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-RESEARCH ARTICLE-

RETHINKING AND RESHAPING THAILAND'S NATIONAL E-PAYMENT IN THE POST-COVID ERA

Danuvas Sagarik

Graduate School of Public Administration,
National Institute of Development Administration,
Seir Thai Road, Bangkapi, 10240 Bangkok, Thailand
Email: danuvas.nida@gmail.com
https://orcid.org/0000-0003-0221-761X

─Abstract─

The fourth industrial revolution has brought disruptive innovations, which are wide-ranging and inevitable for the public and private sectors. Moreover, the outbreak of COVID-19 has placed pressure in a way that has dramatically transformed society. Governments have been facing pressure to challenge themselves to avoid becoming obsolete. Meanwhile, the financial sector remains among one of the most disrupted and rapidly evolving sectors of the economy, whereas recent innovation known as Fintech have also disrupted traditional banking practices. Correspondingly, the Thai government has launched the national e-payment system to facilitate digital banking, improve efficiency and ensure timeliness in the flow of financial transactions between the government and its citizens. However, with rapidly evolving technology, the key question is what the future holds for Thailand's national e-payment system. This paper seeks to answer this question by considering the current framework of Thai national e-payment as well as insights from countries where Fintech is thriving. Its strengths, weaknesses, opportunities, and threats are then analyzed using SWOT analysis. Consequently, to promote successful digital government within the context of fourth industrialization, Thai government is encouraged to improve the efficiency and effectiveness of the national e-payment system by utilizing more Fintech in government-citizen financial transaction as well as educating citizens about Fintech and national e-payment.

Keywords: National e-Payment; Public Sector; Development Administration; Thailand

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1. INTRODUCTION

With increased level of population having access to internet, disruptive digital banking such as Fintech is on the rise, which poses a great challenge for the conventional physical bank. It is caused by the power of the current Fourth Industrial Revolution, which is characterized by fusion of technologies between physical, digital, and biological spheres. The onslaught of Covid-19 in 2020 has accelerated the rate of digital device usage and e-transactions (UNCTAD, 2021). This change has brought about greater velocity, scope, and impacts to all systems, including on the role of the government.

In order to achieve development outcomes, governments are encouraged to embrace and adapt to new fast-changing environment (Ani, 2020). Such changes are intensified by the changing context of growth. High growth rate experienced worldwide before 2008 economic crisis is now being replaced by what is called "the New Normal", a phenomenon describing a slower growth in global economy in the aftermath of the crisis (Brem et al., 2020). The crisis of Covid-19 pandemic in 2020 has speeded the New Normal not only in terms of slowing down growth but also changing the way people interact with digital technology. Moreover, Covid-19 has also pushed government activities to increasingly be conducted online (Nations, 2020).

For the case of Thailand, before Covid-19 pandemic, in 2016 the government has announced the "Thailand 4.0" policy, in conjunction with the 'Fourth Industrial Revolution', with an aim to build an innovation-led economy that produces higher value. Simultaneously, owning to the innovative developments in information communication technologies, the pace of change also opens up new frontier of public engagement and policy-making of electronic government or e-government (Sujjapongse, 2017). With awareness of such changes in mind, Thailand is on the realization of the need to embrace technology and changes to their current practice after a long period of being in a middle-income trap, and is now leading the trend for a new innovative pattern for development (Group, 2021). Nonetheless, Thailand has faced and is still facing a number of challenges in positively transforming government and public sector in today's digital era (Sagarik et al., 2018).

National e-Payment, which is the electronic payment system established to facilitate electronic banking has increased in consistency to the size of internet users. The national e-payment system consists of four strategic plans, including introduction of Promptpay system, expansion of electronic card users, e-revenue and e-transaction system, and public e-payment (Sagarik et al., 2018). Such policy aims to provide faster, safer, and more convenient means of public services in finance through innovative measures. Wherein it is much needed for the realization of Thailand 4.0 policy.

In this fast-changing world characterized by uncertainties including those seen in the aftermath of Covid-19 pandemic, the critical question we should pose is whether there should be a future vision of e-payment in public sector. Addressing this key research

question, this study aims to produce a SWOT analysis of the current national e-payment system in Thailand in order to address factors that need improvement. In the past, research of this kind, particularly research to provide a new framework of e-payment and e-government in Thailand is very rare. The goal of this study is therefore to fill this literature gap by proposing a future framework that can serve as a more sound and robust mechanism for national e-payment in Thailand. Consequently, results and insights gained from this study would serve a beneficial foundation for policymakers and those in public sectors in order to adjust themselves with the current pace of changes. The study reveals that there are a number of enduring obstacles, particularly in terms of the efficiency and sustainability of the system. There are needs for further examination of the experiences of the application of Fintech in the public sector.

2. LITERATURE REVIEW

2.1 E-Government and The Role of E-Payment: Theoretical and Conceptual Background

The concept of e-Government is based on the fundamental platform of e-Service, which refers to a web-based service through the internet (Bala et al., 2018). Moreover, it is a service that is interactive, content-centered and internet-based which is driven by the customer and integrated with related organizational customer support processes and technologies with the goal of strengthening the customer-service provider relationship (Lim et al., 2018). Governments across the world have placed a lot of emphasis on the future development of e-government that meet the demands from citizens (OECD, 2008).

