ERICSSON

DIGITAL THAILAND

How increasing ICT adoption helps Thailand to become a Digital Nation

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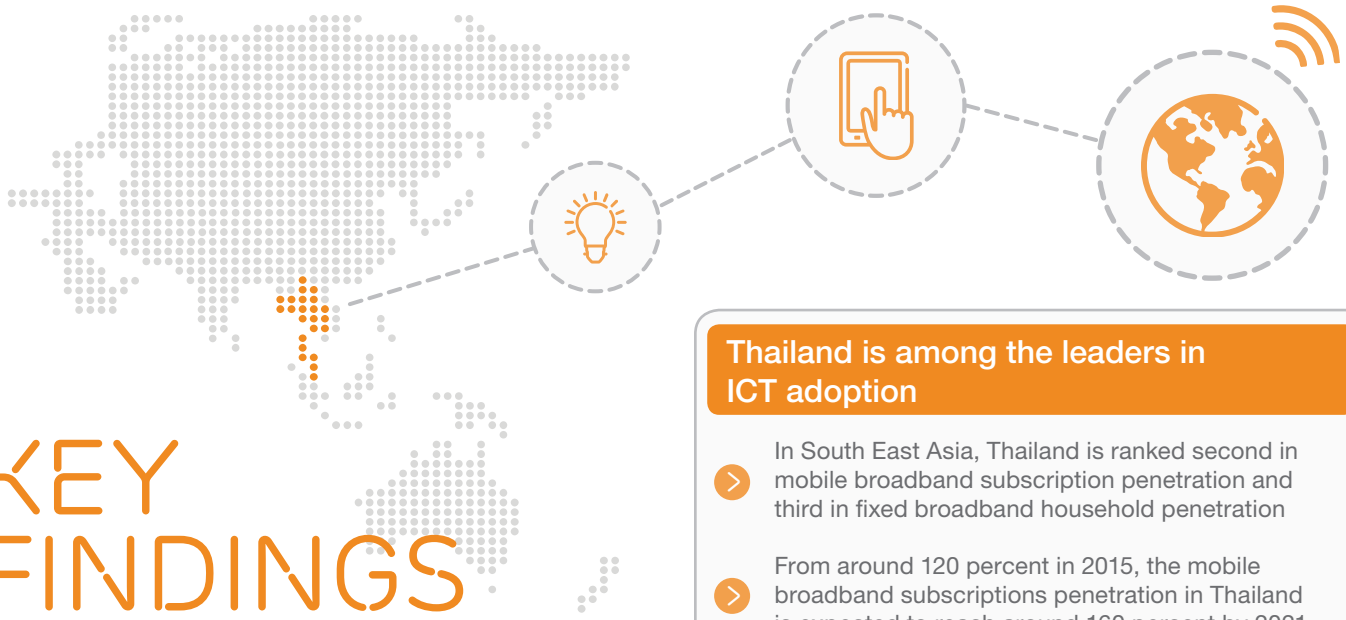


KEY FINDINGS

Thai consumers are expecting ICT to be integrated in all facets of their life and are becoming part of the Digital Nation

- Thai consumers have a positive attitude towards ICT and they believe that using the internet helps both individuals and society
- One out of two consumers in Thailand says that their use of ICT has significantly increased over the last five years
- The challenges such as affordability, lack of awareness and complexity involved in using ICT have to be addressed to encourage the unconnected users to be part of the Digital Nation
- With the increasing internet usage, there are concerns related to privacy and security of internet users. These concerns have to be addressed to encourage Thai consumers to actively participate in the digital economy

Thailand is among the leaders in ICT adoption

- In South East Asia, Thailand is ranked second in mobile broadband subscription penetration and third in fixed broadband household penetration
- From around 120 percent in 2015, the mobile broadband subscriptions penetration in Thailand is expected to reach around 160 percent by 2021
- Network performance and data speed are the building blocks of a Digital Nation. In South East Asia, Thailand is ranked second in peak downlink speed and latency on Android and iOS devices and ranked fifth for cell-edge downlink throughput

Thai consumers are ready for the Internet of Things

- Connectivity is a critical component of the digital economy and the industries in Thailand are quickly adapting to deliver products and services in a smartphone-enabled world
- 56 percent of consumers feel that connecting more people using ICT would benefit the society in comparison to 40 percent globally
- 60 percent of Thai consumers and 40 percent globally want to control or monitor their home to ensure safety and security

GEARING UP FOR THE DIGITAL ECONOMY

The Royal Thailand Government is focusing on the Digital Thailand vision to enhance competitiveness of various industries in the country and position Thailand as the digital leader in ASEAN. Digital Thailand is defined as a transformed Thailand that maximizes the use of digital technologies in all socio-economic activities to develop infrastructure, innovation, data, human capital and other digital resources that will drive the country towards wealth, stability and sustainability[1]. As part of this policy, information and communication technology (ICT) will be expanded to enable people to benefit from online businesses and to strengthen the local economy[2].

