EVALUATION OF PHUKET ICT CITY

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EVALUATION OF THE PHUKET ICT CITY

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ABSTRACT

The research aimed to 1) study an overview of the Phuket ICT City project and 2) evaluate the operation of the Phuket ICT City project and determine problems and obstacles to its operation.

An investigation and the descriptive method were utilized in the research methodology. The subjects were divided into five categories consisting of ordinary people from 384 families, entrepreneurs from 40 groups, representatives from 10 governmental organizations involved in an ICT project. The subjects were chosen by using simple random sampling and purposive sampling.A questionnaire, reports , and statistics of organizations were utilized as research instruments. Data from the questionnaire were calculated to find out the percentage, frequency, and mean. The project operation was evaluated by comparing indicators in five dimensions: a basic structure dimension, education and human resource dimension, business operation dimension, cultural dimension, and public management dimension.

The study found that the Phuket ICT City project was originated because Phuket is an international city according to the strategy no. 4 of Information Technology development. There were a conflicts in managing the project. However, studying the five dimensions showed that Phuket had high preparedness as a basic structure to become an ICT city. Most of the population holds a bachelor's degree. 99.88% of them were literate. The proportion of people computer use in educational institutes was high (about one computer per 10 person). Regarding business operation of the establishment, it was found that 92.6% of them used computers, 89.5% accessed the Internet and 32.7% had their own websites, especially those who worked in the hotel and tourism business. The findings also showed that 74.5% spent their time on computers, 90.1% connected to the Internet from their own houses in their daily life. Further, in public management, 62.8% of government organizations in Phuket employed information technology to manage a quality administration. Therefore, it can be seen clearly that the Phuket ICT City project was launched successfully in the basic structure dimension. The project also encouraged, people, business entrepreneurs and government sectors to apply ICT usefully. However, Phuket hasn't been pushed by the goverment to be an ICT centre covering every dimension effectively, yet.

KEY WORDS: EVALUATION / PHUKET / ICT CITY

197 pages

EVALUATION OF PHUKET ICT CITY

การประเมินผลโครงการภูเก็ตไอซีทีซิสตี้

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาภาพร่วมของโครงการภูเก็ตไอซีทีซิสตี้ ประเมินผลการดำเนินงานของโครงการภูเก็ตไอซีทีซิสตี้และศึกษาถึงปัญหาและอุปสรรคในการดำเนินการของโครงการ

การดำเนินการวิจัยใช้รูปแบบการวิจัยเชิงสำรวจและพรรณนา จากกลุ่มตัวอย่าง ที่เป็นกลุ่มบุคคลทั่วไปจำแนกเป็นครัวเรือน จำนวน 384 ครัวเรือน กลุ่มผู้ประกอบการทั่วไป จำนวน 375 กลุ่มผู้ประกอบการ ICT จำนวน 40 ร้าน หน่วยงานราชการในจังหวัดภูเก็ตจำนวน 40 หน่วยงาน ตัวแทนภาครัฐที่เกี่ยวข้องกับโครงการ ICT จำนวน 10 แห่ง การคัดเลือกกลุ่มตัวอย่างโดยใช้วิธีสุ่มอย่างง่ายและแบบเฉพาะเจาะจง เครื่องมือที่ใช้ในการเก็บข้อมูลคือ แบบสอบถาม และรายงานสรุปและสถิตจากหน่วยงาน สถิติที่ใช้ในการวิเคราะห์ข้อมูลได้แก่ค่าร้อยละ ค่าความถี่ ค่าเฉลี่ย การเปรียบเทียบ โดยการกำหนดตัวชี้วัด และนำมาประเมินผลการดำเนินของโครงการภูเก็ตไอซีทีซิสตี้ ใน 5 มิติ คือ มิติโครงสร้างพื้นฐาน มิติการศึกษาและทรัพยากรมนุษย์ มิติธุรกิจ มิติวัฒนธรรม และมิติการบริหารจัดการภาครัฐ

ผลการศึกษาพบว่า ความเป็นมาของโครงการภูเก็ตไอซีทีซิสตี้เกิดจากความต้องการให้ภูเก็ตเป็นเมืองนานาชาติภายใต้ยุทธ์ศาสตร์ข้อที่ 4 ในพัฒนาเทคโนโลยีสารสนเทศ ของจังหวัดภูเก็ตผลทำให้ เกิดโครงการรัฐสนับสนุนงบประมาณ ให้ศูนย์เทคโนโลยีอิเล็กทรอนิกส์และคอมพิวเตอร์แห่งชาติเป็นผู้รับผิดชอบและทำให้เกิดหน่วยงานที่ชื่อว่า SIPA ภูเก็ต Software park และศูนย์การเรียนรู้ ICT จังหวัดภูเก็ต เป็นหน่วยงานที่มีเป็นส่วนขับเคลื่อนในภูเก็ตเป็นเมือง ICT และได้รับการสนับสนุนจากหน่วยงานภาคเอกชนมากกว่าภาครัฐบาล การดำเนินติดตามโครงการเป็นไปค่อยข้างน้อย งานยังมีความซับซ้อน เกิดความขัดแย้งในการดำเนินตามภารกิจ แต่เมื่อทำการศึกษาเพื่อวัดระดับการพัฒนาไอซีทีในมุมมอง 5 มิติ พบว่าภูเก็ตมีความพร้อมสูงด้านโครงสร้างพื้นฐาน ที่จะทำให้ภูเก็ตเป็นเมือง ICT ประชากรโดยส่วนใหญ่มีการศึกษาระดับปริญญาตรี มีอัตราการรู้หนังสือสูงถึงร้อยละ 99.88 มีสัดส่วนการใช้คอมพิวเตอร์ในสถานศึกษาสูงถึง 1: 10 เครื่อง:คน สำหรับด้านการดำเนินการธุรกิจสถานประกอบการในจังหวัดภูเก็ตพบว่ามีสัดส่วนการใช้งานเครื่องคอมพิวเตอร์ ถึง ร้อยละ 92.6 และร้อยละ 89.5 ที่มีการเชื่อมต่ออินเตอร์เน็ต และยังมีเว็ปไซต์เป็นของตัวเองสูง ถึงร้อยละ 32.7 โดยเฉพาะประเภทธุรกิจโรงแรมและการท่องเที่ยว ในด้านวัฒธรรมวิถีชีวิตของคนส่วนใหญ่พบว่ามีการใช้งานคอมพิวเตอร์ ถึงร้อยละ 74.5 และในจำนวนนี้สามารถยังสามารถเข้าถึงและใช้งานอินเตอร์ได้ถึงร้อยละ 90.1 ซึ่งเป็นการเข้าถึงและใช้งานอินเตอร์เน็ตจากที่บ้านพักของตนเอง ส่วนการบริหารจัดการภาครัฐในจังหวัดภูเก็ตพบว่าหน่วยงานราชการใช้เทคเนคโนโลยีสารสนเทศในการบริหารจัดอยู่ในระดับคุณภาพคิดเป็นร้อยละ 62.8 เท่านั้น ดังนั้น โครงการ Phuket ICT City ประสบความสำเร็จในด้านโครงสร้างพื้นฐาน และการกระตุ้น ให้ประชาชนและผู้ประกอบการ หน่วยงานราชการตื่นตัวในเรื่องการนำ ICT มาใช้ประโยชน์ แต่ยังไม่สามารถผลักดันให้ภูเก็ตเป็นศูนย์กลางด้าน ICT ได้อย่างเต็มประสิทธิภาพ ได้ครบในทุกมิติ

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CHAPTER I
INTRODUCTION

1.1 General Introduction

Phuket is considered as strategic area of Thailand from being internationally known as world class tour destination. In the year 2007, Phuket tourism industry generated the country's incomes over 80,000 million baht with constantly increasing numbers of tourists yearly. In the past 10 years, numbers of tourists had been double. However, tourists daily spending were 4,079.39 baht in 2001 whereas in 2007, tourists spent 4,565.74 baht per day. , only 10 percent increased in 6 years. Increasing inflation rate seemed uneven with wage increased. To generate more incomes, more tourists are needed which may bring in low grade tourists instead. The current statistical report revealed that numbers of Swedish tourists had increased higher at Lanta Island, Krabi province instead of Phuket which used to be main tourist attraction. In 1999, Banhan Silpaarcha's administration had planned to develop Phuket as International City by assigning Office of the Nation Committee for Economic and Social Development to set up the operational plan (1999-2011) unanimously approved by the Cabinet on February 29, 2000 with 5 strategies as follows:

1. Area development together with balancing nature
2. Developing standard quality and services basic structure
3. Human and Social Development
4. Information Technology Development
5. Phuket International City Management

As for the 4th strategy, Information Technology Development has been assigned to (NECTEC) through The Greater Phuket Digital Paradise Project: PhD. Then, NECTEC arranged for Pre-feasibility Study under Information Technology Development to develop Phuket. Later, the Ministry of Information Communication Technology had taken over to keep up with developing trend of Digital Economy. The government had set up master plan for Phuket Information Technology and Communication, 2005-2006 and based on the Nation Policies and Principles 2002-

2006 and Strategic Plan 2004-2008, including Phuket strategy based on the Office of Prime Minister's regulations on integrated administration 2003. Phuket ICT vision had been set up for Phuket to be "The leader in modern ICT application for learning and administering at all times and all places." Assessment and monitor results from the project in 2005 whether the project yielded outcomes as planned through appointed Monitor Committees indicated that overall development levels of Phuket were much more ready in the structure and ICT access than the Thailand, Malaysia and Singapore Average Indicator.

Overall Phuket ICT businesses are ready with higher average access than all businesses in Thailand. Perhaps, Phuket is ranked number one in gross provincial products in the south and the Nation number 9 (Phuket Commercial Office, 2007) which reflected rather well economic status. Therefore, ICT investment tends to increase with higher proportion of computer use and website access than the nation average in each business. However, the proportion of internet use is closer to the nation average of all industries, except land transportation and tour agents, hotels and restaurants with higher use of internet than average which showing that tourism industry recognized benefits from the application of internet in business operation.

This finding is coincided with data derived from the interview which stated that Phuket ICT City had been quite successful in tourism and outcomes towards being ICT Center. In Phuket ICT development, 4 areas received wide attentions namely, tourism, education, supporting government administration and E-commerce. Then, tourism, business entrepreneurs and agents should gain advantage from ICT application in business as the channel for distributing information because half of business in such group had built own website.

Moreover, transportation businesses and tour agents frequently used internet (over 80%). In education, ICT is the instrument to access knowledge. General public and employees could apply ICT in their own works, but ICT specialists are still in demand, especially in the government sector where ICT is incapable of supporting the government operation effectively. Perhaps due to general public unawareness of Electronic on-line services, lacking knowledge, understanding, including internet access only possible in certain area. There were not many differences among E-commerce, a group of ICT entrepreneurs who accepted and use this service more than regular group of entrepreneurs and public, service providers.

Meanwhile, those people preferred online-trade more than Internet Banking. As for perception and status of ICT application in Phuket, ICT entrepreneurs knew more on ICT application such as Internet, High Speed Internet and LAN than other groups because they use ICT in their occupations. Overall, general public and entrepreneurs have good perception on ICT. Only 6 in 100 cases and 1 in 100 companies are not familiar with internet. In proportion, there are 54 internet users per 100 people and 40 internet users per 100 people which indicated that Phuket residents realized the values and benefits from advance Information Technology.

As for ICT investment, a group of regular entrepreneurs and ICT entrepreneurs agreed that ICT is worth investing, particularly E-commerce as compare to investment in other ICT from saving times and reducing cost. However, problem has risen from using services and electricity in Phuket in service areas and internet stability. However, main service providers had added fiber optic system to increase system stability, including testing WiMax. Samples mentioned earlier clearly indicated telecommunication readiness.

Phuket frequently encountered problems with electricity surge during off hours which lasted as long as 30 minutes each time, effecting business operation and damaging electrical appliances. However, the Electrical Generation Authority had engaged in Dark Fiber application for more stable transmission. Recommendations in increasing Phuket ICT efficiency were quite successful from increasing awareness among people and entrepreneurs. From operational point of view, Phuket is still unable to become efficient ICT Hub. However, such project prepared Phuket for ICT readiness as important foundation for future ICT development and also raised ICT awareness for full benefits. Therefore, SIPA is being added increase ICT capacity consisted of the following areas:

1. Smart People to increase potential of all levels staffs for supporting ICT provincial development

2. ICT Infrastructures to support all areas based on priority such as airport, government agencies and educational institutes, including ICT basic administration for maximum efficiency, in pricing and servicing

3. Policy actively pushes by the government in publicity and promotion so people could access government internet services through electronic media, including

auditing and quality control for ICT users. To motivate ICT investment, Tax credit privileges 20% had been applied.

4. Alliances by putting the emphasis on maximum benefits through collaboration by setting up strategies and operational plan in ICT at Phuket so that work objectives could be achieved and resulted in better outcomes for short period of time (Office of the Nation Software Promotion : 2005).

Current work agencies such as TOT Public Company Limited CAT Telecom Public Co., Ltd., T&T Co., Ltd., Software Industry Promotion Agency (Public Organization), Provincial Electrical Generation Authority, and Phuket Office had set up their own policies to make Phuket IT CITY and many agencies had already started. However, there is no confidence in the feasibility and progress of this project from ambiguous report and unclear assessment in efficiency and achievement to coincide with the facts. This research aimed to present overall picture of the operational plan, obstacles and Phuket ICT CITY efficiency.

1.2 Objectives of Study

1,2,1 To study Phuket ICT CITY overall prospective

1.2.2 To assess Phuket ICT CITY overall results

1.2.3 To study and analyze problems and obstacles in Phuket ICT CITY operational system

1.3 Scope of work

Phuket ICT CITY from 1999 to 2009 in 5 dimensions namely basic structure, education and human resources, business operation, culture and government sector

Samples selected from Phuket population in 2009

1.4 Expected Results

1.4.1 Overall outcomes report of Phuket ICT CITY

1.4.2 Assessment frame work for ICT City in Thailand

1.4.3 Operational Assessment Result of Phuket ICT CITY

1.5 Glossary

Effectiveness/Efficiency is defined as Phuket ICT City development based on the United Nation index Indicator (2005) on OEDC IMD and Thailand ICT Master Plan No.1 and 2 in the following 5 dimensions:

1. Basic Structure

1) Number users/ regular phone registration per 100 people

2) Number users/ mobile phone registration per 100 people

3) Numbers of computer hardware per 100 people

4) Proportion of internet users per 100 people

5) Number of Internet broadband per 100 people

6) Internet broadband per 100 people

7) Proportion of people with mobile phone

8) Monthly Internet service fees (20 hours per month) or proportion of internet cost per income

9) Mobile service fees (20 hours per month or proportion of telephone cost per income)

10) Government Internet Service access based on number of population (rural/urban)

11) ICT investment value

2. Education and Human Resources

1) Primary and Elementary attending rate

2) Proportion of compulsory education graduates

3) Proportion of Elementary graduates

4) People Basic Education

5) Learning rate of Phuket population

6) Proportion of computer per student in various level

7) Number of training graduates from Professional Training Institute and being certified standard professional

8) Proportion of ICT students per numbers of all students

9) Proportion of graduates in ICT

10) Numbers of graduates in various levels familiar with ICT application

11) ICT instructional curriculum in various levels

3.Business Operation

Accessing standard ICT structure in the following areas

1) Proportion of company with standard telephone

2) Proportion of company with mobile telephone

3) Proportion of company with computer, number of computer per company

4) Proportion of company accessing Internet

5) Percentage of labor with ICT skills

6) Percentage of labor accessing ICT and Internet information search

Progressive ICT access and utilization:

Numbers of hour s- ICT Internet High Speed, local internet coverage, website and ICT investment

1) Proportion of works using computer at work and proportion of internet users

2) Using E-commerce namely, internet service, buying and selling value and customers

3) Training

4) Obstacle for internet user, using internet, purchasing merchandise and services through internet and Electronic Commerce

5) ICT Investment, ICT personnel and ICT business size

4. Culture

1) Household proportion with basic telephone
2) Household proportion with computer
3) Household proportion with internet access
4) Internet access/ and use
5) Location for most frequent use Internet
6) Frequency in Internet use
7) Objectives for using computer
8) Objectives for using internet/ internet service/ type of merchandise and services order through internet and average value of each order
9) Information Technology Skills
10) Accepting ICT use
11) Obstacles in the application, using computer, using internet, buying goods and using services through internet including merchandise display and internet services

5. Public Administration

1) Numbers of government agencies using ICT for total administration
2) Public Internal Administration with ICT application
3) Types of government services provided in various levels through electronic system
4) Numbers of government services through electronic system in various levels
5) Government services with divisions link
6) Numbers of government procurement through electronic system
7) Numbers of government agencies with data protection and Security Code

CHAPTER II
LITERATURE REVIEW

Outcomes on Phuket ICT City development and operation were assessed by engaging relevant literatures and researches in the following aspects:

1. Information and Communication Technologies (ICT)
2. ICT City Concept
3. Phuket Social and Culture
4. Thailand ICT Structure
5. Phuket ICT Structure
6. Phuket ICT City Background and Development Level
7. ICT Indicator
8. Relevant Researches

2.1 Information and Communication Technologies (ICT)

2.1.1 Information Technologies

Royal Institute Dictionary, B.E 1999 [1] defined technology as using scientific knowledge for benefit by practicing and industrial application.

Turban et al. [2] defined Information Technology as the application of computerized system within the organization. In another words, the basic IT technology is consisted of hardware, software, database, network and telecommunication, including the use of other electronic equipments to share data and information. Therefore, Information Technology mentioned earlier comprised of the following parts:

Hardware is the Monitor, Processor, Keyboard and Printer used together in order to access information, data compilation and send outcomes through the monitor or printer.

1. Software is the set of command for Hardware' results compilation.
2. Database is a correlation table for storing interactive data.
3. Network & Telecommunication is the tool set joining information resources together through numerous computers for distant communication or sometimes wireless system.
4. Electronic Devices is electronic circuit tools both wire and wireless used for sharing IT information through computer results compilation.

Suchada Kiranan [3] stated that Information Technology included all technologies to store, build and communicate technologies which involved process in recording, storing and compiling results together with tools and equipments for such purposes such as computer, data storing, recording and retrieving tools, data network, communication and telecommunication equipment.

Wassana Sukasanti [4] defined IT (Information Technology) as knowledge of products or processes based on application of computer and communication technologies such as using computer to prepare data and compile results so that information could be sent further to IT users, executives, officers, experts, general public and specific group through computerized network and telecommunication such as fax, email, internet, satellite or other communication systems. Many IT systems currently available are Information Superhighway, Internet, Multimedia Technology, Video Conference, Geographic information System or GIS, Data Base Retrieving.

O'Brien Marakas [5] defined IT as the term information technology refer to the various hardware, software, networking and data management components necessary for the system to operate. There are4 mains of

Computer hardware technologies, including microcomputer, midsize servers, and large mainframe systems, and the input, output, and storage devices that support them.

Computer software technologies, including operating system software, Web browsers, software productivity suites, software drivers, database management systems, software for business application like customer relationship management and supply chain management, and other software –based components and modules.

Telecommunication network technologies, including the telecommunications media, processors, and software needed to provide wire-based and wireless

access support for the Internet and private Internet-based networks such as intranets and extranets

Data resource management technologies, including database management system software for the development, access, and maintenance of the databases of an organization

Sunan Sisung [6] defined IS as the application of advance technology to effectively and efficiently managing information, starting from collecting, storing, searching and distributing data.

To conclude, IT is defined as the application of scientific knowledge in the industry and display through computer during business operation. In another words, basic IT technology is consisted of hardware, software, database, network and telecommunication, including the use of other electronic equipments to share data and information. Besides, few other technologies related to recording, results compilation, retrieving, sending and receiving data and other equipments not mentioned earlier are also part of the process.

2.1.2. Information and Communication Technology

One District One Dream School [7] had defined Information and Communication Technology as technology for collecting and compiling data, including telecommunication system and support equipment to make operation more effective. It contains 3 components namely, results compilation, data management and telecommunication system.

Results compilation originated from operation complexity and high demand in information made manual compilation inconvenience, delay and create errors. Therefore, existing organizations preferred to store and compile data with electronic system through computer and support equipment so that works could be done accurately and quickly.

Telecommunication to deliver data is important for compiling and managing results, including making decisions. Good information system must be able to share technology and data between computers so users in the remote areas can communicate effectively.

Data Management to a person interested in technology referred to 2 definitions mentioned earlier whereas those interested in Data /Information Management paid more attention to the third meaning which can be used for designing model and application of information technology effectively.