According to the fundamental concept as discussed above, e-government refers to the application of Information and Communications Technologies (ICT) in improving the effectiveness, efficiency, transparency, and accountability of government (Hewa Wellalage et al., 2021). This may include the provision of a wide range of services offered by the government through online platforms such as websites and applications that are fast, convenientt, and paperless, allowing citizens to access real-time services and information (Demchig, 2020; Kim, 2019).

Fintech or financial technology has become an important concept and practice over the past decade. It is accompanied by various disruptive technologies including cloud computing, biometrics, block chains and distributed ledgers, mobile or smartphone, learning machine, and big data and data analysis. According to Drummer et al. (2016), this changing landscape forces banks to make a fundamental change in organizational mindset to make innovation their priority. These technologies are also utilized by startups in what has now consolidated into the Fintech ecosystem which consists of every aspect of financial services namely lending, personal finance, payments, equity financing, remittances, retail investing, institutional investing, security, infrastructure, business tools, crowdfunding, online banking, and research and data (Menon, 2015).

These advanced techonogies has developed at the same time as the use of Internet, which at the global level has increased exponentially in the past decades. More and more people, particularly internet users, have engaged with online banking. Demand for e-payment systems as part of e-government systems seems to be a logical consequence of this development (Al-Smady, 2017; Alhammadi et al., 2020).

The application of these technologies is not limited and available only to businesses but also the government which stands to benefit substantially from the advancement in the private sector as it potentially signifies the provision of new public services that are beneficial to society as a whole (Suryono et al., 2020). Public sector can and should utilize the trend of financial innovation to the public services in order to ensure citizen satisfaction as well as to facilitate and provide better services for the development of the national economy (Mustaf et al., 2020). Prior studies have utilized various theoretical bases for "E-Government" adoption, and the most common theories used are the Unified Theory of Adoption and Use of Technology (UTAUT), and the Technology Adoption Model (TAM) (Mustaf et al., 2020). This theoretical schema explains how the governments develop their e-services for their citizens. Following these theories, Napitupulu (2017) point out how e-government has four different stages and it allows financial activities such as paying fines. Rabaa'i (2017) discuss the channel of online tax payment as e-transaction which allows for two-way communication and increased participation using the e-payment in public sector. Online tax payment has also been used in several countries including Thailand (Sagarik et al., 2018).

Despite the significant progress of e-government initiatives in recent years, from a worldwide point of view, a lot remains to be done. In order to reach the final stages of a fully developed e-government, the possibility of efficient e-payment is part of the success story. Government needs to find ways to improve the usage of e-payment in public sector by making it more accessible (Al-Smady, 2017). Examples from the private sector are also useful for consideration of public sector as seen from Lin et al. (2011) who study e-payment customer concern risk and ease of use when using e-payment of commercial banks. Ani (2020) suggests that during the Covid-19 outbreak, the government needs to support strategies that increase confidence of e-payment users, which is a critical task of government not only during but also for the post Covid-19 era.

2.2 An Integration Of E-Government And E-Payment In Thailand: The National E-Payment System

2.2.1 e-Government in Thai Public Sector and the Promotion of e-Services

Thailand has undergone several changes in ICT and digital policies in the past couple of decades (Sagarik et al., 2018). During the planning phase of a policy framework on ICT for 2011-2020 known as ICT 2020, a public agency called the Electronic Government Agency (EGA) was established in 2011 with the aim to improve government's general operations and services, develop government-run online services, enhance opportunities

and equality for Thai people, and maximize security of government's electronic services. Moreover, the EGA has now undertaken number of policy measures and initiatives to boost efficiency in public management such as Big Government Data, and Government Cloud (G-Cloud) which provides Cloud technology for several government agencies where sources of information are stored on the Internet (Agency, 2016).

The first ICT policy framework was developed in 1996, IT2000, to set up of digital infrastructures, such as the initiative on the Government Information Network (GIN) which facilitate intra- and inter-agencies communication and information exchanges. The second policy framework was adopted in 2001 and lasted until 2010, going by the name of IT2010 (Na et al., 2020). Consequently, the next-generation policy framework was launched in 2011 under the name of IT2020 policy with an important vision of the Smart Thailand 2020. The Ministry of Information and Communication Technology (now Ministry of Digital Economy and Society) at the time envisioned Thailand to become a smart nation and to increase access to ICT services to those in rural areas or who lacked the access to smart network, smart government, and smart businesses (Vatanasakdakul et al., 2020).

The master plans for improving electronics services and especially the electronics transaction has been specifically laid out to lessen the development gap between urban and rural area. Those plans are then developed to answer for such need from policy framework. The first ICT master plan was initiated during 2002 – 2006 with an aim to develop and upgrade the economy using ICT with the first five years of IT2010 policy framework (M. o. S. a. Technology, 2003). The second ICT master plan initiated during 2009-2013 was established under the IT2010 policy framework with an aim to develop smart and information iterated people as well as manage ICT at the national level (M. o. I. a. C. Technology, 2009). The third ICT master plan spans over the duration between 2014 – 2018 with a vision to drive Thailand into digital economy (Srijamdee et al., 2020).

