

# ***Development Implications of Digital Economies***

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## **Digital Economy Policy: The Case Example of Thailand**

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## Table of Contents

ABSTRACT.....	1
<b>1. DIGITAL ECONOMY PLAN .....</b>	<b>2</b>
<b>2. EARLIER DIGITAL PLANS .....</b>	<b>5</b>
<b>3. MINISTRY OF DIGITAL ECONOMY AND SOCIETY .....</b>	<b>9</b>
<b>4. DIGITAL ECONOMY LEGISLATION .....</b>	<b>12</b>
<b>5. DIGITAL INFRASTRUCTURE.....</b>	<b>14</b>
<b>6. ANALYSIS OF THAILAND’S DIGITAL ECONOMY POLICY .....</b>	<b>15</b>
REFERENCES.....	17

# Digital Economy Policy: The Case Example of Thailand

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2018

## **Abstract**

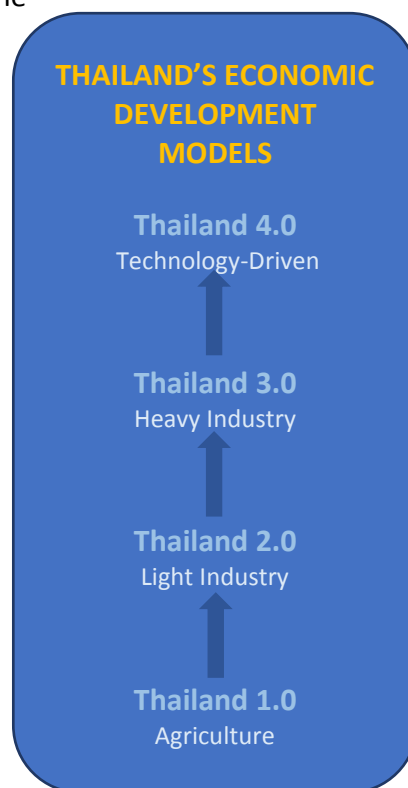
*Level of development of digital economy policy and governance varies widely within countries of the global South. One country in which it has been significantly developed is Thailand, which has both dedicated policies and governance structures for the digital economy. This paper provides a largely descriptive overview of these. It reviews the current Digital Economy Plan and also some of its predecessor plans and policies. It explains the structural underpinning seen in recent creation of a new Ministry of Digital Economy and Society; and reviews the content of planned legislative changes. Following a short review of specific issues with digital infrastructure, the paper provides a brief analytical commentary.*

# 1. Digital Economy Plan

Thailand is working to improve economic growth by shifting its economy from an industry-driven country (whereby manufacturing accounted for 40% of GDP in 2010) to one that is high-tech driven (Charoen 2015). Focusing on this strategy, the government launched the **Thailand 4.0** initiative and also the **Digital Thailand** plan in 2016 (Kuncinas 2017). The aim of the Thailand 4.0 policy is to pull the country out of the “middle-income trap”<sup>1</sup> and transform Thailand into a “value-based” economy by (Yoon 2016):

- Transforming production from ‘commodities’ into ‘innovative products’;
- Converting industry-driven activities into those driven by technology, creativity and innovation; and
- Changing the focus from producing products to providing services.

As part of the Thailand 4.0 strategy of a technology-driven economy, the Thai Government’s aim is to build a “Digital Economy and Society” to enable Thailand to become a digital leader and compete within the ASEAN economic community. The Thai Government’s Digital Economy and Society target includes placing Thailand in the top 40 countries in the global ICT Development Index (IDI) Index and the top 15 in the World Competitiveness Index (Wehr and Kessler 2017). Currently, Thailand lags behind some of its nearest regional peers like Malaysia in terms of these indices and other measures such as overall mobile penetration, smartphone ownership, 4G rollout, and digital skills (DTAC n.d.) (see Table 1).



Country	ICT Development	Global IDI <sup>1</sup> Ranking	Total Mobile Penetration	Unique Mobile Subscribers	3G + 4G	Smartphone
Thailand	4.8	74	122%	85.47%	82.47%	58.98%
Indonesia	3.8	108	126%	58.43%	40.48%	40.37%
Singapore	7.9	19	145%	71.52%	63.14%	78.16%
Malaysia	5.2	64	142%	76.1%	60.3%	64.63%
Philippines	4.0	98	117%	65.09%	44.74%	40.9%
Vietnam	4.1	102	152%	49.66%	36.48%	27.84%

Table 1: Thailand's key indicators as compared to its regional counterparts

Source: (DTAC n.d.)

The ICT Ministry’s *Digital Development Plan for Economy and Digital Society* or *National Digital Economy Master Plan* sets out a number of key targets and indicators. The Plan has

<sup>1</sup> The middle-income trap is “a state in which an economy has lost its competitive edge in the exportation of manufactured goods because its wages have risen, but are unable yet to compete with more advanced economies in the high-value-added market” (Schwab 2016).

been positioned as a policy with high importance for the development of the Thai economy and placed under the direct leadership of Thailand’s Deputy Prime Minister (GSMA 2015:15).

