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The Digital Economy: The New Frontier for Growth of MSMEs in Thailand during and after the COVID-19 Pandemic

Introduction

Based on the World Bank database, Thailand was experiencing growth of real gross domestic product (GDP) per capita at around 5% per annum during the years 1985 to 1999. Then the growth rate dropped to only around 3.4% after 2000. The start of the high economic growth period in Thailand resulted from a government project during the 1980s and 1990s known as the Eastern Seaboard Development Plan which attracted a significant amount of foreign direct investment from Japan, the United States, Hong Kong, and many European countries. The main growth engine during that time was the industrialization of labor-intensive sectors such as automotive, petrochemicals and agricultural products.

Over the past decades, Thailand was promoted by many names such as the “Detroit of Asia”, “the land of smiles” and “kitchen of the world”. Even though these campaigns helped the Thai economy to grow, most of the economic growth still depends on seasonal farming and the manufacture of low value-added products.

As economies around the world

have been embracing new digital technology, Thailand’s competitiveness has sharply dropped because most of its enterprises still concentrate in conventional ways of doing business. In order to maintain the same rate of growth as seen in the past, the Thai economy needs to restructure and transform itself to become “the land of the digital economy”.

This paper will discuss the current state of Thailand’s digitalization in order to understand the pace of digital transformation over the past 6 years. It will also focus on the recent developments during the COVID-19 pandemic as this pandemic is one of the critical factors that is forcing many enterprises to digitize their value chain. It will then be followed by an analysis of Thai government policies to support the growth of the digital economy. The paper will end with final thoughts about the need to increase the digital literacy of Thai households which can be an important component of successful digitalization.

Current State of Thailand’s Digitalization

The latest data compiled by the National Statistical Office (NSO) on the penetra-

tion rates of computers, the internet, and mobile phones of the Thai population are shown in Figure 1. The average penetration rate of computers is only around 25%, which is quite low compared to some Asian countries such as Singapore at 88% and Malaysia at 67%, not to mention other high-income countries where the rate is mostly around 82% (TCdata360 World Bank database).

In addition, only in Bangkok and the surrounding metropolitan region is the computer penetration rate relatively high at 43% of the population. There is also a wide variation in computer penetration across different provinces with the lowest in Nong Bua Lamphu at 12% and the highest (outside Bangkok area) in Nonthaburi at 39%.

The average internet penetration rate is better at around 66%. Even though it seems high, this level of internet penetration is not impressive when compared with the average rates of 78% in Europe and Central Asia, 89% in North America and 67% in Asia-Pacific. According to Statista, the average amount of time Thai households spent online is estimated to be around 8.44 hours per day.

The only impressive figure is in the mobile phone penetration rate which is above 70% in all provinces of Thailand. However, this number may not be a correct estimate of the extent of digitalization as it includes standard phones without 3G or 4G connections.

Regarding the digitalization of Thai enterprises, data from NSO show that the

computer penetration rate at Thai enterprises is only around 28%. The rate of growth has been quite low over the past 6 years, even though during this time the digital technology has become a common device at most enterprises around the world. This low level of computer penetration in Thai enterprises largely stemmed

from the low usage by micro-enterprises¹ especially those in the Northeastern region of Thailand.

When looking at the type of software used in most enterprises, only around 2-3% of micro, small and medium-sized enterprises² (MSMEs) use software as a service (SaaS) technology as shown in Figure 2.

This is surprising as the cloud computing technology is regarded as one of the main technologies that can allow MSMEs to use advanced software at reasonable price plans. If the MSMEs that use SaaS are assumed to be digital entrepreneurs or tech startups, the proportion of these entrepreneurs is significantly low in Thailand.

Figure 1: The Usage of Computers, Mobile Phones and the Internet as a Proportion of the Population Aged 6 Years Old and above