Sekkuntod (2013) states that Thailand has been facing the challenge of weak citizens' participation in electronic development, ICT infrastructure, and ICT human capital. This is due to the government's inability to provide e-government equally to public, while at the same time, the citizens in rural areas also possess relatively low ICT capability. This could be due to the inconsistency of development policies and strategies, along with an effective implementation. Citizen participation should be encouraged in the process and development.

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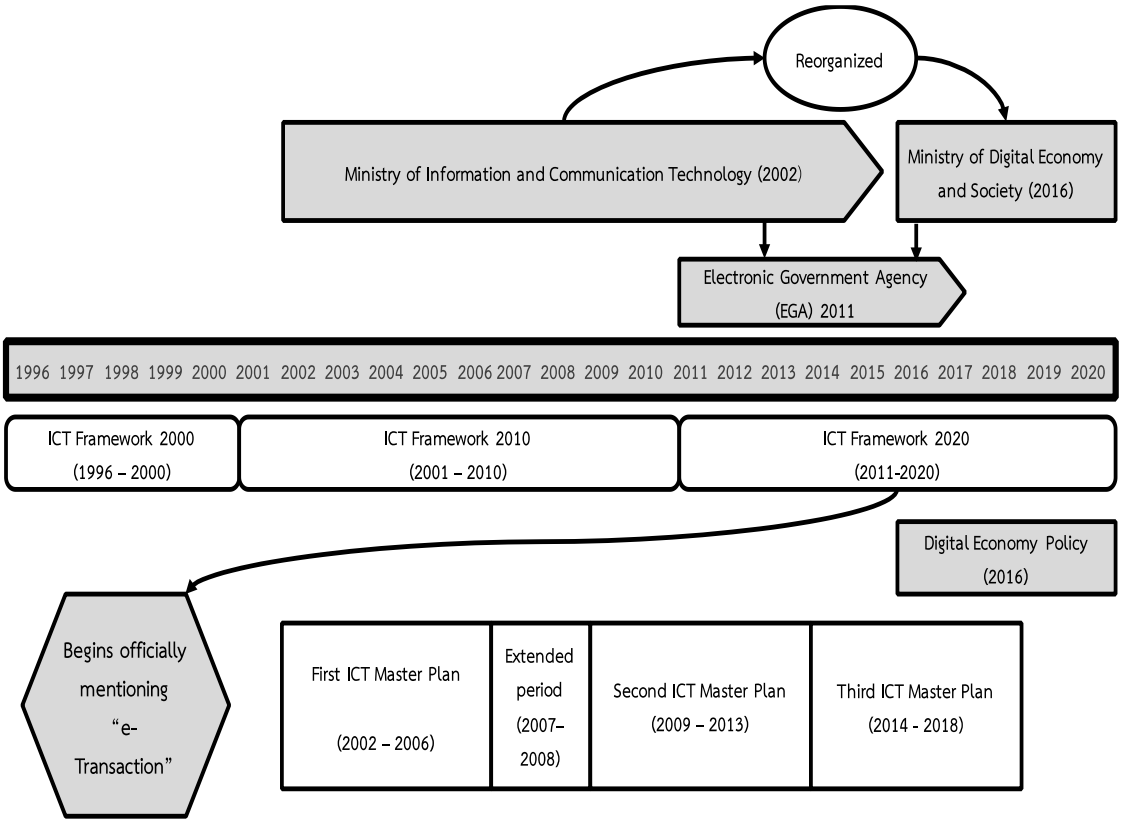

Figure 1: Thailand e-Government policies and strategic plans
Source: Adapted from Sagarik et al. (2018)

2.3 National E-Payment System in Thailand

Thailand's Ministry of Finance has launched an initiative for integrating national electronic payment, which refers to the "National e-Payment Master Plan". The National e-Payment has a scope to integrate e-payment infrastructure in Thailand for funds transfer and payment for consumers, businesses, and the government, integrating the tax and social security disbursement systems. The National e-Payment has an overall objective to develop an electronics payment infrastructure including a tax system, social welfare system and creating financial inclusion and driving Thailand into becoming a cashless society, and ultimately implementing the Thailand 4.0 policy (Sagarik et al., 2018).

The master plan comprises of five main strategies as follows 1) PromptPay scheme; 2) debit card usage expansion scheme; 3) e-Revenue system; 4) social welfare and government e-Payment system; and 5) educating and promoting the public on digital transaction.

Firstly, PromptPay scheme aims to facilitate financial transactions and reduce cost of fund transfer. Under this scheme, national identification, mobile phone numbers and bank account numbers are integrated and can be used as fund transfer code, due to the convenience of memorizing. In this regard, the Ministry set up a transaction fee to a bare minimum to support online transaction and transfer, whereas funds transferred under 5,000 baht will be exempted from the fee. While the highest fee will be kept under 10 baht for the transfer of 100,000 baht and more (e-Payment, 2016).

Secondly, the debit card usage expansion scheme aims to promote usage of debit cards instead of cash. The scheme is also accompanied by the facilitation of the Electronic Data Capture (EDC) machines to shops and vendors who allow payment to be made through debit cards. In this regard, over 550,000 Electronic Data Capture (EDC) machines or commonly known as card swipe machines will be installed within March 2018 to facilitate e-payment. In the initial phase, the system would only be available for retail consumers in which already over 20 million accounts have been registered as of January 2017, whereas the application in the capital market is expected to be the next move (Bhunia, 2017).

