

Analysis and Integration of Thailand ICT Master Plan

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Abstract

This study presents the status of Information Communication Technology (ICT) of Thailand by ranking and comparing the data from the Networked Readiness Index 2012 and Digital economy rankings and scores, 2009 and 2010 of ASEAN member countries. Also, to demonstrate how government Information Communication Technology (ICT) Master Plan should be integrated in order to gain the full benefit. Thailand ICT master plan (Plan #1) established in 2002 is used for the analysis. The expert peer review technique was used to evaluate and prioritize the projects into the high, mid, and low impact project. The growth of ICT in Thailand can be considered normal or average after measuring against worldwide indices, lowest in infrastructure and digital content, and ICT development does not seem to be a priority for the government. Thus, Thailand should develop an intensive planning of ICT Master Plan implementation and integration. This paper suggests that every government ICT project proposal asking for the budget should link with each other and fit with the overall ICT strategy. A proper classification and understanding of each ICT project can help the government allocate accurate budget that fit with the outcomes.

Keywords: Information Communication Technology (ICT), Master Plan, Integration, Technology Management.

Introduction

Information and Communication Technology (ICT) has quickly developed. Therefore, new knowledge and modernization have been designed to lead to the constant growth in the economic system and community and society. In order to support the modification of Information and Communication Technology and to create and enhance the ICT potential of Thailand in the worldwide market, the Information and Communication Technology policy (2001–2010) of Thailand or IT 2010 was created to be used as a structure for piloting the 1st Thailand Information and Communication Technology Master Plan (2002–2006) and the 2nd Thailand Information and Communication Technology Master Plan (2009–2013).

An Information Communication Technology (ICT) master plan is a primary means of managing information and resources within the organization. The government of Thailand has requested every government department to come up with its own ICT master plan in order to keep up with developments of both ICT infrastructure and the flow of information that can lead to better decision making.

The mission of Thailand ICT master plan (Plan #1) is to enhance the collaboration of the public and private sectors to form the development network of information systems



and infrastructure, including the reform of ICT management as well as planning for research, education and training.

There are four objectives of Thailand ICT master plan (Plan #1). The objectives are to increase the country's economic competitiveness, develop the Knowledge-based Society, create sustainable development through equitable access to all, and improve ICT business and industry to reach its full potential.

Despite these ICT master plans, consensus on budget, standard, equipment, direction issues have not been symmetric. Each department has initiated its own ICT related projects which sometime overlap with other departments. The problem of overlapping causes the Thai government a great deal of money.

To reduce this problem, the government needs a strategic action plan to integrate all ICT master plans created by individual department in order to come up with a single blueprint that prioritizes the level of significance. Without a proper classification and understanding of each department's intention to implement its ICT project, accurate budget allocation that fits with outcomes will be hard to reach.

Williams and Williams (2007) indicate that the organization only benefits from ICT investment if it is accompanied by appropriate change management, change agents, communication, appropriate resources, and planned project time scale.

Wong, Fearon, and Philip (2007) argue that electronic government is more than the implementation of ICT. It includes the change of public governance fundamental mechanisms comprise of citizen participation and structure of the government.

Thailand ict master plan

In 2002, Thailand had constructed a national ICT master plan which conceives of 7 key strategies namely: (1) the development of the ICT industry into a regional leader Strategy, (2) the utilization of ICT to enhance the quality of life and society Strategy, (3) the reform and enhancement of the capability on ICT research and development, (4) the reinforcement of social capacity for future competition, (5) the development of entrepreneurs capacity for the expansion of international markets, (6) the utilization of ICT in Small and Medium Enterprises (SMEs), and (7) the utilization of ICT in government administration and services.

The IT 2010 framework, and the 1st Information and Communication Technology Master Plan (2002 – 2006) determined the strategy to develop Thailand to become the knowledge and innovation-based society consisting of 5 areas: e-Industry, e-Commerce e-Government e-Education and e-Society. Previously, the 2nd Information and Communication Technology Master Plan (2009- 2013) was developed to continue on the policy under IT 2010 framework and also to accelerate and fix the drawbacks that caused the 1st Information and Communication Technology Master Plan to not be able to achieve. The strategies can be described as follows:

Strategy 1: Develop ICT professionals and the general population to be information literate the aim of this strategy is to accelerate the development of personnel of adequate quantity and quality to support the development of Thailand into a knowledge and innovation-based society. Both ICT professionals as well as personnel in other fields, along with youth, the disadvantaged, the people with disabilities and citizens at all levels should have the knowledge and skills to be information literate. More specifically, they

should have the knowledge and skills to create, produce, and use ICT in an efficient, effective, ethical and considerate manner.

