# THE DEVELOPMENT OF DIGITAL ECONOMY IN THAILAND

## Danuvasin Charoen[1]

***Abstract:*** *This study investigates the development of the digital economy policy in Thailand. The researcher describes the importance of digital technologies for the competitiveness development of the country. In addition, the researcher analyzes the components and provides a roadmap of the digital economy policy in Thailand. Main problems and challenges of the policy are identified. The data were gathered and analyzed from secondary sources. The findings can be used to guide the implementation of the digital economy in Thailand and other developing economies.*

***Keywords***—*Digital economy, ICT in developing countries, Thailand, ICT development.*

## INTRODUCTION

The digital economy refers to an economy based on digital technology. The synonyms for the digital economy include the Internet economy, the new economy, web economy, and network economy. After the coup in Thailand in May 2014, the military government made it a priority to transform Thai's economy into a digital economy in order to enhance the competitiveness of the Thai industrial sectors and to prepare Thailand for the ASEAN Economic Community. The strategic framework for the digital economy consists of four areas: Digital Commerce, Digital Entrepreneur, Digital Innovation, and Digital Content. In pushing forward the strategic framework, the Ministry of Information and Communication Technology aims to promote a new generation of entrepreneurs, as well as commercial and industrial innovations.

## LITERATURE REVIEW

### Importance of ICT

ICT comprises information and communication technology such as computer hardware, software, computer services, and internet services, web applications that provide capability to improve or optimize the capability of an organization. In

---

[1]. Ph.D. NIDA Business School

addition, national competitiveness increasingly rely on ICT and innovation factor to drive social and economic development. In other words, ICT can create spillover effects to other economic sectors such as industry, education, and commerce (Charoen, 2012).

Information and Communication Technologies (ICT) can be considered an umbrella for the foundation of a wide range of services (fixed phones, mobile phones, fax, the Internet), applications (enterprise systems and management information systems), and technologies (hardware, software, service, and telecommunications. ICT affects the way in which people share information. The government, businesses, NGOs, institutions, and individuals have made ICT part of their daily organizational processes. In other words, ICT has become an enabling factor in enhancing the competitiveness in every sector. There is general agreement that ensuring access to information is one of the most significant investments any country can make. ICT can open up access to knowledge, information, and communications, which are important for creating the competitiveness for any nation. In addition, ICTs have created many new business models such as e-commerce, m-commerce, social medial marketing, Internet advertising, etc. ICT can be used to transform education, healthcare, commerce, politics, and more. Furthermore, the global competitiveness report uses ICT as the main index to measure country's competitiveness (Charoen, 2012).

Moreover, ICT is a necessary component for any nation to create innovations. ICT can create value for products and services, as well as innovative business models such as e-Commerce and social media. In other words, ICT can be used to upgrade the stage of competitiveness of Thailand from an investment-driven economy to an innovation-driven economy (Charoen, 2012).
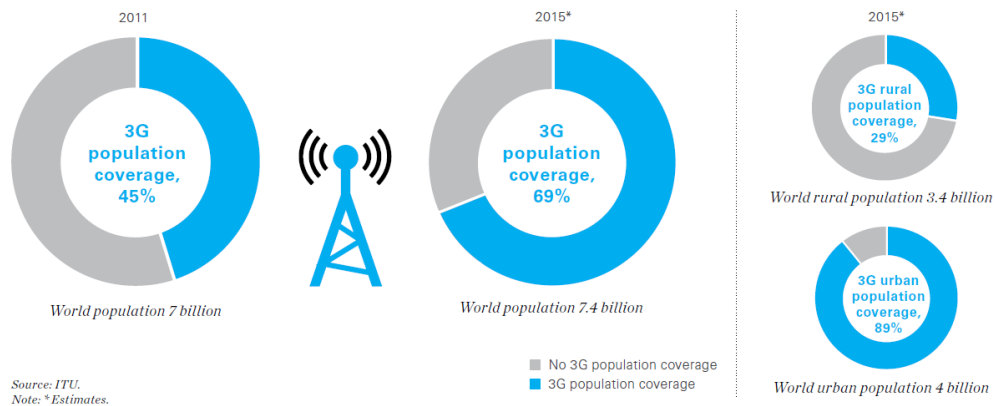
## Global Internet Usage

Globally, there are 3.2 billion people using the Internet. Among them, 2 billion live in developing economies (Sanou, 2015). For every Internet user in a developed economy, there are two Internet users in developing countries. Nevertheless, 4 billion people in developing economies cannot access the Internet. Among the 950 million people living in the most underdeveloped countries, only 89 million can access to the internet (Sanou, 2015). This represents only 9.5 percent of internet penetration in developing countries (Sanou, 2015).