Thirdly, the e-Revenue system aims to create an integrated electronic tax system. To achieve this, the government reformed the rules and regulations to enable electronic submission of tax documents, particularly e-Tax invoice submission and e-Receipt. Moreover, in the future, tax refund can also be processed through PromptPay system which is expected to be faster and more convenient as compared to the traditional method of cheques. Ultimately, other types of tax will gradually be moved to an electronic platform, whereas each taxpayer would ideally have a tax account in which tax payment and refund could be debited and credited and make a net settlement within this account (e-Payment, 2016).

The fourth scheme, social welfare, and government e-Payment system, aims to upgrade the government's financial transactions from traditional cash to an electronic form. Upon the completion of upgrading the payment system, payments concerning social welfare will be made through an electronic platform. Gradually, this shall be done for all types of welfare payments toward electronic platform, such as old age pension, and local government welfare payments. As the first step, government subsidy for new born babies had already been issued under this scheme. In January 2017, more than 1680,000 mothers country-wide have received their payments electronically (Sujjapongse, 2017). Lastly, educating and promoting the public on digital transaction is part of accelerating Thailand into the age of digital economy. The last scheme will be done through the setup of incentives for using e-Payment by educating the public about the safety of using e-Payment while changing behavior and public perspective (e-Payment, 2016).

Table 1: Overview of National e-Payment Master Plan

	1.PromptPay (Any ID)	**2.EDC and Card Acceptance Expansion**	**3.E-Tax**	**4.Government e-Payment**	**5. Education**
Objective	More convenient market transfer	➢ Expand card acceptance network ➢ Promote card adoption/usage	➢ Integrate tax filing system ➢ More accurate sales record ➢ Greater tax coverage	➢ More accurate ➢ More convenient ➢ Reduce cash	Promote e-payment along with Many incentives among the general public
Principle	Use registered ID (i.e. National ID, mobile number) in replacing bank account number	➢ Reduce merchant fee to encourage more usage ➢ New local switching network	➢ Electronic taxing system ➢ E-tax invoce system	➢ Register income info ➢ Mange social welfare database ➢ Direct social welfare PromptPay (Any ID)	
Timeline	➢ 1st Phase (P2P) 1Jun16: Pre-register 15Jun16: Register 31Oct16:Implement ➢ 2nd Phase (B2C) Dec16L finish request to pay system for e-Commerce ➢ 3rd Phase (B2B)	Sep16: Expand EDC	2016: gradually inplement thoughout the year	Sep16: Pilot project with selected organizations	4Q15-1Q17: synchronized with other projects
Key Changes	New Fee Structure	New merchant fee structure	➢ Change paper-based tax document to e-tax document ➢ Change cast and cheque tax payment to e-Payment	➢ Change government payment to e-payment ➢ Increase card acceptance & e-Payment at government agencies	Educate and communicate to public

Source: National e-Payment (2016)

As stated, the main purpose of the National e-Payment was to modernize the payment system into a more cost-efficient and more effective for both public and private transactions and was under a cooperation between the Ministry of Finance, Bank of Thailand along with government organizations and private sector.

One of the perceivable achievements in the National e-Payment plan was the adoption of Promptpay, which was well received with around 46.5 million registered number and the daily usage of approximately 4.5 million times per day in 2017. Which opens for a new possibility of public service, for example tax refund, which was electronically transacted for over 2 million users, which accounted for 70% of tax refund receivers. In addition, increasing number of government welfare programs are now geared toward electronic payment, for example the Government Welfare Programme which was initiated to subsidize the living cost along with number of schemes to improve quality of life of qualified citizens, are now being credited electronically through personal Government Welfare card or through a bank transfer using Thai National ID number. Which allows for an accurate and convenient public service (Bank of Thailand, 2019)

3. METHODS

Based on careful literature review and qualitative information**,** the research design in this study utilized the qualitative technique with the aim to analyze the qualitative data obtained from various literatures. This study used the SWOT analysis to stir insightful discussions around the subject. The SWOT analysis is widely used in strategic management to develop an organization's strategy. It is a diagnostic technique typically employed at the start of the planning phase of future strategic plans. The SWOT analysis is a useful technique for assessing an organization's resource capabilities, market opportunities, and external threats (Vlados, 2019). SWOT is an acronym made up of words that define an organization's resources and surroundings. Two dimensions define the analysis. Aspects of an organization's internal dimension include strengths and weaknesses, while those of the external dimension include opportunities and threats (Gürel & Tat, 2017). The SWOT analysis provides advice on how to leverage strengths and mitigate weaknesses to maximize opportunities and minimize risks. Opportunities and threats are external, whereas strengths and weaknesses are internal factors. The reason for choosing this method is that it allows us to critically consider and analyze national e-payment from various dimensions and it also allows us to construct new ideas and generate new ways of shaping the future of Thailand’s national e-payment. This consequently leads to a revamped framework for building a more efficient national e-payment system in Thailand in the post Covid-19 era.

4. ANALYSIS AND DISCUSSION

This following sub-sections directly addresses the strengths, weaknesses, opportunities, and threats of Thailand’s national e-payment system.