Strategy 2: Strengthen National ICT governance. This strategy aims to improve the mechanisms and processes of ICT management and monitoring to achieve good governance framework by emphasizing on ensuring operational unity, efficient use of resources and participation from all sectors.

Strategy 3: Develop ICT infrastructure. This strategy aims to develop and manage ICT infrastructure in order to provide universal access to businesses and citizens around the country, including the disadvantaged and people with disabilities. It will encourage businesses to put in place infrastructure that can keep up with technological evolution, in order to meet increasing consumer demand. The infrastructure should support multimedia services, e-Commerce and other services that are useful for modern lifestyles in a knowledge-based society. At the same time, this strategy also focuses on reducing the digital divide which will then lead to a peaceful and happy society where people enjoy a better quality of life.

Strategy 4: Use of ICT to support good governance in public administration and services. Government agencies should use ICT to improve governance in administration and services. A citizen-centric approach should be adopted to provide services in an efficient, effective, transparent and just manner. Participation from all relevant sectors should be encouraged.

Strategy 5: Upgrade competitive capacity of the ICT industry to add value and increase earnings. This strategy seeks to upgrade the competitiveness of Thai ICT businesses by promoting research; development and innovation in the public sector, academic sector and private sector upgrade technological capability of the Thai ICT businesses with more upstream technology. Technology transfer of research outputs to businesses should be encouraged. The business environment should also be improved. The priority sectors are software industry and digital content production industry, with the aim to increase the sector's contribution to the national economy and earnings. For other industries that have potential, such as the electronics industry (embedded systems or advanced electronic design) and the telecommunications equipment industry, the focus will be on research and development to build upstream capacity. This will allow them to be developed into income generating industries in the future.

Strategy 6: Use ICT to build sustainable competitive for Thai industries. This strategy aims to promote access and use of ICT in the production of goods and services in all sectors to enhance competitiveness by increasing domestic value-added and at the same time being environmentally friendly. This will help prepare businesses to compete under global free trade regimes in the future. Special emphasis will be given to sectors in which Thailand has a comparative advantage and potential to compete, such as agriculture, health services and tourism. Small and medium enterprises (SMEs) as well as community enterprises will also be targeted for development.

Methodology

Data for the study of integration of Thailand ICT master plan came from more than one thousand ICT project proposals submitted to Ministry of Information and Communication

Technology, who acted as a secretariat for the royal Thai cabinet on matter of approving ICT budget approval, by 125 departments under 24 ministries or equivalent.

To gain an understanding of how these propose ICT projects are interlinked with each other and fit with the overall Thailand ICT strategy, this study constructed the followings: (1) evaluated every ICT project proposal submitted from the government departments. Then, (2) looked at the actual budget that each project proposal received. (3) Group these ICT project proposals from departments accordingly to Thailand seven ICT strategies in Thailand ICT national master plan.

After all ICT project proposals were grouped in accordance with seven strategies. Both qualitative and quantitative methods were used to evaluate the impact of individual project toward the strategy. Three levels of impact classification were set to prioritize the level of significance to each strategy. High impact project means the government can launch the project immediately. Mid impact suggests that the project should be withheld for available funding. Low impact project implies that government may terminate these projects due to limited funding or does not fit with the Nation ICT master plan.

Expert peer review is used for evaluating every project proposal. Three groups of expert with expertise in technology, business, and social read each proposal and give subjective rating. The rating is used to determine the degree of fitness and impact level to the seven strategies.

Table integration of degree of fitness and impact level of project proposal against the conclusion of ICT Development of Master Plan 1 were presented to analyze the 7 key strategies.