In 2015, there were more than 7 billion mobile phone subscribers which represents a 97% penetration rate. The penetration of mobile broadband (3G or above) achieved 47% in 2015. In contrast, fixed broadband penetration reached 11%

in 2015 (Sanou, 2015). In addition, the percentage of households with an Internet connection has increased from 18% in 2005 to 46% in 2015 (Sanou, 2015). From 2000 to 2015, the global Internet penetration increased from 6.5 to 43% (Sanou, 2015).
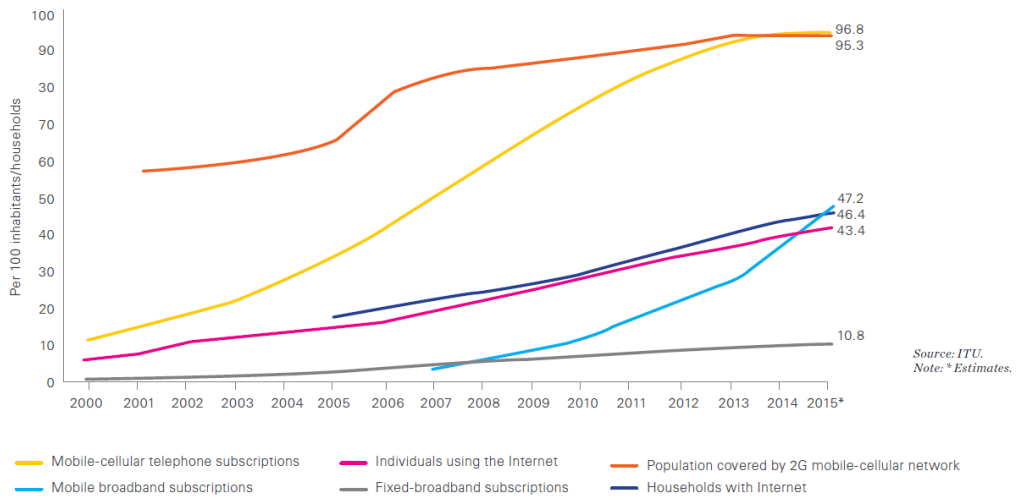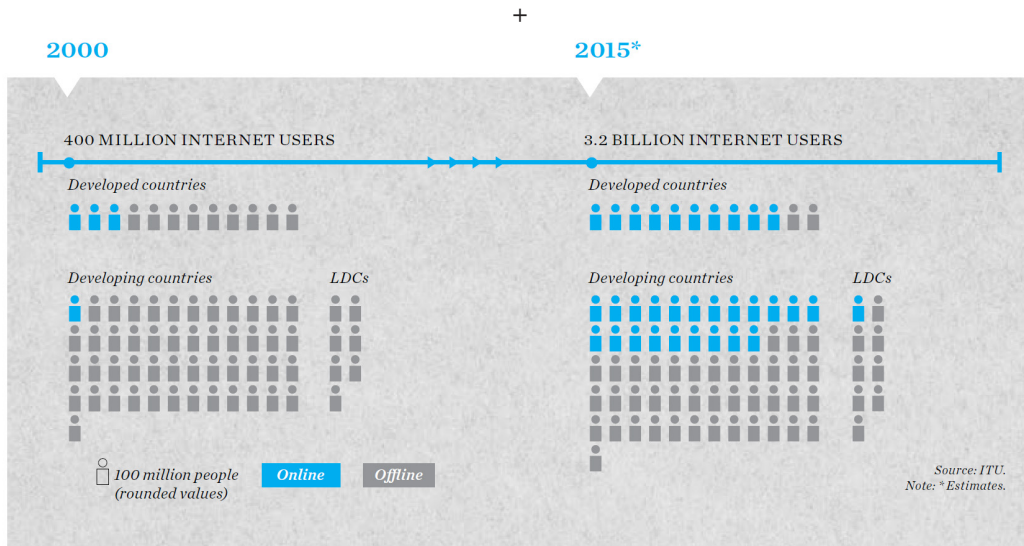
*3G mobile-broadband coverage is extending rapidly and into the rural areas*



2011

3G population coverage, 45%

World population 7 billion

2015*

3G population coverage, 69%

World population 7.4 billion

2015*

3G rural population coverage, 29%

World rural population 3.4 billion

3G urban population coverage, 89%

World urban population 4 billion

■ No 3G population coverage
■ 3G population coverage

Source: ITU.
Note: *Estimates.

From 2011 to 2015, the population coverage increased from 45% to 69%. Most of the 3G population coverage was in urban areas, while the rural areas represented only 29% (Sanou, 2015).

