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Analysis of Thailand's ICT Competitiveness in Online Commerce, Banking, and Content Business

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Abstract

After the spectrum auction in the 2.1 GHz band was successfully made in October 2012, Thailand has experienced significant changes in the telecommunications industry, especially positive effects on the overall economic condition. The opening up of 3G/ 4G services on the 2.1 GHz spectrum by the licensed operators as well as the widespread use of mobile devices like smartphones and tablet computers facilitate users in gaining convenient access to the Internet without limitations in time and locations, generate the wave of consumers requiring round-the-clock Internet access; online social networks in particular, bring about changes in consumer behaviors. The objective of this paper is to analyze Thailand's ICT Competitiveness in Online Commerce, Banking, and Content Business after the 2.1 GHz spectrum auction in Thailand. This paper also describes the positive impact of mobile spectrum assignment in Thailand.

Keywords: *Thailand, ICT, Competitiveness, Analysis*

1. Introduction

As the 2.1 GHz spectrum can be efficiently used in developing broadband networks, including Thailand has the total area of more than five hundred thousand kilometers, the utilization of just a single type of technology in setting up the networks is considered hard to fulfill. Previously, Thailand has built up networks of Internet connection via a hard-wired cable which have several restrictions. Therefore, offering high-speed Internet via mobile phone spectrum is considered necessary for developing the networks to provide wider geographical coverage, especially in remote areas. Without further spectrum allocation, there will be some negative impacts on the ICT performance of the country as shown by the World Economic Forum's rankings of NRI or Network Readiness Index which measure the application of ICTs to promote the country's network readiness. Based on this, Thailand used to be ranked 36th

among over 140 countries in 2004 [1] and climbed up to 34th position in 2005 [2]. However, its ranks have experienced consecutive deterioration year after year: from 37th in 2006 downward to 40th in 2007 [3], 47th in 2008 and 2009 [4], and 59th in 2010 [5]. Eventually, in 2012, the World Economic Forum's Report exposed that Thailand is among the top 10 countries with NRI deterioration; falling to 77th position. This affected Thailand to blow the chance of improving the level of NRI capability so as to express its economic competitiveness in the international level [6]. However, after the 2.1GHz spectrum auction has made further allocation of mobile spectrum, Thailand has climbed to several positions in NRI rankings: at 74th globally in 2013, 67th globally or 5th regionally in 2014, and 67th globally or 3rd regionally after Singapore and Malaysia. It is obvious that spectrum allocation is one of the mechanisms that bring about economic growth, relying on the resources available in the country.

Therefore, the enhancement of adopting the 2.1GHz licensing procedure tends to induce higher consumption values of Internet usage on mobile phones, exert continuous impacts on the telecommunications and other related industries such as the communication devices, applications and content creation, and eventually further stimulate economic growth. This includes the use of social media and applications, mobile TV viewing, video viewing on social networking sites like Youtube or Facebook which tend to experience higher growth and mainly contribute to the higher rate of Internet penetration through mobile phones [7]. Hence, the use of mobile phones and broadband Internet demonstrated by the penetration rate of services in relation to the telecommunications industry may be considered the key variable to Thailand's future economic growth. It can be seen that telecommunications can push forward and propel the country's overall economy in various dimensions, especially the broadband Internet services on mobile phones which will become one of the basic needs of new-generation people. This supports the aforementioned concept and becomes one of the important factors driving telecommunications services to immensely benefit the nation and eventually contribute to the GDP growth.

2. Benefits of Mobile Spectrum Allocation

The drastic change in the telecommunications industry after attaining success in the 2.1 GHz spectrum auction results every sector in gaining benefits from services provided through new 2.1 GHz spectrum networks by licensed operators as the following:

- a. Direct benefits are the benefits gaining through direct auctions of 2.1 GHz spectrum as follows:**
 - State revenues from spectrum auctions

The revenues of 41,625 million baht from 2.1 GHz spectrum auctions will be delivered as the costs of public resources, which are considered the state revenues, by the NBTC to The Ministry of Finance in 3 installments: the first installment of 20,812.5 million baht accounting for 50 percent of the overall auction revenues, the second and third installments which each accounting for 25 percent of the auction revenues, or 10,406.25 million baht.

- Regulatory fees

The operators have to pay annual regulatory fees of around three thousand million baht or 5.75 percent of the 2.1 GHz spectrum operator revenues. This amount of money will be used to promote the development of telephone services in rural areas and manipulate the country's overall telecommunications system. Regarding to this, the regulatory fees in the licensing system will be lower than those charged under the concession system.