To analyze the status of Information Communication Technology (ICT) development of Thailand in international perspective data from Networked Readiness Index 2012 and Digital economy rankings and scores, 2009 and 2010 were used by comparing the rankings and scores of ASEAN member countries.

Assessment of Thailand ICT Master Plan 1 (2002–006)

Following the Master Plan 1 strategies, Thailand brought some IT improvements. This evaluated from real result compared with goals assigned in the master plan. Ministry of Information and Communication Technology, Thailand (2007) reported based on the assessment of IT Master Plan 1 that some action following to each strategy caused the following conclusions:

(1) Strategy 1 focused on the development of software industry potential with only 20% achievement. Private sector played an important role in activating software industry development while public sector and household gave least support,

(2) Strategy 2 focused on ICT development expanding into all societies to enhance the quality of life and society with 66.66% achievement. Public sector played an important role in budget support to drive people access ICT such as teacher quality development, disadvantaged group services, and community telecenter,

(3) Strategy 3 focused on ICT research and developments for Thailand's capacity can't achieve. Public sector played an important role in supporting the enhancement

of R&D human resource capability such as producing human resource, budget and establishing some projects,

(4) Strategy 4 focused on developing Thai human resource capacity for future competition with 33.33% achievement. Public sector played an important role in promoting every graduated to utilize ICT while private sector developed workforce,

(5) Strategy 5 focused on devising measures and mechanism to equip entrepreneurs with knowledge and experiences in technology and management, so as to improve production process and marketing with 100% achievement but not exceeded the criteria much. Private sector played an important role in proceeding such as recruiting skilled

ICT Master Plan 1 7 key strategies	Goal Amount	Achieved Goal	Percentage of Achievement					Degree of fitness and impact level of project proposal %
			0	21	41	61	81	
			-	-	-	-	-	
			20	40	60	80	100	
Strategy 1: The development of the ICT industry into a Regional leader.	5	2						2%
Strategy 2: The utilization of ICT to enhance the quality of life and society.	9	6						12%
Strategy 3: The reform and enhancement of the capability on ICT research and development.	4	0						3%
Strategy 4: The reinforcement of social capacity for future competition.	3	1						3%
Strategy 5: The development of social capacity for future competition.	3	3						1%
Strategy 6: The utilization of ICT in Small and Medium Enterprises.	3	2						3%
Strategy 7: The utilization of ICT in government administration and services. Developing ICT industry to be the local leader.	9	6						76%

Table 1:
Integration degree of
fitness and impact level
of project proposal
against the conclusion
of ICT Development of
Master Plan 1.

Source: Author research and Ministry of Information and Communication Technology (MICT) Thailand

workforce and utilizing ICT in production and operation. This drive effected to an economic development of the country,

(6) Strategy 6 focused on encouraging SMEs to apply ICT developing their business and to boost competitiveness, especially on management, production and linkages to large firms with 66.67% achievement. Private sector played an important role with entrepreneurs utilized ICT for management and a major operation, and

(7) Strategy 7 focused on government to set up a central agency to oversee ICT development and utilization within a sector to bring the unity an integration of database system, planning, coordination, budget allocation and transparent procurement serve each agency's requirement as well as reduce duplication of investment. This would enable the public sector to collect exchange and share information among them based on securing an open standard platform. The strategy reached 66.66% of achievement. Public sector played the role of pushing through many abstracts such as regulations, law and public policies which did not support for the development identified in ICT Master Plan.

Table 1 shows the Integration degree of fitness and impact level of project proposal against the conclusion of ICT Development of Master Plan 1. It shows that Strategy 7, the utilization of ICT in government administration and services. Developing ICT industry to be the local leader got the highest percentage of degree of fitness and impact level of project proposal (76%) and Strategy 5, the development of social capacity for future competition got the lowest degree of fitness and impact level of project proposal (1%).