Therefore, information technology is considered as the application of all technologies in results compilation, storing, communication and transmitting information through computer, communication equipments and network. Meanwhile, the concrete management model allowed interaction between internal and external systems. Therefore, information technology extended its boundary based on nature of works in 6 areas as follows:

1.For collecting data such as satellite, digital camera and X-Ray machine

2.For recording data such as magnetic tape, magnetic, light or laser disk, ATM card

3.For results compilation changing into information such as computerize gadget, both hardware, software and database

4. For displaying results or information such as printer, and monitor

5.For copying documents such as copy machine, and microfilm

6.For transmitting data and information such as telecommunication system, including Mass Media (radio and television) both wire and wireless, including other electronics, for examples, HDTV and Communications Satellite

Passakorn Ruengrong [8] elaborated on Information and Communication Technology through pictures display as follows:

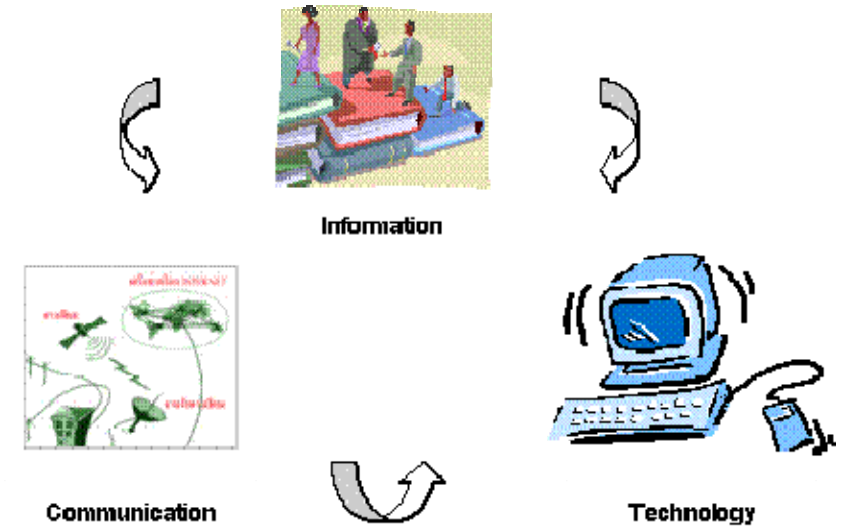

Figure 2.1 Correlations and ICT Meaning

I represents **Information** or Information System

C represents **Communication**

T represents **Technology or Computer**

2.1.3 Information

Data is the fact displayed through numbers or symbol with specific meaning, no correlations with each others which unable to apply with decisions-making directly.

Information is defined as data already with results compilation for decisions-making and individual use.

Information Properties

Having valid and accurate results compilation with clear and non-bias data is crucial.

Having complete information from extensive results compilation to aid decisions-making otherwise decisions could be uncertain, and inaccurate.

Having current information which required data updated to keep up with the events.

Having specific and appropriate information, especially complete data needed by management for quick and convenient applications.

Results Compilation Process

Data compilation is being displayed in the following chart.

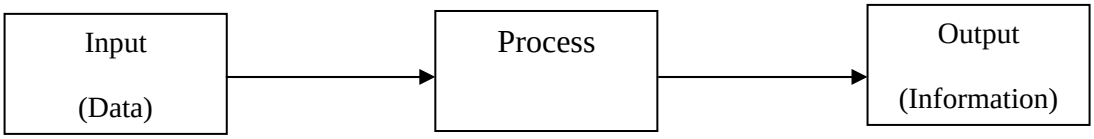

Figure 2.2 Data Compilation leading to Information

2.1.4 Communication

Communication represents early IT or Information Technology which later included C or Communication resulted from rapid communication growth.

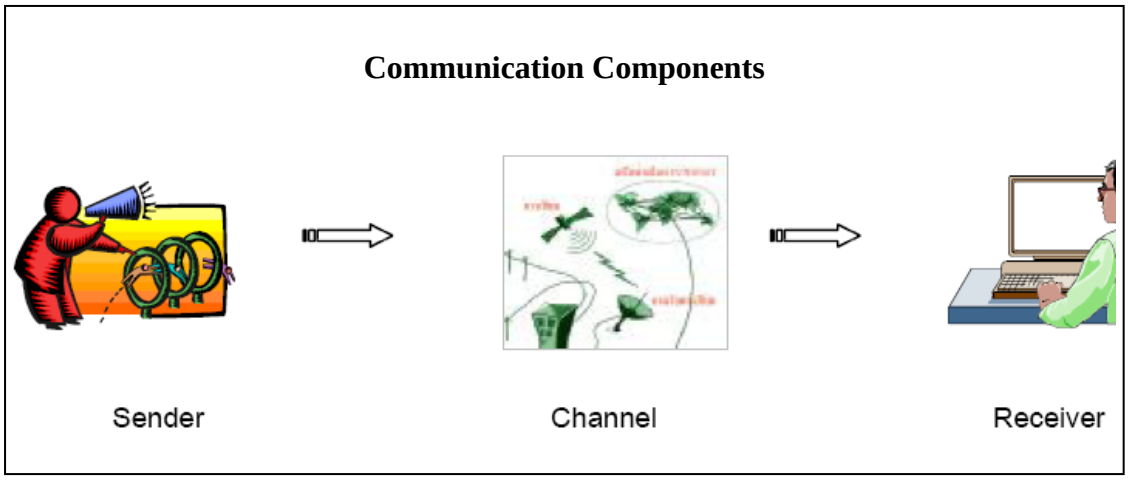

Figure 2.3 Communication Components

1. Sending Unit or Source, perhaps from different signals such as pictures, data and sound. Earlier communication through fire or smoke or gestures can also be considered as the source of information.

2. Transmission Channel can be referred to the medium to transmit information, perhaps air, signal lines or even liquid such as water, gasoline as if being the bridge for information to cross from one side to another.

3. Receiving Unit or receiver is the destination of information transmitted by senders or information source, aiming for information to reach targeted destination.

Communication aimed for receiving data and information from the source to transmit and distribute data quickly, less time-consuming and save cost as well as improving operation within the organization.

Data Communication System is divided into 2 types:

1. Communication through wire pair or twisted pair, coaxial cables, fiber optics is quite effective and cost savings, but problems occurred frequently when the lines connected through the valleys and oceans.

2. Communication through Microwave, Satellite Transmission is wireless that can be connected far and across valleys, oceans, on the air or space, but it is expensive and difficult to maintain.

Internet

Internet is worldwide communication quite popular and highly effective when information has been rapidly sent.

Provision Co., Ltd. [9] defined internet as the center of huge information, combining statements, pictures, sounds, video, programs and other. Furthermore, it is the fast and convenient communication channel by linking worldwide computerize network so information can be transmitted to each other.

Kornpat Suthidara [10] defined internet as linking worldwide computer network so that communication and data can be exchanged freely, creating new society without certain location because of its existence in the cyberspace.

Punchun Tanavatsathien [11] defined internet as large network joining computerize systems of all countries, making information transmitted through internet quickly as if being the road for sharing world information.

http://th.wikipedia.org [12] defined internet as huge computerize network. Using specific computer language or Protocol, user can communicate with each other through e-mail, web board, including and searching for data, copy files and programs.

2.1.5 Technology

Computerize Technology is defined as a computer used for compiling results that previously done manually, quite often caused errors and delay during such process whereas more information creating more errors. Even though computer can compile results quickly, accurately and clearly, it is not all true because the command came from human. If a person gave wrong command, result could contain error as well. Apart from taking command from human, computer also received command from Software. Therefore, computerize system is the combination of interaction between Hardware, Software and People ware as being illustrated in the picture below:

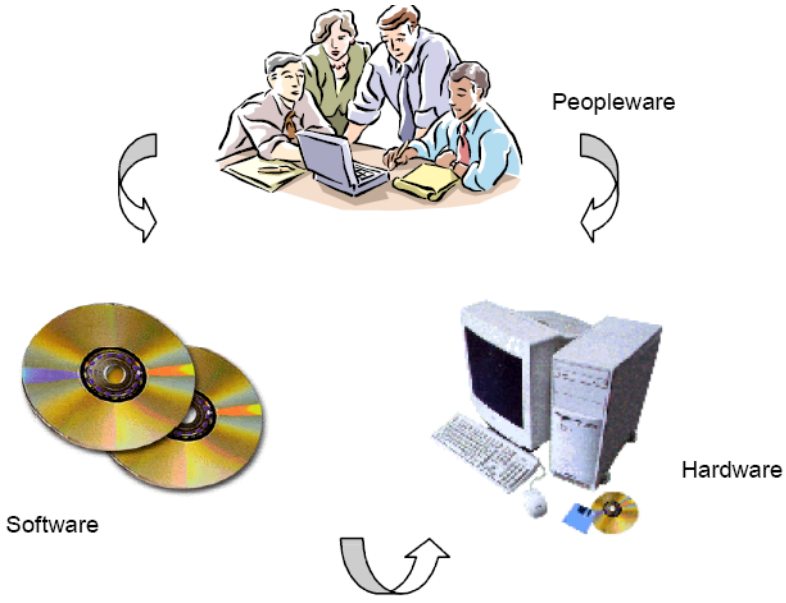

Figure 2.4 Computer System and Correlation

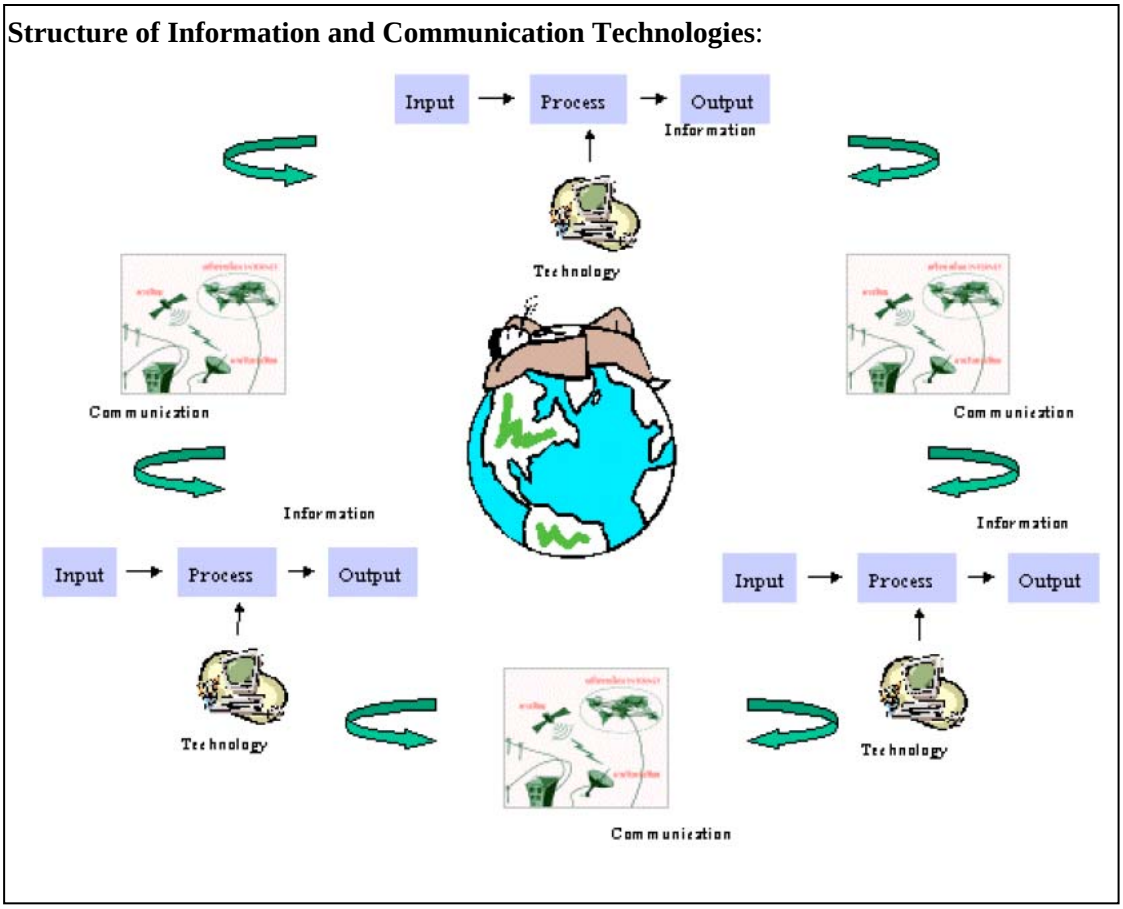

Figure 2.5 Information and communication technologies (ICT) Structure

In summary, Information and Communication Technologies is consisted of system to store and compile data, telecommunication and equipment to support IT with planning for effective operation. Its components are comprised of 3 systems namely, results compilation, data management and telecommunication which based on application of data storage, recording, changing compilation results into information, display results, copying and transmitting data and information. This is the mixture between Information Communication and Technologies to derive at Information.

2.2. ICT CITY

ICT City [13] ICT City is the structure of ICT so that people can access the Global Information Network to achieve Public/Private Partnerships. In ICT City, ICT application involved 4 dimensions namely, education, business, culture and public administration as the Prove of Concept to better livings and life quality.

The pilot ICT City project was done with 3 cities, Chiangmai, Khonkaen and Phuket before further expanding throughout the country.

Nattapol Thongbaiyai [14] ICT City is a modern urban and society full of conveniences in life, social, economy and politics to keep up with fast pace of technological changes. As for reasons for developing ICT City, it is because ICT has been used occasionally based on opportunity and benefits of users. Therefore, no definite development model is available for complete and overall development. However, promoting and developing software in rural areas must be fully done in software potential together with economy, social, politic and ICT education. Developing each city for ICT City should coincide with ICT policy in 5 areas namely, e-Government, e-Education, e-Society, e-Commerce and e-Industry with the collaboration of all concern parties, government, Ministry of ICT, Province, Commerce Council, Industrial Council, Universities, Professional Associations, Business Groups and people. The development is expected to last 2-4 years in the strategies and main activities.

Phuket, IT City [13] Each country has different purposes for developing ICT City. Some aimed only being ICT City while other developed ICT to support other areas such as solving traffic congestion or increasing efficiency in the government services. As for developing Phuket, ICT application had been proposed since 1999 under the plan to develop healthy Phuket, aiming for international standard servicing in both government and industrial. The development of Phuket ICT City intended to support tourism industry as major Phuket industry. There are development guidelines in social, education, e-commerce, administration and government services and related ICT industries. Since Phuket is already prepared for basic IT structure, the government, private and people hope to see the software industry growing into another industry to support uncertainty of tourism industry.

Software Industry Promotion Agency or SIPA in short was established according to ICT master plan 2010 which required the government to develop and promote software industry. Then, the main mission of SIPA is to develop skills, job and software industry. In order to promote such industry in all other regions, SIPA had established ICT City branches in 3 cities, Chiangmai, Khonkaen and Phuket coincided with ICT developing target for that city. Beside main mission in promoting software industry, all 3 branches of SIPA are being responsible for developing ICT City to coincide with SIPA strategies and promotion guidelines.

In conclusion, ICT City is building the city that people can access Global Information Network to achieve Public/Private Partnerships. In ICT City, ICT is being applied in 5 dimensions namely, basic structure, education, business operation, social and cultural and the government administration, having met the international standard services, both in the government sector and industry which coincided with the policy of Ministry of ICT in e-Government, e-Education, e-Society, e-Commerce and e-Industry.

2.3. Phuket Social and Culture

Topography

Most areas of Phuket 70 percent are mountains and 30 percent flat plains with mud and mangrove forest in the east. Mountains and beaches are located on the west coastal areas. The highest mountain peak is Mai Taw Sib Song with medium sea elevation 529 meters.

Climate

Phuket has tropical weather under the influence of south western and north eastern monsoons, having humid climate with 2 seasons, summer and rainy seasons.

Social Development and Life Quality

Out of total 313,243 Phuket population in (Phuket Budget Report 2008: 44)June 2008, there were 149,453 males and 163,790 females with 180,166 adults, 176,859 workers, and 3,307 o 1.87 percent of unemployed and minimum wags at 197 baht per day. There were 176,859 employed workers in Phuket with 10,554 agriculturists and 166,305 non-agriculturists. Workers in non-agricultural sector worked mostly in the hotels and restaurants, followed by wholesaling and retailing, bicycle repairing and logistics, warehouses and transportations.

In conclusion, Phuket had adopted the Postindustrial society based on mode of subsistence which directed at various service systems such as health education, logistics and communication for human existence (Popenoe 1993:94).

Phuket is the city with the most non-agriculturists employed by the hotels and restaurants, followed by working in wholesaling and retailing, motorcycle repairing, logistics, warehouses and transportation. However, main revenues came from services.

2.4. Thailand ICT Structure

Findings from the study of NECTEC (2005) based on data from National Statistical Office of Thailand suggested changes in data accessibility from radio to television. According to its survey data in 2039, only 17% own televisions. But the survey in 2003 showed increasing numbers of households with televisions to 92% whereas households with radios went down to 51%. As for computer, findings indicated that in 2003, Bangkok population owned more computers than people in other regions, almost double. In another words, 28% of Bangkok residents owned computers whereas those in the South owned only 8.6 percents.

For computer application in E–commerce, Bangkok is still the city used more computers than other areas, almost double (estimated 20%). Computer application had correlated with large business group (over 200 employers) that used computers in their business operations (97.8%) while only 10% of small businesses (less than 10 employees) used computers to support their works even though the use of

internet is spreading .Considering from number of users increased 10 folds from 1.1 million users in 1988 to 11.9 million users in 2007. Nonetheless, Bangkok residents still used internet much more than residents of other regions. Generally, females users were more than males and double with the most frequent users from 15 to 24 years old mainly searching for data and communication.

Overall, ICT spreading among entrepreneurs is very limited. Out of 11% of those companies established, 4.2% and 1.2% used internet and owned websites.

Computer industry and related computer services are the most advance groups in ICT with 89.9% installed computers and 81.9% used internet whereas 11.2% owned website. Research and Development ranked second in computer utilization by having computers in all companies, but only 79.2% used internet and none own website. As for other industries, there had not been many reports on ICT.

According to NECTEC (2007) suvey in E-commerce status of Thailand, majorities of trade 75% on E-commerce were small businesses directly sold to consumers in fashions, clothes, leather based, textile and decorative (14%), followed by touring, hotels, and restaurants (11%), and elctrical appliances and electronics (6%). The first 5 businesses in B2B were computers, computer equipments and computers related services (10.98%), constructions (8.84%), electrical appliances and electronic equipments (7.62%),automotives and auto parts (7.32%), next software business and games (6.10%). For B2C, they were fashions, clothes, leather based, textile and decorative (14.45%), touring, hotel and restaurant (9.18%), Computer , equipments and related services (7.27%), electrical appliances and electronic equipments (6.45%), cosmetics, perfumes and acceriories (5.36%). As for E-commerce progress, it is still at early stage because of few purchase order or payment systems through websites only 22.55% and 27.64%, respectively. Meanwhile, business that owned websites had been used ready-made program to develop website as high as 62%. E-commerce helps to increase products distribution channel and promote products and services. Most business entrepreneurs opened website recently (<2 years as h5gh as 70%). In conclusions, E-commerce in Thailand is at the early stage which has not been fully developed for trading.

2.5. Phuket ICT Structure

NECTEC (2001) had surveyed internet application in Phuket under ICT City for Phuket development. Findings indicated that most respondents 76 % were internet users whereas non-users admitted of high price (26%) followed by not interested (25%), high internet cost (17%). Total 30% of respondents used internet from 1-2 years and 24 % from 6months to a year while 51% used internet at work or educational institute, followed by 29% used pubic internet and 20% were ISP members. Total respondents used internet to sent mail and searching data were 41% and 25%, respectively. Most frequent utilization in a week from 1-3 hours (25%), followed by 3-5 hours (20%) and 5-10 hours (19%). Majorities of internet users had never ordered merchandises through internet (90%) because they preferred to inspect the merchandises before buying whereas others had not interested in buying (19%).

2.6. Phuket ICT City Project Background and Phuket ICT City Development Level

2.6.1 Project Background

Phuket ICT City had been operated since 2003 under the administration of Prime Minister Banhan Silpaarcha who emphasized on building Phuket as International City and ICT City (Information and Communication Technology) by identifying 5 strategies to develop Phuket as follows:

1) Area development together with balancing natural resources

2) Basic structure development for standard quality and services

3) Human and social development

4) Information Technology development

5) Phuket ICT management

In the beginning of Phuket ICT City 4th strategy, NECTEC had shared responsibility in planning and preparing ICT pilot project for developing Phuket before Ministry of Information and Technology took over to keep up with progress of

Digital Economy. The government set up ICT master plan, 2005-2006 for Phuket based on the policies and principles of ICT framework 2002-2006 and the strategies of Ministry of Interior, 2004-2008, including Phuket strategies involved with Office of Prime Minister regulations on integrated administration, 2003. Phuket ICT vision project had been set up and operated since 2005, aiming for “Phuket as the leader in advance ICT, capable of learning and administering any places, any times”

Table 2.1 Brief Summary of Phuket ICT City [15]-[18]

Year	Leader / Initiator	Responsible Parties	Project / Activities
1999	Mr. Banhan Silpaarcha	Office of National Economic and Social Development	Prepared Phuket ICT City (ICT as 4th strategy)
1999-03	-	NECTEC	Prepared operational plan and project the Greater Phuket Digital Paradise (PhD), having the office at Phuket Merlin Hotel
2000-01	Dr. Jira Hongladarom	-	Arranging Phuket Cyber Port rotating twice (once a year)
Ending2003	Phuket Governor. MrPongpayom Vasputhi and related group (SIPA Sub-committee Group 1)	-	Meeting the former ICT Minister , Doctor Surapong Suabvonglee to push Phuket towards being ICT City
Ending 2003	ICT Ministry	-	Government announcing Chiangmai and Khonkaen as ICT City
March 1, 2004	SIPA Sub-committee Group 1	SIPA	Established SIPA Phuket
2005-2006		-	Unofficial changes in development scope - Phuket SIPA for private software industry - Government ICT Development Office
2007	SIPA Phuket and Phuket Mmicipality	-	Established Phuket ICT Center to develop skill and learning

Table 2.1 Brief Summary of Phuket ICT City (cont.)