## Digital Divide

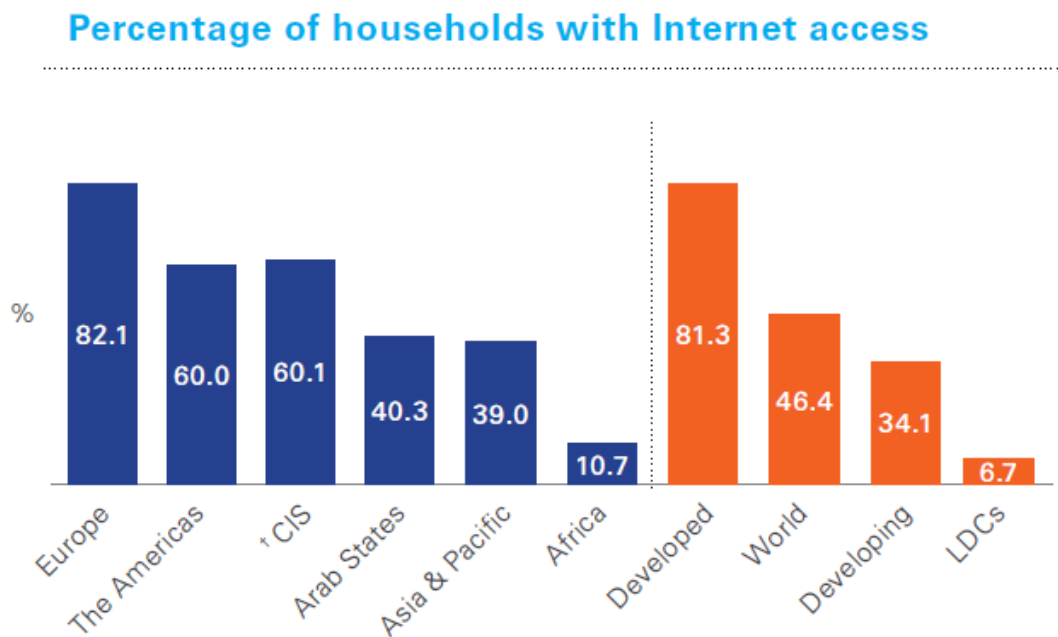According to Fink and Kenny (2003), the digital divide can be defined as:

- A gap in access to ICT—measured primarily by the number of users or individuals with access per one hundred people

- A gap in the ability to use ICT—measured by an individual's skills set

- A gap in actual use—measured by the amount of time an individual goes online

- A gap in the impact of use—measured by economic returns or savings attributed to ICT (Fink & Kenny, 2003)

The digital divide is a situation associated with differences between groups and societies in the deployment and diffusion of information and communication technologies (ICTs), especially computers and the Internet (Genus & Nor, 2005). ICTs are the result of the combination of computer and telecommunications technologies. There is no doubt that ICTs can create advantages and disadvantage between people that "have" and "do not have" access to ICT. We are in an information and knowledge economy, where the access to ICTs is a critical factor that can create differences among income status, education, and well-being. ICTs can be viewed as offering people opportunities. The use of IT creates a gap between people that can access it and people that cannot access or use IT. This can also

lead to both social and economic impacts—people that have more information will have more bargaining power. Moreover, there is a strong correlation between the GDP and the usage of ICT. In addition, there is also a linkage between ICT and poverty reduction.

The digital divide affects all regions and economies in the world along dimensions such as social equality, social mobility, economic equality, and economic growth and innovation. The digital divide also slows progress towards the goals of the Information Era, resulting in individuals, businesses, societies, nations, and the world losing development opportunities in areas having a relationship with the use of ICT. Therefore, bridging the digital divide in developed and developing countries will provide better opportunities for the world's development.

**The Digital Divide in 2015**

## Percentage of households with Internet access



| Europe | The Americas | † CIS | Arab States | Asia & Pacific | Africa | Developed | World | Developing | LDCs |
|--------|--------------|-------|-------------|----------------|--------|-----------|-------|------------|------|
| 82.1 | 60.0 | 60.1 | 40.3 | 39.0 | 10.7 | 81.3 | 46.4 | 34.1 | 6.7 |

The digital divide in the world still existed in 2015. Eighty percent of households in developed economies can access the Internet compared to only 34% in developing economies (Sanou, 2015). In the least-developed countries (LDCs), the Internet access in households was only 6.7 percent compared to the global average of 46.4 percent (Sanou, 2015).

## Percentage of individuals using the Internet
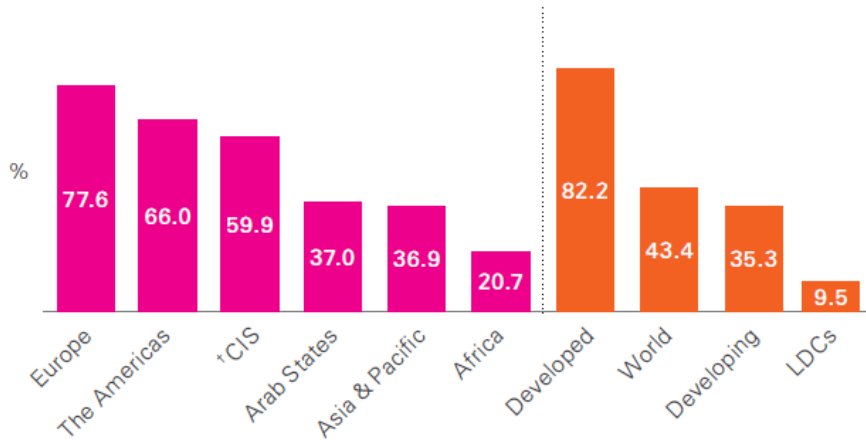


In developing economies, the internet penetration was 35%. In contrast, the internet penetration in developed economies was 82% in 2015. In the least-developed countries it was only 10% (Sanou, 2015). In the Asia Pacific, three in five people used the Internet, while only one in five people in Africa were using it (Sanou, 2015).