4.1 Strengths

Past few years have seen strong commitment from the Thai government to developing the digital economy, and ultimately the e-Payment system. This system has a clear and concise master plan with four distinguished areas, serving as a platform for the utilization of Fintech in public sector. This is empirically done through the setup of various strategic plans and legal framework aimed at facilitating the development and promotion of the e-Payment system as presented in Figure 1. Moreover, there are also a setup of a dedicated and responsible government organization to drive the e-Payment system in public sector, the Electronic Government Agency (EGA) which is mandated specifically in this area. Overall infrastructure in Thailand can provide adequate conditions for the use of national e-payment (Vatanasakdakul et al., 2020).

Additionally, Bank of Thailand plays the role of supervisor and regulator as well as commercial banks in Thailand which have increasingly adopted technology into their operations and services. Key improvements in ICT in Thailand have enabled the banking community to launch new types of financial services such as electronic banking services and mobile banking services (Arijitsatien, 2019).

Furthermore, with the rise of Fintech, new startups from non-banking sector have also emerged to provide financial services through various platforms including payments, lending, and crowdfunding. The rise of new financial services indicates a strong awareness of vast potential in the incorporation of technology with the payment system, which has prompted both, the government and private sector to take the initiatives in this matter and allow the general public to become increasingly familiar with new types of financial services that are changing in accordance with their lifestyles (Moenjak, 2020).

4.2 Weaknesses

One of the major challenges in Thai society has been closing the development gap between citizens in rural and urban areas. In this regard, development gap in using e-Payment refers to different perspective on the form of payment; while citizens from urban areas increasingly opted for e-Payment, citizens from rural area preferred holding cash (Lilavanichakul, 2020). Such a scenario would prove to be challenging for the system to function efficiently, as many of the master plan and frameworks have now focused on the issue of financial inclusiveness. Moreover, there are concerns on the disclosure of their personal information to e-Payment system such as Promtpay scheme. The mistrust and concerns on the system itself could potentially be attributable to a lack of effective marketing and communication of plans and intention to audiences in public. In other words, the e-Payment system in Thailand so far has led to a low confidence level for the average Thai citizen across the country (Bolton, 2020).

However, this adds to another weakness which pertains to the lack of skilled ICT labor in the country. According to Prachachat (2015), the demand for ICT workforce in

Thailand has increased from a 20 per cent demand rate in 2014 to 40 percent in 2015. Lastly, past evidence has highlighted one significant problem on the corporation on the implementation of master plan across government departments. Such a weakness, if not addressed properly, could impede the overall progress of e-Payment.

And lastly, when looking at firms' readiness in Thailand in term of innovation, it is found that most new businesses are not using innovation. According to Traipopsakul (2015), Thai firms, especially in SMEs, lack three qualities needed to compete internationally namely: the utilization of external financing sources; lack of internationalization and export orientation; and lack of innovation and technological utilization. In the last weakness, the study has shown that over 60 percent of newly registered businesses in Thailand did not utilize innovation for production, whereas over 51 percent of newcomers offer products or services that are already common in the market.

4.3 Opportunities

Thailand has a large proportion of citizens holding bank accounts. According to World Bank's Global Fintech database, which studies financial inclusion, Thailand has relatively high account penetration, with the percentage of all adults at 78 percent and women at 75 per cent. Additionally, when looking at the account penetration among the adults in the poorest 40 per cent of households, the percentage is still relatively high at 72 in 2014 (Demirgüç-Kunt et al., 2015).

In conjunction to the above scenario, the level of smartphone penetration in Thailand also predicted to have risen rapidly annually. According to data from Statista (2017), the current smartphone penetration in Thailand stands at 34.6 percent in 2017, and is projected to reach over 40.07 percent by 2021. The number of smartphone users in Thailand is 21.8 million in 2017 and is expected to rise annually (Statista, 2017). Moreover, sales growth on Year-Over-Year (YOY) of smartphone in Thailand as reported in 2015 have risen 47 percent compared to 2014. This shows a growing trend of smartphone among Thai citizens. Additionally, in term of e-payment, over 6 million smartphone users in Thailand became an active user in mobile wallet application. Thailand is also now the fourth fastest growth market in Asia on cashless payment, which resulted in the increase of total value of e-payment through mobile phones which are expected to surge from 68.2 billion in 2015 to 143 billion in 2020. This fast increase also came from the changing behavior of people during the social distancing practices as a result of Covid-19 outbreak (Keaitthaweepong, 2017).

The value of Thai e-commerce market in 2015 was 2.2 trillion baht, and increased to 2.5, 2.7, and 3.7 trillion baht in 2016, 2017, 2018 respectively. The value of Thai e-commerce is expected to reach 4.9 trillion baht in 2020. This illustrates a great opportunity for higher online financial transaction. E-Commerce user penetration is at 21.7 percent in 2017 and is expected to hit 24.5 per cent by the end of 2021. Additionally,

the number of internet users have already risen to 43 per cent and there is a clear trend toward mobile service as the demand have increased (ETDA, 2020).

One more significant opportunity is in the upcoming spectrum auction for 5G, which would significantly increase the speed of internet. Additionally, with 5G becoming operational, it would enable the application and connection of the Internet into other industries such as self-driving cars, medical robotics, or generally known as internet of things (IoT) (Kiartubolpaiboon et al., 2021). The connectivity between the devices and the Internet could open new opportunities for innovation both in services and products, ultimately enabling the government to reap the benefit by launching public services in a more effective and efficient manner.