Year	Leader / Initiator	Responsible Parties	Project / Activities
November 23, 2008	Mr. Nirand Kulyanamitr, Phuket Governor and Dr. Mun Putnithai, Ministry of Information Technology and Communication	-	Phuket in collaboration with Software Industry Promotion (Public Company), CAT Telecom (PCL) and TOT Public Company Limited, having signed MOU in Phuket ICT Innovation Paradise to built Phuket as World ICT Center for Research and Innovation thus adding economic value
2008	Southern Thailand Software Science Park and Blue Lagoon Phuket Co., Ltd.	-	Established Software Park Phuket
March 8, 2009	Medical Doctor Kongkiet Kedpetch, Phuket Software Industry Director	-	Presenting Phuket development report under Phuket ICT City guidelines to Commissioner of Science, Technology, Communication and Telecommunication
March 10, 2009	Commissioner of Science, Technology, Communication and Telecommunication, Senate	-	Monitoring Phuket development for IT CITY and considering duplicated operation
March 19, 2009		-	Inviting Permanent Secretary of Ministry of Information and Communication and Technology , TOT Public Company Limited Executive and CAT Telecom (PCL) Executive to attend conference and find facts, including project progress

2.6.2 Phuket ICT City Development Level

Software Industry promotion agency (Public Organization) had allocated budget in 2006 to compare Phuket Benchmarking with ICT City Framework based on Advance research works and Phuket ICT City reports. Results are summarized as follows:

2.6.2.1 Phuket ICT Development Level

Phuket ICT indicator compiled from domestic and international operations, including those of Thailand. Then principles of good indicators were selected for being Phuket ICT development indicator as the criteria for Phuket ICT Benchmarking in both basic ICT structural development readiness and development opportunity. In this comparison between overall development levels of Phuket and total ICT development, Singapore and Malaysia were selected. This due to Singapore geographical similarity as being island and one among four countries picked for case studying in High Speed Social Network as well as having Fixed-line or Wireless with IT services expansion. Moreover, it received full government's support with favorable environment towards extensive technology growth. Meanwhile, Malaysia heavily promoted ICT by giving support to private project such as Multimedia Super Corridor (MSC), aiming for being Malaysia Silicon Valley same as Silicon Valley in USA. Furthermore, Malaysia's government has planned to expand more internet in the region such as Internet Areas Project to establish Region Internet Center.

Table 2.2 General Data[20]

	Phuket	**Thailand**	**Malaysia**	**Singapore**
Population(million)	0.292	62.418	24.821	4.34
Area (square kilometer)	543	514,000	329.750	699

With data survey limitation in surveying ICT status of Phuket, Phuket ICT development capability in comparison with Thailand, Malaysia and Singapore could be done in certain level only. However, the comparison was quite useful for further developing Phuket with the acquisition of 6 indicators namely, numbers of regular

phone per 100 people, numbers of mobile users per 100 people, numbers of computers per 100 households, numbers of internet users per 100 people, numbers of radios per 1,000 households, and numbers of televisions per 100 households. Results of comparison suggested that Phuket was extremely ready ICT structure and access, judging from higher mean of Phuket indicators than those of Thailand, Malaysia and Singapore as shown in the comparison table below.

Table 2.3 Comparison on Phuket ICT [21]

ICT Indicator	**Phuket**[1]	**Thailand**	**Malaysia**	**Singapore**
Number of basic telephone service per 100 households	66.2	11.0	16.8	42.4
Number of mobile phone users per 100 people	160.0	48.5	75.2	100.8
Number of computers per 100 households	79.7	15.5	13.5 (2000)	74.0
Number of internet users per 100 people	53.6	12.0	42.4	68.4
Number of radio receiver per 1,000 households	1,161.0	236.3	424.6	N/A
Number of television sets per 1,000 households	186.4	28.4	21.8	20.5

2.6.2.2 Phuket ICT Business Development Level

ICT development level as compared to the Nation overall business development levels, using the significant indicator such as monthly service fees for regular and mobile phone, proportion of business establishments using computers and internet and numbers of average computers per business establishments. Overall, Phuket businesses were ready with higher ICT access than the Nation Mean business. This is because Phuket gross product ranked No.1 in the south and No.9 in the nation (Phuket Commercial Office, 2007) which indicated city good economy and high ICT investment.

Table 2.4 ICT Indicators Comparison between Phuket and Thailand Basic ICT Structure

Basic ICT Structure	Thailand [22]	Phuket [23]	Phuket General Entrepreneurs	Phuket ICT Entrepreneurs
Average monthly business phone expenses	500.0	N/A	2,515.3	2,510.3
Monthly mobile phone expenses	51.0	850.1	1688.6	2,173.3
Proportion of business enterprises using computers	20.5	76.6	64.4	95.6
Proportion of business enterprises using Internet	10.7	64.2	50.5	85.2
Average numbers of computers per business enterprises numbers	N/A	5.2	2.9	8.7

Phuket establishments used computers in all type of businesses higher than Thailand Mean, especially in Phuket properties sector whereas in renting machineries and equipment, personal and household items, research and development, other businesses, ICT wholesaling and trading for commission (except automobile and motor cycle) land transportation and tour business representatives used more than 80% computers in their business operations .

Table 2.5 Comparison in Business Computerized Application between Phuket and Thailand

Businesses	**Thailand**	**Phuket Entrepreneurs**
Manufacturing	18.1	63.2
Construction	51.9	72.7
Selling, maintenance and automobile and motorcycle repairing, including automobile fuel retailing	20.6	57.1
Wholesaling and trading for commission (except automobile and motorcycle)	45.4	86.4
Retailing (except automobile and bicycle, including personal and household items repairing)	18.5	59.5
Hotel and restaurant	8.4	60.0
Land transportation and tour representatives	25.0	82.9
Property management, computer and related activities	36.9	
Property management activities		100.0
ICT business [2]		86.5
Renting machine and equipments without control person in renting personal and household items, research and development in other businesses	63.3	88.9
Recreations, cultures and sports	43.6	N/A
Other servicing activities	3.4	N/A
Recreation activities and other services	N/A	54.2

According to Phuket Information and Communication report, 2004 (Basic Data : Municipality area) of Phuket Statistical Office (Phuket Statistical Office) results comparison displayed different indicators even though business establishments

in Phuket have more computers and websites than the nation average, but the use of internet among Phuket business entrepreneurs is as close as the nation average, except in land transportation and tourism business representatives , hotels and restaurants that use internet in higher proportion than average which indicated the benefits from using internet in business operation which coincided with interview data that had evaluated Phuket ICT City as the most successful city in tour business.

Table 2.6 Comparison in Business Internet Application between Phuket and Thailand

Business	**Thailand**	**Phuket Entrepreneurs**
Manufacturer	52.3	50.0
Construction	63.8	36.4
Selling, maintenance and automobile and motorcycle repairing, including automobile fuel retailing	46.7	40.4
Wholesaling and trading for commission (except automobile and motorcycle)	68.7	65.0
Retailing (except automobile and bicycle, including personal and household items repairing)	50.4	44.5
Hotel and Restaurant	35.6	54.9
Land transportation and tour representatives	70.2	80.0
Property management, computer and related activities	51.2	
Property management activities	N/A	72.7
ICT Business	N/A	85.2
Renting machine and equipments without control person in renting personal and household items, research and development in other businesses	43.0	66.7
Recreations, cultures and sports	70.5	N/A
Other servicing activities	58.4	N/A
Recreation activities and other services [2]	N/A	38.0

Table 2.7 Comparison in Business Website Application between Phuket and Thailand

Business	**Thailand**	**Phuket Business Entrepreneurs**
Manufacture	2.5	15.8
Construction	13.9	18.2
Selling, maintenance and automobile and motorcycle repairing, including automobile fuel retailing	2.7	8.2
Wholesaling and trading for commission (except automobile and motorcycle)	14.8	45.5
Retailing (except automobile and bicycle, including personal and household items repairing)	2.9	13.0
Hotel and Restaurant	2.4	45.5
Land transportation and tour representatives	8.2	48.6
Property management, computer and related activities	8.6	
Property management activities	N/A	27.3
ICT Business	N/A	30.6
Renting machine and equipments without control person in renting personal and household items, research and development in other businesses	12.4	61.1
Recreations and cultures and sports	4.4	N/A
Other management activities	0.8	N/A
Recreation activities and other services	N/A	12.5

Numbers of Phuket ICT establishments and entrepreneurs 26% and 14% received purchase orders through internet which considered much higher than Bangkok and Thailand Mean 1.2% and 0.8%, respectively. It indicated that E-commerce in Phuket has high potential, but needed to encourage entrepreneurs for more use and confidence.

Table 2.8 Comparison in Businesses Internet Access classified by Internet Approach between Phuket and Thailand

Internet Access	Thailand	Phuket Regular Entrepreneurs	Phuket ICT Entrepreneurs
Connecting Telephone Line	70.8	28.6	13.4
ISDN	3.7	0.9	4.0
XDSL	24.2	64.7	74.1
Cable Modem	4.5	1.8	1.2
Leased Line	6.3	1.8	7.7
Wireless	0.9	3.1	6.1
Others	0.5	0.9	0.8

ICT entrepreneurs 74.1 % and Phuket entrepreneurs 64.7% were those used internet through xDSL the most because of its services through dual line and high speed technology, quite effective and inexpensive. Besides, internet can be used the same time with regular phone. Most entrepreneurs preferred this technology than Leased Line which is highly effective and appropriate for organizations that require stable line for connecting 24 hours internet. Moreover, data could be sent and received with any speeds and unlimited. Cost depended on distance. Therefore, Leased Line is more appropriate with the government agencies or large public sectors than medium and small businesses.

2.6.2.3 Phuket development report under Phuket ICT City guidelines, 1999-2008, Phuket is considered as Thailand International Strategic Area because of its fame as world class tour attracction. With uncertainty in tourism, major Phuket industry generated over 80,000 million baht for Thailand (data from TAT, 2007 revenues generated by foreign tourists) with more than 5 million tourists as being shown in table 2.9.

Table 2.9 Visitors Data 2007

Phuket			
Lists	**Thai(s)**	**Foreigner(s)**	**Total**
Visitors	1,772.243	3,283,410	5,005,653
Travelers	1,566,344	3,160,349	4,726,693
Tourists	155,899	123,061	278,960
Total visitors based on type of vehicles	1,722,243	3,283,410	5,005,653

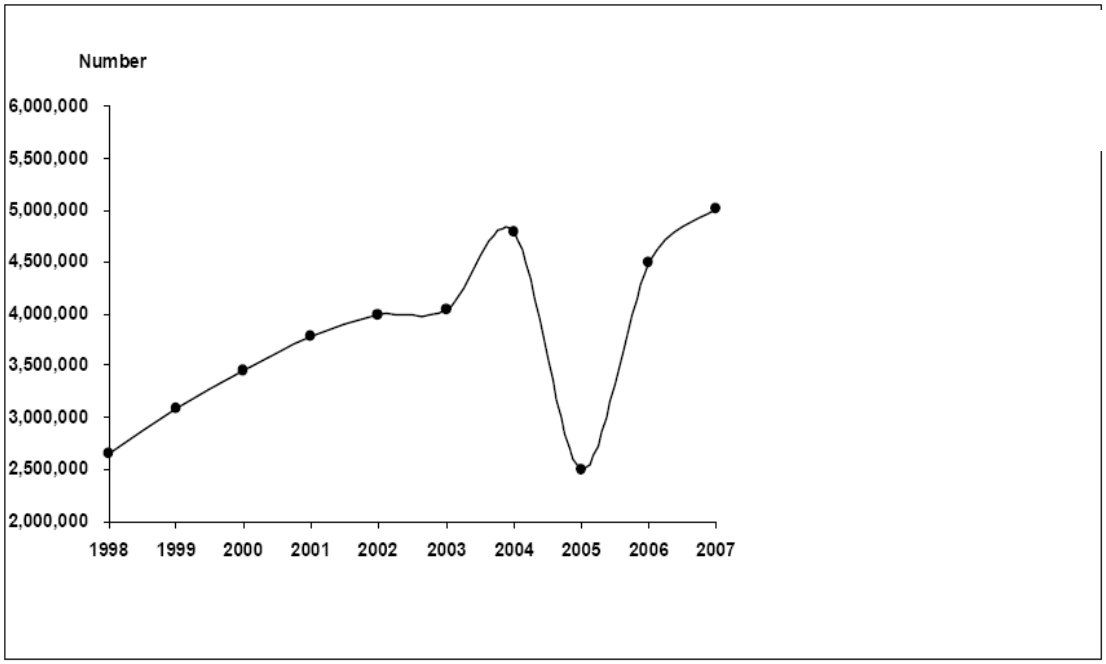

Figure 2.6 Numbers of Phuket Visitors

The numbers of tourists are increasing yearly. During the past 10 years, numbers of tourists had been double. However, judging from tourists' spending daily, in 2001, tourists spent total 4,079.39 baht per day. In 2007, tourists spending increased to 4,565.74 baht daily, only gaining 10% within 6 years. Considering inflation rate, wages increased, it seems that the increment is unbalanced. In order to increase revenues, numbers of tourists must also increase which may lower the standard of

tourists. High quality tourists usually preferred to stay in quite places with fair prices.High travelling cost make tourists hesitate to visit Phuket. It was found that numbers of Swedish tourists increased substantially at Lanta Island, Krabi province, thus dratically reduced numbers of staying at Phuket even though they used to stay frequently at Phuket. Therefore, finding tousists or quaified travellers for Phuket is extremely crucial because it meant higher incomes for the local area and country with the least environmental impacts. Thus, Phuket ICT City guidelines which emphasized on IT advancement have given the city perfect opportunity to expand tourism into ICT seminar as the future value added to ICT industry.

Basic Structure Readiness

1. High Speed Internet Structure resulted from the need to develop Phuket basic structure based on Phuket ICT City guidelines. States Enterprises namely, TOT Corp., CAT Telecom and TT&T developed High Speed Network through Fiber optics 2 circles surrounding the island and ADSL over 8,000 ports in 2007. Furthermore, there is CDMA wireless system all over island, ready to serve the need of locals and tourists with good quality and reasonable price.

2. As for travelling, Phuket has the International Airport to connect the flight to Bangkok, singapore and Kuala Lumpur with both Domestic and International Airlines at least 120 flights daily, bringing passenger to Phuket minimum 5 millions per year (2007 data).

3. For medical treatment, Phuket has 2 world class hospitals namely, Bangkok-Phuket Hospital and Phuket International Hospital. Also, there are a public hospital with 200 admission beds ready to treat bboth Thais and foreigners.

4. Regarding educational and personnel readiness, Phuket has 2 International Schools teaching interanational programs and 3 Bi-Tri lingual schools 3 teaching English and Chinese languages. These are private schools and schools under Local Administration. Besides, there are 2 universities produced ICT graduates A) Prince of Songkla University, Phuket Campus produced total 320 graduates in Engineering, Computer Software , IT and Electronic Business per year B) Ratchabhat University, Phuket Campus produced total 250 graduates in Computer, IT, Business Computer and Educational Computer.

2.7. ICT Indicator

2.7.1 ICT Indicator

Many agencies are being responsible for developing ICT indicators both domestic and international. International agencies continued to prepare ICT report namely, International Telecommunication Union (ITU), one of United Nation agencies, IMD and World Economic Forum. Even IMD and World Economic Forum had not been assigned to prepare ICT indicator, their ability to classify competition capability was highly accepted so they identified ICT as one of indicators for such purpose.

2.7.1.1 International Telecommunication Union (ITU) is the main ageny to identify ICT development. According to ITU report 2005, developing telecomunication based on criteria in 7 areas1) ICT cost, 2) Internet 3) Human Resources 4) economic and social status 5) ICT business revenues 6) ICT investment and 7) Basic structure in accessing ICT technology.

According to International Telecommunication Union report (2007), ICT divided ICT opportunity index into 4 major factors as follows:

1) Network is consisted of indicators, numbers of regular phones per 100 people, numbers of mobile phone per 100 people and International Internet Bandwidth (Kbps per inhabitant).

2) Skills of personnel related to ICT application namely1) learning rate 2) gross school enrolment rates

3) ICT Uptake such as numbers of computers per 100 people, numbers of internet users per 100 people and proportion of household with television.

4) Work concentration such as numbers of internet users per 100 people, international phone cost per revenues and growth rate Mean of all 4 indicators.

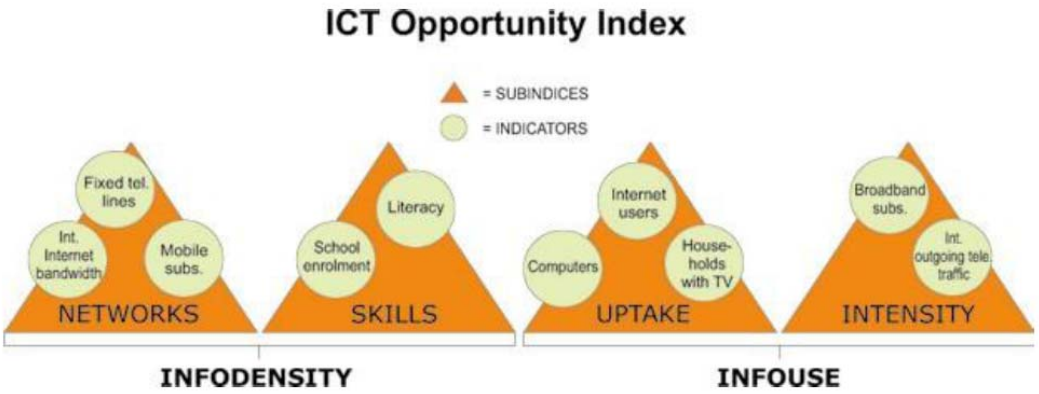

Figure 2.7 These are all parts of ICT Opportunity Index (chart 1) Chart 1 ICT Opportunity Index

Source: ITU

ITU report 2009 [25] divided ICT opportunity Index into 3 main factors as follows:

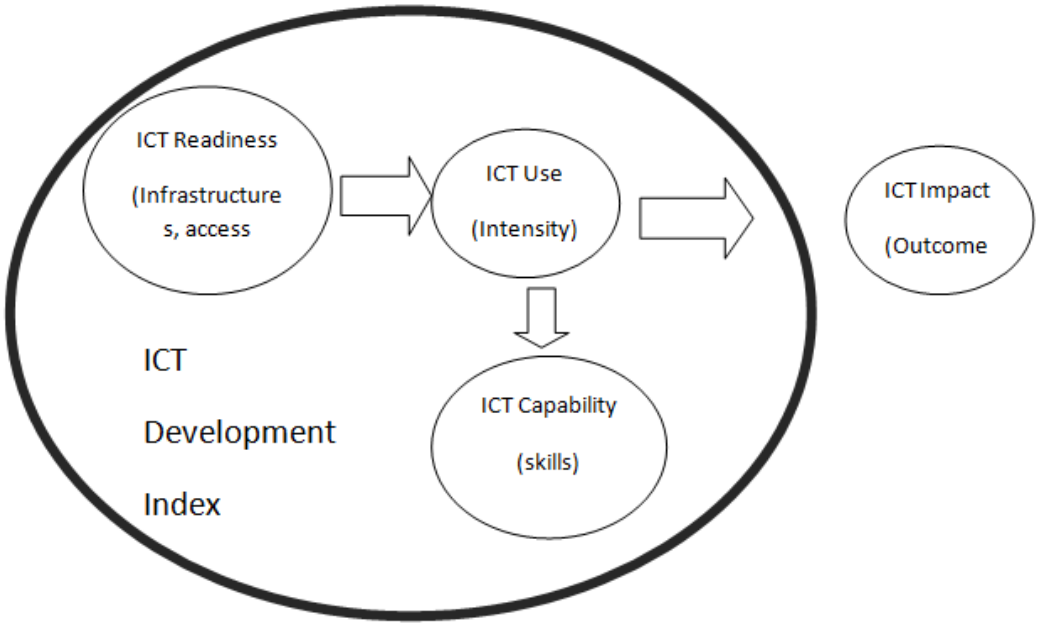

Figure 2.8 Three stages in the evolution towards and information society [25]

ICT infrastructure and access

1. Fixed telephone lines per 100 inhabitants
2. Mobile cellular telephone subscriptions per 100 inhabitants
3. International Internet Bandwidth (bit/s) per Internet user
4. Proportion of households with a computer
5. Proportion of households with Internet access at home

ICT use and the intensity of use

6. Internet users per 100 inhabitants
7. Fixed broadband Internet subscribers per 100 inhabitants
8. Mobile broadband subscribptions per 100 inhabitants

ICT skills and the capacity to use ICTs effectively

9. Adult literacy rate
10. Secondary gross enrolment ratio
11. Tertiary gross enrolment ratio

2.7.1.2 United Nations 2005 [26] members ICT classification level based on 10 basic indicators and 2 additional indicators as follows:

1. Numbers of regular phone users per 100 people
2. Numbers of registered mobile phone users per 100 people
3. Numbers of computers per 100 people
4. Proportion of internet users per 100 people
5. Numbers of high speed internet users per 100 people
6. Broadband width per 100 people
7. Proportion of mobile phone users
8. Monthly internet service rate (20 hours per month) or proportion of internet expenses per incomes
9. Monthly mobile phone service fees (20 hours per month) or telephone charges per incomes
10. Government internet access based on population numbers (rural/urban)

Additional Indicators

1. Numbers of radio per 100 people
2. Numbers of television sets per 100 people

Furthermore, the United Nation had prepared the index indicator based on type of users consisted of general public, business group, and other groups such as government agencies, medical group and educational institutes. In each group specific indicator had been set up as follows:

1. ICT accessing and utilizing among the general public based indicator in 5 areas:

1) Accessing basic ICT consisted of proportion of household with electrical appliances, radio, regular phone, mobile phone, television, and computer proportion and internet access.