Ericsson is a strong proponent of the Digital Thailand vision and it is aligned with Ericsson's vision of the Networked Society, where every person and every industry is empowered to reach their full potential through connectivity. This report covers Ericsson's assessment on the Thai consumers and the industry readiness for a digital economy in Thailand. The report also provides discussion points for the journey towards the Digital Thailand vision.

Integrating ICT in all facets of life

Consumers in Thailand are positive towards ICT and they believe that being connected to the internet help both individuals and society. Over the past five years, the Thai consumers say that their ICT usage has significantly increased. When it comes to their day-to-day activities, they believe that ICT will assist them in managing and improving the efficiency of their daily activities.

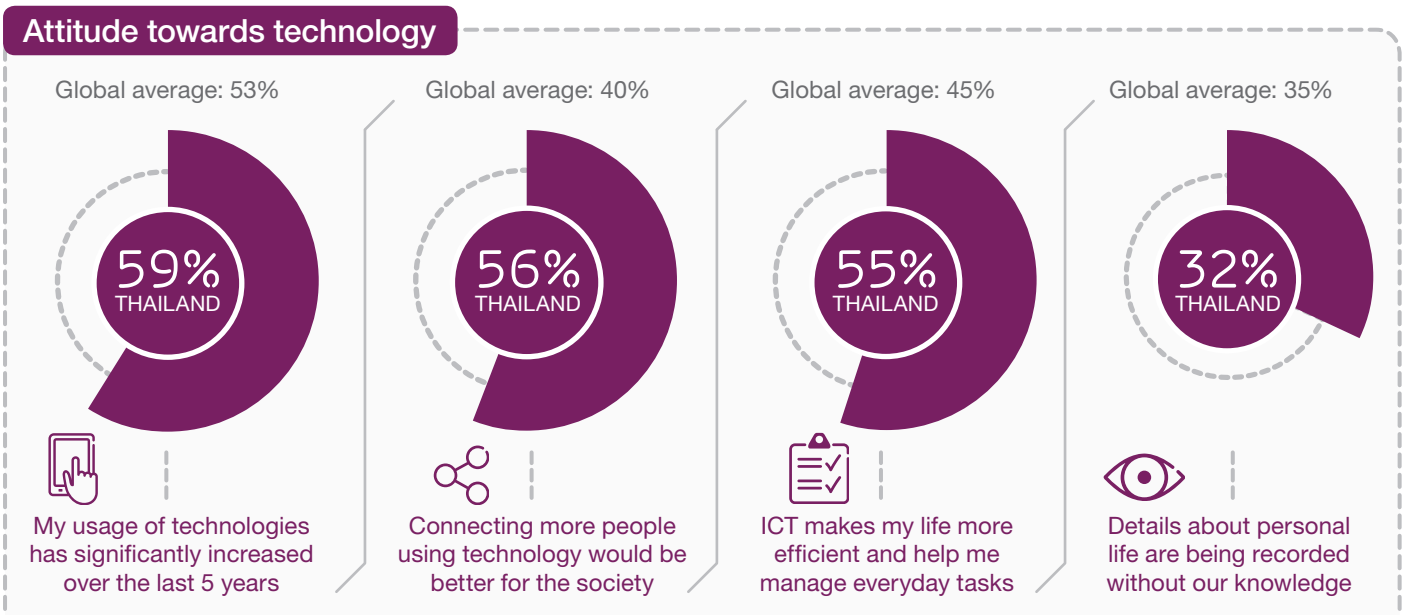
Nowadays, consumers have busy lifestyles and they rely on ICT to simplify their tasks. Multiple devices are used by the consumers in Thailand and they feel that connecting household appliances, gadgets and services to the internet would benefit the economy and society[3].

With the increasing internet usage, there are concerns related to the privacy and security of internet users. One-third of Thai consumers fear that details about their personal life are being recorded without their knowledge. These concerns have to be addressed to encourage Thai consumers to actively participate in the digital economy.

In order to accelerate the transformation of Thailand into a digital leader, collaboration is needed between the government and industry players in segmenting and targeting the consumers in the market, promoting local app development, improving the mobile broadband infrastructure and addressing privacy and security concerns in the ICT industry.

[1]www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2016/Apr-Digital2016/S2_Present_Pansak_Siriruchatapong.pdf
[2]http://www.thaigov.go.th/index.php/en/issues/item/93149-93149.html
[3]Ericsson ConsumerLab Analytical Platform, 2015

Attitude towards technology



Source: Ericsson ConsumerLab Analytical Platform, 2015; Base: Internet users aged 15-69 across 24 countries including Thailand

INDUSTRY INSIGHTS

On its path towards becoming a Digital Nation, how can Thailand leverage the emerging opportunities? Industry experts share their views.