The framework for digital economy development was proposed with the vision that the digital economy will enable growth in economic, business, social, and governmental sectors within Thailand, with major policy goals including (Kanchanaporn 2015:2):

- “1. establishing digital infrastructure with sufficient capacity and coverage to support seamless service delivery
2. using digital technology as a tool to bring better quality of life and equal access to public services of all citizens. (Digital Inclusion)
3. promoting a growth of innovative businesses that utilize digital technology.
4. building digital skills and transforming business practices so that Thai businesses-- especially the SMEs-- are positioned to compete successfully in the digital economy.
5. increasing national GDP with major contribution from digital industries
6. creating a digital business ecosystem that responds to the dynamics of digital economy. and
7. significantly enhancing overall ICT readiness as assessed by global indices”.

The Digital Economy Plan is divided into four phases to be incorporated over a 20-year period (see Figure 1).

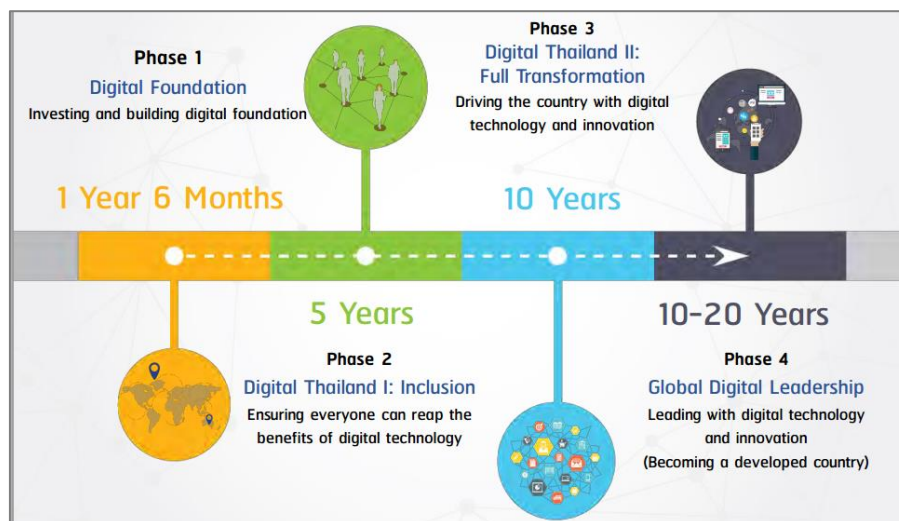


Figure 1: 20-Year Thailand Digital Landscape  
Source: Siriruchatapong (2016)

The goals are to be achieved over this period via six strategies (see Figure 2) which overlap with but are not quite the same as the goals: 1. Building country-wide high-capacity digital infrastructure; 2. Boost the economy with digital technology; 3. Create a knowledge-driven digital society; 4. Transform into digital government; 5. Develop workforce for the digital era; 6. Build trust and confidence in the use of digital technology (Siriruchatapong 2016).



Figure2: Six strategies of the Digital Economy Plan

Source: Siriruchatapong (2016)

In order to achieve these goals/strategies, the National Digital Economy Master Plan was intended to focus on five key pillars (see Figure 3) to drive its digital economy initiative in Thailand (Okeleke and Stryjak 2015; Charoen 2015; Kanchanaporn 2015; IDC 2016):

- 1) **Hard Infrastructure** – under this pillar the Thai government’s aim is to reduce the digital divide by creating a digital infrastructure which covers both fixed and mobile infrastructure, and reliable networks that have enough capacity, coverage and suitable pricing, to help promote a digital economy. The target is to provide all Thai citizens access to a minimum 30Mbps broadband service by the end of 2017, irrespective of where they are based. It will also include auctioning of a spectrum to provide fourth-generation (4G) wireless broadband services, increasing investments in data centres, cloud computing services and international digital gateways for both public and private organisations.
- 2) **Service Infrastructure** – refers to infrastructure that would enable service innovations from both government and private sectors. It includes creating a single platform that would provide access for businesses and individuals to e-government services: paperless, one-stop, citizen-centric, and eliminating the use of hard copies of IDs and house registrations.
- 3) **Soft Infrastructure** – this would include building public confidence in the use of digital technology by ensuring cybersecurity for the safe use of electronic sites and by providing verification systems to identify individuals and guarantee secure and trusted digital transactions. This involves creating and modifying all existing standards, laws and regulations relating to the development of the digital economy – such as e-transaction, data protection, and cyber security laws. In addition to electronic transaction promotion, this also addresses trade facilitation with usage of electronic document exchange system.
- 4) **Digital Economy Promotion** – this involves acceleration of the digital economy through the development of a vibrant digital business ecosystem that supports SMEs and entrepreneurs and innovation. It also incorporates capacity building in the area of digital entrepreneurship, e-commerce, and digital marketing to ensure industry’s readiness for the digital era.