## Mobile broadband subscriptions
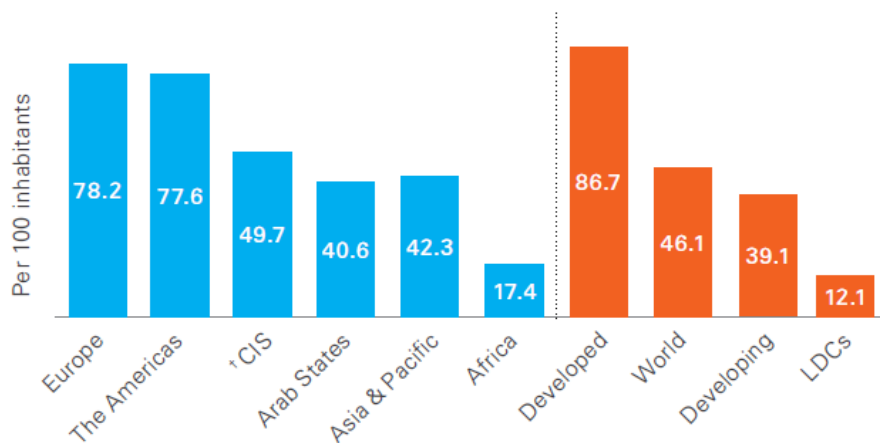
Mobile broadband penetration in developed countries was at almost 87%, while the least-developed countries had only a 12% penetration rate. Africa had the lowest penetration of mobile broadband (Sanou, 2015).

## Fixed-broadband subscriptions
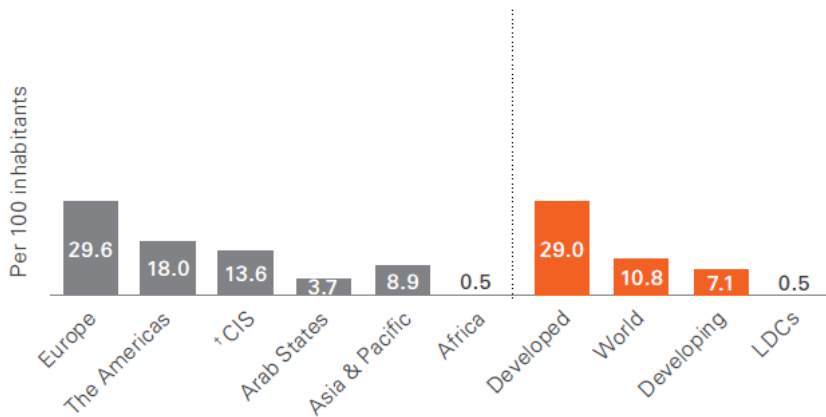


Fixed broadband penetration on average has been slow globally. In the least-developed countries there was less than 1% penetration (Sanou, 2015).
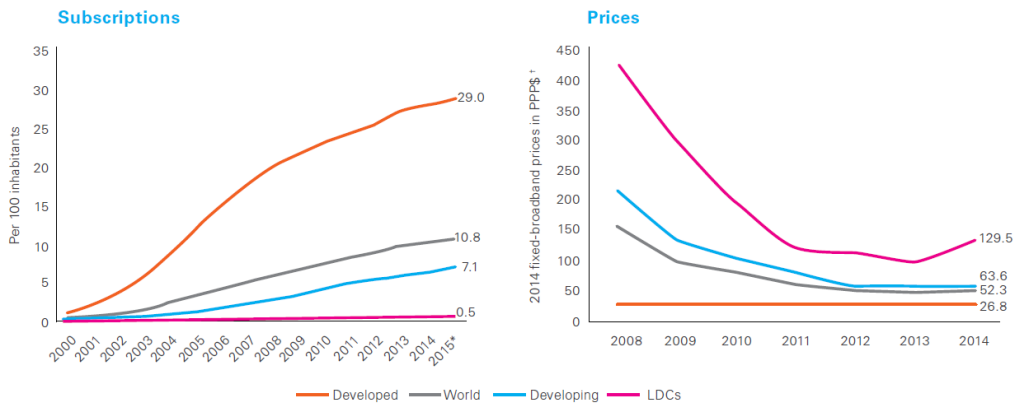


The prices of fixed broadband dropped dramatically between 2008 and 2011. The price of broadband access has increased slightly in the least developed countries, while the price of broadband access in developing and developed countries has been steadily reduced (Sanou, 2015).