Thailand has the right ecosystem to be a Digital Nation

- Robert Zepeda, CEO, Playbasis

Thailand has the most favorable position in ASEAN to serve as a regional hub. Thailand can position itself as the preferred destination for industry events, co-working facilities and as the backbone of regional connectivity. All of which creates a promising ecosystem for the startups to flourish. Telecom, agriculture, healthcare and finance are the industries that will gain the most from the digital transformation in Thailand.

Network performance is one of the building blocks of a Digital Nation

- Nadine Allen, President, Ericsson Thailand

In order to realize the Digital Nation vision, it is important that a good mobile broadband experience is available for consumers in both urban and rural Thailand. For some consumers, education will also be required to allow them to understand how mobile broadband can improve their livelihood. Local app development that addresses the everyday challenges of the consumers will help to increase the pace of change towards a Digital Thailand.

Improving soft-skills and supporting innovation are important

- Taro Amornched, CEO & Co-Founder, TakemeTour

The government departments and private companies should work in synergy to achieve the Digital Thailand vision. This can be initiated by digitalizing government services by making it a complete paperless system. There are many skillful app developers in Thailand. However, many of them lack management, communication and language skills. Improving soft-skills and supporting innovation are important. The main focus should be to get visibility outside of Thailand.

Industries get the benefits of innovation and digital transformation

- Shannon Kalayanamitr, Founder & Group CMO, Orami

The establishment of joint steering committees for the startup community has started giving good results. Innovation and digital transformation are helping every industry in Thailand. Telecom operators should use apps and services to provide the best offering to the customers. Thai government should give more incentives to bring in foreign investment, professional expertise and technology.

Government and enterprises should work hand-in-hand

- Oranuch Lerdsuwankij, CEO & Co-Founder, Techsauce

To achieve the Digital Thailand vision, the Thai government has to work closely with the enterprises to improve the overall IT ecosystem in the country. Big enterprises in banking and telecom sectors should help the government in implementing the policies. Talent accelerator program is needed in collaboration with universities to support innovation and to address the growing need for engineers and developers for the tech startups in Thailand.

There is a growing need to improve the talent pool

- Peerapol Vayakornvichit, VP - Strategy, Zilingo

In the age of internet economy, the way we convert the idea or concept to reality is more important than just having an idea. Skills such as fundraising, public relations, people management, recruitment and operating on limited budget are essential in an environment of extreme uncertainties. There is also an increasing requirement for a talent pool. To address that, more focus should be given to computer sciences at school level and in higher education.

BECOMING PART OF THE DIGITAL NATION

Lifestyles today are defined not just by the prevalent social and cultural atmosphere, but also by the products and services consumers use. As consumers spend more time online and use multiple digital services, their perspective on life changes, which leads to a networked lifestyle.

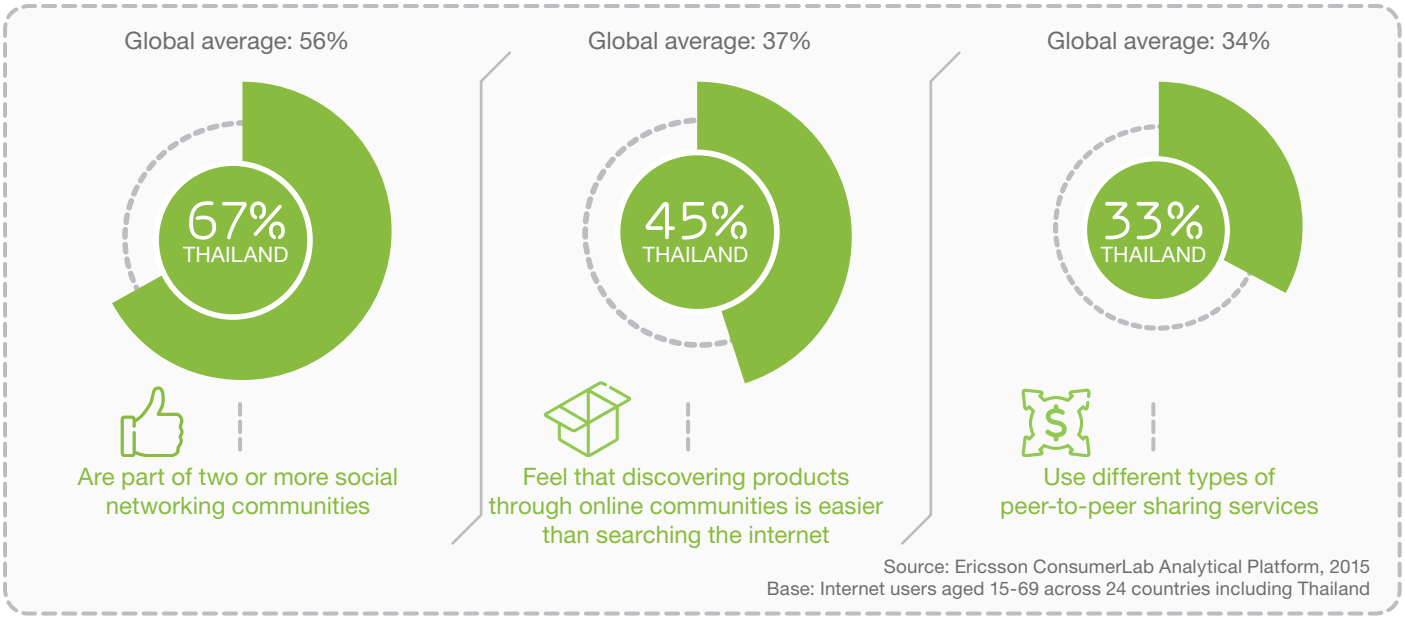
A networked lifestyle is one where consumers understand the benefits of online participation and subsequently engage in social activity and believe in technology for good. Online connectivity empowers consumers to share knowledge and resources with each other.