- 5) **Digital Society and Knowledge** – this relates to providing universal access to each and every Thai citizen at an affordable price whilst creating a digital society that supports the use of digital technologies to enhance quality of life, reduce poverty, enable learning throughout life, and make citizens media- and information-literate.

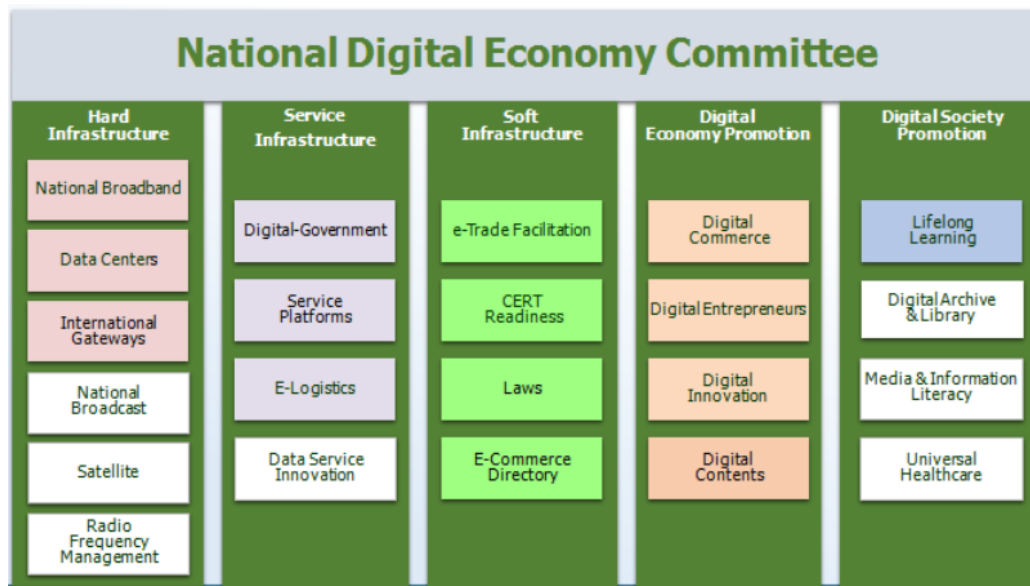


Figure 3: The planned five pillars of Thailand's Digital Economy Initiative<sup>2</sup>

Source: Kanchanaporn (2015)

Under the plan, various “smart cities” pilot projects have been proposed to develop cities like Phuket and Chiang Mai (Law Library of Congress 2016)<sup>3</sup>. There are also plans to build an Innovation Park to foster a digital cluster for high-technology within these cities, which includes the development of a Smart WiFi programme. Small and medium-sized enterprises, which make up 99% of Thai firms, will also be encouraged to develop their businesses via the digital economy (DTAC n.d.).

## 2. Earlier Digital Plans

The current Digital Economy Plan builds on a series of earlier frameworks and policies which, over the years, have been created in Thailand with a focus on shaping the ICT landscape. These have included the Thailand National IT Policy (1996-2000, “IT2000”); Thailand Information and Communication Technology (ICT) Policy Framework (2001-2010, “IT2010”); Thailand Information and Communication Technology (ICT) Master Plan (2002-2006); the National Broadband Policy (2009); the USO Master Plan for Provision of Basic Telecommunication Services (2012-2014); and the ICT Master Plan 2014-2018 (drafted but not officially sanctioned). Many of these have had overlapping goals and provide a generic direction rather than concrete actionable plan (GSMA 2015:15). However, the development of these ICT Policy Frameworks and Master Plans, supplemented by the establishment of the

<sup>2</sup> In practice, what emerged was somewhat different with working groups on Broadband, Lifelong Learning, and “3D”: Digital Content, Digital Commerce, Digital Industry.

<sup>3</sup> “Smart City” is a project supported by the government through the Software Industry Promotion Agency (<http://www.depa.or.th/en/projects/smart-city-project-digital-economy>).

Ministry of Information and Communication Technology (MICT) in October 2002 can be seen to reflect the Thai government's commitment to harnessing ICT for national development.

The first Thailand National IT Policy (1996-2000) or "IT 2000", was proposed by the National Information Technology Committee (NITC) and approved by the Cabinet in February 1996. The five-year policy framework focused on three fundamental goals (Mephokee & Ruengsrichaiya 2005):

- Invest in a national information infrastructure (NII) to empower Thai citizens and enhance their quality of life.
- Invest in and promote IT-literacy in order to build an IT literate populace and capacity.
- Invest for good governance by providing use of IT across all governmental agencies to help improve operations and services, as well as promote the growth of the local industry, including hardware, software and content, and SMEs.

After IT 2000 successfully provided a framework for subsequent policies and projects, the Thailand Information and Communication Technology (ICT) Policy Framework (2001-2010) or "IT2010" (approved by the Cabinet in March 2002) led to further development of Thailand's ICT. The IT2010 policy framework's objective was to enhance the economy and quality of life of Thai citizens and lead Thailand towards a knowledge-based economy and society. It outlined three main goals (MICT 2011):

- Enhance Thailand's ranking in the Technology Achievement Index (TAI) of countries from its current ranking as 'dynamic adopter' to 'potential leader'.
- Increase the total workforce of ICT workers to 30% of the workforce by 2010 by developing Thai workers' knowledge.
- Develop a knowledge-based Thai industry and set a target for its value to reach 50% of GDP.