## Research Objective

This research investigates how Thailand implements its digital economy strategy. I

## Research Method

This is a qualitative, narrative study. The data collection consisted of secondary sources such as research articles, newspapers, government reports, and secondary statistics. The qualitative data were analyzed using the thematic coding method. Atlas.ti was used to analyze the data. The themes were identified based on the pattern of data.

## Background on Thailand

Located in the strategic centre of the South-East Asian peninsula and bordered by the Gulf of Thailand, Myanmar, Laos, Cambodia, and Malaysia, the Kingdom of Thailand was the world's 50th largestnation in land mass (513,115 square kilometers, or 198,120 sq mi) and the 20th largest country in population (estimated in 2010 as slightly more than 67 million people). (See Appendix 1)The country was divided into six regions (North, Northeast, East, South, West, and Central) plus the administrative region comprising the capital, Bangkok (*"Krung Thep"*), which was by far the most significant urban area in the country.

Demographically, the country was comprised of a majority of ethnic Thais, but also had a substantial population of persons of Chinese descent (14%), as well as a scattering of other distinct ethnic groups (e.g., the peoples of the several so-called "Hill Tribes"). Approximately 71% of the population fell into the 15-64 age group, although a significant portion (nearly 20%) were in the 0-14 age group and slightly more than 9% were in the 65 year and older group. A 50:50 ratio of males to females pertained in each age group. The population growth was 0.566% as of 2011, which represented a decline from the previous year. While the culture of Thailand had been shaped by many influences, including the ancient civilizations of India, China, and Cambodia, Buddhism—the state religion, as well as the religious preference of nearly 95% of the population—had exerted the most profound influence on the ethos and mores of Thai society. The country was also alone among its Southeast Asia neighbors in the distinction of never having been a colony at any point in its long history.

Thailand enjoyed a high level of literacy, with nearly 93% of the population that were 15 years old and over able to read and write. Education was provided mainly by the Thai government through the Ministry of Education and was free through the twelve years of schooling, but was compulsory only through the first

nine years. Economically, Thailand was an emerging economy and was considered a "newly-industrialized country," with the main industries being electronics, automobile manufacturing, and agro-industry. Although most of the country's labor force worked in the agriculture sector, manufacturing nonetheless accounted for 40% of the GDP,as shown in the following table.

**The Structure of Thai Economy (Thailand, 2010)**

| Sector | % of GDP by Sector | % of Labor Force by Sector |
|---|---|---|
| Agriculture | 8.3 | 43.3 |
| Manufacturing | 40 | 13 |
| Wholesale and Retail Trades | 13.3 | 15.1 |
| Construction and Mining | 4.4 | 4.8 |
| Other Services (financial, educational, hotels & restaurants, etc.) | 33.2 | 23.9 |

Thailand was a heavily export-dependent economy, with exports accounting for more than two thirds of the gross domestic product. In descending order of export value, computers and parts, vehicles and parts, and electrical appliances were the country's major export items, while crude oil and electrical machinery and parts were the main import items (see the table below).

**Major Export and Import Items (Thailand, 2010)**

| Major Export Items | | Major Import Items | |
|---|---|---|---|
| Computers and parts | 8.5% | Crude oil | 12.5% |
| Vehicles and parts | 9.6% | Electrical machinery & parts | 8.9% |
| Electrical appliances | 7.1% | Industrial machinery & parts | 7.5% |
| Base metal products | 4.1% | Iron and Steel | 6.1% |
| Plastic products | 4.8% | Integrated circuits | 3.6% |
| Petroleum products | 4.5% | Computer parts | 2.2% |

**Digital Economy Policy**

The Strategic Framework for a digital economy in Thailand has five components

### 1. Hard Infrastructure

Thailand must develop its digital infrastructure both wired and wireless. The development of the network infrastructure can provide connectivity nationwide, and the network infrastructure must support high-speed broadband communication. In addition, the infrastructure also includes the development of data center and cloud computing services for both public and private organizations to take advantage of. Furthermore, the price of services must be low, and their quality must be guaranteed.

### 2. Soft Infrastructure

Thailand must develop and modify all related laws and regulations related to the development of its digital economy policy. The soft infrastructure includes standards, laws, and regulations related to e-Transaction, data protection, and cyber security.

### 3. Service Infrastructure

Thailand must develop e-Government services by connecting governmental information through a single platform. The components include the creation of a central database, a national ID, and the establishment of a public information center. Furthermore, the standard of information must be developed to facilitate connectivity across agencies.

### 4. Digital Economy Promotion

The government must develop a fully-integrated digital ecosystem connecting enterprises and SMEs. The promotion of a digital economy includes the development of digital industry, capacity building, and the development of innovations.