4.4 Threats

Although after decades of growth in the use of technology in manufacturing and industrial sectors, public spending in Thailand on research has been growing accordingly in a sustained manner. When looking at the share of public spending from overall GDP, it is found that the proportion is still relatively low, with the share of R&D expenditure at 0.21 percent in 2008, 0.24 percent in 2008 and 0.37 percent in 2011 (Thailand, 2013). It is not until recently, under the National Economic and Social Development Plan (2012-2016) that the goal of public spending on R&D was set to increase at 1 per cent of GDP, with 70 percent of funds coming from the private sector. Secondly, the rapid change in conditions pertaining to the stability of economy is also critical to maintain the rate of investment and activities that are conducive to the development and facilitation of innovation (Mukherjee et al., 2018).

Another threat derives from internal factor which is concerns with the security of government services itself. Since the launch of many government initiatives on e-payment, many have expressed concerns on its security and discretionary of personal information, due to the people having to give up some information for the use of system (Ladkoom et al., 2020). The concerns also directed to the fact that the government, in the past, has only communicated the benefits, but have not has a chance to provide security management system or cyber security. Such threat would continue to discourage citizens from participating in the e-payment system, which would impede the government's ability to provide services according to the master plan if not being handled correctly (Lilavanichakul, 2020).

5. RESHAPING AND RETHINKING THE FRAMEWORK FOR NATIONAL E-PAYMENT

To address the inquiry concerning improvements in the national e-payment, it is essential to explore the scope of roles among different sectors in society which play an essential role in improving the national e-payment. The new national e-payment framework in the

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post-Covid era should create certain attributes for each sector involved in the following ways, namely accountable and modern government, an innovative and up-to-date private sector, and a digitally iterated and engaged citizen.

5.1 Accountable and Modern Government

Regarding the role of government, it is essential for the government to act as a catalyst for change according to the plan they have set. It is also crucial to assure the users which is public that the system is both beneficial and safe to use. Therefore, the role of the government in developing a stronger national e-payment framework includes the following attributes.

According to data from We Are Social, the outlook for Thailand's digital demography looks promising and increasing by number every year. With roughly 69.88 million population in 2021, Thailand has at least 90.66 million mobile connections, which means a person owns more than one mobile connection. In addition, internet users, social media users and online shopping usage is also in the increasing trend (Kemp, 2021)

Table 2: SWOT Analysis of Thailand's e-Payment System

Strengths	**Weaknesses**
• Strong commitment from Thai government and Bank of Thailand • Clear strategic plans and legal frameworks • Existance of specific government organizations pertainning to development and promotion of e-payment • Increasingly strong application of ICT by Bank of Thailand and among Bank/non-bank operators	• Development gap between citizens in rural and urban areas • Citizen has relatively negative views on disclosure of personal information • Insufficient skilled staffs on ICT • Weak colaboration between government departments • SMEs' unreadiness for adopting ICT • Education systems that are not fully conducive to innovation
Opportunities	**Threats**
• Thailand 5G spectrum auction • Large propotion of citizen possesing bank account • Increasing level of smartphone penetration • High level of social media users and increasing online purchase	• Lacks funding for Research and Development • Economic uncertainty • Concerns regarding security

Source: Author's compilation

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This increasing trend toward digital usage, fuels Thailand's prospects in helping the government virtualize the many possibilities of providing electronic services to citizens. While the government is keen on the project, the emergence of digital economy is now adding a major concern as to the readiness of the workforce, especially in digital skills. Thailand's Ministry of Labor responded by establishing the Digital Skill Development Academy (DISDA) to equip citizens and target workforce to develop their digital skills. The effect from this move may not be immediate and remains to be assessed. However, it shows the government commitment to address the problem at the structural level.

5.2 Ensuring Security

It is empirical that there was a concern on the disclosure of personal information along with its discretionary. The direction that Thailand is moving is linked to large-scale connectivity such as Promptpay or the use of cloud system for storing and transferring government information. The central question that follows is then directed to how government assesses and addresses the systematic risk or even seeks to prevent this risk under such a complex network of connectivity. Therefore, the Thai government should provide more security-related and concrete frameworks to the public to ensure security against possible threats such as cyber-attack and hacking as well as increasing the level of confidence among citizens.

5.2.1 Increase Quantity and Quality of ICT Workforce through Better and Updated Education

There are problems of human capital especially the fresh graduates who do not fulfill the need or do not possess necessary skills for the development of digital government and digital economy, which in turn affects the subsequent development of the e-payment system. Therefore, education system must be updated in synchrony with the national e-payment system in the two major perspectives. Education system in Thailand must be conducive to the creation of innovation, which is a combination of life and career skills, learning and innovation skills, and information, media, and technology skills. Thailand also experiences a shortage of workforce with technical skills. Hence, vocational education should be reformed and promoted to produce more human capital needed for the digital economy.

5.2.2 Shared Vision among Government Organization

To make a successful national e-payment, every government organization must share the same view in this changing paradigm shift in policy and be willing to incorporate this payment technology into their services. This is due to the past challenges among government organizations in Thailand whereas the weak coordination and low shared vision has impeded the effectiveness of strategic plans.