2) Accessing internet consisted of methods, internet application and location for most internet access and the frequency in internet application.

3) Using ICT consisted of objectives for using internet/ internet services/ products type and services through internet and average value for each purchase.

4) Obstacles in using internet, computer application and buying and selling products through internet.

5) Products and services location through internet

2. Business application divided into the following 6 major areas:

1) ICT basic access consisted of proportion of companies with regular phone, mobile phone, computers, and numbers of computers per company and internet access.

2) Advance ICT access and use consisted of high speed internet with local network coverage, website and ICT investment, and proportion of computer and internet users at work.

3) Application of E-Commerce consisted of Internet services, sales values and consumers

4) ICT Training

5) Difficult application during work and internet use, merchandises acquisition and acquiring internet services and e-commerce.

6) Geographic location sales

3. Other groups in each country identified indicators differently without medium indicator. Most indicators were used for similar purposes for examples, ICT investment, ICT personnel and ICT size.

2.7.1.3 OECD prepared ICT indicator based on 2 main factors, Readiness indicator and ICT supply and use indicator

1) Readiness indicator is consisted of the following items:

Basic Structure: Sub-indicators are numbers of regular phones per 100 people, numbers of registers phone users per 100 people, numbers of mobile phone users per 100 people, numbers of computers per 100 people, monthly fees for using regular phone, montly fees for using mobile phone, monthly fees for business use, numbers of internet service providers, numbers of internet users per 100 people, numbers of websites per 1,000 people and service fees for using internet.

Trading: sub-indicators are ICT based trade balance between countries, ICT exporting growth rate , proportion of ICT importing per total import and proportion of importing per total import.

ICT Quality: Sub-indicators are proportion of compulsive education, learning attendance in primary and secondary schools, proportion of ICT leaners per total students and proportion of graduates in ICT.

2) ICT supply and use indicator are consistd of the folllowing items:

ICT Branches: Sub-indicators indicators are added value to ICT per addded value of all industries combined, growth rate of ICT added value, ICT employment proportion per overall employment, and growth rate of ICT based products.

Coonsumers: Sub-indicators are proportion of households with computers, proportion of households used internet, proportion of population over 16 years old, internet access from different sources such as homes, workplace, educational institutes and objectives for using internet.

Business: Sub-indicators are proportion of businesses with computers, proportion of workers using computers and objectiiives for using internet, patent., numbers of ICT patents per overall patents ‘numbers, numbers of ICT patents per worldwide patents ‘numbers and patents ‘growth rate.

2.7.1.4 IMD ranked the world competion capabilty based on 4 major criteria, economic capacit, government efficiency, business efficiency and ICT basic structure also part of Sicence and Technology. ICT indicators have 13 sub-indicators as foolows:

1. Numbers of regular phone numbers per 1,000 people
2. International phone rate from the European Federation to the United States of America during rush hours
3. Numbers of mobile phone users per 1,000 people
4. Mobile phone rate per minute in term of US dollars
5. Communication Technology (signal and data) based on business demand
6. Using computer
7. Numbers of computers per 1,000 people
8. Numbers of internet users per 1,000 people
9. Internet service fees (20 hours/month)
10. Numbers of high speed internet users per 1,000 people
11. High speed internet service fees (100 kbits/month)
12. Information Technology Skills
13. IT System Security

2.7.1.5 World Economic Forum 2008 [27] had classified countries influenced ICT with the application of Networked Readiness Index (NRI) in the following 3 main factors:

1) ICT favorable surroundings such as market, politics and regulations and basic structure

2) ICT users' readiness among general public, public and private sectors

3) ICT application among general public, public and private sectors

2.7.1.6 Singapore (Stevens NG และ CUI Hui Mi, 2004) had specified 3 ICT indicators as follows:

1. Numbers of users and being computer owners in the household

2. Numbers of users and internet access based on users background and location

3. Accessing Broadband based on population growth, accessing and household background

4. E-Commerce and buying products through internet based on buying and selling values and products group

5. ICT size as compared to domestic proportion and revenues from importing and market share

6. Human resources based on skills, gender and background

7. IT business application based on computer use as related to internet equipment, internet access, wireless access, web and e-commerce services and type of businesses

2.7.1.7 Korea (Kyung Ae ,2001) divided ICT indicators into 4 main factors 1) Basic ICT structure 2) Accessing ICT 3) E-commerce and 4) ICT Industry

1) Basic structure indicators

- Numbers computers per 100 people
- Numbers of users /mobile phone registered per 100 people
- Numbers of regular phone renter per 100 people

- Number of internet users over 7 years old using at least once a month per 100 people
- Numbers of users/high speed internet registration
- Numbers of Internet Hosts per 1,000 people
- Numbers of Internet Service Providers

2) Indicator for accessing ICT based on user groups such as households and business establishments

1. Household accessing ICT

- Being computer and other ICT equipment owner (television, telephone, PC, fax) in a household
- Being individual telecommunication equipment owner (mobile phone)
- Individual ability to operate computer and numbers of hours using computer
- Numbers users/ internet registration per household
- Individual ability to use internet and number of internet hours used
- Being e-mail owner and numbers of individual e-mail used
- Numbers of users/ registered through PC and numbers of hours used for communicating through PC weekly (hours)
- Application of PC café and numbers of hours used PC café per person

2. Accessing ICT in the establishments

- Being computer owner in a company
- Proportion of companies with internet application
- Installing Intranet/group ware rate per company
- Linking internet through computer
- ICT labor
- ICT investment
- ICT obstacles

- Computer tools and equipments (large and medium Servers, workstation, computer server and related equipment)

3) E-commerce indicator divided into the following 3 groups B2C B2B and B2G

1. B2C

- Numbers of employees
-Total revenues (overall sale total, from advertising and commission)
- Type of Shopping Center
- Business Cost
- Consumer Price Components (selling cost, delivery cost)
- Buyer Components (industrial users, public users, middle merchants)
- Support system e-commerce (logistic, payment agreement, security)
- Plan to promote e-commerce

2.B2B

- Overall sales based on products type
- Business operational cost
- Percentage of internet and non-internet purchasing
- Proportion of business contact through internet as compared to overall business
- Total of business contact through e-commerce

3. B2G

- Numbers and total purchases based on products type
- Numbers and total contracts
- Current status of e-commerce
- Planning e-commerce

4. ICT indicators

- Numbers of ICT related business establishments , computer, semiconductors, and telecommunication

- Numbers of companies related to Hardware /Software of Telecommunication services

- Structure of ICT business related companies

- Numbers of ICT laborers and annual labor expenses

- Numbers of products, total sales, cost and added value of related ICT companies

- Investment size in the company basic structure and assets

- Investment in R&D and importing/exporting

2.7.1.8 England: from the study of Cardiff University in e-Commerce among SMEs entrepreneurs because of their significant roles in the country's development by being the most employment as much as 70% of private sector. The application of electronic to support business is pushing and increasing SMEs efficiency. As for indicator for SMEs entrepreneurs' accessibility and utilization in E-commerce by Wales, it was based on the concept of OECD to measure Readiness, Intensity and Impact (2.1.9). The European Union had developed better IT indicator for members through the survey of opinions among general public and public sector executives in members' countries and other countries such as Switzerland and United States of America. ICT acceptance and application by entrepreneurs were the identified indicators.

<u>ICT Acceptance</u>

1. Numbers of Business Establishments with internet application.

2. Numbers of Business Establishments with internet access.

3. Numbers of employees using computers.

4. Numbers of Business Establishments using Internet Broadband.

5. Numbers of Business Establishments installed LAN for internal and external communication.

ICT Business Application

1. Ordering merchandises and services through internet.

2. Accepting order through internet.

3. Business establishments with IT for processing order by automatically linking with external IT.

4. Business establishments with IT automatically linking with supplier or client's IT.

5. Business establishments using internet for financial and banking activities.

6. Business establishments selling merchandises to other business establishment through internet.

2.7.1.9 Trinidad and Tobago by Ministry of Public Administration and Information (2003) Trinidad and Tobago (small country located at Atlantic Peninsular) had divided influenced indicators on ICT development level into 6 groups as follows:

1. Human Resources: Measured indicators for man qualifications are quality of Public School, government educational subsidy, school internet access, qualified science and mathematic teaching as the crucial foundation for advance IT development. Also IT training is the promotional factor for improving IT and numbers of IT experts.

2. Economy and Financial: Key indicators are the percentage of business establishments with Website, Risk Funds, Cluster Funds and Innovation capability.

3. E-Government: Key indicators are Government Web Page Pervasiveness Government ICT Prioritization Government Success in ICT Promotion, electronic business and government internet services.

4. Laws and Policies are legal scope for ICT development and effective legal process.

2.7.1.10 Thailand has given prompt attention to ICT development same as other countries by setting up Thailand ICT Master Plan 2545-

2549 (2002-2006) to raise ICT development level through the measurement of overall success, final effect and strategies effectiveness as follows:

Overall Success Indicators are involved in the following 4 areas:

1. ICT economy contribution indicator

1.1 ICT industrial growth rate as compared to overall economic growth

1.2 Proportion of ICT employment per the country's overall employment

1.3 Increasing ICT Diffusion in SME

1.4 Movement of TAI (Technology Achievement Index) of UNDP in Thailand

2. The nation ICT indicators for competition capability

2.1 Proportion of ICT cost per GDP

2.2 Business software value for domestic use and exporting

2.3 Thailand World Market Share in Software industry

2.4 Increasing proportion in electric and electronic industry per GDP

3. ICT for community development

3.1 Local Content Value in Thailand ICT products and services

3.2 Thailand Local Traffic volume in Total Internet Access

3.3 Increasing Thai Webpage

4. Indicators of ICT application for Human Resources Development

4.1 Increasing E-learning education

4.2 Distribution of ICT equipment and ICT experts evenly both formal and informal education

4.3 Proportion of Knowledge Worker per Workforce

2.7.1.11 Thailand ICT Master Plan Building indicator to measure effectiveness of preliminary development strategy as follows:

Strategy 1: Indicator for Thai ICT industrial development

1.1 Numbers of qualified researchers and software developers, including certified developers from Standard Professional Institute

1.2 Total Government IT Project operated by domestic Software Entrepreneur

1.3 Government IT budget (hardware and software)

1.4 Domestic Software market expansion

1.5 Software value manufactured by domestic entrepreneurs for importing

1.6 Product values and ICT products import

1.7 Software values for domestic products and Open Source Software as compared to overall software each year.

1.8 Increasing numbers of domestic software entrepreneurs and Market Capitalization

1.9 Software import reduction

1.10 Increasing demand for IT workers appeared on newspaper classified

1.11 Increasing wages for IT workers

1.12 Numbers of Training Center/ Center for Open Source

Strategy 2: Using ICT as indicator to raise Thai society level and life quality

2.1 Numbers of teledensity per 100 people in comparison between urban and rural

2.2 Number of Mobile Penetration per 100 people

2.3 Numbers of Public Telephone and Public Internet

2.4 Numbers of workable telephone numbers (at least 32 kbps) for community village

2.5 Speed in accessing main network

2.6 Reduction in Internet Access Cost

2.7 Numbers of Sub-districts with Public IT Service Center

2.8 Proportion of local administration with own website

2.9 Numbers of Community radio stations and community TV stations

2.10 Numbers of schools with Internet connection and numbers of computers linking to school intranet

2.11 Numbers of IT training courses for instructors

2.12 Numbers of teachers accessing ICT and using it to teach

Strategy 3: ICT research and Development indicators

3.1 Cost of public and private researches and development in ICT

3.2 Proportion of domestic ICT application

3.3 Proportion of domestic software application

3.4 Numbers of inexpensive PC produced or assembled domestically

3.5 Numbers of University courses in Network Computing

3.6 Numbers of students completed Network Computing

3.7 Numbers of software developer capable or operating Network Computing

Strategy 4: Indicators for raising Thai basic potential level

4.1 Numbers of workers accessing ICT

4.2 Numbers of workers accessing ICT and searching information through internet

4.3 Numbers of graduates capable of using ICT

4.4 Proportion of computers per students in different levels

4.5 All levels computer courses

4.6 Numbers of training participants passed training courses from Professional Training Institute and certified standard profession

4.7 Numbers of training participants passed IT course to improve labor skills from the Ministry of Labor

4.8 Numbers of communities capable of using IT to support community economy

4.9 Numbers of Thai Webpage

Strategy 5: Entrepreneur Developing Potential Indicators for expanding overseas market

5.1 Market values of E-commerce

5.2 Numbers of ICT employment in various economic sectors

5.3 Increasing IT Occupation employment as compared to Overall Employment

5.4 Budget for IT Investment in different economic sectors

5.5 Proportion in IT Expenditure and increasing revenues in various economic sectors

5.6 Numbers of IT training participants arranged by the Ministry of Labor

Strategy 6: ICT indicators among SMEs entrepreneurs

6.1 Numbers of SMEs entrepreneurs used ICT in Back Office

6.2 Numbers of SMEs entrepreneurs used ICT in Mainstream Application

6.3 Numbers of SMEs entrepreneurs joining Supply Chain

6.4 ICT investment value among SMEs entrepreneurs

6.5 Numbers of SMEs entrepreneurs appeared in the government Portal Site in each branch

6.6 Numbers of website of SMEs entrepreneurs

Strategy 7: Government ICT indicator as the administrator and service provider

7.1 Numbers of government agencies with complete ICT application in the administration

7.2 ICT application within the government agencies

7.3 Numbers of basic government services (various levels) through electronic systems

7.4 Volume of government services through each level of electronic media

7.5 Government services with agencies interaction

7.6 Government procurement volumes through electronic system

7.7 Numbers of government agencies with data security protection and Security Code

2.7.1.12 Ministry of Information Communication and Technology (2006) divided indicators for ICT development into 9 major indicators and 55 sub-indicators as follows:

1. Telecommunication (10 indicators)
2. Internet (21 indicators)
3. Broadcast picture and sound (1 indicator)
4. E-commerce (1 indicator)
5. ICT Market and Industry (5 indicators)
6. ICT Human Resources (13 indicators)
7. Government ICT application (1 indicator)
8. Research and Development and Patent (1 indicator)
9. General Economic Data (2 indicators)

National Science and Technology Development Agency (NEC, 2006) applied ICT as the indicator for assessing Thailand competition capability by divided into 4 groups, regular phone users, mobile phone users, computer users and internet users as follows:

Table 2.10 Assessing Thailand Competition Capability Indicator

Regular Phone User	Basic Mobile User	Computer User	Internet User
- All regular numbers (million numbers) - Mobile regular users (Million numbers) - Regular telephone users (per 100 people)	- Numbers of mobile phone users (million) - Numbers of mobile phone users (per 100 people)	- Numbers of computers(1,000 sets) - Numbers of Computers (per 100 people) - Numbers of computer (per 100 household)	- Numbers of Internet users (million) - Numbers of Internet users(per 100 people) - Numbers of Internet users (per 100 households)

2.7.1.13 Thailand Information Technology and Communication Master Plan (No. 2), 2008-2013 had specified key indicators for Information Technology and Communication Development as follows:

Overall objectives of ICT master plan and strategic goals identified readiness ICT levels which referenced 3 ICT International Development indicators in Networked Readiness Rankings (overall objectives), e-Government Ranking (4^{th} startegic goal) and E-readiness ranking (6^{th} strategic goal). Each indicator consisted of objective and details as follows:

2.8.Relevant Researches

Nanthikorn Thaicharoen (2008) Phuket public sector readiness in using had been demonstrated through this research in 1) owning equipments and perceiving ICT which indicated that majorities owned ICT equipments and gadgets whereas 70% set up own websites and received ICT training from the Universities as well as highly capable of using internet and high speed internet through television and billboards. 2) As for internet application, majorities used computer and internet at least once a day, at work, free of charge whereas mostly paid 500-1,000 baht monthly. Computers were used mostly in internet to search for information. Most Phuket residents had used the government online facilities and encounter computer virus during their internet used. 3) Providing the public basic ICT service, it was found that Phuket did not have enough dual telephone line even with numerous ICT investments. Electrical problems during internet used were the power out and power surge but the power still on in every areas of Phuket. As for making computer and equipments available in the public sector, there were problems of insufficient budget allocation and inferior equipments. For internet services, internet signals were unstable and service delay, inexperience staffs. Regarding the public online services, Phuket residents only used online service to pay tax, perhaps not enough publicity on other type of online services. As for ICT knowledge, problems occurred in lacking budget and IT personnel.

Silicon Valley is an example of IT Park success. One out of five incubated companies by this IT Park increased ite revenue at least 20% per year. Since 1993-1997, revenues growth rate of companies in this IT Park were higher than mean rate of US companies. Only 1 out of 35 company increased revenues over 20%. A researcher once said that the secret of IT success is considered as “innovation machine” to accept risk, competition and failure. Many field experts are ready to provide such services, including lawyers and accountants with complete technical structure, investment funds and many universities offered the research in this topic. [29]

HITEC City is located near Hyderabad, having giant computer companies such as Microsoft and Oracle established there. Foreign companies were attracted to settle in that area with the guarantee never cut off power or allow website to crash including other facilities such as roads, public utilities, hotels, shopping center and accommodations for those who work in this city. As for technology, the city has

arranged for fiber optic high speed internet and long distance telephone conference, video conferencing and satellite services. For employment, 23% of software experts have experiences working in India or aboard before coming to work at this HITEC City[30]

Hsinchu Science-based Industrial Park (2000) in Taiwan is a concrete example of success IT Park. In 2000, this park has hired 102,840 workers and mostly (62%) graduated from College and 289 companies settled there. Out of those numbers, 50 are foreign companies. Those companies generated revenues as high as 29.8 billion US dollars with 46% growth rate. Total 59 companies registered with Taiwan stock Exchange. There are 12 products developed in this park that received best innovation awards and owned 1,260 patents [31]

Technopole Sophia Antipolis is estabished in France and started its operation since 1960. It had been the first company using this park area since 1995. This Park had emphsized on developing IT, electronic and telecommunication to support industry expansion such as fiber optic network, high speed technology for sending and receiving data. Furthermore, this park is located among 66 institutes, having high speed train and helicopter connected with the Europen Federation. Most important, more than 20,000 persons are being employed. Out of those numbers, 40% are executives and foreigners and only worked 35 hours per week.

Besides the complete basic structure, Technopole Sophia Antipolis had given the companies incentives to establish this park in the form of subsidies and loan, corporate tax reduction as high as 50% for 5 years and tax exemption for local development. Beyond that, the green areas of this park occupied 2/3 of total areas. Most buildings were built for work and recreation in the same time [32]

CHAPTER III
RESEARCH METHODOLOGY

This research was conducted as Survey research and Descriptive Study to evaluate quality and accomplishment of Phuket ICT City involved in the following steps:

3.1. Population and sample group selection

3.2. Research tools

3.3. Research tools construction

3.4. Data Collection

3.5. Data analysis

3.1 Population and Sample Group Selection

Total 332,745 Phuket residents were selected for this research by divided into 5 categories namely, general population or 166,154 households, 10,624 regular entrepreneurs, 49 ICT shops, 45 government agencies, government representatives on 10 ICT related project. Samples size was identified in accordance with R.V.Krejcie and D.W. Morgan with reliability 95 % and illustrated in the following table:

Table 3.1 Sample size of R.V.Krejcie and D.W. Morgan

Population Size	Sample Size	Population Size	Sample Size	Population Size	Sample Size	Population Size	Sample Size
10	10	120	92	340	181	2000	322
15	14	130	97	360	186	2200	328
20	19	140	103	380	191	2400	331
25	24	150	108	400	196	2600	335
30	28	160	113	420	201	2800	338
35	32	170	118	440	205	3000	341

Table 3.1 Sample size of R.V.Krejcie and D.W. Morgan (cont.)

Population Size	Sample Size	Population Size	Sample Size	Population Size	Sample Size	Population Size	Sample Size
40	36	180	123	460	210	3500	347
45	40	190	127	480	214	4000	350
50	44	200	132	500	217	4500	354
55	48	210	135	550	226	5000	357
60	52	220	140	600	234	6000	361
65	56	230	144	650	242	7000	364
70	59	240	148	700	248	8000	367
75	63	250	152	750	254	9000	368
80	66	260	155	800	260	10000	370
85	70	270	159	850	265	15000	375
90	73	280	162	900	269	20000	377
95	76	290	165	950	274	30000	379
100	80	300	169	1000	278	40000	380
110	86	320	175	1100	285	50000	381
				1200	291	75000	382
						100000	384

Four types of samples derived as follows: 384 households, 375 regular entrepreneurs, 40 ICT shops, 40 Phuket government agencies, government representatives on 10 ICT related projects. Samples were selected through Simple Random Sampling and Purposive Sampling.

3.2. Research Tools

Research Tools were documents from Phuket Office, City Statistical Office, Phuket SIPA, agencies under Department of Education, City private organization, agencies under the Ministry of Information and Communication and Technology and a questionnaire for households, general entrepreneurs, ICT

entrepreneurs and government agencies, and in-depth interview with the government representatives in 2009.