### 5. Digital Society

The digital society includes the use of technologies to promote 1) quality of life enhancement, 2) poverty reduction and life-long learning, 3) civic empowerment and participation, 4) media and information literacy, and 5) ethical and societal usage.
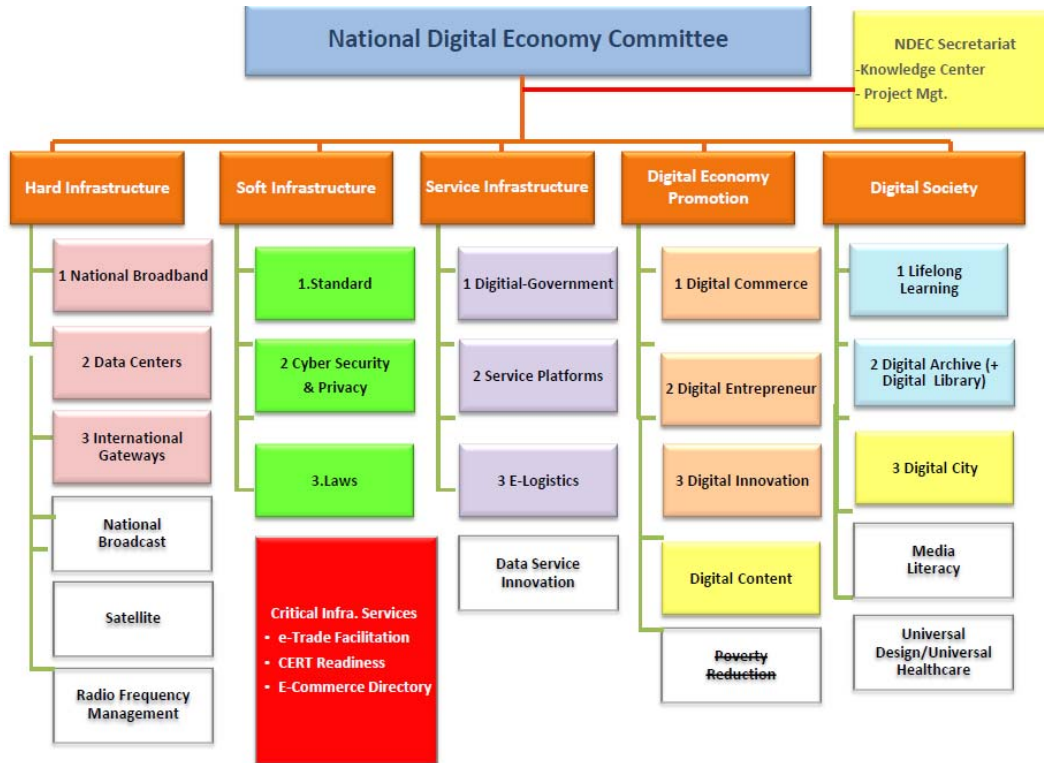
### Roadmap

In Dec 2014, the Thai Government intended to amend at least six las to facilitate the development of the digital economy policy. The government also changed the Ministry of Information and Communication Technology to the Digital Economic and Social Ministry to better coordinate digital economy policy. Furthermore, the government also planned to apply digital technology to the improvement of small and medium enterprises. The digital services provided by the government include services for everyone, including the elderly people that have been left behind (Monitor, 2014c). "The economy can expand by 4% if Thailand becomes a digital-based economy and a trading hub for neighboring countries," says Deputy Prime Minister Pridiyathorn Devakula (Monitor, 2014a).

The government hopes that its Digital Economy policy can jump-start economic growth to 4-5% by providing an IT infrastructure that includes a national broadband network, a digital gateway, and an integrated data center for both the private and public sectors (Monitor, 2014a). In addition, the government plans to implement soft infrastructures such as laws and regulations related to cybersecurity, e-commerce, and paperless public services in order to create confidence on the part

of the private sectors to engage in online transaction (Monitor, 2014a). The digital economy projects include the creation of a national broadband infrastructure, the auctioning of a spectrum to provide fourth-generation (4G) wireless broadband services, the establishment of a national government data center, and increasing the number of international internet gateway facilities. The government believed that this project can stimulate the development of digital economy policy (Monitor, 2014a).

"The effective use of information and communications technology (ICT) for economic and social development can result in greater productivity and could move Thailand out of the middle-income trap," General Prayuth said (Monitor, 2014a).

In addition, Kosol Petchsuwan, one of eight NLA members working on the digital economy, said that Thailand's ICT industry can generate a market capitalisation of 1.2 trillion baht or 10% of the GDP this year. He mentioned that "of the total, 500 billion baht came from telecoms, 400 billion from e-commerce, 100 billion from broadcasting, 100 billion from information technology, 50 billion from digital content and 10 billion from digital marketing." He also mentioned that "Thailand has 200,000 kilometres of fibre-optic lines covering only half the districts in the country, but only 10% are used" (Monitor, 2014a). ICT Minister Pornchai Rujiprapa said that "[u]p to 80% of the population is expected to have an internet connection next year, increasing to 95% in 2016" (Monitor, 2014a). In February 2015, the cabinet approved a draft law establishing a digital economy committee. The primary responsibility of the committee is to steer the implementation of digital economy policies. The prime minister is the committee chairman. The committee will also create policies and evaluate the performance of governmental units for the transformation to a digital economy (Monitor, 2015).