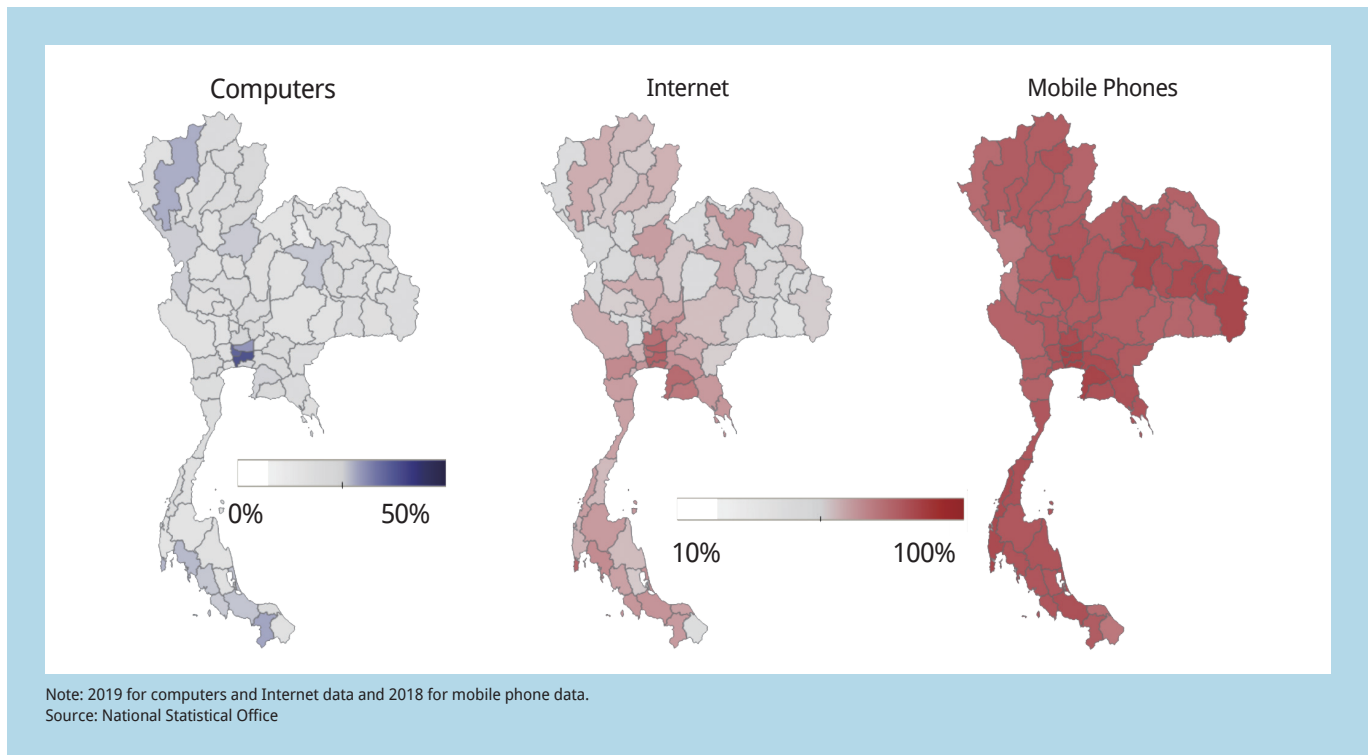
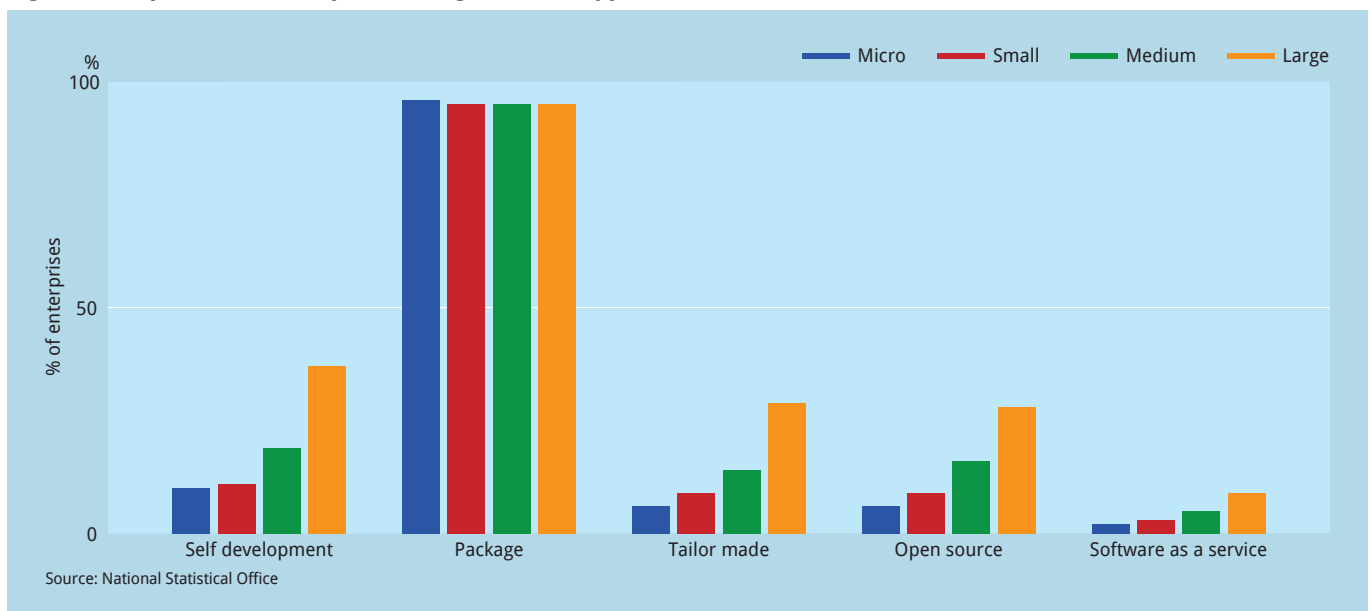


Figure 2: Proportion of Enterprises Using Different Types of Software (2019)



Most enterprises in Thailand connect to the internet by broadband, followed by xDSL technology and 3G networks. The data also shows that compared to larger firms, micro enterprises largely use wireless technology to connect to the internet. This suggests that the main devices that micro enterprises use in doing business are smartphones and tablets.