3.3. Research Tools Construction

A questionnaire used for collecting data on Phuket ICT CITY operation was divided into 3 sections as follows:

Section 1 : general information on individual, company and agencies

Section 2 : ICT application among households, general and ICT entrepreneurs, agencies which categorized into specific groups as follows:

Household represents individual or people who regularly lived in the house or same place to share, cook, consume or locate essential goods for living. People living in the same household may or may not relate. Furthermore, one location or address may consist of a single household or many households. In a single household, member may live in many houses or many rooms but must remain in the same area or next door.

Entrepreneur is defined as a person who conducted business in trade, industry, services or finance, including those conducted other economic business as specified in the Ministry's regulations.

ICT entrepreneur is defined as individual conducted ICT related business in trade, industry and services.

Government agencies are defined as the government agencies in Phuket, namely Phuket Office (ICT group), Phuket Office of Disaster Prevention and Mitigation , Phuket Agricultural Office, Phuket labor Office, Phuket Chamber of Commerce, Social Security Office, Phuket Office of Public Works and Town & Country Planning, Phuket Treasury Office, Office of Commercial Affairs, Phuket, Phuket Prison, Phuket Transportation Office, Phuket Provincial Police, Phuket Statistical Office, Phuket Land Office, Phuket Financial Office, Phuket Airport, Phuket Livestock Office, Regional Industrial Promotion Center, area 10, Prince of Songkla University, Phuket Rajabhat University, Phuket Vocational College, Phuket Vocational College, Phuket Technical College, Phuket Vittayalai School, Satri Phuket School, Kratoovittaya School, Veerasatriarnusorn School.

ICT government representatives are Phuket Head of Department, Director of SIPA, TOT CAT TT&T and Electricity Authority, Rector of Prince of Songkhla University and Ratchabat Phuket Rajabhat University.

A questionnaire has its contents relate to the following group in specific area

General and ICT entrepreneurs

Ratio of company with regular phone

Ratio of company with mobile phone

Ratio of company with computer and numbers of computers per company

Ratio of company internet access

Ratio of labor access internet

Numbers of labors access ICT and searching data from Internet

Advance ICT access and benefit

Internet speed, local network coverage, website, ICT investment

Ratio of computer users at work and internet users

Applications of commercial electronic in Internet services, sale volume and customers

Investment in ICT, staffs and ICT business size

Government agencies in Phuket

Numbers of government agencies in using ICT in whole administration

ICT application among internal government divisions

Numbers of basic government services (various levels) through electronic system

Government servicing magnitude in each level

Interconnected government services between divisions

Procurement volume through electronic system

Numbers of government agencies with data protection system and Security Code

ICT Government Representative

Opinions on ICT development for the City

Project progress

Project problems and obstacles

Project success/ break-even

Section 3: Recommendations, problems and obstacles in ICT application and operation

3.4. Data Collection

Data were gathered as follows:

3.4.1. Primary Data from analyzing questionnaire data regarding obstacles in project operation, technology status and opinion/ investment interest and break-even, Phuket ICT based on group target, data compilation for qualified information in accordance with statistical procedures were acquired as follows:

Collected households Data in the following aspects:

1) Internet access and usage
2) The most frequent location for internet use
3) Internet frequent usage
4) Objectives for using computer
5) Objectives for internet use/internet services, type of products and services ordered through internet and average amount of order each sale
6) Information Technology Skills
7) ICT acceptance
8) Obstacles on computer application, internet use, buying merchandise and services through internet, location of products and services through internet

Data on general and ICT entrepreneurs were gathered through the questionnaires in the following aspects:

1) Proportion of company with computer and number of computer per company

2) Numbers of staffs access ICT

3) Numbers of staffs access ICT and search for internet

4) Internet speed, local internet coverage, website and ICT investment

5) Proportion of staffs using computer and Internet at work

6) Using Electronic Commerce consisted of Internet, sale values and customer group

7) ICT training

8) Obstacles in work application, internet use, buying merchandises and services through internet and Electronic Commerce

9) ICT investment, ICT staffs and ICT business size Data on ICT related government representatives was collected through the interview.

10) Opinion on Phuket ICT City efficiency

11) Project progress

12) Project problems and obstacles

13) Project success / and break-even

3.4.2. Secondary data acquired from the following domestic and international sources as ICT standard indicator for explaining data of Phuket ICT City.

Phuket Office

Provincial Statistic Office

Phuket SIPA Promotion

Agencies under the supervision of the Ministry of Education such as Phuket Educational District Office

Private organization in Phuket dealing in education and business such as, developing properties

ICT related divisions such as TOT,CAT ,TT&T

Website United Nations using Core ICT Indicator/ International Telecommunication Union, data in Measuring Digital Opportunity

Data Gathering

Through Internet

Through various sources such as University Library and government agencies

Through important sites such as NECTEC,

Through key government agencies such as NECTEC , National Statistical Office of Thailand and City Statistic Office

Reference or Data Comparison

Searching through Core Indicator / data definitions to consider which Indicator / Benchmark to use.

Finding information of Thailand and other countries to weight which data should be used by comparing Phuket data with overall data of Thailand and key countries, having Environmental conditions similar to Phuket.

3.5. Data Analysis

Data was analyzed with Descriptive Statistics through Comparative Technique to calculate (Frequency, Percentage and Mean, including comparison technique between survey data and Benchmark acquired from Trending Benchmarking, including details analysis based on Vervatim Analytics which had been displayed in data analysis table and charts. Calculation for basic statistic was done with the following applications:

1.Percentage for personal data

2.Mean for roughly explaining overall data as group representative to find which data represent such group. Acquired data from each group was compared to explain significant characteristics of respondents.

CHAPTER IV
RESULTS

The research entitled “The Evaluation of Phuket ICT City” aims to study of 1) an overall picture of Phuket ICT City Project 2) A assessment result of Phuket ICT City operation 3) Problems and obstacles in the operation of Phuket ICT City Project at Phuket Province. This research was conducted as the survey research and descriptive study by using the questionnaire to collect data from samples.

Samples were divided into 4 types as follows: General Public 384 households, 375 Business owners, 40 ICT Business establishments, 40 Phuket government agencies, and 10 ICT-related government representatives. Samples were selected through simple random sampling and purposive sampling. The researcher received returned questionnaires 99.62 percent.

This chapter presents data of the questionnaire respondents consisted of personal and company data, public usage of ICT, household classifications, business operators, and ICT operators including opinions and recommendations as follows:

4.1 There are seven indicators for basic infrastructure.

4.1.1. Number of registered users for fix-line phone per 100 people

4.1.2. Number of registered users for mobile phone per 100 people

4.1.3. Phone rate per income

4.1.4. Number of computers per 100 people

4.1.5. Proportion of Internet users per 100 people

4.1.6. Monthly Internet fee (20 hours per month)

4.1.7. Information and Communication Technology Investment

4.1.1. Number of registered users for standard phone per 100 people

Table 4.1 Number and Percentage of People using Standard Telephone classified by the service providers

Standard Telephone	Number	Percentage
TOT	178	46.4
TT&T	68	17.7
TOT and TT&T	2	.5
Without	136	35.4
Total	384	100

Total 178 samples or 46.4 percent used TOT services the most, followed by 68 samples or 17.7 percent and 136 samples or 35.4 percent never used the services at all.

Finding from Table 4.1 indicated that the number of people using standard telephone 64.6 percent and 35.4 percent of non-users.

4.1.2. Number of registered users for mobile phone per 100 people

Table 4.2 Number and Percentage of Population own mobile phone classified by Service Providers

Service Provider	Number	Percentage
CAT	11	2.9
DTAC	191	49.7
True Move	61	15.9
AIS	175	45.6
TOT	28	7.3
Without of Service Provider	6	1.6
Other	3	0.8

N of Total = 384

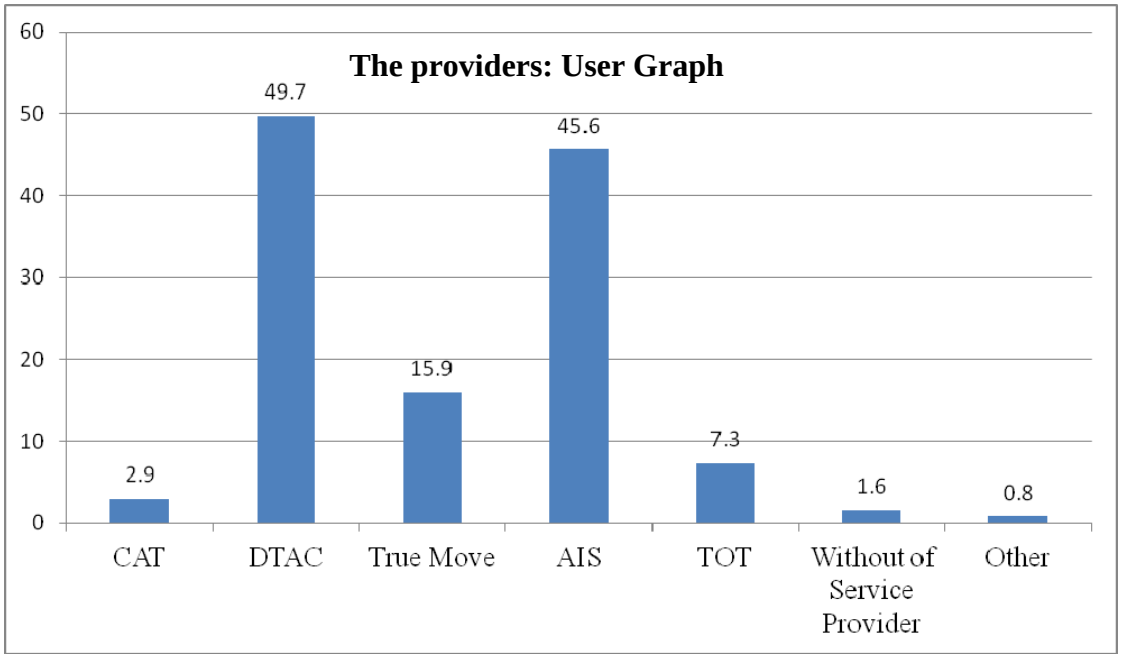

Figure 4.1 Percentage of People using mobile phone classified by the service providers

Overall, samples of 49.7 percent use DTAC the most, followed by AIS 175 people or 45 percent and lastly, true move 61 person or 15.9 percent.

Table 4.3 Number and Percentage of Population own mobile phone

Particular	**Number**	**Percentage**
Own mobile phone	387	98.4
Not own mobile phone	6	1.6
	384	100.0

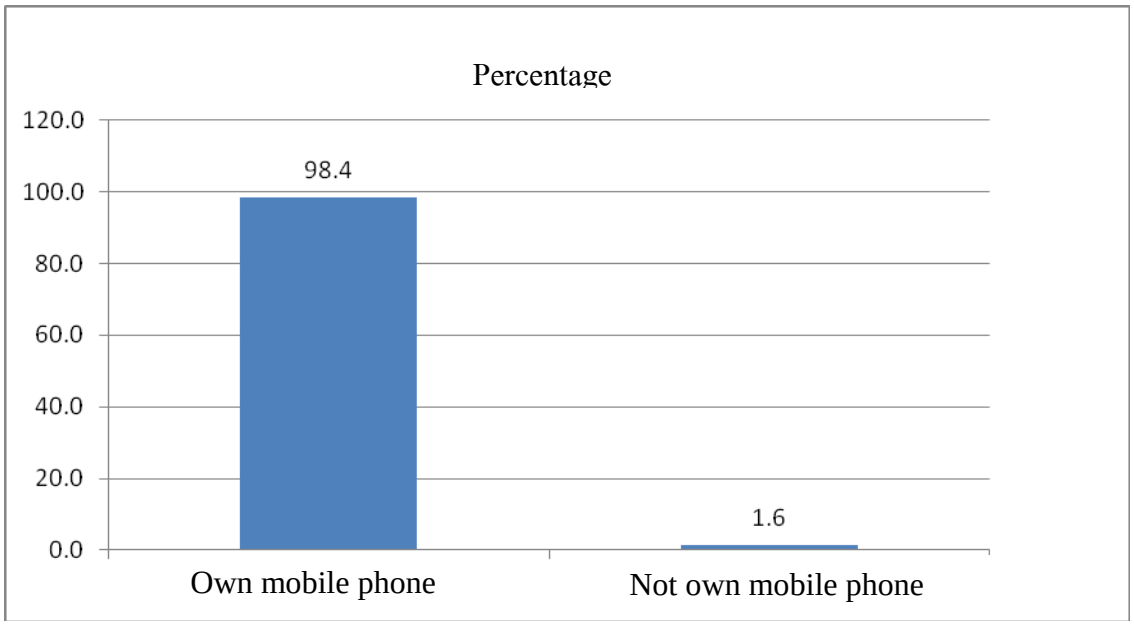

Figure 4.2 Percentage of population own mobile phone as graph shown following

Finding from Table 4.3 and Figure 4.2 indicated that the number of people per 100 population using mobile phone 98.4 percent and 1.6 percent or 6 people of non-users.

Table 4.4 Shows number of people over six years old classified by usage of electronic and Information Technology gadgets at Phuket Province from: 2005 to 2010

Particulars	**2548 (2005)**	**2549 (2006)**	**2550 (2007)**	**2551 (2008)**	**2552 (2009)**	**2553 (2010)**
Number of people	264,631	271,179	277,849	283,073	261,842	267,938
Mobile users	146,685	162,001	185,361	205,559	188,887	202,892

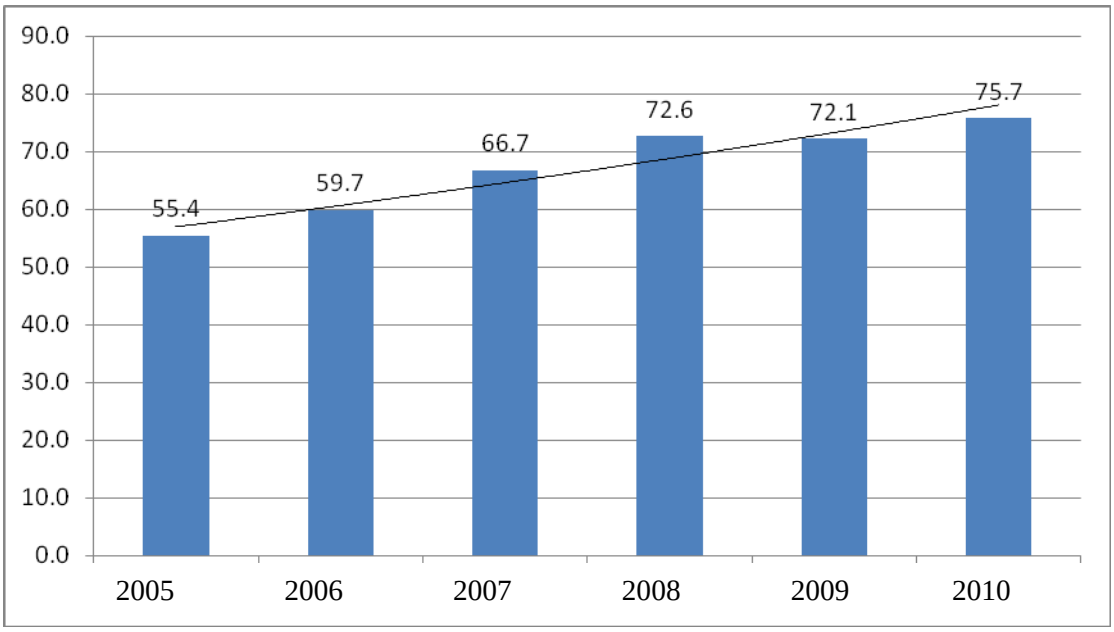

Figure 4.3 Proportion of Population own mobile phone 2005-2010 [33]

Finding from Table 4.4 and Figure 4.3 indicated the majority of population that own mobile phone on year of 2010 shown highest value at 75.7 percent, When calculated in value of user per year development rising up at 3.4 Percentage.

4.1.3. Phone rate per income

Table 4.5 Phone rate per income classified by Phone Service Providers

Particular	**Monthly Mobile Fee**
CAT	399
DTAC	99
True Move	1220
AIS	536.5
Average Monthly Mobile Fee	563.63

Finding from Table 4.5 indicated that average mobile service fees calculated from four service providers is equal to 563.63 baht monthly. [34]

4.1.4. Number of computers per 100 people [35]

Table 4.6 Shows number of population over six years old classified by usage of computer and Internet at Phuket Province during year of 2005-2010;

Particular	2005	2006	2007	2008	2009	2010
Number of people	264,631	271,179	277,849	283,073	261,842	267,938
Use computer	84,938	88,162	96,081	96,411	103,146	108,771
Use Internet	53,009	53,128	61,280	72,920	74,463	80,764

Table 4.7 Percentage of computer and proportion of Internet users per 100 people

Particulars	2005	2006	2007	2008	2009	2010
Use computer	32.1	32.5	34.6	34.1	39.4	40.6
Use Internet	20.0	19.6	22.1	25.8	28.4	30.1

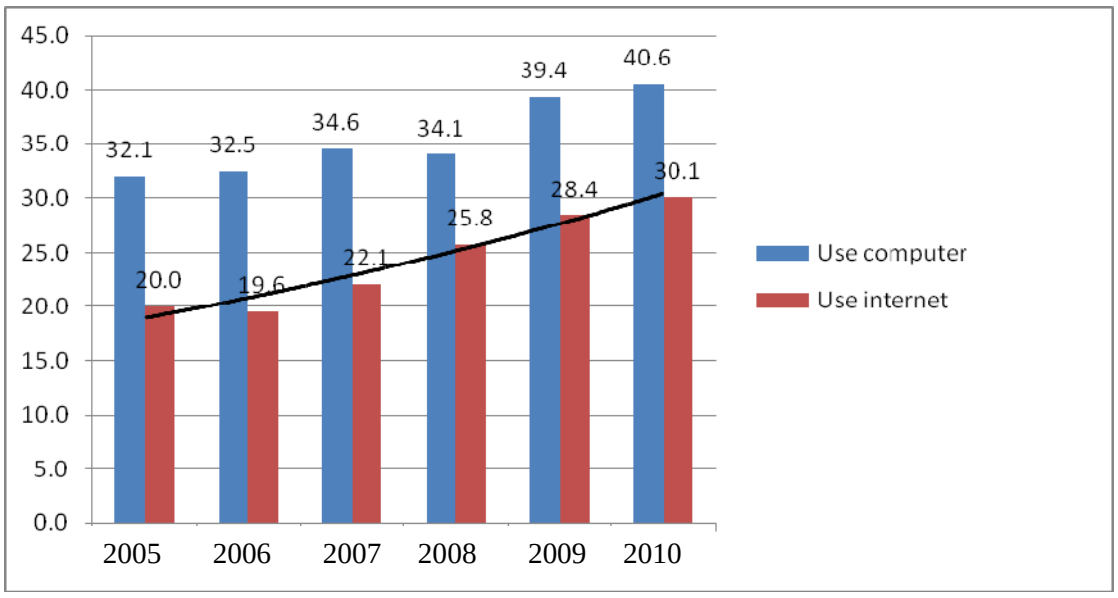

Figure 4.4 Chart displayed percentage of population used computer and Internet

Overall, the findings from Table 4.7 and figure 4.4 indicated that number of computer users per 100 people in 2010 equaled to 40.6 whereas 59.4 percent never used computer. The development levels constantly increased yearly, on average, the increase equaled to 1.7 percent per year.

For the proportion of Internet user per 100 people, it was found that number of Internet users in 2010 equaled to 30.1 percent and 69.9 percent of non-users. When making comparison from 2005 to 2010, it was found the increase amounted to 2 percent annually.

4.1.5. Proportion of Internet users per 100 people

Table 4.8 Number and Percentage of people accessing the government Internet

Particular	Number	Percentage
Using the government Internet	151	39.3
Not using the government Internet	233	60.7
Total	384	100.0

Overall, the finding from Table 4.8 indicated that 151 people or 39.3 percent accessing and using the government Internet and 233 people or 60.7 percent of non-users.

Table 4.9 Number and Percentage of reasons for not using the government Internet

Reasons for not using the government Internet	Number	Percentage
Not knowing	46	19.7
Inconvenience	152	65.0
Incomplete services	16	6.8
Others	20	8.5
Total	234	100

Finding from Table 4.9 indicated that majority 152 people or 65.0 percent not using the government Internet or electronic media because it is inconvenience, followed by 46 people or 19.7 percent not knowing that the government provided Internet services and 16 people or 6.8 percent knowing the government unable to provide full services.