According to Ericsson ConsumerLab's The Networked Life report, Thai consumers are participating in social networking and using e-commerce and user review websites; which provide them with the collective intelligence to make more informed purchase decisions. 67 percent of Thai consumers are part of two or more social networking communities, which is higher than the global average of 56 percent. 45 percent of Thai consumers believe that discovering products through online communities is easier than searching the internet[4].

> "In Thailand, there is a real openness and desire to incubate and invest in local innovation. The success of companies like Alibaba, Tencent and Line has attracted foreign capital into the region as ASEAN is positioned as a high-growth potential market."
>
> - Robert Zepeda, CEO, Playbasis

When it comes to online sharing and participation in social networking, Thailand is on par with the global numbers. Websites and apps for peer-to-peer sharing of goods and services are increasingly used by the consumers in Thailand. More than 30 percent of consumers surveyed in Thailand engage in some form of sharing activity such as sharing accommodation, food, clothing, ride and Wi-Fi with peers using websites and smartphone apps.

[4]Ericsson ConsumerLab The Networked Life report, 2015



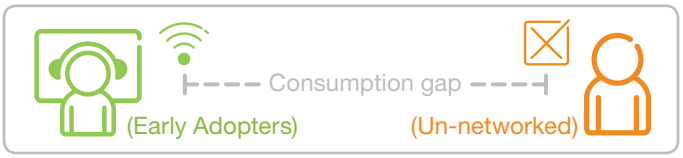
24% OF THAI CONSUMERS ARE EARLY ADOPTERS

Source: Ericsson ConsumerLab Analytical Platform, 2015
Base: Population aged 15-69 across 24 countries including Thailand

Based on the time spent on the internet and the variety of online services used, two consumer groups – early adopters and un-networked - were selected to represent behavior at each end of the usage spectrum. The early adopters are those who in a day, use at least three digital services and actively use the internet for more than an hour. In contrast, the un-networked are those who spend the least number of hours online in a day.

The early adopters drive the networked lifestyle and they constitute 24 percent of the consumers in Thailand as compared to 41 percent globally. The majority of the early adopters are in the age group 15-39 years, with 53 percent of teenagers in Thailand being part of this group. A higher percentage of the early adopters are from the Greater Bangkok region when compared to the other regions in Thailand.

The un-networked constitute 34 percent of the consumers in Thailand, in comparison to 18 percent globally. The majority of the un-networked in Thailand are over 40 years old. Based on the work status, one out of two consumers in the un-networked group is a retiree, while most of the early adopters are students. A segmented and targeted approach will be beneficial to ensure that these consumer groups fully enjoy the benefits of ICT in their everyday lives.



Bridging the consumption gap

In Thailand, there is a consumption gap between the early adopters and un-networked in terms of device ownership and internet subscription. Almost all the early adopters in Thailand own a smartphone compared to 56 percent of the un-networked. When it comes to having a mobile internet connection, 89 percent of the early adopters in Thailand have mobile internet connection as against only 26 percent of the un-networked.

Factors such as affordability, lack of awareness and complexity involved in usage and purchase process are the main barriers for the un-networked to access the internet. However, the attitude towards ICT is positive in Thailand even among the un-networked, which would encourage more consumers from the un-networked group to become active internet users.