It focused on the long-term "*5 Es strategy*", which emphasised the development and application of ICTs in five strategic areas (MICT 2011; Mephokee & Ruengsrichaiya 2005):

- *e-Government* – focuses on the utilisation of IT in the public sector, which includes central, provincial and local government organisations.
- *e-Industry* – encourage the use and development of IT in the private sector to enable a knowledge-based industry by 2010.
- *e-Commerce* – strengthen the competitiveness of Thai industries by means of electronic commerce for export, trade, services and domestic consumption.
- *e-Education* – develop and strengthen human capital at all levels in order to enable a knowledge-based society.
- *e-Society* – use IT for improving quality of life, developing a knowledge-based society and decreasing the digital divide.

Subsequently in September 2002, the Cabinet further endorsed the First Thailand National ICT Master Plan (2002-2006) for the first five years of the IT 2010 period, in order to establish concrete short/medium-term measures for achievement of the broader framework (NECTEC 2003). The Plan, which was also strategically linked to the Ninth National Economic and Social Development Plan (2002-2006)<sup>4</sup>, was developed through extensive research on best practices

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<sup>4</sup> A strategic plan that serves as framework for medium-term national development but consistent with the long-term vision that emphasises "balanced development of human, social, economic and environmental resources".



around the world, as well through analysis of Thailand's strengths, weaknesses, opportunities and threats (SWOT) pertaining to ICT development, and through stakeholder engagement (NECTEC 2003:2). The goals of the First Master Plan were to:

- Develop and upgrade the economy through the use ICT;
- Enhance competitiveness of the ICT industry;
- Develop human capacity by increasing the application of ICT in education and training; and
- Strengthen the rural community for sustainable development (given 70% of Thais live outside Bangkok city).

Based on these goals, the Plan outlined seven key strategies (*ibid.*:5-6):

- **Strategy 1:** Develop the ICT industry into a regional leader: with 75% of the export value equivalent to 90 billion baht annually by 2006; set up the Software Industry Promotion Agency (SIPA) to drive investment in the software industry; use government projects (with an annual budget of 5 billion baht by 2006) to kick-start the initiative to drive the domestic software market; train 60,000 qualified researchers and software developers, where at least 30% are certified developers.
- **Strategy 2:** Augment the quality of life and society through the use of ICT: provide at least seven telephone lines (32 kbps minimum) in every community (village) by 2005; provide broadband services at a reasonable price in every province by 2006; install a community telecentre in every sub-district by 2006; enable at least 300,000 teachers to use ICT effectively by 2006; establish an organisation responsible for security of information and communication systems.
- **Strategy 3:** Enhance research and development capability on ICT: in both the public and private sectors, to be at least 3% of annual ICT industry value; provide large-scale software development projects worth 5 billion baht by 2006; promote locally-made PC use to be at least 80%, and locally developed software to be not less than 50% of total domestic consumption by 2004; have the proportion of software developers (network computing technology or web services) to be at least 70% of total developers by 2004.
- **Strategy 4:** Reinforce social capacity for future competitiveness in global markets: ensure that at least 70% of the workforce are able to access ICT and at least 40% can search for information on the Internet by 2006; increase at least 150,000 knowledge workers each year by 2006.
- **Strategy 5:** Develop entrepreneurs in order to expand international market reach: increase ICT-related employment in industries which utilise ICT in their production process and services by around 600,000 people (1% of the total workforce) by 2006; increase the value of the e-commerce market by at least 20% annually; increase the economic value of ICT-based manufacturing industries by 10% by 2006.
- **Strategy 6:** Promote use of ICT in small and medium enterprises: enable at least 100,000 SMEs to use ICT in their back-office operations and 40% of SMEs to utilise ICT in major business operations (such as design and engineering) by 2006; increase the number of entrepreneurs in the supply chain by 10% annually.
- **Strategy 7:** Use ICT in government administration and services: at least 60% of public agencies to fully utilise IT in back-office operations and enable the exchange of data

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Its priority is to pursue good governance at all levels within society in order "to achieve real sustainable people-centered development" (National Economic and Social Development Board 2002).

electronically inter- and intra- ministries/agencies by 2006; conduct 90% of simple government transaction services electronically and allow at least 50% of the agencies to provide electronic services related to fee payment in every province by 2006; provide at least 100 public services online (“e-citizen”) by 2006; at least 100 billion baht-worth of government procurement transactions to be conducted online (“e-procurement”); establish IT security policies and regulations.

IT industry development (software industry in particular), human capital development and IT utilisation in the public sector were among the top-priorities of these seven strategies (Mephokee and Ruengsrichaiya 2005).