One of the main indicators of how Thai enterprises participate in the digital economy is the proportion of enterprises having a website and having the ability to buy or sell products and services online. Figure 3 shows that the share of enterprises having a website increased gradually from only around 6.7% in 2014 to around 10.5% in 2019. However, the proportion of enterprises having the ability to buy or sell products online is still low at only 6-8%. Only a small percentage of MSMEs have an online presence compared to medium and large enterprises.

Moreover, most enterprises with websites state that the main purpose is for advertising and communication with customers (around 70-80%). In 2019 only 30% had started accepting orders online and 13.7% could accept digital payment. Because of this low capability of Thai enterprises to conduct business online e-commerce accounts for only 2% of the value of all retail sales in Thailand. This share is quite low compared to the US at 13%, Chi-

na at 20% and Singapore at 5% (Bain and Company, 2018).

Because smartphones appear to be the main device for most Thai households and MSMEs, their main activities while using the internet appear to be concentrated in online social networking, using messaging apps and consuming digital media. Only 25-30% of households use the internet to sell or buy products and services or for internet/mobile banking.

Enterprises also use the internet for basic tasks such as e-mail and searching for information (ranging from 60% for micro enterprises to 90% for large enterprises). Only around 30-40% of enterprises use the internet for buying and selling products and services, for internet/mobile banking, or for online meetings.

Understanding the Thai Digital Economy through Payment Data during the COVID-19 Pandemic

The results discussed previously were

based on the latest data for 2019, but some may argue that the state of digitalization in Thailand may have altered after the COVID-19 pandemic. As the data from the 2020 survey from the NSO is not available yet, the only available data that can be used to reflect how households and enterprises in Thailand participate in the digital economy is the payment data collected by the Bank of Thailand (BOT).

According to these BOT data (Figure 4) e-payment transactions increased significantly over the past 10 years. Among e-payment transactions, online retail fund transfers (ORFT) and e-money grew the fastest over this period and among these, electronic transactions via the internet and mobile banking across banks increased by more than 180 times their value in 2010.

The tremendous increase in internet/mobile banking is a result of the implementation of PromptPay which is a new payment infrastructure that links together a national ID, a mobile phone number and a bank account. This platform greatly facilitates use of mobile banking by households and enterprises. Because of the introduction of this new technology, the use of ATM transfers and electronic transfers through bank branches dropped sharply after 2016.

Monthly data on transactions during the COVID-19 pandemic (Figure 5) show a sharp drop in card and electronic transactions at bank branches in April 2020 which

Figure 3: Proportion of Enterprises Having a Website and Buying or Selling Online