THAILAND IS AMONG THE LEADERS IN ICT ADOPTION

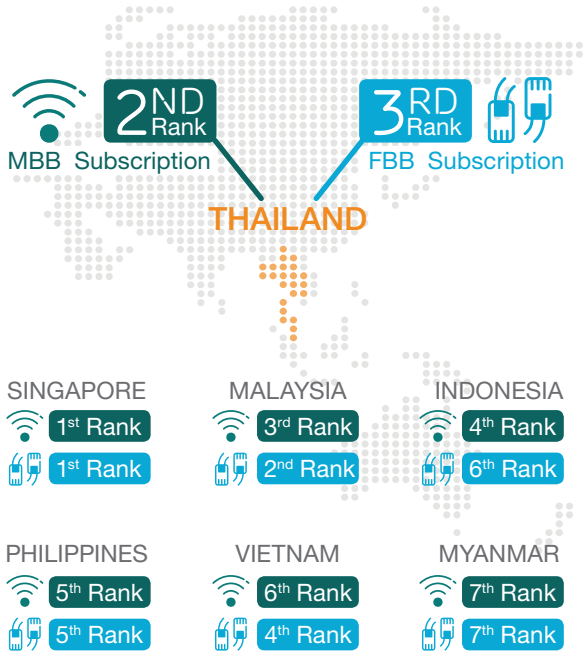
From 120% in 2015, the mobile broadband subscriptions penetration in Thailand is expected to reach around 160% by 2021.

The internet has enabled new ways to access technology. From fixed broadband, the internet usage is moving towards mobile broadband, as Thai consumers choose to access the internet on their mobile devices. Thailand is ranked second in South East Asia when it comes to mobile broadband subscription penetration and third in fixed broadband household penetration and smartphone subscription penetration.

Thailand and Singapore were the only two countries in South East Asia with over 100 percent mobile broadband subscriptions in 2015. Mobile broadband subscriptions penetration reached around 120 percent in Thailand in 2015 and is expected to reach around 160 percent by 2021.

When compared to mobile broadband, the fixed broadband subscription is low in Thailand. However, similar to other emerging markets in the region, Thailand is experiencing growth in middle-income households that will drive the demand for high-speed broadband services at home. This creates an opportunity for operators to cater to the need for home broadband and SME solutions through alternative access technologies, such as LTE.

Mobile Broadband and Fixed Broadband Subscription Penetration (2015)

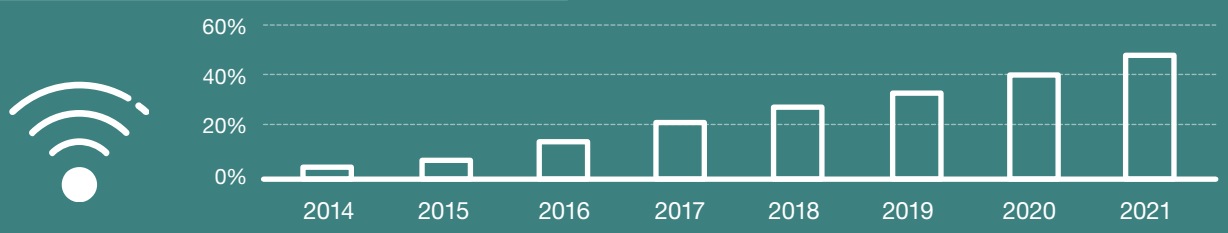


LTE will account for close to 50 percent of mobile subscriptions by 2021

The increase in mobile broadband subscriptions in Thailand is mainly driven by the LTE subscriptions. In 2015, LTE subscriptions in Thailand reached around five million, almost doubled compared to 2014. In Thailand, LTE was first rolled out in Q2 2013 and since then, the migration from WCDMA/HSPA to LTE has been steady. In 2015, the LTE subscriptions accounted for almost 10 percent of mobile subscriptions in Thailand and it is expected to increase to around 50 percent by 2021.

Thailand and Singapore are the only two countries in South East Asia where all the major mobile service providers have launched their VoLTE (Voice over LTE) service. In Thailand, VoLTE was first launched in Q4 2015. The VoLTE platform enables services such as HD voice, video communication, IP messaging and new service innovations. Operators that deploy VoLTE are able to offer high-quality IP-based communications services across LTE, Wi-Fi, and fixed access technologies, including 5G when it becomes available.

LTE subscriptions over total mobile subscriptions



Source: Ericsson analysis on South East Asia and Oceania data published by operators, government bodies and industry analysts, March 2016

SMARTPHONE GROWTH DRIVES APP USAGE

In Thailand, there were around 40 million smartphone subscriptions in 2015. The number of smartphone subscriptions in Thailand is expected to double by 2021. The increase in smartphone subscriptions will fuel the growth of mobile broadband in Thailand.

Smartphone subscriptions were close to 50 percent of the total mobile subscriptions in 2015 and are forecasted to reach 60 percent by the end of 2016. By 2021, the smartphone subscription is projected to reach 80 percent of the total mobile subscriptions.