4.1.6. Monthly Internet fee (20 hours per month)

Table 4.10 Monthly Internet Speed and Fees classified by Distributors [36]

3BB		**True Move**		**TOT**	
Speed	**Fee**	**Speed**	**Fee**	**Speed**	**Fee**
-		-		3 Mbps/512k	390
6 Mbps/512	590	-		-	
-		-		7 Mbps /512k	390
9Mbps/1Mbps	900	9Mbps/1Mbps	899	-	
-		-		10 Mbps /512k	590
12Mbps/1Mbps	1,490	12 /1 Mbps	1399	12Mbps/1 Mbps	890
-		-		15Mbps /1 Mbps	1290
16Mbps/1Mbps	2,290	16 /1Mbps	2299	-	
20Mbps/4Mbps	2,990	-		20Mbps /1 Mbps	1890
-		50 /1Mbps	3599	-	-

4.1.7. Information and Communication Technology Investment

The study of the OSM Andaman for the budget proposal to the cabinet during the site meeting at Phuket from March 19 to March 20, 2012 indicated that Phuket leading by the Governor had engaged ICT investment study on Andaman areas, budgeting for 4,623,000,000 baht with Prince of Songkla University,Phuket Campus to enhance confidential among people and tourists by establishing the

Security War Room with the budget of 247,900,000 baht at Phuket Center for Disaster Prevention and Relief, 18 districts. [37]

4.2 Education and Human Resources Dimensions

Education and Human Resources Dimensions are comprised of the following ten indicators :

4.2.1. An admission rate in primary education level

4.2.2. A proportion of those completed compulsory education

4.2.3. A proportion of those completed secondary education

4.2.4. Population of people with basic education

4.2.5. Legible rate of Phuket population

4.2.6. A proportion of computer per students in each level

4.2.7. Numbers of participants received training from Professional Training Institute and certified with vocational standard qualification

4.2.8. A proportion of ICT educators per students

4.2.9. A proportion of ICT graduates

4.2.10.Numbers Computer courses in each education level.

Table 4.11 Number of students/university students under and over the Jurisdiction of Ministry of Education 2008-2010 [38]

Jurisdiction	Educational Year 2008	Educational Year 2009	Educational Year 2010
Office of the basic Education Commission	31,083	30,216	30,217
Phuket Office of Private Education	17,770	17,278	N/A
Office of Non-formal and Informal Education	4,106	4,104	N/A
Office of the Vocational Educational Commission	6,237	6,048	N/A

Table 4.11 Number of students/university students under and over the Jurisdiction of Ministry of Education 2008-2010 (cont.)

Jurisdiction	Educational Year 2008	Educational Year 2009	Educational Year 2010
Office of the Higher Education Commission	16,539	13,405	N/A
Sub-district Administration	14,476	14,941	N/A
Total	90,211	85,992	N/A

4.2.1. An admission rate in primary education level

Table 4.12 Primary School Admission Rate (6-11 years, admitted Pratom 1) and Secondary School Admission Rate (12-14 years, admitted Matayom 1) [39]

Educational Year	Kindergarten.	Primary School (B.1)	Percen - tage	Primary School (B. 6)	Secondary School (M. 1)	Percen- tage
2008	2,019	2,432	120.46	2,469	3,458	140.06
2009	1,666	2,343	140.64	2,043	2,225	108.91
2010	1,574	2,190	139.14	2,005	3,292	164.19
Average	5,259	6,965	132.44	6,517	8,975	137.72

Table 4.13 An admission rate in primary education level [40]

Number of student On December 2010			
3-5 year	6-11 year	12-14 year	15-17 year
15909	30477	16872	15,445

Table 4.14 Proportion of graduates in Compulsory Education (Matayomsuksa 3 and 6) [41]

Number of student				
Kindergarten	**Primary**	**Secondary School (M 1-3)**	**Secondary School (M 3- 6)**	**Total**
10,467	30,606	15,660	12,456	69,189
Rate				
1.1.1	1.1.2	1.1.3	1.1.4	
65.79	100.42	92.82	80.65	

4.2.2. A proportion of those completed compulsory education

Table 4.15 Proportion of graduates in Compulsory Education (Matayomsuksa 3) [41]

Education Year	**Matayomsuksa 3**		
	Number begin year	**Finish**	**Persentage**
2008	2,793	2,393	85.68
2009	2966	1,990	67.09
2010	4,108	3,090	75.22
Average	9,867	7,473	75.74

4.2.3. A proportion of those completed secondary education

Table 4.16 Proportion of graduates in Compulsory Education (Matayomsuksa 6) [41]

Education Year	Matayomsuksa 6		
	Number begin year	Finish	Persentage
2008	1,487	1,410	85.68
2009	1,528	942	67.09
2010	1,739	1585	75.22
Average	9,867	7,473	75.74

4.2.4. Population of people with basic education

Table 4.17 Educational Level of Phuket Population

Educational Level	Number	Percentage
Primary School	82	21.4
Junior High School (Matayomsuksa 3)	54	14.1
Senior High School (Matayomsuksa 6)	39	10.2
Vocational Certificate	21	5.5
Higher Certificate /Associate Degree	27	7
Bachelor Degree	131	34.1
Master Degree	27	7
Post Master Degree	1	0.3
Others	2	0.5

Finding from Table 4.17 indicated that majority 131 Phuket residents or 34.1 percent graduated with Bachelor Degree, followed by 82 persons or 21.4 percent completed Primary School Education and 54 persons or 14.1 percent completed lower Secondary School Education.

4.2.5. Legible rate of Phuket population

Table 4.18 Number and Percentage of non-legible population (15-59 years) [42]

Year	Workers age (15-59 years)	Non-legible	Percentage
2009	101,432	160	0.16
2010	101,432	120	0.12
2011	101,432	80	0.08

4.2.6. A proportion of computer per students in each level

Table 4.19 Number of computer per students in Phuket

Educational Institutes	Student	Computer	S:C
Phuket Vittayalai School	3,130	250	13:1
Satree Phuket School	3,324	254	13:1
Kratu Vittaya School	1,118	180	6:1
Chaeng Talay Vittayakom School	550	40	14:1
Chalerm Phrakiet Somdej Phra Sri Nakarn School	2,500	250	10:1
Muang Talang School	1,300	250	5:1
Verasatree Anusorn School	200	30	7:1
Prince Songkla Nakarin University, Phuket	2,344	500	5:1
Rachabhat University Phuket	11,438	850	13:1
Average Total	25,904	2,604	10:1

Findings from Table 4.19 indicated that by average 10 students used 1 shared 1 computer.

4.2.7. Numbers of participants received training from Professional Training Institute and certified with vocational standard qualification

Table 4.20 Budget and Number of Trainees from Professional training Institute with Certified Standard Certificate [43]

Responsible Agenciecy	2008		2009		2010		2011	
	Budget	Person	Budget	Person	Budget	Person	Budget	Person
(E-San Software Park) Khonkaen University	2,200,000	79,515	3,000,000	89,986	-	-	-	-
Prince Songkla Nakarin University, Phuket	-	-	-	-	2,200,000	79,515	3,000,000	89,986
Total	2,200,000	79,515	3,000,000	89,986	2,000,000	105,172	2,000,000	120,552

4.2.8. A proportion of ICT educators per students

Table 4.21 Number and Percentage ICT educators per entire students [44]

Educational Institutes	N Student	Number	Total of ICT Educators	Percentage
Phuket Vocational College	4440	-	276	6.2
Phuket Technical College	2399	-	41	1.7
Talang Technical College	304	-	62	20.4
Phuket Technology School	1200	-	120	10.0
Craftsman College	364	-	148	40.7

Table 4.21 Number and Percentage ICT educators per entire students (cont.)

Educational Institutes	N Student	Number	Total of ICT Educators	Percentage
Prince Songkla Nakarin University, Phuket Technology and	2344	-	1055	45.0
Environmental Management		23		
Information Technology		270		
Electronic Business		193		
Computer Engineering		303		
Software Engineering		266		
Rachabhat University Phuket	11438		2751	24.1
Computerized Education		666		
Technology and Education Innovation		33		
Technology and Innovation Design		222		
Business Administration (Business Computer)		379		
Business Computer		316		
Industrial Technology Management		208		
Information Technology		268		
Internet Technology		143		
Industrial Technology/Technological Production		3		

Table 4.21 Number and Percentage ICT educators per entire students (cont.)

Educational Institutes	N Student	Number	Total of ICT Educators	Percentage
Industrial Technology (Technological Industrial Management)		144		
Industrial Technology (Technological Construction)		82		
Industrial Technology (Electrical Industrial)		75		
Computerized		212		
Total	**22,489**		**4,453**	**19.8**

Findings from Table 4.21 indicated that total students from Phuket Institutes are 22,489 persons and 4,453 students studied Information communication technology or 19.8 percent.

4.2.9. A proportion of ICT graduates

Table 4.22 Number of ICT graduates from 2008-2010 [45]

Educational Institutes	Educational Year 2008	Educational Year 2009	Educational Year 2010
Phuket Vocational College	165	175	276
Phuket Vocational College	31	57	62
Talang Technical College	50	60	62
Phuket Technological School	60	96	120
Polytechnic College	35	34	22

Table 4.22 Number of ICT graduates from 2008-2010 (cont.)

Educational Institutes	**Educational Year 2008**	**Educational Year 2009**	**Educational Year 2010**
Prince Songkla Nakarin University, Phuket	212	178	985
Rachabhat University Phuket	76	63	2546
Total	629	663	4073

4.2.10 Computer courses in each education level.

Table 4.23 Computerized Courses in different Provincial Educational Institutes [46]

Name of Institution	**Program**
Phuket Vocational College	- Business Computer - Computer Graphic
Phuket Technical College	-Information Technology and Communication
Talang Technical College	-Web Page Development - Business Computer
Phuket Technological School	- Business Computer
Polytechnic College	- Business Computer
Prince Songkla Nakarin University, Phuket	- Technology and Environmental Management -Information technology -Electronic Business -Computer Engineering -Software Engineering
Rachabhat University Phuket	-Computerized Education -Technology and Education Innovation Design Technology and Innovation Design

Table 4.23 Computerized Courses in different Provincial Educational Institutes (cont.)

Name of Institution	Program
	-Business Administration (Business Computer) - Business Computer - Industrial Technology Management -Information Technology -Internet Technology - Industrial Technology (Technological Production) - Industrial Technology (Industrial Technology Management) -Industrial Technology(Construction Technology) Industrial Technology (Electrical Industrial) -Computerized
Phuket ICT Center, Sapan Hin	• Ideal ICT • Creative Internet • Computer Courses for administrative assignment based on the cabinet resolution, Session 2 • Auto CAD 2010 design • Building Simple Website with Joomla • Computer Courses for administrative assignment based on the cabinet resolution, Session 1 • Animation & Multimedia • Courses for general public • Communication with offspring through Internet • Open Office • Designed Publish media with illustrator • Computer Maintenance and Virus protection Program

Table 4.23 Computerized Courses in different Provincial Educational Institutes (cont.)

Name of Institution	Program
	• BASIC MULTIMEDIA II • BASIC MULTIMEDIA I • BASIC DESIGN • Redesigned pictures with Photoscape • MICT-SIPA Summer Camp • Training Project March 2010 • Valentine Cards Contest • Training " Learning Media through eBook" • Graphic Design with Adobe Photoshop • Training "White Internet" • Training Google Apps

4.3 Business Operation Dimension

Data on business operation were collected from business operators and ICT operators with 12 indicators which sub-divided into the following:

Accessing ICT is being done through six indicators proportion of company with

Accessing standard ICT comprised of six indicators :

4.3.1. Proportion of company with standard phone

4.3. 2. Proportion of company with mobile phone

4.3.3. Proportion of company with computer

4.3. 4. Proportion of business accessing Internet

4.3.5. Percentage of workers with ICT skills

4.3.6. Percentage of workers accessing ICT and searching for data through Internet.

Accessing and ICT usage in progressive level comprised

4.3.7. Internet speed covered local network, website and ICT investment

4.3.8. Proportion of workers using ICT

4.3.9. Application of E-commerce for Internet Administration and display values of purchase transactions among customers

4.3.10. Number of ICT training hours

4.3.11. Obstacles during the operation , the use of Internet, purchasing merchandise and requesting services through Internet and E-commerce

4.3.12. ICT investment and ICT personnel and size of ICT business

Table 4.24 Number and Percentage of business and ICT classified by status

Status	**Number**	**Percent**
Business owner	178	42.5
Managing Director	9	2.1
Manager	129	30.8
Division Supervisor	103	24.6
Total	419	100.0

Findings from Table 4.24 indicated that 178 business operators or 42.5 percent answered questionnaires, followed by 120 managers or 30.8 percent and 103 division supervisors or 24.6 percent.

Table 4.25 Number and Percentage of employees in the Business Establishments Classified by total employees

Employees	**Number**	**Percentage**
1-15 persons	231	55.1
16-20 persons	40	9.5
21-25 persons	16	3.8
26-50 persons	28	6.7
51-200 persons	40	9.5
Over 200 persons	64	15.3
Total	419	100.0

Findings from Table 4.25 indicated that amongst 419 samples business operators, 231 business establishments or 55.1 percents had 1-15 the most, followed by 64 business establishments or 15.3 percent hired 200 employees and 40 business establishments employed workers 16-20 persons or 9.5 percent.

Table 4.26 Number and Percentage of Business and ICT operators classified by Type of Business

Type of Business	**Number**	**Percentage**
Real estate	4	1.0
Sale/Maintenance/Auto repair	28	6.7
Production	17	4.1
Wholesale/ Trade Commission	9	2.1
Retail/Repairing	29	6.9
Household	9	2.1
Hotels and Restaurants	97	23.2
Transport and Business agent	13	3.1
Tourism	50	11.9
Machinery and equipment rent	18	4.3

Table 4.26 Number and Percentage of Business and ICT operators classified by Type of Business (cont.)

Type of Business	**Number**	**Percentage**
Recreations and other services	49	11.7
Others	56	13.4
Hardware	2	.5
Software Reseller	2	.5
Internet Service Provider	1	.2
Computer Graphic/Web Design	6	1.4
Web Hosting /Data Center Service	1	.2
Internet Cafe	25	6.0
Software Hose/Software Developer	2	.5
Communication Equipment	1	.2
Total	419	100.0

Findings from Table 4.26 indicated that 97 of samples or 23.2 percent were hotels and restaurants operators followed by others business 56 operators or 13.4 percent and 50 tour operators or 11.9 percent.

Accessing standard ICT comprised of 6 indicators

Proportion of Typical business operators using Information Technology and communication equipment to assist their operations (standard phone, mobile phone, fax and computer)

Table 4.27 Number and Percentage of Business Operators accessing Information Technology and Communication

Particulars	**Number**	**Percentage**
Accessing Information Technology and Communication	419	100
Not accessing Information Technology and Communication	0	0
Total	419	100

Findings from Table 4.27 indicated typical business operators or 100 percentage using Information Technology and Communication equipment assist their operations (standard phone, mobile phone, fax and computer)

Table 4.28 Number and Percentage of Business operators accessing Information Technology and Communication classified by type of Communication Equipment

Type of Communication Equipments	**Cases**					
	USED		**UNUSED**		**Total**	
	N	**%**	**N**	**%**	**N**	**%**
Television	258	61.6	161	38.4	419	100.0
Standard Television	378	90.2	41	9.8	419	100.0
Mobile Phone	314	74.9	105	25.1	419	100.0
Fax	303	72.3	116	27.7	419	100.0
Computer	388	92.6	31	7.4	419	100.0

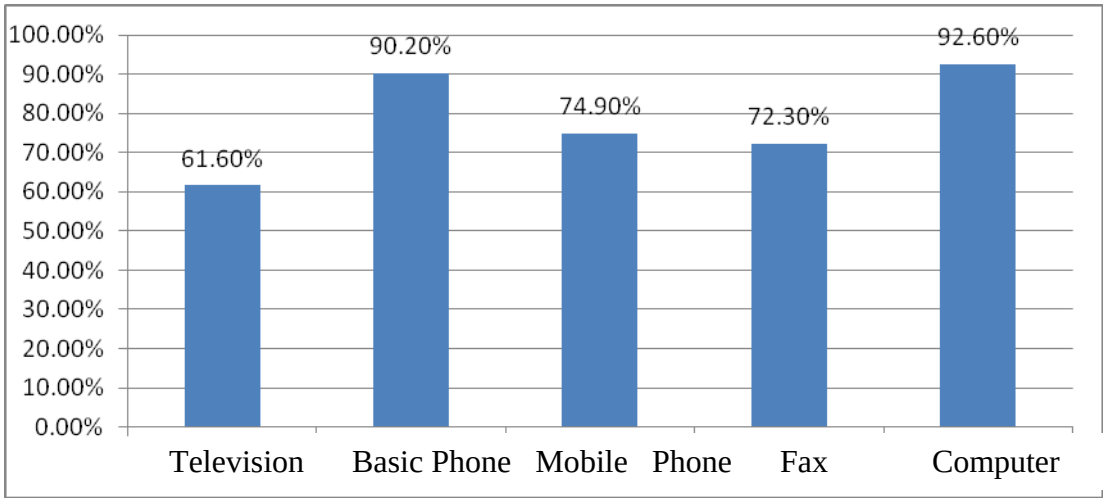

Figure 4.5 Percentage of Business establishments equipped with communication equipment for operation

Findings from Table 4.28 and figure 4.5 indicated that 388 business establishments or 92.6 percent used computers, followed by 378 business establishments or 90.2 percent and 314 of them or 74.9 percent used mobile phone.

4.3.1. Proportion of company with standard phone

Findings from Table 4.28 and figure 4.5 indicated that 378 business establishments or 90.2 percent age

4.3. 2.Proportion of company with mobile phone

Findings from Table 4.28 and figure 4.5 indicated that 314 of them or 74.9 percentage used mobile phone.

4.3.3. Proportion of company with computer

Findings from Table 4.28 and figure 4.5 indicated that 388 business establishments or 92.6 percentage used computers

Proportion of Business operators used Information Technology in the operations classified by type of Communication Equipment

Table 4.29 Number and Percentage of Business operators used Information Technology in the operations classified by type of Communication Equipment

Type	N Total	Total	Tele-vision		Standard Television		Mobile Phone		Fax		Compute r	
			N	%	N	%	N	%	N	%	N	%
1.	4	100	4	100.0	4	100.0	4	100.0	4	100.0	4	100.0
2.	17	100	1	5.9	17	100.0	9	52.9	13	76.5	17	100.0
3.	9	100	17	188.9	9	100.0	1	11.1	8	88.9	9	100.0
4.	29	100	0	0.0	25	86.2	17	58.6	8	27.6	13	44.8
5.	9	100	8	88.9	8	88.9	9	100.0	4	44.4	9	100.0
6.	97	100	80	82.5	92	94.8	73	75.3	84	86.6	93	95.9
7.	13	100	5	38.5	13	100.0	13	100.0	9	69.2	13	100.0
8.	50	100	22	44.0	41	82.0	37	74.0	36	72.0	50	100.0
9.	18	100	10	55.6	17	94.4	18	100.0	9	50.0	18	100.0
10.	49	100	25	51.0	37	75.5	37	75.5	24	49.0	45	91.8
11.	56	100	48	85.7	52	92.9	48	85.7	51	91.1	56	100.0
12.	2	100	1	50.0	2	100.0	1	50.0	2	100.0	2	100.0
13.	2	100	2	100.0	1	50.0	1	50.0	1	50.0	2	100.0
14.	1	100	1	100.0	1	100.0	1	100.0	1	100.0	1	100.0
15.	6	100	3	50.0	4	66.7	4	66.7	4	66.7	6	100.0
16.	1	100	0	0.0	1	100.0	0	0.0		0.0	0	0.0
18.	25	100	21	84.0	23	92.0	18	72.0	15	60.0	23	92.0
19.	2	100	2	100.0	2	100.0	2	100.0	2	100.0	2	100.0
20.	1	100	0	0.0	1	100.0	1	100.0	0	0.0	1	100.0
Total	419	100	258	61.6	378	90.2	314	74.9	303	72.3	388	92.6

1)Real Estate 2) Production 3)Wholesale/ Trade Commission 4)Retail/ Repair5)Household 6) Hotels and Restaurants 7) Transport and Business Agent 8)Tourism 9) Machinery and Equipment Rent10) Recreation and other services 11) Others 12)Hardware 13)Software Reseller 14)Internet Service Provider 15)Computer Graphic/Web Design 16)Web Hosting /Data Center Service 18)Internet Cafe 19)Software Hose/Software Developer 20)Communication Equipment

Findings from Table 4.29 indicated that 181business operators or 43.2 percent had owned televisions/basic phone/mobile phone/fax and used computer in the operations, followed by 58 business operators or 13.8 percent used only basic phone/mobile phone/fax/and computer in the operations and 37 business operators or 8.8 percent used basic phone/fax/ and computer in the operations.

4.3. 4. Proportion of business accessing Internet

Table 4.30 Number and Percentage of Business Operators accessing Internet

Particulars	**Number**	**Percentage**
Having Internet	375	89.5
Not having Internet	44	10.5
Total	419	100.0

Findings from Table 4.30 indicated that 375 business operators or 89.5 percent accessed and used Internet and 44 business operators or 10.5 percent had not used Internet in the operation.

Table 4.31 Number and Percentage of Business Operators accessing Internet Classified by type of business

Type	**N Total**	**Using Internet in Operation**			
		Yes	**%**	**No**	**%**
Real Estate	4	4	100.0	0	0.0
Sale/Maintenance/Repair vehicles	28	28	100.0	0	0.0
Production	17	9	52.9	8	47.1
Wholesale/Trade Commission	9	5	55.6	4	44.4
Retail/repair	29	13	44.8	16	55.2
Household	9	9	100.0	0	0.0
Hotels and Restaurants	97	89	91.8	8	8.2
Transport and Business Agent	13	9	69.2	4	30.8
Tourism	50	50	100.0	0	0.0
Machineries and Equipment Rent	18	14	77.8	4	22.2
Recreation activities and other services	49	49	100.0	0	0.0
Others	56	56	100.0	0	0.0
Hardware	2	2	100.0	0	0.0
Software Reseller	2	2	100.0	0	0.0
Internet Service Provider	1	1	100.0	0	0.0
Computer Graphic/Web Design	6	6	100.0	0	0.0
Web Hosting /Data Center Service	1	1	100.0	0	0.0
Internet Cafe	25	25	100.0	0	0.0
Software Hose/Software Developer	2	2	100.0	0	0.0
Communication Equipment	1	1	100.0	0	0.0
Total	419	375	89.5	44	10.5

Findings from Table 4.31 indicated that majority of business establishments used Internet in the operation. However, the retailers, including those made the repair and product. It also refers to wholesalers and trade commission had not used Internet in the operation as high as 55.2 percent, 47.1 percent and 44.4 percent, respectively.