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5.3 Innovative and Up-to-Date Private Sector

In order to build a stronger national e-payment framework, firms in the private sector whether being commercial banks, big firms, or even SMEs should be well-informed on the context of national e-payment and should be reaping the benefits from current technology and existing research.

5.3.1 Closer Interaction between Banking Institutions and SMEs on National E-Payment

Although the Thai government has taken a significant role in informing the public through multiple platforms, such as through official news, conferences, or workshops. However, public in general has varying ability to receive information which may be due to several factors such as location, income, or household technologies. Since firms, especially SMEs, have a significant link to commercial banks for various reasons, it is then crucial for commercial firms to further communicate and advocate government policies and incentives of the national e-payment.

5.3.2 SMEs Utilizing more Fintech Instruments

Currently, Fintech instruments in Thailand is now on the rise, especially on the payment. SMEs should receive a considerable benefit from utilizing an improved service into their business operation. In effect, SMEs can become more familiar with the new technologies that allow them to be more efficient, which in turn, ensures that SMEs are able to benefit from using national e-payment.

5.3.3 SMEs Utilizing more Research Facilities to Drive Innovation in Their Products and Services

One challenge pertaining to Thailand SMEs is due to the lack of innovation in their products and services. However, the prospect of having innovation in their businesses is possible as there are many research facilities available to the government for developing the Thailand 4.0 policy. By accessing these research facilities, SMEs would be able to learn new know-how and techniques to allow them to add more value to their existing products and services.

5.4 Digitally Literate and Engaged Citizen

Lastly, citizens may be perceived as merely end-users with no say in the process of development. However, it is the citizens themselves who determine the effectiveness of government programs as they form an integral part of government's goal: to improve public services. Therefore, the stronger national e-payment should have the following attributes vis-à-vis the interests of citizens:

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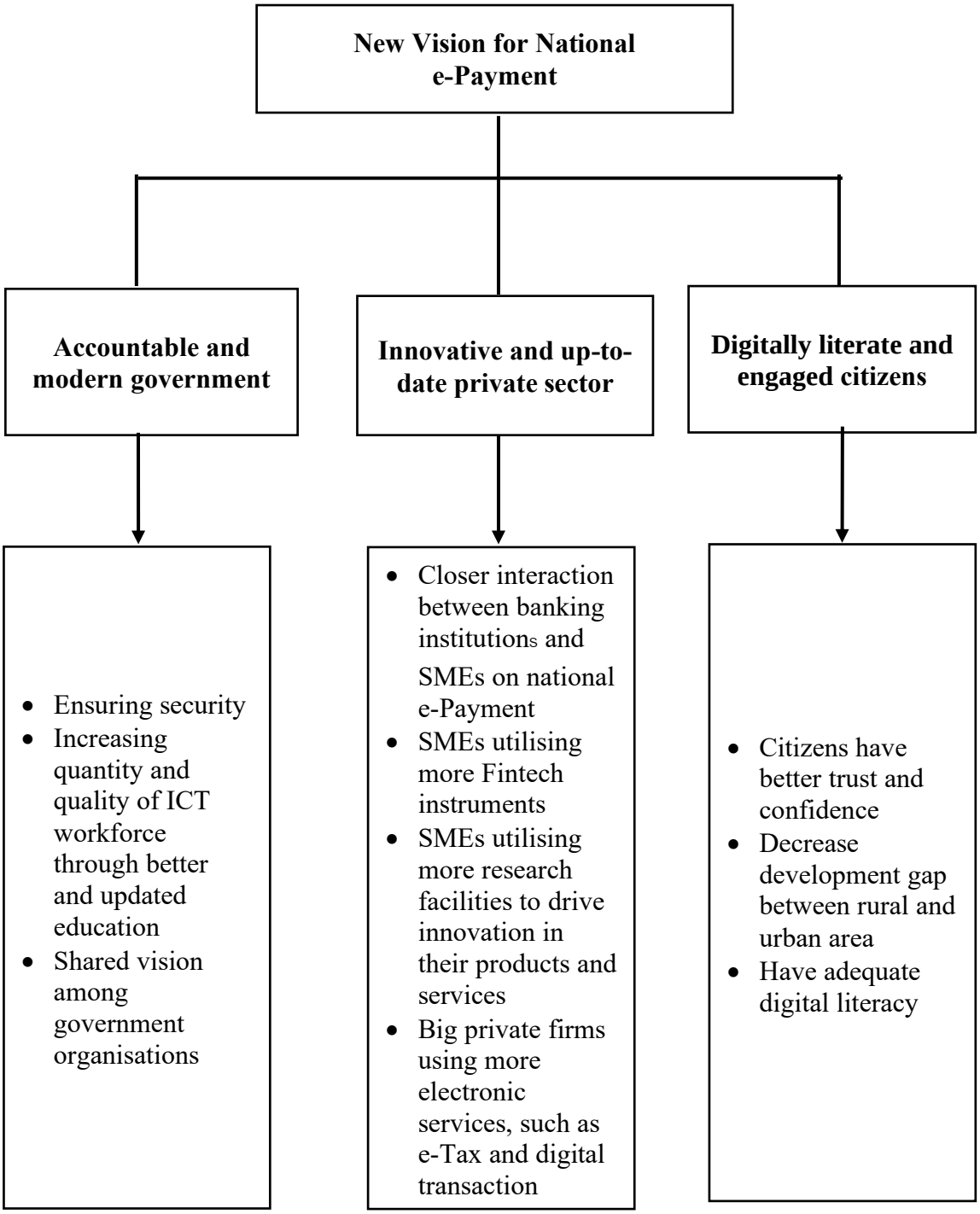