Top 15 apps in Thailand based on the number of monthly active users

APP	RANK	CATEGORY
LINE	1	Instant Messaging
YouTube	2	Video Streaming
Facebook	3	Social Media
Google	4	Web Browsing
Facebook Messenger	5	Instant Messaging
Chrome Browser	6	Web Browsing
Google Play	7	App Store
Google Maps	8	Navigation
Gmail	9	Email
Samsung Internet	10	Web Browsing
Google Drive	11	Cloud storage
Instagram	12	Social Media
Pokemon GO	13	Gaming
Google Photos	14	Photos & Videos
Turbo Cleaner	15	Memory and Speed Booster

Source: Ericsson analysis on App Annie data for Android smartphone apps, August 2016

Focus on local app development

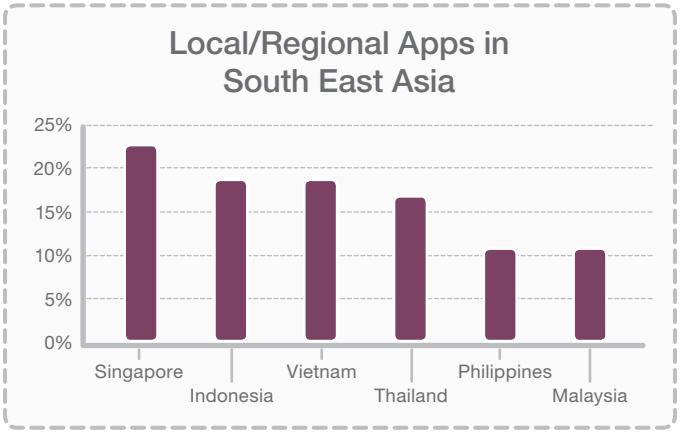
With the projected growth of smartphone and mobile broadband subscriptions in Thailand, mobile app usage is expected to increase. Line, YouTube and Facebook are the top three mobile apps in Thailand in terms of the number of monthly active users. Line is the top instant messaging app in Thailand, surpassing Facebook Messenger and WhatsApp. Line allows the users to create personal profile pages with status update functions, do free calls and voice messages and send “stickers”, which is a good way to express emotions. YouTube is the most popular video streaming app and Facebook and Instagram are the top social networking apps in Thailand.

When compared to last year, there is no major change in the ranking of the top apps in Thailand based on the monthly active users. Instant messaging, video streaming and social media are the top three app categories. However, Pokemon Go, the augmented reality app launched in August 2016, is already ranked 13th in Thailand, after a short period of time.

The proportion of regional or local app usage among the top 50 apps in South East Asia is highest in Singapore at 22 percent, followed by Indonesia and Vietnam at 18 percent and Thailand at 16 percent. Mobile banking, shopping, mobile service provider and restaurant review apps are among the popular regional or local apps in Thailand. There is a clear opportunity in Thailand to stimulate the growth of local app usage by encouraging local app development. New apps are coming to the market and could become popular very quickly, disrupting the status quo.

“Regional apps focusing on healthcare and agriculture are expected to bridge the urban-rural divide and take center stage in the coming years.”

- Oranuch Lerdsuwankij, CEO & Co-Founder, Techsauce

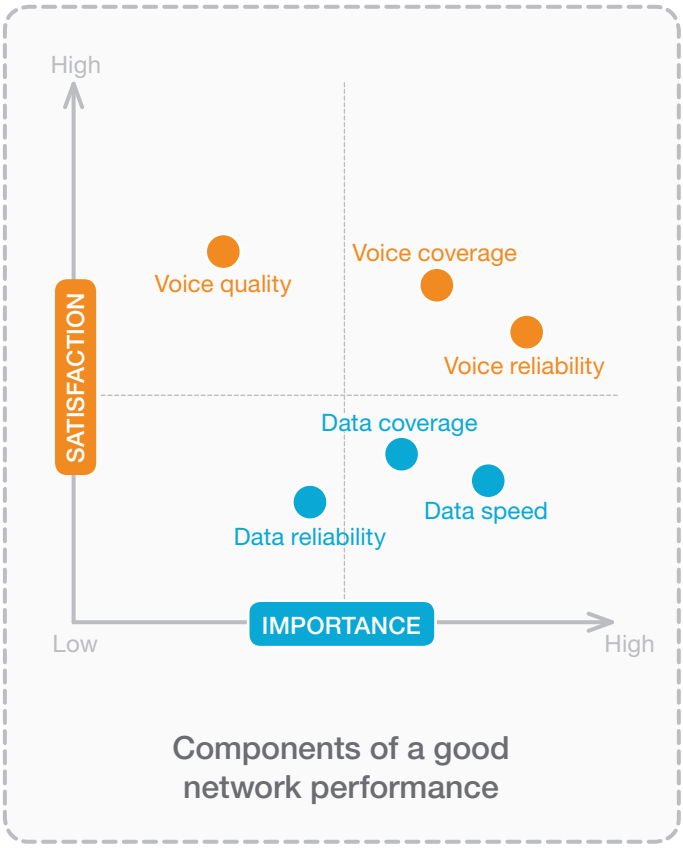


NETWORK PERFORMANCE KEY TO A DIGITAL NATION

Network performance requirements of consumers are both varied and complex. Data and voice elements are the two essential factors that drive the overall network satisfaction of Thai consumers. As usage of data intensive activities increases, the consumers give higher importance to data elements such as data speed and coverage. However, when it comes to satisfaction level, the satisfaction for data elements is still much lower than voice elements. In order to deliver the best mobile experience to Thai consumers, the service providers have to improve the mobile data experience and at the same time should continue to improve the voice experience.