Before the allocation of 2.1 GHz spectrum took place, the regulatory costs in Thailand's telecommunications industries were very high compared with those in other similar markets. The following diagram shows that mobile phone service operators in Thailand have to pay very high revenue-sharing rates compared with other countries in the same region. It also reveals that the use of 2.1 GHz spectrum under the NBTC's licensing system leads to more affordable regulatory costs and produces some continuous positive effects on consumers. If there is no licensing system, mobile phone operators must provide their network services under the concession system. This may cause the rate of service prices to be many times higher than those charged under the licensing system [8].

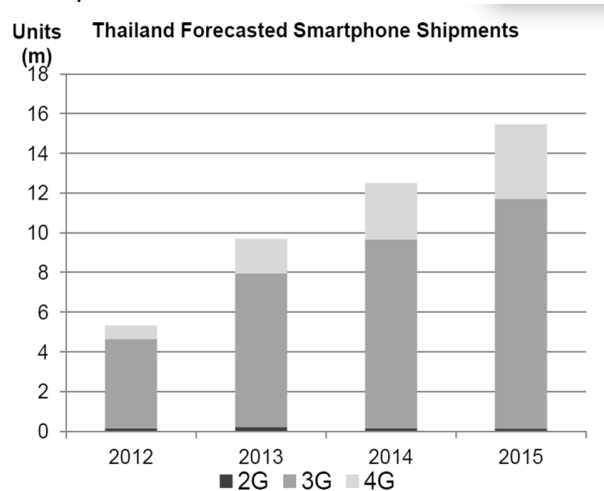
b. Indirect benefits: The 2.1 GHz spectrum auctions in Thailand produce some effects on Thailand's telecommunications and other related industries as follows:

- Higher investments in telecommunications infrastructures

The auction of 2.1 GHz spectrum contributes to the overall investment worth 6-7 ten thousand million baht per year in telecommunications network devices such as in the core network and cable lines during the first 3-5 years after the auction has been conducted. This is because the licensed operators need to rush the expansion of network coverage to be more extensive [9]. This includes the expansion and improvement of network quality and stability which will promote further growth in telecommunications markets due to the commercial utilization of the 3G/4G networks where mobile phone operators have made more investments on the networks. This is considered the stimulation of the overall economic system through the operators' various investment funds: in telecommunications infrastructures, network construction and development, installation of network devices or network system planning, etc.

- Expansion of wireless communication devices markets

Due to the continuously decreasing trend of communication devices price levels, the populations can gain easier access to the Internet resulting in greater expansion of communication device markets and rapid increasingly widespread use of smartphones and smart devices. It is found that the mobile phone market in Thailand has grown up to 132 percent or around 90 million devices sold; exceeding the population of Thailand. There is an increasing trend of one user owning more than one smart device, and the smartphone market value in 2014 is expected to grow further by 30 percent compared with that before the 3G auction was conducted in 2012. This affected the country's rate of smartphone utilization to rise up to 45 percent in 2014 or to be valued around 6 ten thousand million baht. Furthermore, it is found that 66 percent of mobile phones in the market are capable of supporting 3G/4G technology [10].

Figure 1. Thailand's smartphone market share

- Increasing telecommunications market values

This is due to the increasing number of 3G/4G subscribers in the 2.1 GHz spectrum, mainly because network providers can rapidly expand their networks, including the widespread use of Internet via mobile phones and the increasing use of social media. According to the research-based information derived from the cooperation between the National Science and Technology Development Agency (NSTDA) and the NBTC, it is expected that the overall telecommunications market value will hit 5 hundred thousand million baht in 2014 or grow by 8.3 percent [11].

Nowadays, there is a possibility that network operators will generate less partial income from providing 2G services such as voice calls and SMS because more and more users turn to use the OTT or Over-The-Top services such as WhatsApp, Line, Skype, and Facebook. However, such OTT services surprisingly give rise to the higher rate of 3G utilization. Thus, the operators can generate more incomes through servicing additional 3G network for the increasing widespread mobile smart devices, smartphones, and tablet computers.

Frost and Sullivan Co., Ltd., recognized the world-class consulting and research company, has forecasted about Thailand's telecommunications markets that the mobile phone operators will experience a continual increasing income by 8 percent due to the use of mobile phones by 2014 [12]. This is resulted from the further expansion of the communication device markets, whereas such devices tend to be continually lower in prices. Besides, it is also forecasted that non-voice telecommunications services will gain higher market share than the current ones by 32 percent and are expected to be higher by 50 percent within 2016.