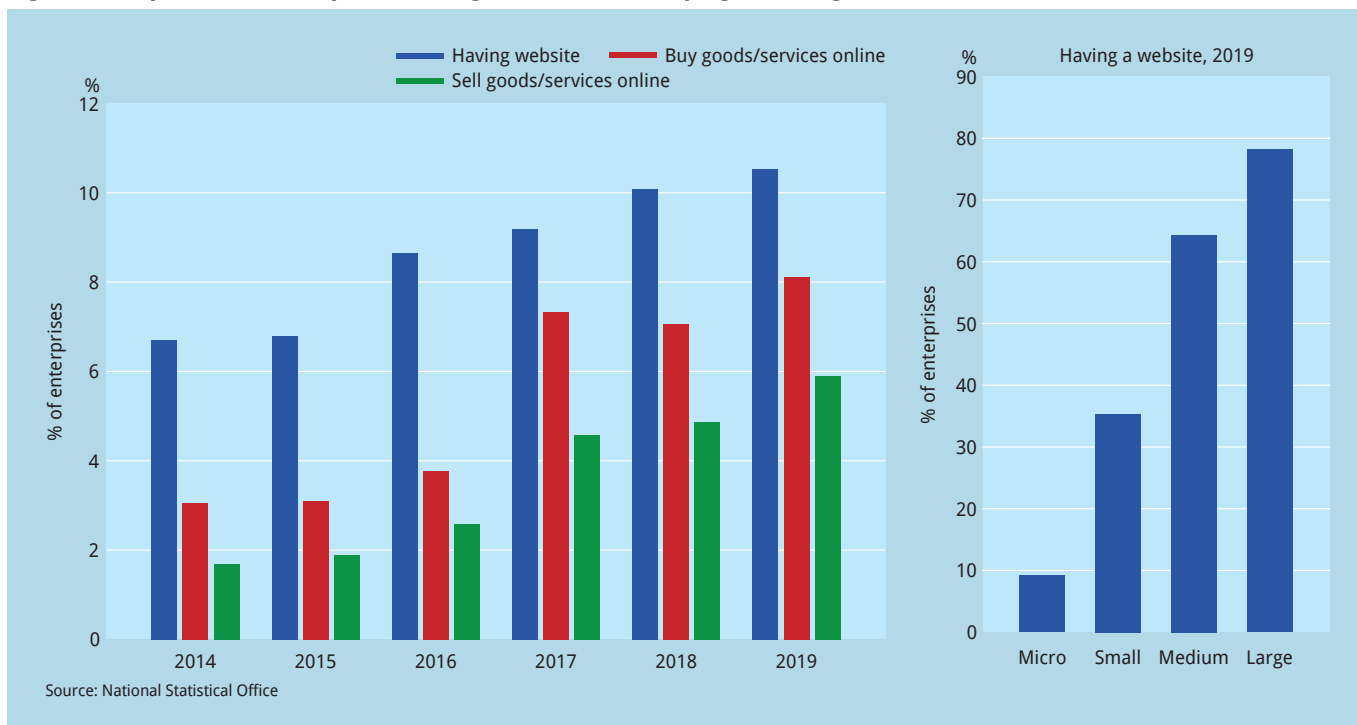


Figure 4: Growth of E-payment and its Components

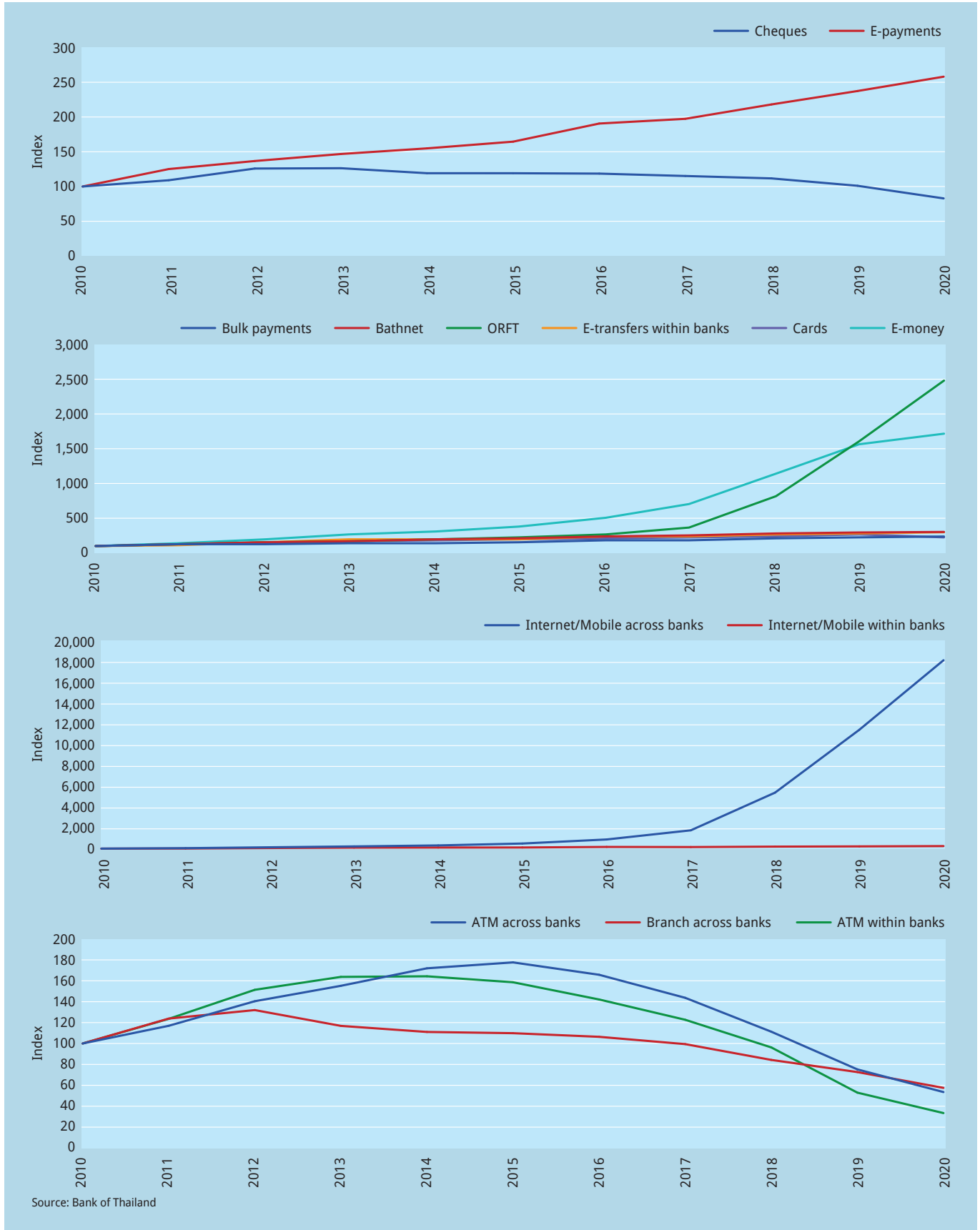
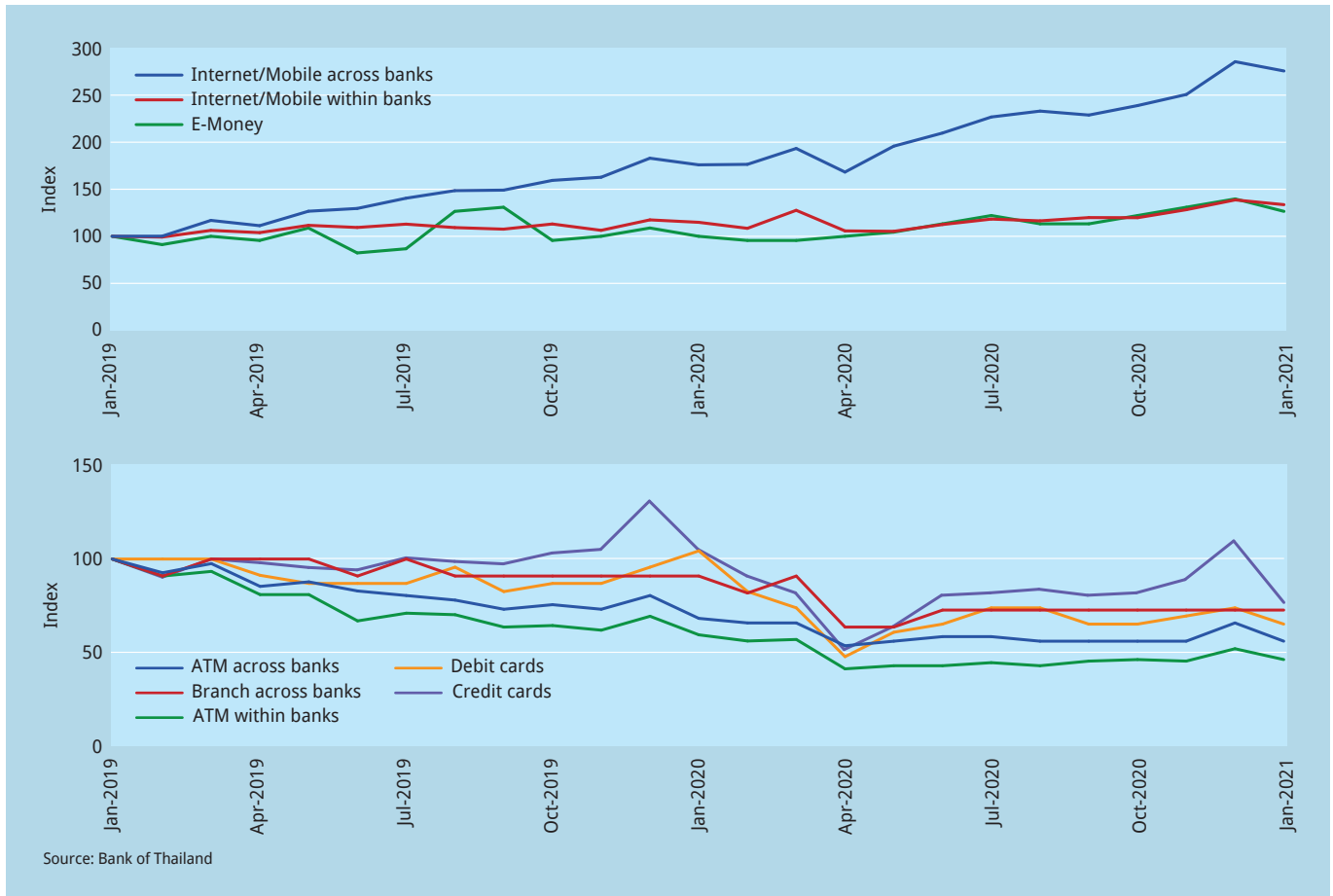


Figure 5: E-Payment Behavior during the COVID-19 Pandemic



was the first whole month of full lockdown. During the full lockdown period between April and June 2020 many households used internet and mobile banking. The value of payments through this channel increased sharply and it even continued to increase further after the end of the lockdown. This suggests that Thai households and enterprises have become accustomed to the new way of transacting business.

The year 2020 was also the time that the value of mobile banking transactions surpassed the value of internet banking as shown in Figure 6. The total value of mobile banking in 2020 alone increased from around THB2,200 billion per month before the COVID-19 pandemic to around THB3,000 billion per month after the pandemic. The number of mobile banking accounts (68 million) is now close to the total population (69.8 million) of Thailand.