A combination of uplink and downlink throughput and latency is what contributes to the users' perception of connection speed and time-to-content. Higher uplink and downlink throughput, and lower cell-edge latency give a better user experience. For simple web browsing, email and instant messaging, 100 Kbps would be sufficient. One Mbps would be sufficient for audio and video streaming and for viewing social media pages with embedded multimedia content. A downlink throughput of 10 Mbps delivers a very good user experience, enabling high-quality video streaming and real-time video conferencing. These downlink speeds are indicative and apply to typical devices and apps in use today.

Other requirements such as time-to-view, uplink throughput and latency should also be taken into consideration. The radio technologies used to build today's mobile broadband networks are capable of delivering very high performance in terms of throughput and latency. The challenge is to deliver enough bandwidth at site-to-site distances by enabling sufficient performance.



Source: Ericsson ConsumerLab Analytical Platform, Thailand, 2015
Base: Internet users who use smartphone, aged 15-69 years

NETWORK PERFORMANCE NEEDS IMPROVEMENT

High data download speed and low latency are essential for a good network experience. The mobile network operators have to optimize both throughput and latency to ensure a good user experience. In Thailand, the downlink throughput has seen tremendous increase over the last few years. For activities such as online gaming, teleconference or web browsing, latency plays an important role, as it directly contributes to time-to-content and greatly affects the user experience. What consumers perceive as internet connection speed is a combination of throughput and latency in a data transfer.

Based on the analysis of user-generated network performance data in South East Asia, the mobile operators in Singapore have the best peak latency and peak downlink throughput. Thailand is ranked second in the region for peak downlink speed and latency on Android and iOS devices. In terms of cell-edge latency, Thailand is among the top two countries in South East Asia along with Singapore.

"The internet pipeline to Thailand needs to be upgraded - in terms of redundancy, more volume, faster and easy access and distribution."

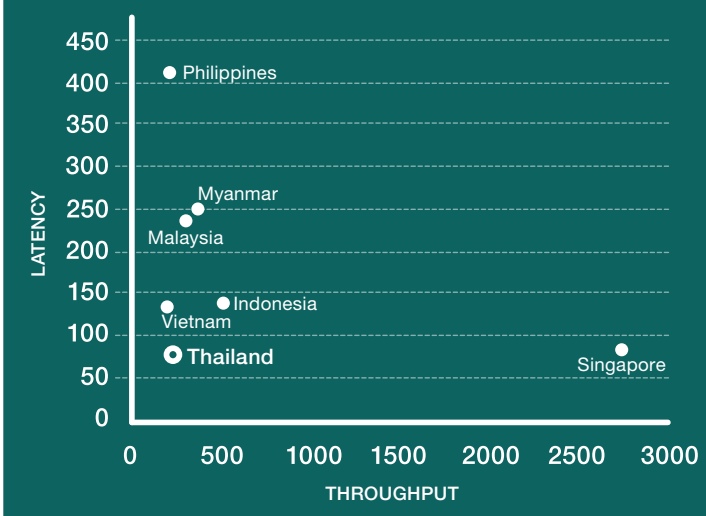
- Shannon Kalayanamitr, Founder & Group CMO, Orami

While for the cell-edge downlink throughput, Thailand is ranked fifth in South East Asia. The lower cell-edge downlink throughput affects customer satisfaction in using data. Peak is based on the top 10 percent of the sample that we have in different countries, while the cell-edge refers to the bottom 10 percent of the sample.

The peak downlink throughput in Thailand exceeds the 10 Mbps requirement for high data-intensive activities like video viewing and the cell-edge downlink throughput exceeds the 100 kbps requirement for web browsing, email and instant messaging. This provides the end users with a good user experience. The internet users in Thailand get the cell-edge throughput of 225 Kbps and latency of 75 ms which is good for web browsing but not enough for video, music streaming and real-time video conferencing.

In South East Asia, Thailand is ranked fifth in cell-edge downlink throughput, which indicates the need for improvement in network performance.