The Status of ICT Development in Thailand

IBM Institute, (2010) Digital economy rankings and scores, 2009 and 2010 the “digital economy rankings”, previously known as the “e-readiness rankings” that captures the challenge of maximizing the use of information and communications technology (ICT) that countries face in the years ahead. Table 2 shows the ASEAN countries digital economy rankings and scores for the year 2009 and 2010. It was reflected in Table 1 that the digital economy ranking of Thailand's overall ranking at 49th out of 70 covered countries in the year 2010 with the score of 4.86 out of 10, nevertheless, when Thailand was compared to other ASEAN countries: Singapore ranked 8th (8.22) and Malaysia ranked 36th (5.93). It was found out that they are more developed than Thailand while the rest are not developing countries like the Philippines ranked 54th (4.47), Vietnam ranked 64th (3.87), and Indonesia ranked 65th (3.87) respectively. Similar to the 2009 and 2010 ranked at ASEAN countries Thailand ranked 3rd out of 6 countries covered by the survey, Singapore ranked 1st, Malaysia ranked 2nd while the Philippines ranked 4th, Vietnam ranked 5th, and Indonesia ranked 6th respectively.

Also, World Economic Forum (2012), the Global Information Technology Report 2012 features the latest results of the “Networked Readiness Index 2012” (NRI 2012) offering an overview of the current state of ICT readiness in the world and has been measuring the degree to which economies across the world leverage ICT for enhanced competitiveness. The coverage includes a record number of 142 economies from both the developing and developed world, accounting for over 98 percent of global GDP. The NRI has four element framework comprising: (1) the environment for ICT (environment sub index), (2) the readiness of a society to use ICT (Readiness Sub index), (3) the actual

usage of all main stakeholders (Usage Subindex), and (4) the impacts that ICT generates in the economy and society. (Impact Sub index).

Table 3 presents the ASEAN countries Networked Readiness Index 2012 with corresponding rating and score. The “Networked Readiness Index 2012” reflected that

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ASEAN Countries	2009 rank in Region	2010 rank in Region	Ranking 2010 Overall (Of 70)	2010 Score (Of 10)
Brunei Darussalam	-	-	-	-
Cambodia	-	-	-	-
Indonesia	6	6	65	3.87
Laos	-	-	-	-
Malaysia	2	2	36	5.93
Myanmar	-	-	-	-
Philippines	4	4	54	4.47
Singapore	1	1	8	8.22
Thailand	3	3	49	4.86
Vietnam	5	5	64	3.87

Note: (-) No data available

Source: Economist Intelligence Unit, 2010

Table 2:
ASEAN countries
Digital economy
rankings and scores,
2009 and 2010.

ASEAN COUNTRIES	Network Readiness Index 2012		
	ASEAN Rankings	Rating Out of 142	Score (1-7)
Brunei Darussalam	-	-	-
Cambodia	6	108	3.3
Indonesia	4	80	3.7
Laos	-	-	-
Malaysia	2	29	4.8
Myanmar	-	-	-
Philippines	4	86	3.6
Singapore	1	2	5.9
Thailand	3	77	3.8
Vietnam	5	83	3.7

Note: (-) No data available

Sources: The Global Information Technology Report 2012

Table 3:
ASEAN countries
Networked Readiness
Index 2012

Thailand ranked 77th out of 142 with the score of 3.7 out of 1-7 scale, when Thailand was compared to other ASEAN countries: Singapore ranked 2nd (5.9) and Malaysia ranked 29th (4.8) respectively. It was found out that they are more advanced than Thailand, while the rest are not much advanced countries like the Indonesia ranked 80th (3.7), Vietnam ranked 83th (3.7) Philippines ranked 86th (3.6) and Cambodia ranked 108th (3.3) respectively. Furthermore, ASEAN a country ranking is as follows: Singapore ranked 1st, Malaysia ranked 2nd, Thailand ranked 3rd, Philippines and Indonesia ranked 4th, Vietnam ranked 5th, and Cambodia ranked 6th respectively. This indicates that Thailand in ASEAN member countries was average ranking similar to the findings of Digital economy rankings and scores, 2009 and 2010.

The environment sub index gauges the friendliness of a country's market and regulatory framework in supporting high levels of ICT uptake and the development of entrepreneurship and innovation prone conditions. A supportive environment is necessary to maximize the potential impacts of ICT in boosting competitiveness and well-being. It includes a total of 18 variables distributed into two pillars: the political and regulatory environment pillar and the business and innovation environment pillar. (World Economic Forum, 2012).