The widespread use of internet and mobile banking has also led to a drop in the value per transaction from above THB100,000 to around THB40,000 for internet banking. The value per transaction for mobile banking is even lower at only

THB3,600 per transaction. These statistics suggest that mobile banking has already become common in daily life.

Because mobile and internet banking allows households the convenience of spending directly from their bank accounts, the value of these transactions has grown faster than e-money. It is clear that commercial banks in Thailand dominate retail e-payments. The total value of transactions per each e-money account is low, at only THB3,000 per year.

Government Policies to Bolster the Thai Digital Economy

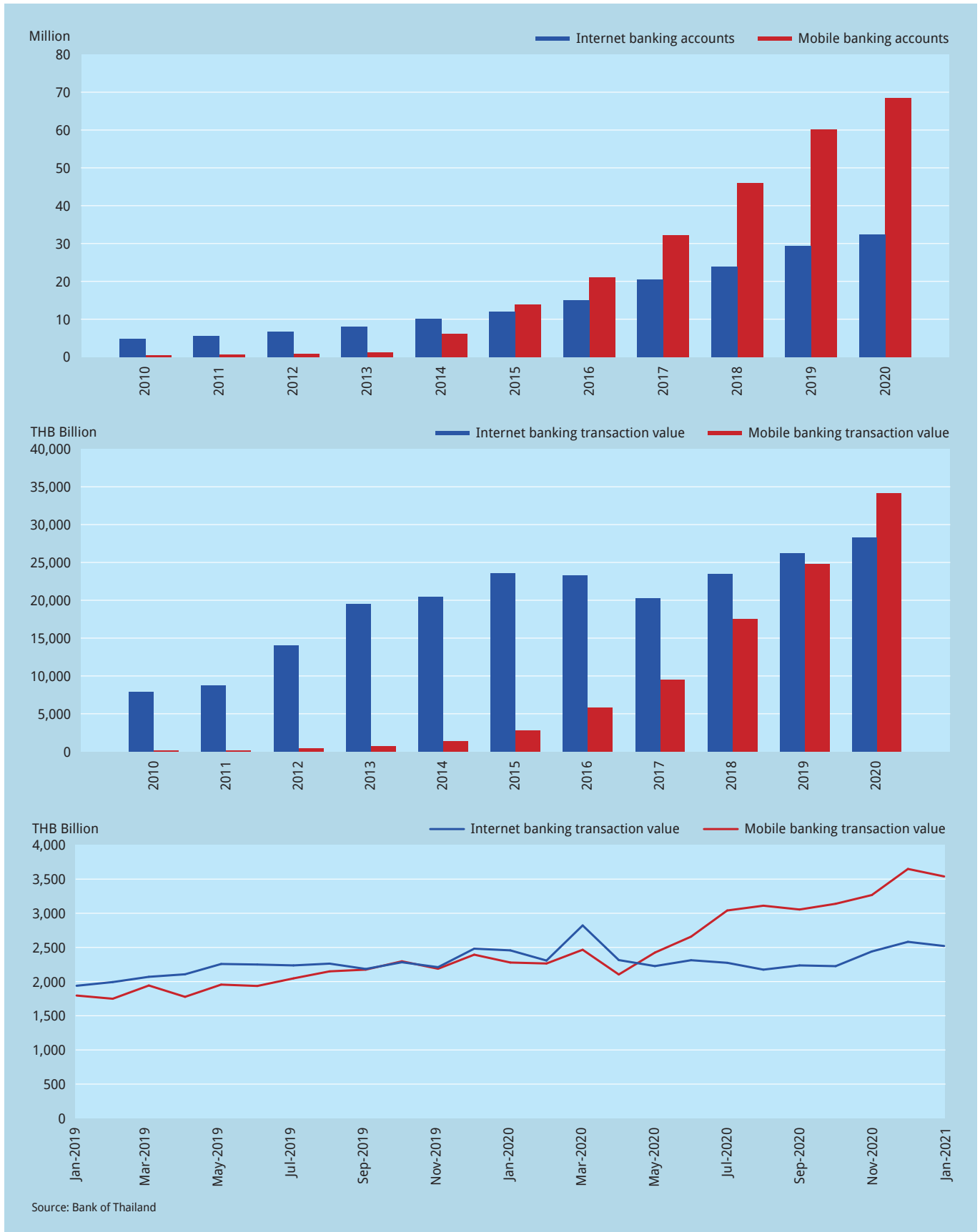
The Thai government launched the campaign “Thailand 4.0” in 2018. This cam-

paign is part of the 20-year master plan which largely includes the development of the digital ecosystem. The plan is organized in four phases: building digital manpower in phase 1; digitalizing Thai enterprises in phase 2; digitalizing communities in phase 3; and building Thailand to become a global digital leader in phase 4.

The overall goals of the four phases of the 20-year master plan are to transform the main products of Thailand from commodity into innovation, to replace conventional manufacturing processes with technology and automation, and to focus more on the service economy rather than the manufactured goods economy.