In May 2011, the Thai government initiated the Information and Communication Technology Policy Framework (2011-2020) or ICT 2020 (IDC 2016). The aim was to ensure the establishment of ICT infrastructure and to foster universal access to the Internet to all Thai citizens by the year 2020, which included providing security standards.

Within the framework, the Third ICT Master Plan (2014-2018) was proposed but had to be stalled due to the military coup in 2014 (IDC 2016). Post the coup in 2014, Thailand’s economic growth had slowed down and IT investment was kept on hold by companies to reduce costs. It was then in November 2014, that the military government created a new initiative to promote ICT development through its Digital Economy Plan, aimed at increasing economic and social prosperity through digitisation and placing Thailand at the digital forefront within the Association of South-East Asian Nations (ASEAN) region. This then led into the current plans.

### 3. Ministry of Digital Economy and Society

In June 2016, the *National Legislative Assembly (NLA)* of the Thai government approved the establishment of a new Digital Ministry (Bangkok Post 2016) and in September 2016 replaced the *Ministry of Information and Communication Technology (MICT)*<sup>5</sup> (which was mainly focused on infrastructure) with the **Ministry of Digital Economy and Society (MDES)** (Mokkhasen 2016a) (see Figure 4 for full structure of the MDES). The Ministry’s vision is: “To encourage all sectors to use digital technology to drive the country’s economy and society within 5 years” (MDES 2017b).



Figure 4: Structure of the Ministry of Digital Economy and Society (MDES)  
Source: MDES (2017a)

The task of this new Ministry is to develop and promote the growth of the country’s digital economy, including creating policies to help promote and attract digital businesses. Their role is also to develop and manage Thailand’s telecommunication network as well as regulate and promote the use of infrastructure and innovation for the country’s socio-economic development.

As can be seen from Figure 4, the *National Statistics Office (NSO)*, the *Software Industry Promotion Agency (SIPA)*, the *Electronic Transactions Development Agency (ETDA)*, the *Thai Meteorological Department* and *Thailand Post*, which were part of the Ministry of ICT came under the umbrella of MDES.

<sup>5</sup> Which was established in 2002 to centralise policy leadership of several government agencies including national statistics, software promotion, electronic transactions and e-commerce, postal services, and state-owned telecoms (Fotiadis and Fotiadis 2017).

Two agencies, the *National Digital Economy and Society Committee* (chaired by the Prime Minister) and the *Digital Economy Promotion Agency (DEPA)* were also set up under the Ministry of Digital Economy and Society (Fotiadis and Fotiadis 2017).

### **The National Digital Economy and Society Committee (Digital Economy Committee)**

In February 2015, the cabinet approved a draft law establishing the *National Digital Economy and Society Committee* (also known as the *National Digital Economy Committee*). The primary responsibility of the Digital Economy Committee is to steer the implementation of Thailand's digital economy. It is aiming at: "maximizing the benefits of digital technologies, developing infrastructure for digital technology, raising the country's competitiveness with digital innovation, creating equal opportunities with information and digital services, developing human capital for the digital era, creating public confidence in the use of digital technology and implementing digital technology to enhance Thailand's economy and society" (Somwaiya 2017). The Committee sets out guidelines and policy under the digital economy framework. The committee is responsible for proposing to the Cabinet relevant financial policy and investment, tax measures and privileges related to digital development for economy and society.

At its first meeting in March 2015, the committee appointed five sub-committees to help drive digital economy in crucial areas (Kanchanaporn 2015):

- ***Development of national broadband*** – the committee set out a framework for effective utilisation of fibre optic cable (more than 310,000 kilometres) owned by both public and private sectors. The aim is to provide every Thai individual access to high-speed Internet services at affordable prices. In order to achieve these goals, the committee establishes a professional organisation to manage the government's assets/broadband networks, including passive telecommunication infrastructure such as poles, pipes and fibre optic cables. The committee also draws up a national broadband plan with the support and voluntary inclusion of service providers as well as experts who have experience in designing and professionally managing national broadband.
- ***Development of data centres*** – the sub-committee has developed a national plan for the development of data centres. Their aim is to promote investment in data centres in Thailand, as well as reduce redundancy of data centre investment, especially in government sectors.
- ***Promotion of digital commerce, digital contents and digital entrepreneurs*** – led by the minister of ICT, the vision of this group is to promote the digital economy as a tool for the growth of national competitiveness through five principles – (i) promote digital technology usage in business organisations, (ii) drive service innovation through digital technology, (iii) promote the creative economy, (iv) promote the embedded system industry, and (v) raise awareness of the benefits and impacts of digital technology within the whole industry. The aim of the committee is also to help Thai businesses and industries to grow their business and gain competitive advantage through innovations in products and services using digital technologies. They hope to achieve this through four strategies:
  - a. ***Build e-commerce capability among small and medium enterprises*** – the committee is working with the Federation of Thai Industries (FTI) to define an e-invoice message standard. The Software Association of Thailand (ATSI) will help the committee

promote the usage of enterprise resource planning, while the Thai e-Commerce Association will help the committee promote the application of e-commerce among Thai SMEs.