4.3.5. Percentage of workers with ICT skills

Table 4.32 Number and Percentage of workers with ICT skills

Operation Type	N Total	Number Employee ICT Skill	Proportion of employee with ICT skill per operational facilities	
Real Estate	4	32	8	25.0
Sale/Maintenance/Repair vehicles	28	192	7	3.6
Production	17	113	7	6.2
Wholesale/Trade Commission	9	26	3	11.5
Retail/repair	29	215	7	3.3
Household	9	26	3	11.5
Hotels and Restaurants	97	5,782	60	1.0
Transport and Business Agent	13	31	2	6.5
Tourism	50	2,059	41	2.0
Machinery and Equipment rent	18	31	2	6.5
Recreation and other services	49	170	3	1.8
Others	56	1,643	29	1.8
Hardware	2	12	6	50.0
Software Reseller	2	3	2	66.7
Internet Service Provider	1	20	20	100.0
Computer Graphic/Web Design	6	411	69	16.8

Table 4.32 Number and Percentage of workers with ICT skills (cont.)

Operation Type	N Total	Number Employee ICT Skill	Proportion of employee with ICT skill per operational facilities	
Web Hosting /Data Center Service	1	4	4	100.0
Internet Café	25	125	5	4.0
Software Hose/Software Developer	2	5	3	60.0
Communication Equipment	1	2	2	100.0
Total	419	10,902	26	

Proportion = Number of skilled ICT employees/ company numbers

Findings from Table 4.32 indicated that by average each company had 26 workers or 0.23 percent with ICT skills, especially those related to Internet Service Providers/ Web Hosting /Data Center Service and communication equipment 100 percent with technological skills.

4.3.6. Percentage of workers accessing ICT and searching for data through Internet.

Table 4.33 Number and Percentage of workers with ICT skills and searching data through Internet

Type of Business	N Total	Numbers of Employees with Internet Accessibility	Proportion of Employees with Internet Accessibility per establishment	
Real Estate	4	32	8	25.0
Sale/Maintenance/Repair vehicles	28	192	7	3.6
Production	17	125	7	5.6
Wholesale/Trade Commission	9	58	6	10.3
Retail/repair	29	224	8	3.6
Household	9	25	3	12.0
Hotels and Restaurants	97	3,766	39	1.0
Transport and Business Agent	13	39	3	7.7
Tourism	50	2,043	41	2.0
Machinery and Equipment rent	18	31	2	6.5
Recreation and other services	49	178	4	2.2
Others	56	2,471	44	1.8
Hardware	2	12	6	50.0
Software Reseller	2	4	2	50.0
Internet Service Provider	1	20	20	100.0
Computer Graphic/Web Design	6	413	69	16.7
Web Hosting /Data Center Service	1	10	10	100.0
Internet Cafe	25	140	6	4.3
Software Hose/Software Developer	2	5	3	60.0
Communication Equipment	1	2	2	100.0
Total	419	9,790	23	0.2

Findings from Table 4.33 indicated that by average the business establishments in the province had 23 workers or 0.2 accessing ICT and searching data from Internet , especially the Internet Service Provider Web Hosting /Data Center Service and communication equipment with high technological skills as high as 100 percent. Considering each group, the proportion of workers accessing ICT and searching for data were those working for real estate business, wholesale / trade commission and selling consumers goods as much as 25 percent, 12.0percent and 10.3, respectively.

Accessing and ICT usage in progressive level comprised

4.3.7. Internet speed covered local network, website and ICT investment

Table 4.34 Number and Percentage of Business Establishment using Internet sped

Speed List		**Frequency**	**Percent**
Valid	1-4 MB	187	44.6
	5-10 MB	169	40.3
	More than 10 MB	19	4.5
	Total	375	89.5
Missing	System	44	10.5
Total		419	100.0

Findings from Table 4.34 indicated that Internet with the speed 1-4 MB most used in 187 business establishments or 44.6 percent , followed by the speed 5-10 MB in 169 business establishments or 40.3 percent and more than 10 MB in 19 business establishments or 4.5 percent.

Table 4.35 Number and Percentage of Internet Speed classified by Type of Operation

Type of Business	**Internet speed used in the operation**			**Total**
	1-4 MB	**5-10 MB**	**> 10 MB**	
Real Estate	4	0	0	4
Sale/Maintenance/Repair vehicles	16	12	0	28
Production	8	1	0	9
Wholesale/Trade Commission	4	0	1	5
Retail/repair	4	9	0	13
Household	0	9	0	9
Hotels and Restaurants	60	21	8	89
Transport and Business Agent	4	5	0	9
Tourism	28	22	0	50
Machinery and Equipment rent	1	13	0	14
Recreation and other services	28	21	0	49
Others	28	24	4	56
Hardware	0	2	0	2
Software Reseller	0	2	0	2
Internet Service Provider	0	1	0	1
Computer Graphic/Web Design	1	5	0	6
Web Hosting /Data Center Service	0	0	1	1
Internet Cafe	1	19	5	25
Software Hose/Software Developer	0	2	0	2
Equipment	0	1	0	1
Total	187	169	19	375

Findings from Table 4.35 indicated that Internet with the speed 1-4 MB most used in Hotels and Restaurants, followed by tourism, recreation and other services at equaled numbers 28 each.

4.3.7.1 The network use in the Business Establishments

Table 4.36 Information Technology used in Business Establishments

Type of Network		**Frequency**	**Percentage**
Valid	Local Area Network (LAN)	224	53.5
	Stand Alone	103	24.6
	Wireless	62	14.8
	Local Area Network + Stand Alone	5	1.2
	Local Area Network +Wireless	25	6.0
	Total	419	100.0

Findings from Table 4.36 indicated that majority of business establishment 224 places or 53.5 percent used Local Area Network the most, followed by 103 places or 24.6 percent and 62 places or 14.8 percent used wireless.

4.3.7.2 Proportion of using Web site in the Business Establishments

Table 4.37 Number and Percentage of operational facilities with Website

Web site List	**Frequency**	**Percentage**
Having	137	32.7
Not Having	282	67.3
Total	419	100.0

Findings from Table 4.37 indicated that majority of business establishments 282 places or 67.3 percent had not owned website and 137 business establishments or 32.7 percent had own website.

4.3.7.3 Proportion of Business Establishments with ICT Investment Plan within the next 1-2 years

Table 4.38 Number and Percentage of Business Operators having Investment Policies

Investment Policies	Frequency	Percent
Having Policies	226	53.9%
Not having policies	193	46.1%
Total	419	100.0

Findings from Table 4.38 indicated that 226 business establishments or 53.9 percent had planned investment in the next 1-2 years and 193 or 46.1 percent had no plan to invest in the next 1-2 years.

4.3.8. Proportion of workers using ICT

Proportion of Employees using computers and Internet at work

Table 4.39 Number and Percentage of Employees using computers and Internet at work

Type of Business	N of Total	ICT	Internet
Real Estate	4	32	32
Sale/Maintenance/Repair vehicles	28	192	192
Production	17	113	125
Wholesale/Trade Commission	9	26	58
Retail/repair	29	215	224
Household	9	26	25
Hotels and Restaurants	97	5782	3766

Table 4.39 Number and Percentage of Employees using computers and Internet at work (cont.)

Type of Business	**N of Total**	**ICT**	**Internet**
Transport and Business Agent	13	31	39
Tourism	50	2,059	2,043
Machinery and Equipment rent	18	31	31
Recreation and other services	49	170	178
Others	56	1,643	2,471
Hardware	2	12	12
Software Reseller	2	3	4
Internet Service Provider	1	20	20
Computer Graphic/Web Design	6	411	413
Web Hosting /Data Center Service	1	4	10
Internet cafe	25	125	140
Software Hose/Software Developer	2	5	5
Communication Equipment	1	2	2
Total	419	10,902	9,790

Findings from Table 4.39 indicated that majority of employees in the business establishment who had ICT skills could access Internet with the proportion of 1.09 per 0.98 per an employee. Overall, majority of employees know how to use Internet.

4.3.9. Application of E-commerce for Internet Administration and display values of purchase transactions among customers

Table 4.40 Number and Percentage of Business Operators using E-Commerce

E-Commerce		Frequency	Percentage
Valid	Used	150	35.8
	Unused	269	64.2
	Total	419	100.0

Findings from Table 4.40 indicated that majority 269 business establishments in Phuket or 64.2 percent had never ordered merchandises through E-commerce whereas 150 business establishments or 35.8 percent did so.

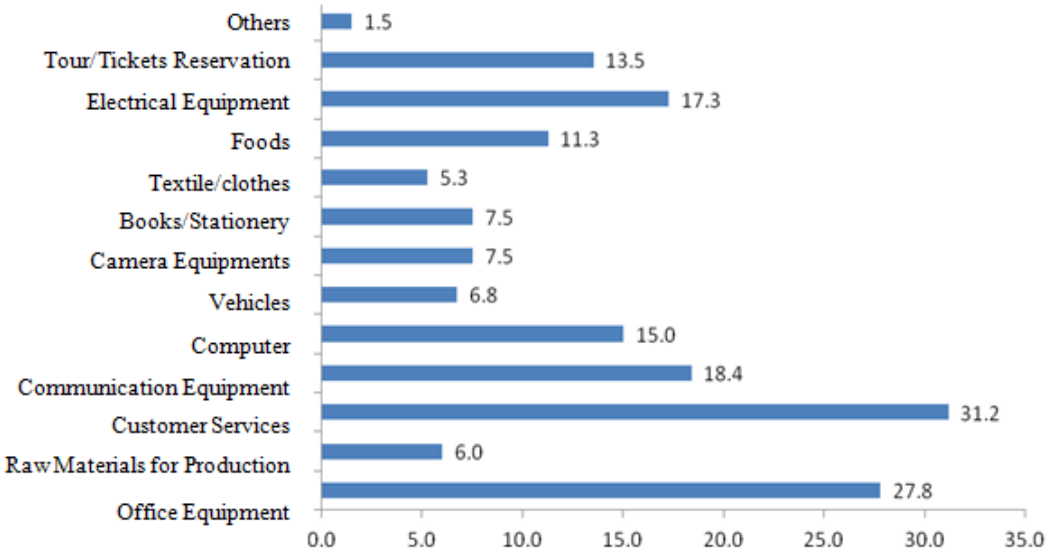

Figure 4.6 Percentage of E-commerce usage in distributing merchandise classified by type of merchandise

Table 4.41 Number and Percentage of E-commerce usage in purchasing merchandise classified by type of merchandise

No.	Type of product	Frequency	Percentage
1	Office Equipment	74	27.8
2	Raw Materials for Production	16	6.0
3	Customer Services	83	31.2
4	Communication Equipment	49	18.4
5	Computer	40	15.0
6	Vehicles	18	6.8
7	Camera Equipments	20	7.5
8	Books/Stationery	20	7.5
9	Textile/clothes	14	5.3
10	Foods	30	11.3
11	Electrical Equipment	46	17.3
12	Tour/Tickets Reservation	36	13.5
13	Others	4	1.5

Findings from Table 4.41 and figure 4.6 indicated that majority 83 business establishments or 31.2 percent provided services to the customers through E-commerce the most, followed by 74 business establishments or 27.8 percent ordered office equipment and 49 business establishments or 18.4 percent bought communication equipment.

4.3.9.1 Transaction Values and Users

Table 4.42 Number and Percentage of average purchase values through E-commerce

Values	**Frequency**	**Percentage**
100-1000 baht/time	5	1.2
1001-5000 baht/ time	44	10.5
5001-10000 baht / time	24	5.7
10001-15000 baht / time	1	.2
15001-20000 baht / time	31	7.4
25001-30000 baht / time	21	5.0
Others (Specify)	24	5.7
Total	150	35.8
Not Using E-Commerce	269	64.2
Total	419	100.0

Findings from Table 4.42 indicated that 44 business establishments or 10.5 percent bought merchandises each time 1001-5000 baht followed 24 business establishments or 5.7 percent bought 5001-10000 baht each time and 24 other business establishments or 5.7 percent.

4.3.9.2 E-Commerce Users

Table 4.43 Number of Business Establishments using E-Commerce

Type of Company	1	2	3	4	5	6	7	8	9	10	11	12	13
Real Estate					4								
Sale/Maintenance/Repair vehicles	8				4								
Production													
Wholesale/Trade Commission			4	4				1				1	
Retail/repair													
Household													
Hotels and Restaurants	28	8	36	28	20	16	16	12	12	28	24	44	
Transport and Business Agent													
Tourism	4	4	12	1	1	1		1	1		9	8	
Machinery and Equipment rent	4			4									
Recreation and other services			4										4
Others	16		20	8	12		8	4			8	16	
Hardware	1				1								
Software Reseller													
Internet Service Provider													
Computer Graphic/Web Design	2	2			1			1		1	3		
Web Hosting /Data Center Service													
Internet Cafe	2	4	4	3	1	1			1	1	1	3	
Software Hose/Software Developer													
Communication Equipment													
Total	65	18	80	48	44	18	24	19	14	30	45	72	4

Findings from Table 4.43 indicated that Hotels and restaurants as the customers using E-commerce service the most, followed by other business and tour business.

4.3.10. Number of ICT training hours

Table 4.44 Number and Percentage of Training ICT personnel in the Business Establishments

Particulars		**Frequency**	**Percentage**
Valid	Never Been Trained	174	41.5
	1 time	93	22.2
	3 times	92	22.0
	4 times	13	3.1
	5 times	18	4.3
	Over 5 times	29	6.9
	Total	419	100.0

Findings from Table 4.44 indicated that majority 245 of employees or 58.5 percent in the business establishments passed ICT training and 174 employees or 41.5 percent had not been trained. For the business establishments that enhance ICT used among employees, it was found that 93 business establishments arranged training at least once a year.

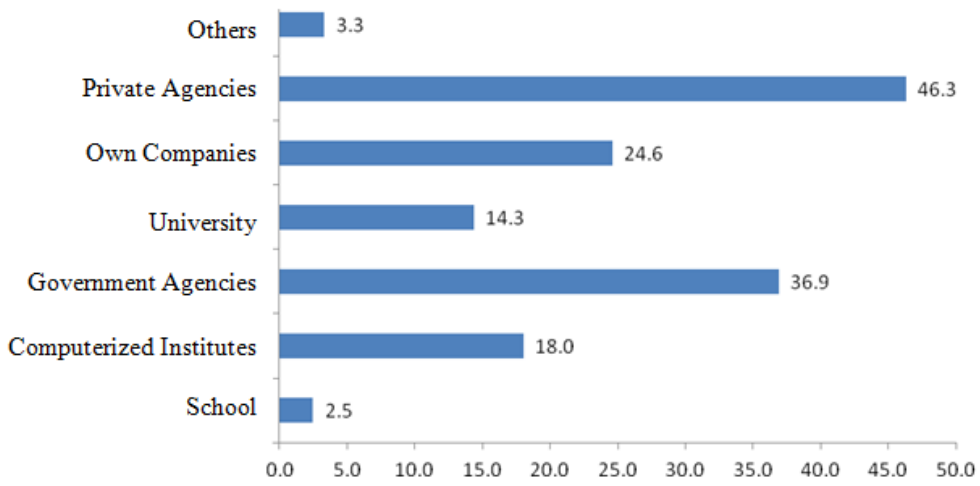

Figure 4.7 Percentage of Agencies Trained Personnel

Table 4.45 Number and Percentage of Agencies training personnel in ICT

Agencies	**Frequency**	**Percentage**
School	6	2.5
Computerized Institutes	44	18.0
Government Agencies	90	36.9
University	35	14.3
Own Companies	60	24.6
Private Agencies	113	46.3
Others	8	3.3

Findings from Table 4.45 indicated majority 113 business establishments or 46.3 percent employed the private agencies to assist in developing ICT among their employees, followed by 90 business establishments or 38.9 percent used the government agencies and 60 business establishments or 24.6 percent arranged own training in the company.

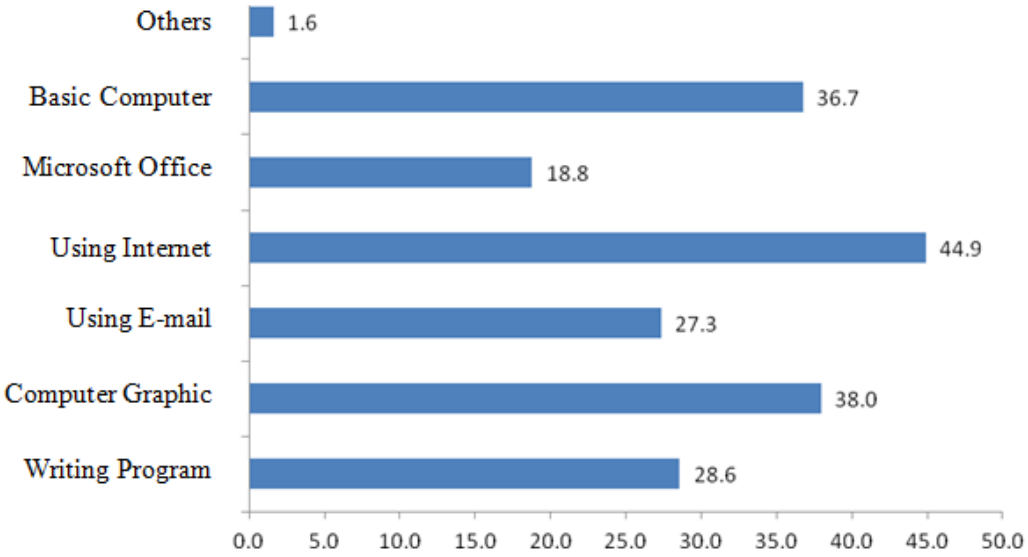

Figure 4.8 Percentage of Program for Training Personnel

Table 4.46 Number and Percentage of Program for Training Personnel

No	Title	Frequency	Percentage
1	Writing Program	70	28.6
2	Computer Graphic	93	38.0
3	Using E-mail	67	27.3
4	Using Internet	110	44.9
5	Microsoft Office	46	18.8
6	Basic Computer	90	36.7
7	Others	4	1.6

Findings from Table 4.46 and figure 4.8 indicated that majority 110 employees or 44.9 percent had Internet training; followed by 93 employees or 38 percent received training on computer graphics and 90 employees or 36.7 percent had basic computer training.

Table 4.47 Number and Percentage of Employee Internet use in the Business Establishments

Internet Use	**Frequency**	**Percentage**
Daily	305	72.8
1time/week	13	3.1
2-3 times/week	45	10.7
Others	20	4.8
Total of Event	383	91.4
No selection	36	8.6
Total of N	419	100.0

Findings from Table 4.47 indicated that majority 305 employees used Internet in the business establishments daily, followed by 45 employees or 10.7 percent used Internet 2-3 times per week and 20 employees or 4,8 percent used for others.

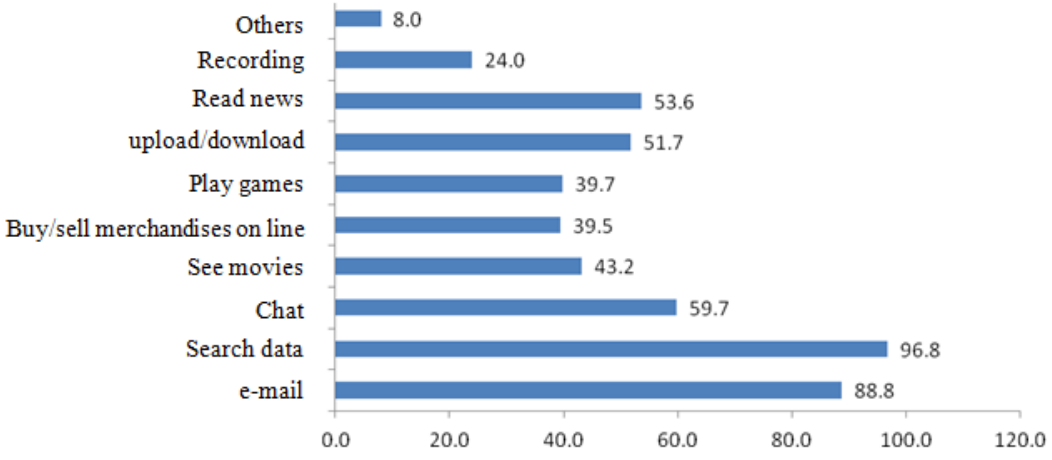

Figure 4.9 Employee purposes in using Internet

Table 4.48 Number and Percentage of Employee purposes in using Internet in the Business Establishment

No.	Purposes	Frequency	Percentage
1	e-mail	333	88.8
2	Search data	363	96.8
3	Chat	224	59.7
4	See movies	162	43.2
5	Buy/sell merchandises on line	148	39.5
6	Play games	149	39.7
7	upload/download	194	51.7
8	Read news	201	53.6
9	Recording	90	24.0
10	Others	30	8.0

Findings from Table 4.48 and Figure 4.9 indicated that majority 363 employees or 96.8 percent used Internet to search for data, followed by 333 employees or 88.8 percent used for sending and receiving E-mail, and 210 employees or 53.6 percent used Internet to read news.