In order to help MSMEs to utilize digital technologies in a creative and productive way, the Thai government has created many agencies to support the development of innovation and business. The National Science and Technology Development Agency (NSTDA) was first set up in 1991 to focus on supporting research in science and technology. Then, the Geo-Informatics and Space Technology Development Agency (GITSDA) was established in 1999 to sup-

Figure 6: Internet and Mobile Banking: Number of Accounts and Transaction Value



Source: Bank of Thailand

port satellite and space technology. The National Innovation Agency (NIA) was set up in 2003 to focus on applied innovations in business. In addition, in conjunction with the 20-year master plan, the Digital Economy Promotion Agency (DEPA) was created in 2017 to build the foundation to support the digital economy.

Even though all these agencies work separately and have different agendas, under the campaign “Thailand 4.0” they now have a common goal. MSMEs can seek financial support, research funds or digital expertise support from many agencies.

Because the main barriers to technology adoption for MSMEs often include the lack of funding and knowledge to implement digital technology, NIA initiated a project called “Innovation Coupon”. Innovation Coupon is a funding project that requires three parties, namely an enterprise, a technology provider and the supporting agency. An enterprise which needs funding can browse and select a technology from a pool of certified technology providers. If the proposed business project using the selected technology is considered feasible, the agency will provide funding at a maximum of 75% of the total required capital for the project.

The success of this NIA project has led many other government agencies to provide this type of innovation coupon as summarized in Table 1. Each agency's funding project may have a slightly different focus. For example, the innovation coupon from NIA is currently geared toward projects in bioeconomy, manufacturing and circular economy, and service and sharing economy while the startup voucher from NSTDA focuses on projects with highly intensive use of science and technology. DEPA's vouchers have many purposes ranging from a small fund to purchase software to a fund for IP applications.

Apart from this innovation coupon, government agencies such as NIA, NSTDA and DEPA also set up funds or venture capital (VC) funds to finance tech startups. DEPA's digital transformation fund is for any organization (including universities, private sector, and public organizations) that needs funding in certain areas ranging from digital skill development (up to THB300,000 per project) to digital infrastructure (up to THB200 million per project). The Ministry of Higher Education, Science, Research and Innovation also set up the Technology and innovation-based Enterprise Development (TED) Fund aimed at projects proposed by undergraduate and graduate students. The Department of Industry Promotion partners with the pri-

ivate sector each year to provide an angel fund for startups in certain areas.

Rather than just providing financing support, government agencies also attempt to build infrastructure that supports investment in the digital economy. DEPA's main infrastructure is the “Thailand Digital Valley” in the Eastern Economic Corridor (EEC) area to support the investment in IoT, data science, 5-G applications, smart devices, high value-added software, robotics, and cloud and digital services. The creation of digital and innovation parks in the city is the responsibility of NIA, while NSTDA focuses on the science park with infrastructure in food and feed technology, software development and bioresource research.

During the COVID-19 pandemic, DEPA and NIA played a crucial role in providing liquidity to some startups. In 2020, DEPA provided bridge financing for 38 startups. NIA is also considering providing matching funds.

The other important initiative implemented by the government is the “Startup Visa,” sometimes known as the “Smart Visa” aimed at attracting foreign talent, investors, executives, and startup entrepreneurs who wish to work or invest in the government-designated target industries³. The holders of a smart visa will be exempt from work permit requirements and can stay in Thailand up to four years.

NSTDA also created an e-commerce platform for digital technology called “Thailand Tech Show” where enterprises can browse and shop for digital technology. NSTDA sets the price and prepares contracts between enterprises and intellectual property owners. NSTDA also provides lending facilities for startups with interest rates as low as half the rate on 12-month

time deposits plus 1.125%.

NSTDA is also the main agency that certifies research and development projects for enterprises and investors to receive tax benefits. Currently the government provides a capital gain tax exemption for 10 years to VC funds that invest in startups working in the government's 10 target industries. Startups in those industries are also exempt from corporate income tax for five accounting years. Local angel investors can also get a maximum of THB100,000 personal income tax deduction.

Regarding the VC environment in Thailand, data compiled by Techsauce show that the VCs and local angel investors now number more than 100 and 50 respectively. In normal times, angel investors play an important role in funding startups at the seed stage. Most VCs in Thailand invest in Series A or Series B rounds. Even though the COVID-19 pandemic has made it difficult for VCs to do due diligence, the total value of disclosed deals in 2020 was around USD364 million which is the highest amount observed by Techsauce so far (Techsauce, 2021).

In 2020, the Stock Exchange Commission (SEC) also resolved the bottleneck in startup funding by allowing startups and SMEs to issue shares or convertible debentures (CD) for private placement without having to file with the SEC. Small and medium-sized enterprises (SMEs) only need to prepare factsheets, register with the Office of Small and Medium Enterprises Promotion (OSMEP) and report the result of the offering within 15 days. In 2020, three startups successfully issued CDs with a total value of THB168 million. The SEC stated that there are around 69 enterprises in the process of issuing CDs in 2021 (RYT9, 2020).

