread across the labour force and society. It is only then that the issue of digital disruption could be addressed, workers' employability remains and livelihood is guaranteed.

Last but not least, and this is an area where Vietnam has been lagging behind as compared to neighbouring countries, the country needs to **modernise and complete the regulatory framework** in response to the DE's characteristics and evolving nature. Policies and regulations could be designed, adjusted, adopted and implemented in sync with the following principles recommended by the International Chamber of Commerce (ICC) that we find ourselves in agreement to:

- *Adopt a regulatory mindset that promotes the value of the entire communications and digital services ecosystem, and considers the public interest.* This will foster a positive environment for the investment in the development and proliferation of capable and compelling digital networks, content, applications, and services. Future regulatory landscapes must reflect and embody that mindset.
- *Provide consumers with predictable levels of protection by reforming regulatory frameworks for communications and digital services to apply consistent approaches to similar, competing and substitutable services.* This is about finding the appropriate level of rules for consistently protecting consumer rights in the digital economy and fostering the development of new services and innovation for all. Careful and comprehensive analysis is required to determine which services are similar, competing and substitutable in today's rapidly changing and highly innovative markets.
- *Apply competition and consumer protection laws across the entire economy, and favour the use of such generic tools to the creation of new prescriptive sector-specific regulations.* With the objective to ensure consumer protection, while also providing incentives for investment and innovation by all parties, policymakers should be mindful of the unintended consequences of new regulations. The use of comprehensive RIA should be encouraged, where objectives are clearly defined, and risks fully analysed in light of the objective. Wherever possible, reliance on existing general competition and consumer protection laws is preferable to new prescriptive regulations that could stifle investment and innovation.
- *Encourage the open and unfragmented Internet to continue to flourish.* The open and global nature of the Internet has enabled an unprecedented boost in terms of competition, consumer choice, innovation and entrepreneurship.<sup>106</sup>

In fact, the modernisation and completion of the regulatory framework governing the DE in Vietnam as well as other project countries (India and the Philippines) and beyond could be the theme for the next project in the future. Vietnam would do well by learning from available best practices as well as policy failures from elsewhere, so as to choose the right steps ahead for itself. This would help the country to address the remaining challenges as well as reap the benefits of inclusive growth that the digital economy promises to offer.

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<sup>106</sup> ICC (2016), *Regulatory modernization in the digital economy: Developing an enabling policy environment for innovation, competition, and growth*, available for download at <<https://iccwbo.org/publication/icc-policy-statement-on-regulatory-modernization-in-the-digital-economy/>>



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