Table 4 presents the ASEAN member countries environment sub index of NRI 2012 distributed into two pillars: the political and regulatory environment pillar and the business and innovation pillar. It was reflected in Table 3 that Thailand ranked 59th out of 142 in the environment sub index with the score of 4.0 out of 1-7 scale, when Thailand was compared to other ASEAN countries it was found out that they were performing better compared to Thailand as evidence Singapore ranked 1st (5.7) and Malaysia ranked 23rd (4.9). While other ASEAN member countries were behind Thailand like, Indonesia ranked 72nd (3.8) Cambodia ranked 89th (3.7), Vietnam ranked 96th (3.6), and Philippines ranked 111th (3.4) respectively. Furthermore, the 1st pillar (Political and regulatory) ranking are as follows: Singapore ranked 1st (6.0), Malaysia ranked 24th (4.9), Thailand ranked 69th (3.7), Cambodia ranked 73rd (3.6), Vietnam ranked 79th (3.5), Indonesia ranked 88th (3.5), and Philippines ranked 107th (3.1) respectively. The 2nd pillar (Business and innovation) ranking is as follows: Singapore ranked 1st (5.5), Malaysia ranked 24th (5.0), Thailand ranked 54th (4.2), Indonesia ranked 64th (4.1), Cambodia ranked 106th (3.7), the Philippines ranked 107th (3.7) and Vietnam ranked 109th (3.6) respectively.

The readiness sub index, measures the degree to which a society is prepared to make good use of an affordable ICT infrastructure and digital content. The infrastructure and digital content that captures the development of ICT infrastructure (including the mobile network coverage, international Internet bandwidth, secure Internet servers, and electricity production) as well as the accessibility of digital content. The affordability pillar assesses the cost of accessing ICT, either via mobile telephony or fixed broadband Internet, as well as the level of competition in the Internet and telephony sectors that determine this cost. The skill pillar gauges the ability of a society to make effective use of ICT thanks to the existence of basic educational skills captured by the quality of the educational system, the level of adult literacy, and the rate of secondary education enrollment (World Economic Forum, 2012).

Table 5 presents Readiness Sub index of NRI 2012 distributed into three pillars: 3rd pillar (infrastructure and digital content), 4th pillar (affordability), and 5th pillar (skills).

ASEAN COUNTRIES	A: Environment Subindex		1st pillar: Political and Regulatory environment		2nd pillar: Business and innovation environment	
	Rating Out of 142	Score (1-7)	Rating Out of 142	Score (1-7)	Rating Out of 142	Score (1-7)
Brunei Darussalam	-	-	-	-	-	-
Cambodia	89	3.7	73	3.6	106	3.7
Indonesia	72	3.8	88	3.5	64	4.1
Laos	-	-	-	-	-	-
Malaysia	23	4.9	24	4.9	24	5.0
Myanmar	-	-	-	-	-	-
Philippines	111	3.4	107	3.1	107	3.7
Singapore	1	5.7	1	6.0	1	5.5
Thailand	59	4.0	69	3.7	54	4.2
Vietnam	96	3.6	79	3.5	109	3.6

Table 4:
ASEAN countries
Environment Sub index
of NRI 2012

Note: (-) No data available

Sources: The Global Information Technology Report 2012

It was reflected in Table 5 that Thailand ranked 75th out of 142 in the readiness sub index with the score of 4.6 out of 1-7 scale, when Thailand was compared to other ASEAN countries it was found out that they were performing better compared to Thailand as evidence Singapore ranked 8th (6.1), Malaysia ranked 55th (5.0), and Indonesia ranked 74th (4.6), while, other ASEAN countries are behind Thailand like: Philippines ranked 77th (4.6) Vietnam ranked 86th (4.4), and Cambodia ranked 106th (3.7) respectively. Furthermore, the 3rd pillar (infrastructure and digital content) ranking is as follows: Singapore ranked 20th (5.9), Malaysia ranked 65th (4.1), Cambodia ranked 66th (4.1), the Philippines ranked 80th (3.7), Vietnam ranked 101st (3.1), Indonesia ranked 103rd (3.1) and Thailand ranked 107th (3.1) respectively. The 4th pillar (affordability) ranking is as follows: Singapore ranked 29th (5.8), Thailand ranked 33rd (5.8), Indonesia ranked 34th (5.8), Malaysia ranked 41st (5.7), the Philippines ranked 72nd (5.2), Vietnam ranked 76th (5.1) and Cambodia ranked 110th (3.3) respectively. The 5th pillar (Skills) ranking is as follows: Singapore ranked 2nd (6.5), Malaysia ranked 47th (5.3), Indonesia ranked 69th (5.0), Vietnam ranked 73rd (4.9), Thailand ranked 74th (4.9), the Philippines ranked 77th (4.9) Cambodia ranked 111th (3.8) respectively.