Figure 2: New Framework for National e-Payment
Source: Author's Compilation

5.4.1 Citizen with Trust and Confident

Since the beginning of the launch of the national e-payment strategy, such as Promptpay scheme, there has always been criticism about and concerns about its security such as the discretionary use of personal information and safety concerns vis-a-vis cyber-attacks and hacking. While there is no doubt that the strategy will prove to be beneficial, the government must take a harder attempt to communicate with the public on its security to ensure a higher level of citizens' trust and confidence.

5.4.2 Narrower Development Gap between Rural and Urban Area

Narrower development gap between rural and urban area as well as among citizens allows citizens to have access to better government services and help spread the effects of growth and development. More equitable development in terms of human capital can serve as a solid foundation for the sustainable national e-payment system, which can promote the growth of the economy in the long run.

5.4.3 Have Efficient Digital Literacy

Lastly, the abovementioned goals would not be possible to attain to if the public has limited understanding on digital literacy. Therefore, government should also strive to build digital literacy necessary for the utilization of national e-payment for citizens across the country.

As Rabaa'i (2021) puts in, the success of e-government depends largely on two factors: the government's support and citizen's willingness to adopt the initiatives. While the Thai government plays a pivotal role in laying out the fundamental framework and spearhead the direction, private sectors and public are required to adopt through a shared vision. These three pillars are expected to move forward simultaneously should the vision is going to be fulfilled.

6. CONCLUSION

The integration of e-government and Fintech in Thailand has been evident. Thailand has reached an advanced stage in the implementation of the national e-payment system, with many of its schemes and tasks being successfully implemented under the national e-payment master plan. Despite the strong desire and concise schemes of the master plan with demonstrably firm strengths aimed at driving Thai economy, the country still faces several challenges and opportunities. Certain aspects should be considered for successful implementation in the future. The present study has targeted the area, which is national e-payment in the post-Covid era, while specifically contributing to the literatures in the field of e-government. It ensures that the theory and concept of e-government is still very prominent both, in the current situation and will be even more important in the future in terms of benefit to the society. It confirms that e-payment has played an important role in promoting the e-government model. There is clear evidence that Thai

government has practically placed emphasis on the development of e-government and e-payment in public sector.

7. RESEARCH IMPLICATIONS

The present study contributes to the theoretical and empirical knowledge on national e-payment system in Thailand. The following subsections will outline the research implications in terms of both, theory, and practice.

7.1 Theoretical Implications

The analysis in this study, conducted using the case of Thailand, has several theoretical implications. First, the current research opens new avenues of research by highlighting the internal and external aspects of SWOT analysis of Thailand's national e-payment system. Second, current research offers a new conceptual framework for the future of e-payment systems in Thailand. Third, it highlights the role of e-payment systems in various sectors of the economy. Fourth, it connects public and private sectors e-payment channels using FinTech. Finally, the current epidemic has changed the dynamics of business and people's lifestyles that will challenge the current payment system in future. Therefore, this research will contribute towards existing knowledge by highlighting the factors that could be used to develop a new e-payment system in Thailand after the COVID-19 era.

7.2 Practical Implications

It is crucial for the country to develop a national e-payment system to overcome current and future challenges. A sounder framework is needed as it can pave the way for future actions especially at the national level. The future framework for national e-payment in Thailand should aim for achieving accountable and modern government, innovative and up-to-date private sector, as well as having digitally literate and engaged citizens. Delivering national e-payment system on this prospectively promising framework in the post-Covid era will help benefit the economy in every sector collectively, and not only the government and private sector entities but also individual citizens.

8. RECOMMENDATIONS

This study also proposes several recommendations. These are:

- The government should ensure the security of the system, increase the quantity and quality of ICT staff, and create a common vision for government agencies.
- The private sector, especially SMEs, should focus on close collaboration with financial institutions and the use of Fintech.

- The development gap between citizens should be reduced and trust should be established in all groups of citizens. In addition, future citizens must be taught to a high level of digital literacy.

9. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Although this study provides new and critical framework for the future of national e-payment in Thailand, the results illustrated in the framework are a product of only qualitative analysis and may, therefore, not comprehensively represent the readiness of the public sector to adopt and implement this framework. Furthermore, the focus of this research has been to address and analyze the past and current aspects of the e-payment system in the context of Thailand's e-government; therefore, domestic experience was more important than international ones. Another key limitation of this study is that it only applies to the case of Thailand, so the results may not easily be transferred to other cases. Thailand is a small country with a fast increase in the rate of Internet usage and the number of mobile users with unique challenges that should be considered before any generalization. As far as the methodology is concerned, quantitative testing is needed to improve the results. A more refined version of this study could particularly investigate factors affecting the successful implementation of the national e-payment project in Thailand. Additionally, future studies could also take stock of the comparative aspect of the development of e-payment within the public sectors in other economies in the same region.

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