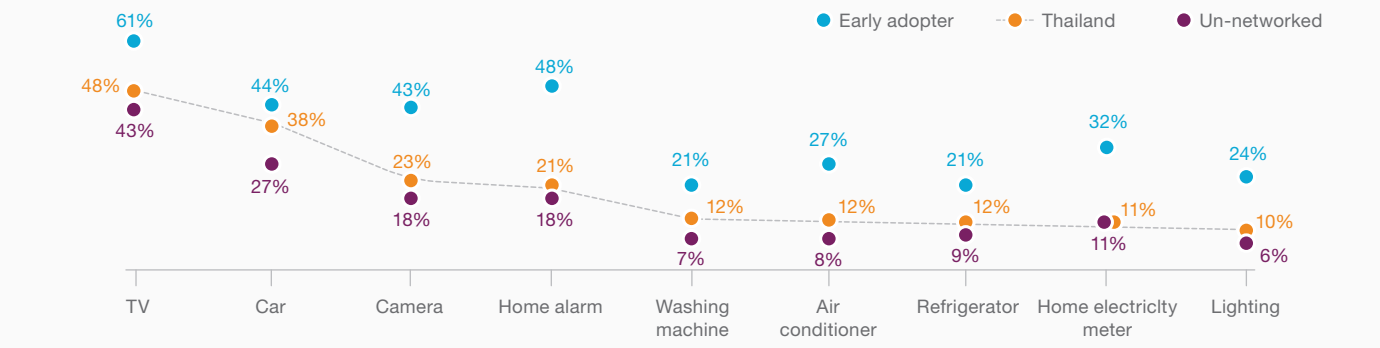
Cell-edge downlink throughput (Kbps) vs Cell-edge latency (ms)



Source: Ericsson analysis on Speedtest Intelligence data from Ookla (Q2 2016)

THAI CONSUMERS ARE READY FOR THE IOT

Preferred devices to be connected to internet



Source: Ericsson ConsumerLab Analytical Platform, 2015. Base: Population aged 15-69 years

Today, consumers are relying on ICT to simplify their day-to-day activities. They use multiple devices and want those devices to be connected to the internet. In Thailand, 43 percent of consumers feel that connecting household appliances, gadgets, and services to the internet would benefit the society compared to 36 percent globally, indicating the Thai consumers' readiness to adopt the Internet of Things (IOT) in the near future.

Safety and efficiency are drivers for the IoT

Over 60 percent of Thai consumers want to control or monitor their home to ensure safety and security compared to 40 percent globally[5]. On average, 45 percent of Thai consumers also want their cars to be connected, mainly for improving product efficiency and to ensure safety and security. This is comparable to the global average, as per The Networked Life report.

84 percent of the Thai consumers would like to connect different devices or things to the internet to make it more efficient compared to 81 percent globally. TV, car, camera and home alarm are the top devices that Thai consumers want to connect to the internet[6]. The priority of devices to be connected is almost similar to the global preference. Improving product and personal efficiency are the primary reasons why consumers want to connect their devices to the internet. To ensure the success of the IOT, it is important to focus on safety and efficiency as well.

"The telecom industry can really help Thai industries to go digital by leading the way. If we observe the growth trajectory of more mature digital economies, industries that are able to operationalize efficiencies first are usually consumer-internet-related."

- Peerapol Vayakornvichit, VP - Strategy, Zilingo

Conclusion

Thailand is moving ahead in transforming itself into a digital leader. In order to accelerate the transformation, collaboration between the government and industry players in the following areas is required:

- More public-private partnerships are needed to stimulate innovation and ICT growth in Thailand
- A segmented strategy would help address the needs of early adopters and the un-networked consumers in Thailand
- Local app usage can be further increased through promotion of local app development and adoption
- Mobile broadband physical infrastructure needs rapid expansion and upgrade to connect those who do not have access to the internet
- Addressing privacy and security concerns has to be part of the Digital Thailand blueprint

[5]Ericsson ConsumerLab Analytical Platform, 27 countries including Thailand, 2015
[6]Ericsson ConsumerLab The Networked Life report, 2015

Leading transformation through mobility
We are a world leader in the rapidly changing environment of communications technology – providing equipment, software and services to enable transformation through mobility.

Some 40 percent of global mobile traffic runs through networks we have supplied. More than 1 billion subscribers around the world rely every day on networks that we manage. With more than 37,000 granted patents, we have one of the industry's strongest intellectual property rights portfolios.

Our leadership in technology and services has been a driving force behind the expansion and improvement of connectivity worldwide. We believe that through mobility, our society can be transformed for the better. New innovations and forms of expression are finding a greater audience, industries and hierarchies are being revolutionized, and we are seeing a fundamental change in the way we communicate, socialize and make decisions together.

These exciting changes represent the realization of our vision: a Networked Society, where every person and every industry is empowered to reach their full potential.

Ericsson
SE-126 25 Stockholm, Sweden
www.ericsson.com