ASEAN COUNTRIES	B. Readiness Sub index		3 rd pillar: Infrastructure and digital content		4 th pillar: Affordability		5 th pillar: Skills	
	Rating Out of 142	Score (1-7)	Rating Out of 142	Score (1-7)	Rating Out of 142	Score (1-7)	Rating Out of 142	Score (1-7)
Brunei Darussalam	-	-	-	-	-	-	-	-
Cambodia	106	3.7	66	4.1	110	3.3	111	3.8
Indonesia	74	4.6	103	3.1	34	5.8	69	5.0
Laos	-	-	-	-	-	-	-	-
Malaysia	55	5.0	65	4.1	41	5.7	47	5.3
Myanmar	-	-	-	-	-	-	-	-
Philippines	77	4.6	80	3.7	72	5.2	77	4.9
Singapore	8	6.1	20	5.9	29	5.8	2	6.5
Thailand	75	4.6	107	3.1	33	5.8	74	4.9
Vietnam	86	4.4	101	3.1	76	5.1	73	4.9

Table 5:
ASEAN countries
Readiness Sub index
of NRI 2012

Note: (-) No data available

Sources: The Global Information Technology Report 2012

The usage subindex assesses the individual efforts of the main social agents that are; individuals, business, and government increase their capacity to use ICT, as well as their actual use in their day-to-day activities with other agents. It includes three pillars: the individual usage pillar measures ICT penetration and diffusion at the individual level, using indicators such as the number of mobile phone subscriptions, individuals using the Internet, households with a personal computer (PC), and households with Internet access, both fixed and mobile broadband subscriptions, and the use of social networks. The business usage pillar captures the extent of business internet use as well as the efforts of the firms in an economy to integrate ICT into an internal, technology savvy, innovation-conducive environment that generates productivity gains. Consequently, this pillar measures the firm's technology absorption capacity as well as its overall capacity to innovate and the production of technology novelties measured by the number of PCT patent applications. It also measures the extent of staff training available, which indicates the extent to which management and employees are better capable of identifying and developing business innovations, and the government usage pillar provides insights into the importance that governments place on carrying out ICT policies for competitiveness and the well-being of their citizens, the efforts they make to implement their visions for ICT development, and the number of government services they provide online. (World Economic Forum, 2012).

Table 6 presents ASEAN countries Usage Subindex of NRI 2012 distributed into three pillars: 6th pillar (Individual usage), 7th pillar (Business usage), and 8th pillar (Government usage). It was reflected in Table 6 that Thailand ranked 83th out of 142 countries in the usage subindex with the score of 3.3 out of 1-7 scale. When Thailand compared to ASEAN member countries it was found out that some countries are performing better as evidenced Singapore ranked at 5th (5.6), Malaysia ranked 29th (4.6), and Vietnam ranked 69th (3.5) respectively. While other ASEAN countries are behind Thailand like Indonesia ranked 85th (3.3), the Philippines ranked 86th (3.3), and Cambodia ranked 111th (2.9) respectively. Furthermore, the 6th pillar (Individual usage) ranking is as follows: Singapore ranked 10th (5.8), Malaysia ranked 47th (4.0), Thailand ranked 90th (2.7), Vietnam ranked 80th (2.9), the Philippines ranked 95th (2.6), Indonesia ranked 103rd (2.4), and Cambodia ranked 126th (1.8) respectively. The 7th pillar (Business usage) ranking is as follows: Singapore ranked 14th (5.2), Malaysia ranked 27th (4.4), Indonesia ranked 49th (3.8), Thailand ranked 60th (3.6), the Philippines ranked 63rd (3.6), Vietnam ranked 78th (3.5) and Cambodia ranked 89th (3.4) respectively. The 8th pillar (Government usage) ranking is as follows: Singapore ranked 2nd (5.8), Malaysia ranked 6th (5.4), Vietnam ranked 48th (4.1), Indonesia ranked 75th (3.7), the Philippines ranked 79th (3.7), Thailand ranked 86th (3.6) and Cambodia ranked 88th (3.6) respectively.