### Skepticism

The digital economy policy has drawn a lot of skepticism from many industry experts who doubt if Thailand is ready for this policy. One internet expert mentioned "As long as the country's internet penetration rate remains as low as 25% and telecommunications infrastructure is still not spreading nationwide, the digital economy is unlikely to get off the ground." Another industry expert stated the following: "While this government will not stay in power for long, developing the digital economy necessarily requires a long-term plan and a long time to implement it successfully. It'll be hard for this government to get this project off the ground" (Monitor, 2014b). These criticisms not only come from outside experts but also from inside the government. ACM Thares Punsri, chairman of the National Broadcasting and Telecommunications Commission, said that "[g]iven
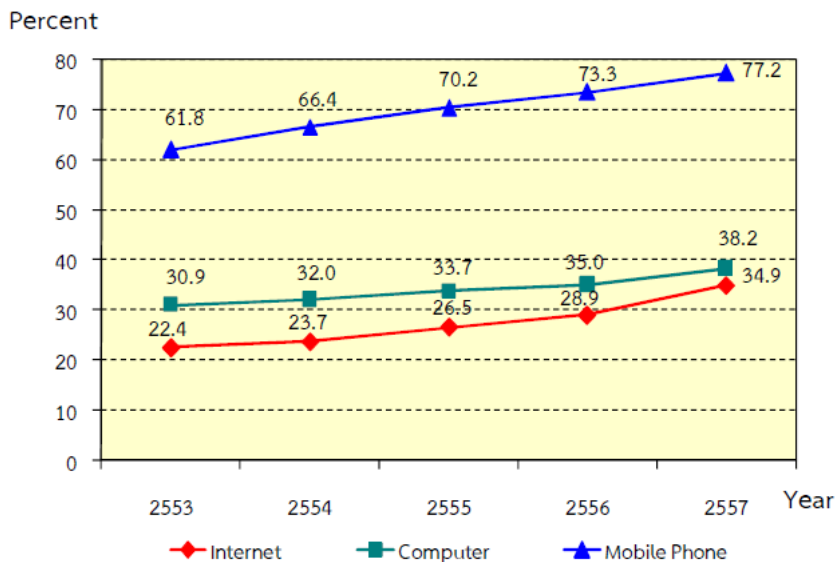
poor public telecom facilities and internet tariff rates that are still not affordable for all people, it is too early to talk about full-scale implementation of the digital economy" However, he also mentioned ""Personally, I support the state's digital economy and low-cost broadband internet mission, as it could boost the country's economic growth" (Monitor, 2014b).

## MAJOR CHALLENGES

### Digital Divide

Thailand continued to have a large disparity in the access to information technology. This problem is called the "digital divide." This is the difference between people that can access digital technology and those that cannot. This difference can lead to the differences in economic status, education, employment, and other opportunities in life.

According to the 2015 report from the national statistics office, Thailand had about 62.3 million people. Among these, only 23.8 million are computer users or 38% of the population. There were 21.7 million internet users or about 35%. There were 48.1 million mobile users or 77.2% (NSO, 2014).

Percent

| Year | Internet | Computer | Mobile Phone |
|------|----------|----------|--------------|
| 2553 | 22.4 | 30.9 | 61.8 |
| 2554 | 23.7 | 32.0 | 66.4 |
| 2555 | 26.5 | 33.7 | 70.2 |
| 2556 | 28.9 | 35.0 | 73.3 |
| 2557 | 34.9 | 38.2 | 77.2 |

Computer, internet, and mobile usage is prevalent in municipal areas. The municipal areas have a high concentration of computer, internet, and mobile users (47.8%, 44.9%, and 83.9% respectively), while non-municipal areas have a lower

concentration of computer, internet, and mobile users (30.4%, 26.9%, and 71.8% respectively) (NSO, 2014).

Even though ICT usage has been increasing steadily, there is a gap in the ICT usage between municipal and non-municipal areas.

| year | Computer | | Internet | | Mobile Phone | |
|---|---|---|---|---|---|---|
| | Municipal area | Non-municipal area | Municipal area | Non-municipal area | Municipal area | Non-municipal area |
| 2553 | 43.4 | 25.2 | 35.1 | 16.5 | 72.2 | 57.0 |
| 2554 | 44.3 | 25.5 | 36.0 | 17.2 | 74.8 | 62.0 |
| 2555 | 45.4 | 27.5 | 37.7 | 20.5 | 77.7 | 66.2 |
| 2556 | 46.3 | 29.1 | 39.9 | 23.2 | 80.0 | 69.8 |
| 2557 | 47.8 | 30.4 | 44.9 | 26.9 | 83.9 | 71.8 |