3. Impact on Online Commerce

Nowadays, the online sales transaction through wireless handheld devices or “M-Commerce” tends to be more widespread owing to the advancement in 3G wireless communication networks used for mobile devices such as smartphones and tablet computers. Moreover, the online sales transactions through the ordinary IT device such as computers also have limitations in terms of convenient portability and usage. These result the M-Commerce in becoming the new channel of Internet transactions and give rise to more channels of online goods and services transactions, i.e. Facebook, Line, and Instagram in replace of the former-time online transactions which only available on websites.

Due to the easy, convenient, and economical Internet access via current mobile devices stemming from the growth of communication in the age where 3G and 4G networks can be accessed regardless of time and locations, there is an increasing number of such subscribers. This provides operators with the chances to advertise or adopt market approaches to enable them to gain fast and extensive access to information and news, communicate to exchange thoughts or ideas swiftly, and facilitate various business sectors in carrying out market approaches to promote sales and create a customer acquisition through online networks via mobile devices.

General characteristics of the commercial E-business can be divided into the business model that focuses on selling products and services to minor customers (B2C), the business model that focuses on selling products and services to other businesses (B2B), and the business model that focuses on selling products and services to government agencies (B2G). The Economic and Statistics Bureau, the National Statistical Office has studied and analyzed the overall image of Thailand’s E-commerce in 2014 and deduced that there were 80.4 percent of B2C operators, 18.2 percent of B2B operators, and merely 1.4 percent of B2G operators [13].

It is found that E-Commerce businesses in 2013 was worth over 768,014 million baht and continued to be grower according to the level of Internet usage which tends to be greater, especially the personal Internet usage. This reveals that the number of people buying products and services through E-commerce transactions in Thailand was 9.62 hundred thousand in 2013 which was greater than that of 4.07 hundred thousand in 2009 or earned the compound annual growth rate of 18.7 with the trading value around 1.21 hundred thousand million baht; the double amount within the duration of only 5 years.

From the aforementioned E-commerce business value of around 768,014 million baht in 2013, it can be subdivided into the circulation of about 238,486 million baht among B2B operators, 182,033 million baht among B2C operators, and 347,495 million baht among B2G operators. For the circulation of B2G, it comprises the value of about 5,579 million baht generated from direct E-commerce transactions with government agencies without adopting E-auctions and the value of 341,916 hundred million baht, revealed by the Comptroller General’s Department, generated from E-government procurement through Internet-based E-auctions.

The factor promoting the E-commerce growth in the long run is the Internet and 3G penetration rates which increase continuously and the entering into the next era of

communication. According to the growth in smartphone usage and the widespread use of social networks, the TMB Analytics has forecasted that the number of consumers buying products and services through E-commerce in Thailand will rise above 10 – 15 percent per year [14].

Apart from the online transactions which are formerly carried out only through websites, consumers have now bought products and services via social networks where the utmost widespread ones are such as Facebook, Line, and Instagram. Moreover, there is very high competition for such online transactions stemming from larger investment funds and more channels of online transactions via mobile phones. Other than facilitating the communication by means of messages and voice calls, the Line application is the content hub of transactions and carrying out the CMR business approach. Based on the information compiled by Zocial Inc., it is found that up to 30 percent of Thai people have a behavior of buying products via Line out of the overall 33 million Thailand's Line subscribers [15].

Accordingly, the operators have placed greater emphasis on providing online products and services transactions through 3G utilization on mobile devices such as smartphones and tablet computers and adopting marketing strategies to support various forms of business activities. This relies on online social network connectivity via mobile devices to carry out market approaches to promote sales and create a customer acquisition, since mobile connectivity can be made regardless of time and locations. This provides operators with the chance to use this channel in enabling consumers to gain fast and extensive access to information and news and be capable of rapidly exchanging thoughts and ideas.

Furthermore, it is estimated that the market of E-commerce will take a leapfrog growth in 2015; from the market value of 1.5 million baht to 2 hundred million baht. Based on this, smartphones will take a pivotal role in providing the channel for online transactions and the strategy for E-commerce competition will focus on how fast the operator enters the market; the one who begins first will gain greater advantages, stand more chances, and will have a higher possibility of sharing media. Nowadays, no matter what channels the transactions are conducted, most people commonly place importance on creating online media, because it will provide wider access to more consumers and become the quicker channel for receiving news or perceiving consumer needs. [19]

For the E-commerce transactions in Southeast Asia, the forecast made by Frost & Sullivan Co., Ltd., US's business consulting firm which provides market research and analysis, has revealed that E-commerce businesses in 6 Southeast Asia's major countries, i.e. Thailand, Singapore, Indonesia, the Philippines, and Vietnam will experience the average annual growth of 34,000 million US dollars (or about 1.1 million baht) up to the year 2018; higher than that of the year 2013 by 37.66 percent [12].