- b. *Promote the application of e-supply chain management throughout the industry* – the committee is working with FTI and the Thai retailing industry to develop an electronic supply chain management (e-SCM) system for the retail industry.
- c. *Promote startup businesses to become Thai digital entrepreneurs* – in collaboration with the Thai startup association, the committee is designing a framework to increase the numbers and enhance the success rate of start-up businesses.
- d. *Promote creative economy* – the committee is supporting the Thai creative industry – such as movie, animation, games and advertising enterprises – by creating new distribution channels, protecting Intellectual property infringement as well as developing skilled resources to enable the growth of the creative industry in Thailand.
- **Promotion of lifelong learning in Thai society** – this involves short-term and long-term strategies. Long-term lifelong learning development involves the evaluation of the learning needs and expectations of people from all stakeholders within public, private, academic, and civil society sectors. The short-term plans comprise three projects:
  - a. Project to leverage ICT for Lifelong Learning in marginalised communities by the National Science and Technology Development Agency (NSTDA).
  - b. Project to develop an open online learning platform that integrates three sub-projects.
    - i. Project to develop an open online learning system by NSTDA
    - ii. Project to develop Thai Massive Open Online Course (Thai-MOOC) by the Ministry of Education
    - iii. Project to develop the Ministry of Education's digital learning platform
  - c. Project to use ICT to assist students with learning disabilities by NSTDA.
- **Following up the completion of digital laws** – as well as following up on prior plans for creating new laws of relevance to the digital economy, this also includes updating existing ones (see next section).

### Digital Economy Promotion Agency (DEPA)

The *Digital Economy Promotion Agency (DEPA)* was established under the MDES and was a development of the earlier *Software Industry Promotion Agency (SIPA)*<sup>6</sup>, to support the expansion of the digital industry and innovation and research, as well as to promote the adoption of digital technologies to enable socio-economic and cultural growth and security (MDES 2017a). The agency's promotion strategy includes to:

- circulate knowledge among the public;
- encourage the development of digital technologies based on global design principles;
- advocate marketing, investment and production of digital technologies; and

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<sup>6</sup> The *Software Industry Promotion Agency (Public Agencies) or (SIPA)* was established in 2003 under MICT to promote and support the development of the local software industry, and to encourage the protection of intellectual property of software (SIPA 2016). The agency's aim was to attract investment within the industry by proposing measures on tax and benefits to the Cabinet. SIPA was also tasked with developing digital skills and working with Thailand's industry for talent development through programmes such as *Young Professional Digi Talent Program*. Thai ICT developers were also encouraged to participate in national and international ICT competitions in order to showcase Thailand's digital competencies globally.

- stimulate education, research and transfer of technology and innovation required for the development of the digital industry.

Through its *Marketing Promotion Department*, DEPA holds various initiatives to promote the growth of the digital economy, including contests and ‘digital festivals’. For example, in March 2017, the agency organized the “Bangkok International Digital Content Festival 2017” under the concept of “Digital Wonderland”. The event was carried out in collaboration with the public and private sectors to enhance the government’s Thailand 4.0 and digital economy policy (DEPA 2017). Its main event “Digital Thailand Big Bang”, was first held in September 2017 and will be an annual activity.

### **The Electronic Transactions Development Agency (ETDA)**

The *Electronic Transactions Development Agency* was established in 2011. It is the main agency responsible for developing, promoting and supporting electronic transactions and providing an IT infrastructure which facilitates secure, safe and reliable electronic transactions. The ETDA is also tasked with conducting research on consumer or current customer behaviour to gauge emerging trends to provide support for the Electronic Transactions Commission and related agencies (MDES 2017a).

### **Other MDES Agencies**

MDES was also put in charge of state-owned telecommunications including *TOT (Telephone Organization of Thailand) Public Company Limited* which was historically the fixed-line telephony operator but has now diversified for example into mobile telephony, and *CAT (Communications Authority of Thailand) Public Company Limited* which deals with international telecommunications infrastructure, including international gateways, satellite, and submarine cable network connections. It also incorporates the *Electronic Government Agency (EGA)* which was established in 2011. Its role is to enhance government operations and services through online public services, and ensure maximum security of government electronic services.

## **4. Digital Economy Legislation**

Various laws and their development plans fall under the new Digital Thailand initiative intended to support development of the digital economy. In 2015, the Thai government proposed eight new draft laws (sometimes referred to as “Digital Laws 4.0”) to guide the implementation of its digital economy goals and as part of the government’s new Digital Economy policy (Fotiadis and Fotiadis 2017; Law Library of Congress 2016; Okeleke and Stryjak 2015). These included:

- Electronic Transaction Bill (amendment)
- Computer-Related Crime Bill (amendment)
- Cybersecurity Bill
- Personal Data Protection Bill
- Digital Economy Promotion Bill
- Digital Development for Economy and Society Fund Bill

- Broadcasting and Telecommunication Regulator Bill (amendment) and
- Electronic Transaction Development Agency Bill (amendment)

The *2001 Electronic Transactions Act* was amended to recognise the legality of online transactions. Laws pertaining to cybercrime, cybersecurity and data privacy, were also being created or amended to cater to businesses online (IDC 2016).