ASEAN COUNTRIES	C. Usage Sub index		6 th pillar: Individual usage		7 th pillar: Business usage		8 th pillar: Government usage	
	Rating Out of 142	Score (1-7)	Rating Out of 142	Score (1-7)	Rating Out of 142	Score (1-7)	Rating Out of 142	Score (1-7)
	Brunei Darussalam	-	-	-	-	-	-	-
Cambodia	111	2.9	126	1.8	89	3.4	88	3.6
Indonesia	85	3.3	103	2.4	49	3.8	75	3.7
Laos	-	-	-	-	-	-	-	-
Malaysia	29	4.6	47	4.0	27	4.4	6	5.4
Myanmar	-	-	-	-	-	-	-	-
Philippines	86	3.3	95	2.6	63	3.6	79	3.7
Singapore	5	5.6	10	5.8	14	5.2	2	5.8
Thailand	83	3.3	90	2.7	60	3.6	86	3.6
Vietnam	69	3.5	80	2.9	78	3.5	48	4.1

Table 6:
ASEAN countries
Usage sub index of
NRI 2012

Note: (-) No data available

Sources: The Global Information Technology Report 2012

The impact sub index gauges the broad economic and social impacts accruing from ICT to boost competitiveness and well-being and that reflect the transformations toward an IT and technology savvy economy and society. The economic impacts pillar measures the effect of ICT on competitiveness thanks to the generation of technological and non-technological innovations in the shape of patents, new products or processes, and organizational practices. In addition, it also measures the overall shift of an economy toward more knowledge-intensive activities. The social impacts pillar aims at assessing the IT driven improvements in well-being thanks to its impacts on the environment, education, energy consumption, health progress, or more-active civil participation. At the moment, because of data limitations, this pillar focuses on measuring the extent to which governments are becoming more efficient in the use of ICT and providing increasing online services to their citizens, and thus improving their e-participation. It also accesses the extent to which ICT is present in education, as a proxy for the potential benefits that are associated with the use of ICT in education. In general, measuring the impacts of ICT is a complex task and the development of rigorous quantitative data to do so is still in its infancy.

Table 7 presents ASEAN countries Impact Sub index of NRI 2012 distributed into two pillars: 9th pillar (Economic impacts) and 10th pillar (Social impacts). It was reflected in Table 7 that Thailand ranked 85th out of 142 in the Impact subindex with the score of 3.3 out of 1-7 scale. When Thailand compared to ASEAN member countries it was found out that some countries are performing better as evidenced Singapore ranked 1st (6.0), Malaysia ranked 24th (4.6), Vietnam ranked 79th (3.3), and Philippines ranked 86th (3.3) respectively. While other ASEAN countries are behind Thailand like Indonesia ranked 86th (3.3), and Cambodia ranked 110th (2.9) respectively. Furthermore, the 9th pillar (Economic impacts) ranking is as follows: Singapore ranked 2nd (6.1), Malaysia 31st (4.0), the Philippines ranked 77th (3.2), Thailand ranked 96th (2.9), Vietnam ranked 102nd (2.9), Indonesia ranked 106th (2.8) and Cambodia ranked 126th (2.5) respectively. The 10th pillar (Social impacts) ranking is as follows: Singapore ranked 3rd (5.9), Malaysia ranked 15th (5.3), Vietnam ranked 61st (3.8), Indonesia ranked 66th (3.7), Thailand ranked 71st (3.6), and Philippines ranked 88th (3.4) and Cambodia ranked 93rd (3.4) respectively.