The key factors giving rise to the E-commerce growth include the higher per-capita income, economic growth, foreign investments, and the number of Internet users, whereas Internet corruption will become a barrier to the expansion of this business once it is in abundance. However, Frost & Sullivan Co., Ltd. still believes that E-commerce has a high possibility of being a lot grower due to the fierce competition among gigantic E-commerce firms [12].

4. Impact on Banking Transactions and Content Business

- Mobile Banking Transactions

The Bank of Thailand has identified that the number of Thai people using smartphones and tablet computers tend to be higher resulting in the continual increase in mobile banking transactions, because they are more convenient and can enable users to access services more extensively. Such rise in number is resulted from the greater popularity in online transactions for products and services. Moreover, online banking transactions can be carried out easily, quickly, time-economically, securely and tend to be more continuously expanded because several commercial banks nowadays have provided customers with more channels of services through the Internet and mobile phones regardless of time and location, e.g. funds transfer, balance inquiry, bill payment, and so on [16].

Figure 2. Amounts of financial transactions through Internet and mobile banking services [16]

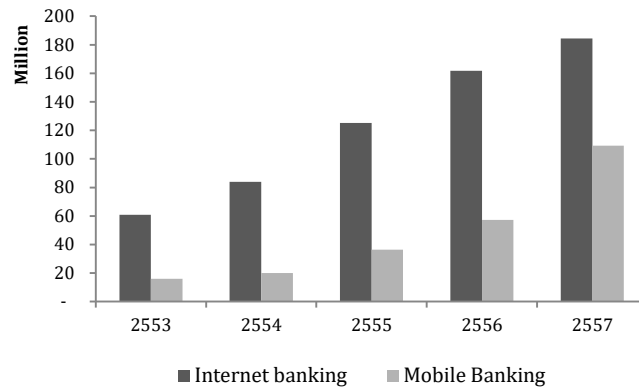
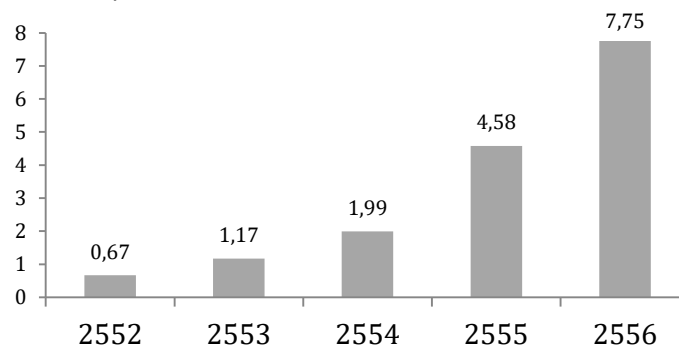


Table I. Growth rates of financial transactions through Internet and mobile banking channels [16]

Compound Annual Growth Rate (CAGR)	Growth Rate	
	2555 - 2556	2556 - 2557
2553 - 2557	29.1%	14.0%
32.0%	57.6%	91.2%

Figure 3. Values of financial transactions through mobile financial services (Unit: hundred thousand million baht) [16]



The use of Mobile Financial Service (MFS) has grown in a very higher rate, currently creates greater impacts on consumers, and tends to continuously expand. Based on the 2013-information, there were 482 million transactions in the high value up to 7.75 hundred thousand million baht which earned the growth rates of 32.5 percent and 69.2 percent from the previous years respectively. Therefore, to carry out electronic transactions, ones need to aware of some necessary factors including telecommunications infrastructures; both wired and wireless, and must subject to security standards, laws, and related regulations to promote customers' trust in electronic transactions such as the standards of ICTs, ICT security system, personal data protection, and laws that support the result of electronic transactions.