When looking at ICT usage by region, the high concentration area of computer, internet, and mobile phone use is Bangkok, which had the highest computers and internet users of 54.6% and 54.5% respectively. The next highest area was the central region with 39.2% computer usage and 37.5% internet usage. The Northeastern region had the lowest use of both computers and internet with 32.5% and 26.9% respectively (NSO, 2014).
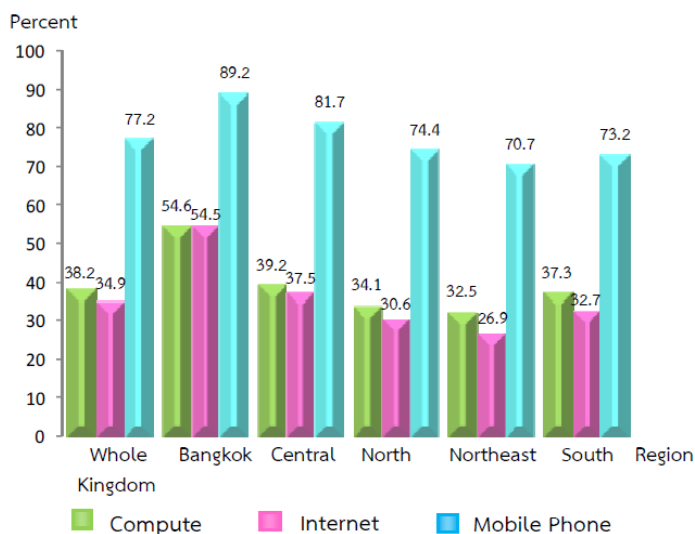
The proportion of mobile phone usage in municipal area increased from 72.2% in 2010 to 83.9% in 2014, and mobile usage in non-municipal areas increased from 57% in 2010 to 71.8% in 2014 (NSO, 2014).

In conclusion, the digital divided still exists in Thailand. The reason is the lack of ICT infrastructure, especially in non-municipal areas. Most ICT providers focus their investments only in municipal areas, where they can generate a profit. Most non-municipal areas have been largely ignored. In addition, the government has not provided service online so there is a lack of incentive for people to use ICT.

### Inter-governmental Agency Conflict

Different units of government agencies have different information systems. The information is stored in a different format. As a result, the other governmental agencies are not able to access or share the information. In addition, same data are stored in many systems in different formats or using different standards. This problem can lead to conflicting data. The integration of the data can be extremely challenging.

### Outdated Laws and Regulations

Laws and regulations are always behind the development of technology. Laws such as the e-Transaction and Computer Crime Acts do not address the new types of technology. In addition, businesses also do not have confidence in doing business if there are no clear laws and regulations. For example, many businesses hesitate to adopt e-Commerce, e-payment, and e-document because of the lack of laws and regulations. In terms of government services, many agencies did not have any laws or regulations about e-documents. As a result, the agencies cannot adopt the new technologies.

### Lacking the Latest ICT Adoption

According to the 2015 Global Competitiveness report conducted by the World Economic Forum, out of 144 countries, Thailand ranked 96th in the number of people using the Internet, 74th in the availability of the latest technology, 114th in government procurement of advanced technology, and 104th in intellectual property projection (Schwab, 2015). Lack of the latest ICT such as WiMax and the 4G network can potentially create barriers to foreign direct investment, which is critical for the development of the country.

## CONCLUSIONS

This study investigated the development of digital economy policy in Thailand. The researcher identified the importance of ICT and digital technologies for

Thailand. The components of the digital economy were analyzed. This study also offered a roadmap for policy and the major challenges ahead for digital economy policy. The research collected and analyzed various data from secondary sources. The findings from this study can be used to guide in the development and implementation of digital economy policy in developing countries.

## *References*

1. Charoen, D., The Development of ICT Cluster in Thailand. NIDA *Case Research Journal*, 2012. 3.

2. Sanou, B., *ICT Facts & Figures* 2015, International Telecom Union (ITU).

3. Fink, C. and C.J. Kenny, W(h)ither the Digital Divide? *Info*, 2003. 5(6): p. 15-24.

4. Genus, A. and A. Nor, Socialising the Digital Divide: Implications for ITCs and E-Business Development. *Electronic Commerce in Organizations*, 2005. 3(2): p. 13.

5. *MICT, Digital Economy.* 2015, Ministry of Information and Communication Technology.

6. Monitor, A.N., Thailand: Government's digital economy policy draws scepticism from industry experts. 2014, *Asia News Monitor*.

7. Monitor, A.N., Thailand: Deputy prime minister MR pridiyathorn promotes digital economy, in *Asia News Monitor*. 2014.

8. Monitor, A.N., Thailand: Government confirms thai movement towards digital economy, in *Asia News Monitor*. 2014.

9. NSO, The 2014 Household Survey on the Use of Information and Communication Technology. 2014, National Statistical Office, Ministry of Information and Communication Technology: Bangkok, Thailand.

10. Schwab, K., The Global Competitiveness Report 2015. 2015, *World Economic Forum.*