Table 1: Innovation Coupon in Thailand (as of 2021)

Government Agency	Campaign Name	Funding Amount
NIA	Innovation coupon - 1 st Phase (2010-2012) - 2 nd Phase (2014-2016) - 3 rd Phase (until now) MIND Credit	Up to THB400,000 per project Up to THB1.5 million per project Up to THB1.5 million per project Up to THB1 million per project
DEPA	Mini transformation voucher Standardization voucher Intellectual property voucher Internationalization voucher	Up to THB10,000 per project Up to THB100,000 per project Up to THB100,000 per project Up to THB150,000 per project
NSTDA	Startup voucher	Up to THB800,000 per project

Source: Government agency websites

The BOT is also working to allow peer-to-peer (P2P) lending platforms to be widely commercialized soon. This will be a new funding platform for small enterprises to access commercial loans with a maximum amount of THB50 million and maximum interest rate of 15%. In 2019, the SEC also allowed equity crowdfunding platforms. Currently, there are five authorized funding portals. However, the SEC only allows enterprises to raise funds from retail investors with a maximum of THB20 million in the first 12-month period.

Regarding funding via cryptocurrency technologies, the legalization of cryptocurrency exchanges, brokers and dealers came into effect in 2018. The SEC has now approved eight exchanges, six digital asset brokers, one digital asset dealer and four initial coin offering (ICO) portals. In May 2021, one company announced to raise THB2,400 million via an ICO offering. If this offering is successful, financing via ICO may become popular and small enterprises would then have a new channel for funding.

Final Thoughts: The Need for Digital Literacy for All Thai Households and MSMEs

Despite all these funding projects and well-developed infrastructure supporting the ecosystem of tech startups, the goal of transforming the Thai economy into a successful digital economy may not be achieved if households and small enterprises do not have the capability to use digital technology in productive ways. There may be few creative and promising ideas for the government agencies or VCs to support the financing. As a consequence, one of the key components that links digital technology and the growth of the economy is the level of digital literacy of Thai MSMEs.

Based on the data shown in this paper, it is clear that most MSMEs in Thailand still run their business in traditional ways. Only a handful use the internet and computers in their daily routines. Moreover, those that use computers or the internet mainly use them only for basic activities. Digital transformation cannot happen if these entrepreneurs do not know how to use digital technology and do not realize

the benefits that digital technology could offer to their business.

Ratanabanchuen (2020) proposes a framework to measure the digital literacy of Thai households. His model includes four aspects, namely: 1) the level of digital access; 2) the level of digital skills; 3) the level of digital knowledge; and 4) the level of risk and information awareness. Based on his survey which covered households living in Bangkok and its metropolitan area, around 18.7% of the population is regarded as digitally illiterate. Most of these households work in labor-intensive sectors or are employed. In contrast, those considered to be digitally fluent are working in high-ranking professional occupations with an annual income of more than THB1 million a year.

This finding suggests that digital literacy has already created challenges in Thailand and it may be one of the main obstacles for MSMEs to grow in the digital economy. Without proper policies, wealth inequality between large enterprises and MSMEs may widen even more in the next decades.

Digital literacy and digital infrastructure should be considered the main foundation of the digital economy which supports three pillars, namely 1) innovative business models, 2) digital tools, and 3) digital financial services. With this framework, Thai MSMEs can become the main backbone of Thai economic growth in the next decades.

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Notes

- 1 The term micro-enterprises in this paper is defined as those firms with fewer than 10 workers, which comprise 90% of all Thai enterprises.
- 2 The term small enterprises in this paper is defined as those firms with 10 – 50 workers, which comprise 9% of all Thai enterprises.
- 3 The 10 target industries include: 1) next-generation automotive; 2) smart electronics; 3) agriculture and biotechnology; 4) affluent medical and wellness tourism; 5) food for the future; 6) automation and robotics; 7) aviation and logistics; 8) medical and healthcare; 9) biofuels and bio-chemicals; and 10) digital.

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Roongkiat Ratanabanchuen, Ph.D. is currently Assistant Professor at Chulalongkorn Business School. Before joining Chulalongkorn University, he worked at the Bank of Thailand in the Department of Risk Management. He holds a doctorate in pension fund management from the London School of Economics and Political Science.

Dr. Roongkiat has expertise in personal finance, capital markets, fund management and bank management. He has earned a number of awards and scholarships including the 2017 CFA Institute Best Paper Award for research about market microstructure and the 2018 SEC Best Paper Award for research on fund management. He was also invited to present a research paper on the topic "Understanding the dynamic of digital economy in the context of digital literacy of Thai households" at the Bank of Thailand Symposium 2020.