- Media and entertainment businesses via mobile phones

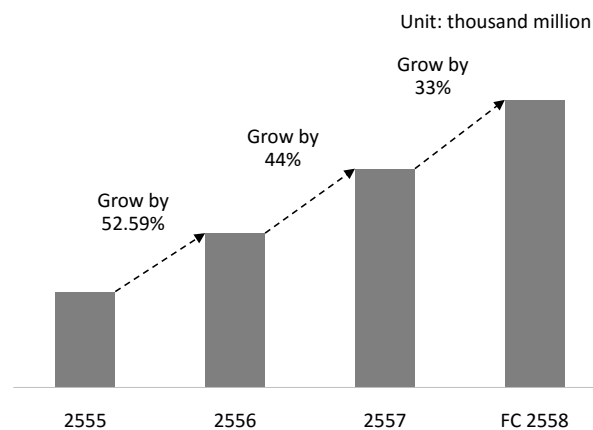
The rapid expansion of Internet usage and the increase in smartphone usage bring about the highest investments in media on the Internet, followed by media spending through TV and printing media respectively. This is partly resulted from the 3G services in the 2.1 GHz band which can rapidly provide the country with extensive coverage and the behavior of consumers who turn to use services on the new network sooner than expected . PricewaterhouseCooper (Thailand) Co., Ltd. has forecasted that the growth trend of Thailand's media and entertainment industry will strongly expand in the next 5 years. It is reported that the entertainment and media spending will stand high at 1.48 ten thousand million US dollars or around 463.2 hundred million dollars within 2017 stemming from the greater expansion of Internet access. Moreover, PwC also forecasted that the Compound Annual Growth Rate (CAGR) of Thai media and entertainment industries will stand at 11.3 percent for 5 years onward (2013-2017), which is considered the 4th highest compound annual growth rate in Southeast Asia region. According to this, the needs of consumers in domestic media and entertainment industry will continue to expand strongly according to the long-run economic growth and competition of various kinds of products. This affects the maximum value of Internet media spending to stand at 4.7 thousand million US dollars by 2017 [17].

- Digital advertising markets

The latest report from the Digital Advertising Association (Thailand) shows the continual growth in all forms of digital advertising industries. It is expected that various business groups will tend to use more digital media for digital advertising purposes by 2013. There will be the forecasted budget of around 5,863 million baht allocated for digital media advertising; higher than that of above 4,248 million baht allocated in 2013, or grower by 38.3 percent. Based on this, the business sector has begun to make higher investments in digital advertising than any other channels of media [18].

Since most consumers, especially those who live in major cities, can gain easy access to the Internet and are found of watching online videos, there is a flow of capital from the traditional form of TV media investments to the form of online video advertising such as the digital advertisements featured on Facebook (Facebook Ad), videos, and especially the mobile marketing which have experienced a rapid growth two times the proportion of the previous year.

Figure 4. Direction of the overall digital advertising businesses (Digital Ad Spending) [18]



- Application and content production industries

Due to the rapid expansion of social networks, entertainment media, and digital advertising in Thailand, Zocial Inc. has revealed the information concerning Thailand's statistics and usage behaviors in social networks indicating that there are 35 million Thai Facebook subscribers in March 2015, 2 million Instagram subscribers which has grown by 29 percent, 4.5 million twitter subscribers which has grown by 350 percent, and 33 million Line subscribers which has grown by 38 percent. This holds the appeal for the creation of more new applications and content on mobile phones valued around 1 thousand million baht, enabling the populations to extensively access to telecommunication services and experience more miscellaneous telecommunications services [20][21].

Nowadays, the trend of communicating through applications is becoming more popular, especially the continuously popular communication applications like Whatsapp, Line, Facebook, and Instagram, accepted by more than 90 percent of smart-device users to be the major communication channel, whereas most of other popular additional activities conducted via such applications such as free sticker downloading or free calling are normally free of charges, but users may have to pay the charge of data type instead. Furthermore, the research results reveal that app-to-app voice calls have a tendency to stand up to 74 percent of the overall smart-device users, and the proportion of app-to-app calls also has a tendency to stand at the high rate of 38 of the overall number of calls.

5. Conclusion

The implementation of mobile communication technology to widen access to financial and banking transactions will facilitate financial and banking organizations in employing more approaches to supply customer demands. Consequently, policy formulators have to impose intense regulatory strategies, especially the ones in relation to cyber security so as to raise confidence in using such technology and gain the most benefits from such new chances. Various business organizations will gain enormous advantages from the adaptive utilization of mobile communication technology in business sectors where the operators have to regularly improve the networks and services to be up-to-date. This will truly result in benefits to business sectors if the policy formulators and regulators have followed the policies that promote investments, stimulate competitions, and give rise to innovations so that the mobile services and the widespread availability of the digital economy will get expanded and foster the national competitiveness eventually.

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