In January 2017, Thailand enacted the Act on Digital Development for Economy and Society B.E. 2560 ("*Digital Development Act*"). "The Digital Development Act is a consolidation of the three Bills, i.e. Digital Economy and Society Committee Bill, Digital Economy and Society Development Fund Bill, and Promotion of Digital Economy and Society Bill" (Somwaiya 2017).

Besides the National Digital Economy and Society Committee (the Digital Economy Committee) discussed above, which is chaired by the Prime Minister, the Digital Development Act established the Digital Economy and Society Development Fund ("*Digital Economy Fund*") under the digital economy framework and national master plan. The purpose of this Fund would be to upgrade Thailand's telecom infrastructure using seed money from government, funding from the government annual budget, 50% of the National Broadcasting and Telecommunications Commission's (NBTC) licensing fees, and donations (Somwaiya 2017). Part of a funding mechanism that would enable the Fund to generate revenue is the addition of value-added tax towards payments for mobile apps and a national holding company created to rent the country's fibre and tower assets to private companies (Law Library of Congress 2016).

"The Digital Development Act also establishes the Promotion of Digital Economy and Society Bureau (the "PDES Bureau"). The main objective of the PDES Bureau is to promote and support the development of digital industries and innovations, and the utilization of digital technologies for benefits to economy, society, culture and public security" (Somwaiya 2017). In practice, this became DEPA: the Digital Economy Promotion Agency.

Despite its endeavours to create an environment for the promotion and growth of the digital economy, the Thai government has come under scrutiny due to its growing actions in blocking content deemed unsuitable or insulting to the monarchy. The newly-established National Cyber Security Committee chaired by the Prime Minister, under the proposed *Cybersecurity Act* and the newly-revised *Computer Crimes Act*, is expected to give the government the power to access data of suspicious individuals and to force both public and private organisations to assist with cyber security investigations (Tanakasempipat 2017). There have been suggestions by digital freedom and rights activists that the move to establishing the MDES was a political strategy by the military government to create a single "national gateway" (Mokkhasen 2015) which would allow them to increase their control of content published online (Mokkhasen 2016b). A recently published Ministry document, outlined a proposal to spend 128.56 million baht (US\$3.8 million) on a "social network data analysis system" and software to monitor online users (Tanakasempipat 2017). While such laws are justified by the Ministry to target royal-insult offenders and to protect intellectual property and copyright and safeguard against piracy by blocking websites (Law Library of Congress 2016), the Ministry would no doubt wish to ensure that this does not have a detrimental effect on digital economy development.

## 5. Digital Infrastructure

The foundation of any digital economy will be the country's ICT infrastructure. When first presenting ideas about Thailand 4.0 in his policy statement to the National Legislative Assembly (NLA) on 12 September 2014, the Prime Minister emphasised the importance of establishing a stronger ICT infrastructure as the basis for the country's digital economy development. Likewise, at ITU Telecom World in November 2016, the Deputy Prime Minister emphasised the centrality of upgrading the country's broadband networks in achieving the intended goals of using digital technology for social and economic development (ITU 2016).

More specifically, a foundation for Thailand's ambitious Digital Economy Plan is seen to require focus on the following key areas (Wehr and Kessler 2017):

- Universal Internet access with sufficient Internet speed across Thailand;
- Development of smart infrastructure sharing models;
- Implementing a robust regulatory framework;
- Building a state-of-the-art, world-class data centre and facility for cloud-based services; and
- Ensuring reliable and sufficient capacity for international connectivity.

According to the 2016-17 Global Competitiveness Report produced by the World Economic Forum, Thailand ranks just 63 out of 138 countries when it came to technological readiness (Schwab 2016: 340). Thailand ranked 94<sup>th</sup> in the number of people using the Internet, 70<sup>th</sup> in the availability of the latest technology, 72<sup>nd</sup> in quality of overall infrastructure, 65<sup>th</sup> in government procurement of advanced technology products, 34<sup>th</sup> for mobile-broadband subscriptions/100 population and 121<sup>st</sup> in intellectual property protection (Schwab 2016: 341). These statistics corroborate the need – as per the Digital Economy Plan – for greater investment and other action on ICT infrastructure, as do findings that lack of latest technologies – such as limited 4G roll-out – are creating barriers to foreign investment in Thailand, including barriers to digital economy investment (Charoen 2015).

More specific detail comes from a survey by ETDA (2015) on Thailand's Internet user profile which found positives in terms of ICT usage: more people below 15 years of age and more elderly people were using the Internet, and there was rising popularity for social media applications such as Facebook, Google+ and the messaging app, LINE. Further, more than half of these accesses were made to carry out online purchases through social media. However, it was also found that only 3.5% of the population had access to broadband, largely in urban areas, and that there was a major digital divide between the urban and rural population.