Analysis of results

The findings of this study show that 2 % of government ICT project initiative fit with the development of the ICT industry into a regional leader strategy. While 12 % of government ICT projects initiative fit with the utilization of ICT to enhance the quality of life and society Strategy. 3% of government ICT project initiative fit with the reform and enhancement of the capability on ICT research and development. 3% of government ICT project initiative also fit with the reinforcement of social capacity for future competition. Only 1% of government ICT project initiative fit with the development of entrepreneurs' capacity for the expansion of international markets. While, 3% percent of government ICT project initiative fits with the utilization of ICT in Small and Medium Enterprises (SMEs), and 76% of government ICT project initiative fit with the utilization of ICT in government administration and services.

ASEAN COUNTRIES	D. Impact Subindex		9 th pillar: Economic impacts		10 th pillar: Social impacts	
	Rating	Score	Rating	Score	Rating	Score
	Out of 142	(1-7)	Out of 142	(1-7)	Out of 142	(1-7)
Brunei Darussalam	-	-	-	-	-	-
Cambodia	110	2.9	126	2.5	93	3.4
Indonesia	86	3.3	106	2.8	66	3.7
Laos	-	-	-	-	-	-
Malaysia	24	4.6	31	4.0	15	5.3
Myanmar	-	-	-	-	-	-
Philippines	84	3.3	77	3.2	88	3.4
Singapore	1	6.0	2	6.1	3	5.9
Thailand	85	3.3	96	2.9	71	3.6
Vietnam	79	3.3	102	2.9	61	3.8

Table 7:
ASEAN countries
Impact Sub index NRI
2012

Note: (-) No data available

Sources: The Global Information Technology Report 2012

With respect to the result, most of ICT projects initiated by the Thai government are concentrating in electronic government (e-Government). The Thai government is trying to provide technologies and access to citizen of Thailand in order to deliver information and services that can reduce time, energy, and cost for its entire citizen. However, Thai government needs to enhance other strategy to facilitate understanding and implementation of the other ICT project initiative as well.

It was found out that strategy 7: The utilization of ICT in government administration and services got a higher degree of fitness and impact level (76%), as concluded, the strategy reached 66.66% of achievement, 2 out 3 goal amount were achieved. On the other hand, Strategy 5: The development of social capacity for future competition got the lowest degree of fitness and impact level (1%), as concluded, 3 out of 3 goal amount achieved.

To summarize the performance of Thailand among ASEAN member countries based on Digital economy rankings and scores, 2009 and 2010 and Networked Readiness Index 2012, the result was similar, Thailand ranked 3rd. Also it presents a number of flaws in all measurements of the NRI 2012. Thailand ranks in the top 50 of just one pillar, affordability (33rd), and as low as 107th in infrastructure and digital content. ICT development does not seem to be a priority for the government witness Thailand's 86th rank on government usage.

Conclusions

Overall, the growth of ICT in Thailand can be considered normal or average after measuring against worldwide indices, lowest in infrastructure and digital content, and ICT development does not seem to be a priority for the government. Thus, Thailand should develop an intensive planning of ICT Master Plan implementation and integration. The main factor holding back the development of ICT in Thailand in all indices is the readiness of the information and communication infrastructure, which is still insufficient and has limited coverage. This constrains the development and use of ICT, which is still inefficient and ineffective, in building up knowledge, developing enterprises and serving the government. Thus, the development of ICT infrastructure is an important issue that the Second ICT Master Plan must resolve. (Ministry of Information and Communication Technology, 2009).

It was concluded that the lower the degree of fitness and impact level of the proposal the higher ICT Master Plan 7 key strategies achieve the goal and the higher the degree of fitness and impact level of the proposal the lower ICT Master Plan 7 key strategies achieve the goal. The result of the study coincides to the conclusion of assessment of Thailand ICT Master Plan 1 (2002-2006). The goal in strategy 5 has reached having the lowest degree of fitness and impact level, it implies that government may terminate these projects due to limited funding or does not fit with the nation ICT master plan. Also, strategy 7 has not yet achieved having the highest degree of fitness and impact level; it means the government can launch the project immediately. Thus, Thailand government is on the right track of planning and approving project for the development of ICT.

Finally, increase the statistics of the project in other strategic sectors will help motivate new start up, innovation, create new markets, and drive the economy. Even though the government may have a limited budget, it is highly feasible that the government can spend their money wisely to improve its process and performance.

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