Mobile broadband is seen within the Digital Economy Plan as a key means by which to try to overcome this divide, and Thailand's fairly good mobile penetration level supports this. For example, a GSMA report (Okeleke and Stryjak 2015) shows Thailand's telecom infrastructure relatively well placed among a sample of some other Asian countries (see Figure 5).



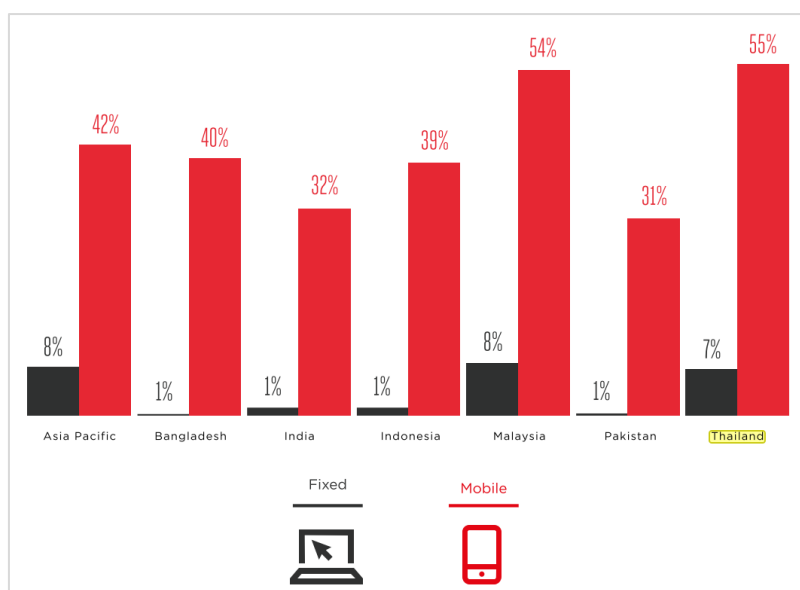


Figure 5: Fixed versus mobile penetration (2013)

Source: Okeleke and Stryjak (2015: 28)

As the report (*ibid.*) notes, broadband requires smartphone rather than basic feature phone ownership, but potential growth of mobile penetration to 133 subscriptions per 100 population by 2020 could form an important foundation for broadband roll-out. The potential of mobile broadband in Thailand hinges on the availability of 4G spectrum and sound policies. Within its Digital Economy Plan, the Government of Thailand had published plans for further release of spectrum for 4G, along with policies that would lead to a competitive, investment-led mobile sector. Ensuring the independence of the telecoms regulator and a transparent and consultative auction and regulatory process was argued by GSMA to be an essential part of this future process (Okeleke and Stryjak 2015: 53).

## 6. Analysis of Thailand’s Digital Economy Policy

Analysis of Thailand’s digital economy policy reveals an ambitious plan; one intended to position the country as a leading enabler of the digital economy not only in the ASEAN region but across the world, and one intended to accelerate the country through the middle-income trap to higher-income developed country status. The scope of the policy goes well beyond the “digital economy” as defined by Bukht & Heeks (2017), and instead encompasses the “digitalised economy” i.e. all economic uses of digital economy – thus extending to agriculture, manufacturing and services. Indeed, by extending to government and broader social uses, the wider Thailand 4.0/Digital Thailand Plan becomes – as the Plan’s full name suggests – a digital society policy not just a digital economy policy.

Steady – indeed strong – progress has been made in relation to digital infrastructure development, especially around mobile connectivity. But this has been at the expense of growing digital inequalities: in some ways, Thailand now has to manage a fracture between “First World” digital infrastructure in urban areas and “Third World” digital infrastructure (and lack thereof) in rural areas. Plans for smart cities, digital hubs and accelerators, further investments in the country’s digital industry, digital parks, etc are unlikely to help close this divide, and there will need to be a much more concerted effort to enable rural and peri-urban

areas to participate in the country's growing digital economy. Whether such efforts will be made rests partly on the country's polity; which also sees a rural-urban fracture.

As suggested above, some element of politics may also lie behind the creation of MDES, but in both branding and intent, this surely marks a move forwards from the previous structural arrangements; shifting the focus from laying down the digital infrastructure to utilising digital technologies for socio-economic development. The multiple and partly-overlapping goals and strategies and pillars could do with simplification: they perhaps reflect the cliché of documentation created by committee and/or created under pressure of time. But they also reflect the past history of earlier plans and structures, on which all new initiatives build. The continuous succession of plans has perhaps allowed scrutiny of achievement of past targets to be muted. But the succession in itself is a positive: the consistency of political support and leadership for all things ICT and then digital for more than two decades; a leadership which has often come right from the very top of government.

Like all developing countries – indeed, all countries – Thailand is lagging behind in terms of digital economy legislation. But there is clear recognition of what needs to be done in terms of new and updated legislation, and this – like many of the other policy content and governance elements in Thailand – provides a useful model for other developing countries. There is concern about the new restrictions on online content. Whether they constrain digital economy development and investment depends on how and how much they are implemented: high profile cases that appear politically-motivated will have a chilling effect; cautious and limited application should not.

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