4.3.11. Obstacles during the operation , the use of Internet, purchasing merchandise and requesting services through Internet and E-commerce

Obstacles from working with Internet, purchasing and selling merchandises through Internet and E-commerce occurred with the delay in Internet speed and computer Virus

As for E-Commerce, the procedures were complicated, difficult to understand instruction and no ticket to purchase. This is inconvenience transaction so buyer hesitated to purchase each time.

4.3.12. ICT investment and ICT personnel and size of ICT business

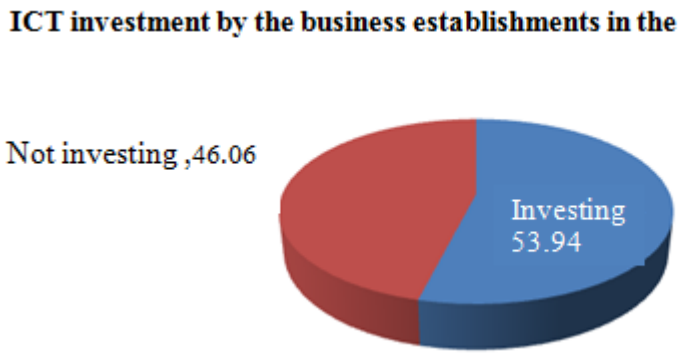

Figure 4.10 Percentage of ICT investment by the business establishments in the next 1-2 years

Table 4.49 Number and Percentage of the Business Establishment with plan to invest in the next 1-2 years

Policy	**Frequency**	**Percentage**
Investing	226	53.9
Not investing	193	46.1
Total	419	100.0

Findings from Table 4.49 and Figure 4.10 indicated that majority 226 business establishments or 53.9 percent had planned investment and 193 business establishments or 46.1 percent had no plan at all.

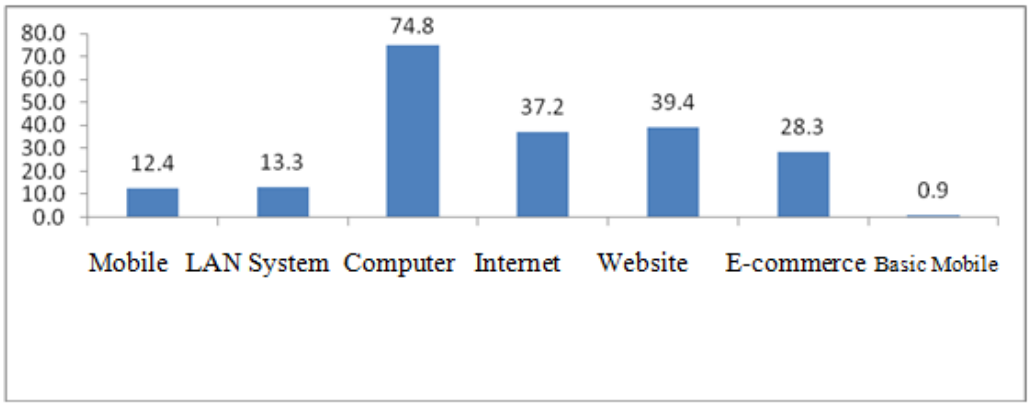

Figure 4.11 Percentage of the Business Establishment with plan to invest in the next 1-2 years

Table 4.50 Number and Percentage of ICT investment type in the Business Establishment with plan to invest in the next 1-2 years

No.	Type	Frequency	Percentage
1	Mobile	28	12.4
2	LAN System	30	13.3
3	Computer	169	74.8
4	Internet	84	37.2
5	Website	89	39.4
6	E-commerce	64	28.3

Findings from Table 4.50 and Figure 4.11 indicated majority 169 business establishments or 74.8 percent had planned to invest in computer, followed by 89 business establishments or 39.4 percent planned investment on Web Site and 64 of them or 28.3 percent wanted to invest in E-commerce.

4.4 Culture Dimension

Selecting Household Representatives from the General Public

The face-to-face survey was conducted and derived with 384 samples which could be identified with 11 indicators as follows:

4.4.1) Proportion of household with standard phone service

4.4.2) Proportion of household with computer

4.4.3) Proportion of household with access to Internet

4.4.4) Accessing Internet and usage

4.4.5) Internet location

4.4.6) Internet Frequency

4.4.7) Purposes for using Internet

4.4.8) Purposes for using Internet Services, type of merchandise and services ordered through Internet and average spending on each purchase

4.4.9) Information Technology Skills

4.4.10) Accepting the use of Internet

4.4.11) Obstacles during the use of Computer, ordering merchandises and requesting services through Internet and classified based on basic characteristics of samples. Conclusions are made as follows:

4.4.1 Proportion of household with standard phone service

Personal Data

Respondent Domicile

Table 4.51 Number of questionnaires respondents classified by house registration address

District	Number	Percentage
Muang	98	25.6
Kratu	207	53.9
Talang	9	2.3
Up-country/Take up occupation in Phuket	69	18

Findings from Table 4.51 indicated majority 207 questionnaire respondents or 53.9 percent lived at Kratu District the lived at Muang District whereas 59 questionnaires respondents or 18.0 percent came from up-country but settled in Phuket for their livelihoods.

Gender

Table 4.52 Number and Percentage of questionnaires respondents classified by gender

Gender	**Number**	**Percentage**
Males	121	31.5
Females	263	68.5
Total	384	100.0

Findings from Table 4.52 indicated that 121 questionnaire respondents were males or 31.5 percent whereas 263 were females or 68.5 percent.

Age

Table 4.53 Number and Percentage of age structure of questionnaires respondents

Age (Year)	**Number**	**Percentage**
15-20	16	4.2
21-25	20	5.2
26-30	52	13.5
31-35	82	21.4
36-40	71	18.5
41-45	77	20.1
46-50	33	8.6
51-55	24	6.3
Over 56 years old	9	2.3
Total	384	100

Findings from Table 4.53 indicated that 82 questionnaire respondents or 21.4 percent aged from 31 years to 35 years the most, followed by 77 questionnaire respondents or 20.1 percent aged from 41years to 45 years and 71 questionnaire respondents or 18.5 percent aged from 36 years to 40 years.

Education

Table 4.54 Number and Percentage of questionnaires respondent educational level

Educational level	**Number**	**Percentage**
Primary Schools	82	21.4
Lower Secondary Schools (Matayomsuksa 3)	54	14.1
Upper Secondary Schools (Matayomsuksa 6)	39	10.2
Vocational Certificate	21	5.5
Higher Certificate/Associate Degree	27	7.0
Bachelor Degree	131	34.1
Master Degree	27	7
Post Master Degree	1	.3
Others	2	.5
Total	384	100

Findings from Table 4.54 indicated that overall 131 questionnaire respondents equaled to 34.1 percent graduated with Bachelor Degree the most, followed by completed 82 questionnaire respondents or 21.4 percent completed Primary School Level and 54 questionnaire respondents or 14.1 percent completed Lower Secondary School Level.

Income

Table 4.55 Number and Percentage of questionnaires respondent family monthly income

Income	**Number**	**Percentage**
Lower than 10,000 Baht	101	26.3
10,001-20,000 Baht	143	37.2
20,001-30,000 Baht	72	18.8
30,001-50,000 Baht	44	11.5
50,001-70,000 Baht	11	2.9
70,001-90,000 Baht	5	1.3
90,001-110,000 Baht	3	.8
110,001-130,000 Baht	1	.3
130,001-150,000 Baht	0	0
Higher than 150,000 Baht	4	1

Findings from Table 4.55 indicated that overall 143 questionnaire respondents or 37.2 percent earned average family monthly income from 10,001-20,000 baht the most, followed by 101 questionnaire respondents or 26.3 percent earned less than 10,000baht on average family monthly income and 72 questionnaire respondents or 18.8 percent earned average family monthly income of 20,001-30,000 baht.

4.4.2 Proportion of household with computer

Table 4.56 Number and Percentage of questionnaires respondent own computer

Computer own per one family	**Number**	**Percentage**
Yes	286	74.5
No	98	25.5
Total	384	100

Findings from Table 4.56 indicated that overall 286 questionnaire respondents or 74.5 percent had owned computer (Main Frame or Portable) for household use and 98 questionnaire respondents or 25.5 percent had not owned any computers.

4.4.2.1 Number of Computer per household

Table 4.57 Number and Percentage of Computer per household

Number computer own per household	**Frequency**	**Percentage**
1	185	48.2
2	65	16.9
3	29	7.6
4	3	.8
5	2	.5
6	2	.5
Total	286	74.5
Without	98	25.5
Total	384	100.0

Findings from Table 4.57 indicated that among the questionnaire respondents, 185 of them or 48.2 percent own one computer, followed by having two

computers 65 questionnaire respondents or 18.9 whereas 29 of them or 7.6 percent owned three computers. By average, each household had at least one computer.

4.4.2.2 Number of Family Members

Table 4.58 Number and Percentage of Household Member

Household Member	**Number**	**Percentage**
1	9	2.3
2	42	10.9
3	71	18.5
4	131	34.1
5	70	18.2
6	38	9.9
7	6	1.6
8	6	1.6
9	7	1.8
10	3	.8
11	1	.3
Mean 4.17	384	100

Findings from Table 4.58 indicated that overall 131of questionnaire respondents or 34.1 percent had total of 4 family members, followed by 71 of them or 18.5 percent with 3 family members and 70 questionnaire respondents or 18.2 percent with five family members.

4.4.2.3 Family Members used Computer

Table 4.59 Number and Percentage of Family Members use Computer

Number of Family Members use Computer	Number	Percentage
1	76	19.8
2	120	31.3
3	104	27.1
4	61	15.9
5	15	3.9
6	8	2.1
Mean 2.59	384	100

Findings from Table 4.59 indicated that overall 120 of questionnaire respondents or 31.3 percent had total of 2 family members used computer, followed by 104 of them or 27.1 percent with 3 family member and 76 questionnaire respondents or 19.8 percent with 1 family member. To conclude, numbers of family members per household who able to operate computer were 2.59 persons or estimated 3 persons.

4.4.3 Proportion of household with access to Internet

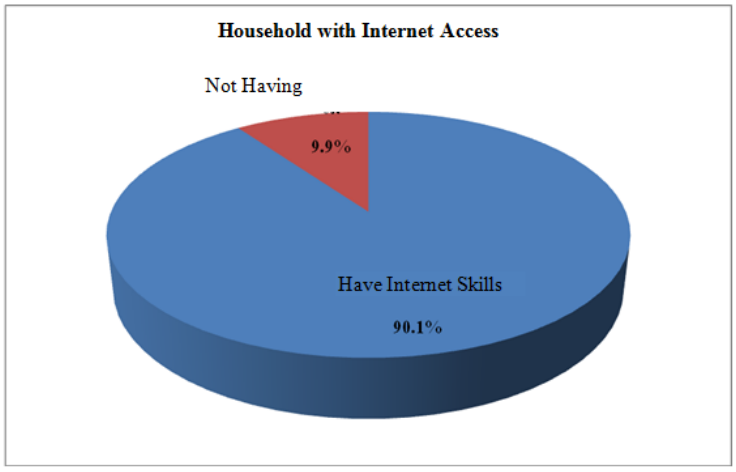

Figure 4.12 Percentage of Household with Internet Access

Table 4.60 Number and Percentage of household with Internet Access

Internet Skills	**Number**	**Percentage**
Having Internet Skills	346	90.1
Not Having	38	9.9

Findings from Table 4.60 and Figure 4.12 indicated that overall 346 of questionnaire respondents or 90.1 percent had been used Internet and 38 questionnaire respondents or 9.9 had not used Internet.

4.4.3.1 Proportion of Household Member Using Internet

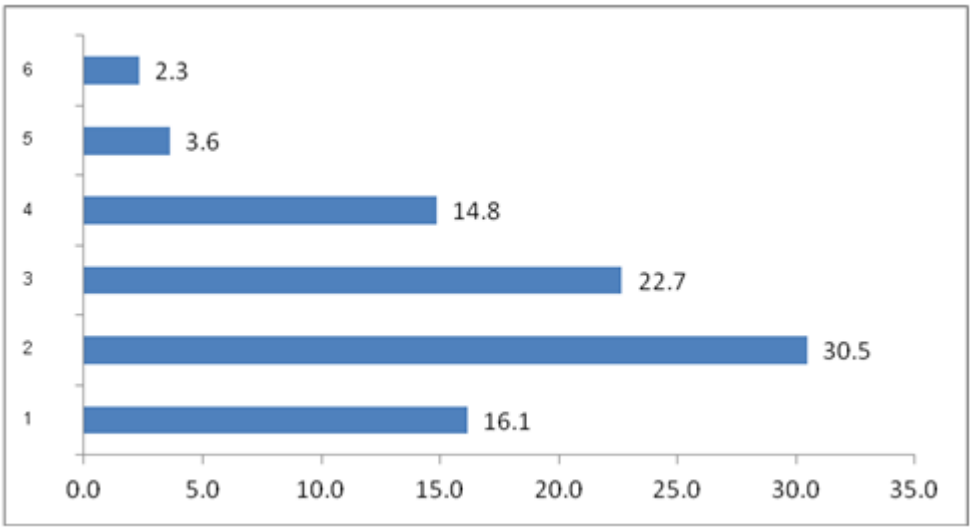

Figure 4.13 Percentage of household member using Internet

Table 4.61 Number and Percentage of household member using Internet

Number of people		Frequency	Percentage	N Total
Valid	1	62	16.1	62
	2	117	30.5	234
	3	87	22.7	261
	4	57	14.8	228
	5	14	3.6	70
	6	9	2.3	54
	Total	346	90.1	909
Missing	System	38	9.9	2.6
Total		384	100.0	

Findings from Table 4.61 indicated that two family members per household knew how to operate Internet the most which showed the frequency of 120 or 31.3 percent, followed by three family members with the frequency of 22.7 percent. To conclude, numbers of family members who able to operate computer were three persons per a household.

4.4.4 Accessing Internet and usage

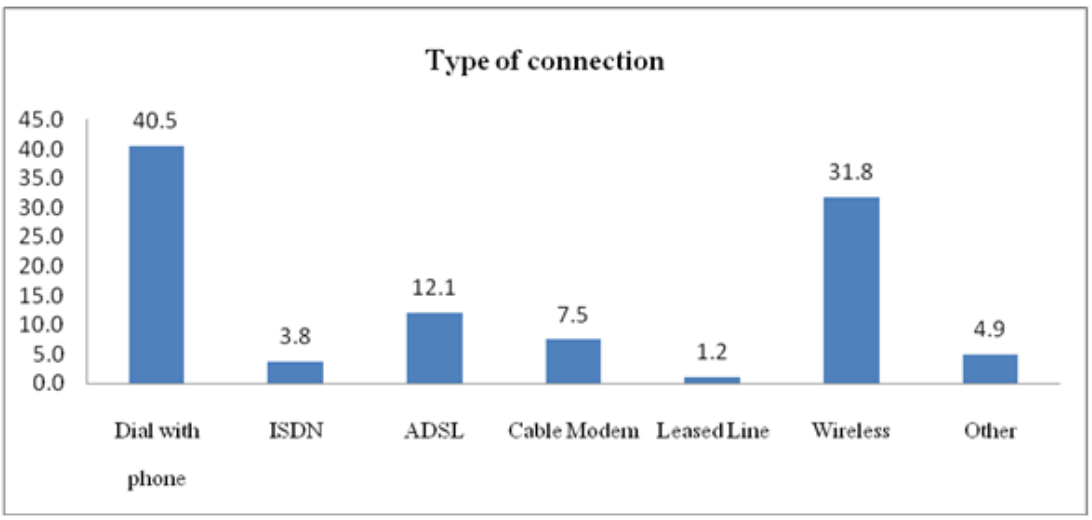

Figure 4.14 Percent of each Access to Internet

Table 4.62 Number and Percent of Internet Usage Pattern

Pattern	Frequency	Percentage
Dial with phone	140	40.5
ISDN	13	3.8
ADSL	42	12.1
Cable Modem	26	7.5
Leased Line	4	1.2
Wireless	110	31.8
Other	17	4.9

Findings from Table 4.62 and Figure 4.14 indicated that majority 140 questionnaire respondents or 40.5 percent used Internet with the Dial phone; followed by 110 of them or 31.8 percent used Wireless and 42 questionnaire respondents or 12.1 percent used ADSL.

4.4.5 Internet location

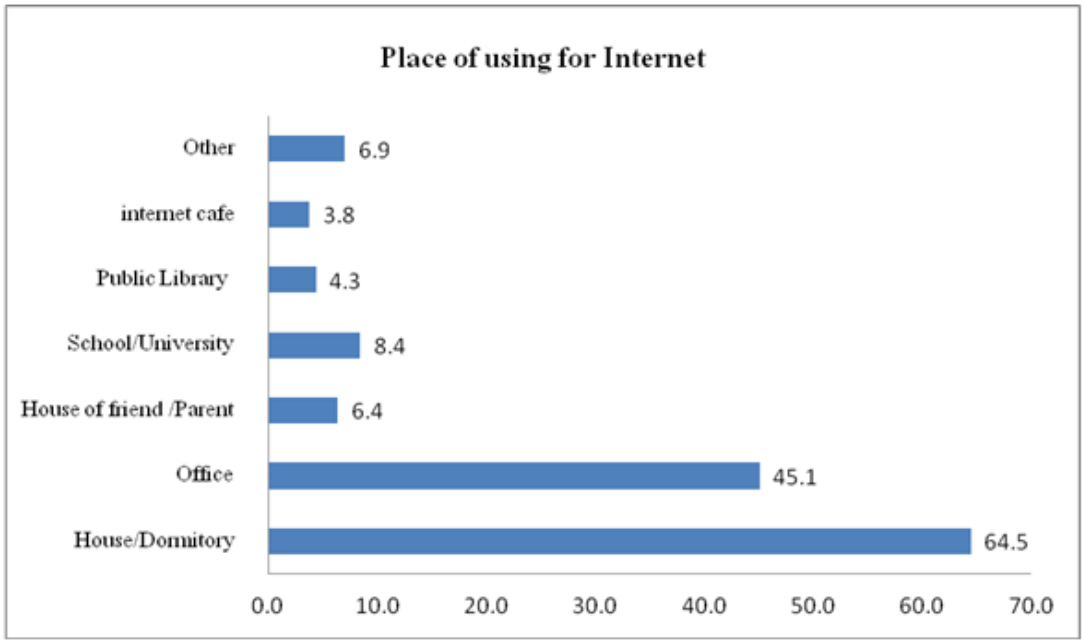

Figure 4.15 Percentage of Internet Location

Table 4.63 Number and Percentage of Internet Location

Location	**Number**	**Percentage**
Home/Dormitory	223	64.5
Office	156	45.1
Friend House/Library	22	6.4
School/University	29	8.4
Public Library	15	4.3
Internet café	13	3.8
Other	24	6.9

Findings from Table 4.63 and Figure 4.15 indicated that majority 223 questionnaire respondents or 64.5 percent used Internet most at Home/Dormitory, followed by 156 of them or 45.1 percent and 29 questionnaire respondents or 8.4 percent at School/University.

4.4.6 Internet Frequency

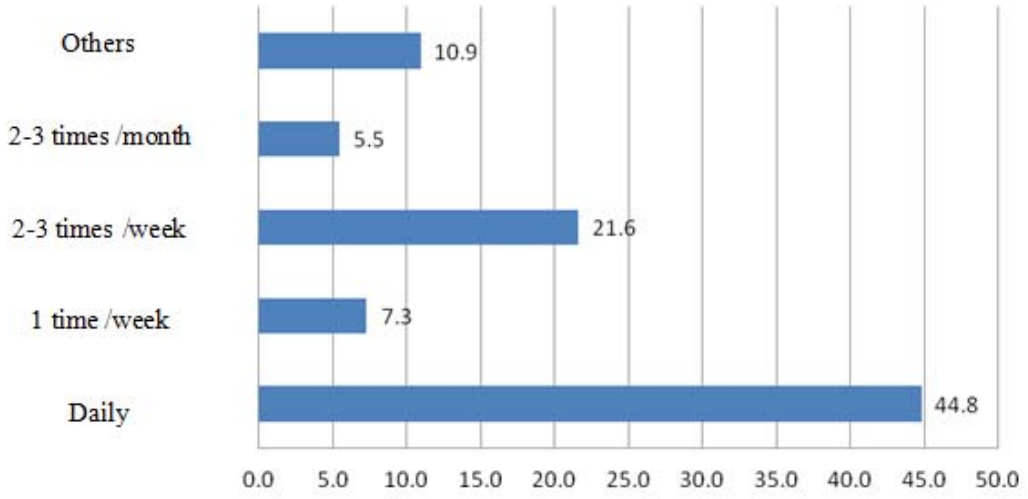

Figure 4.16 Percentage of frequency in Internet Use

Table 4.64 Number and Percentage of frequency in Internet Use

Particulars	**Number**	**Percentage**
Daily	172	44.8
1 time /week	28	7.3
2-3 times / week	83	21.6
2-3 times/month	21	5.5
Others	42	10.9

Findings from Table 4.64 and Figure 4.16 indicated that 172 household members or 44.8 percent used Internet daily, followed by 83 of them or 21.6 percent used 2-3 times per week and42 members or 10.9 percent used others.

4.4.7 Purposes for using Internet

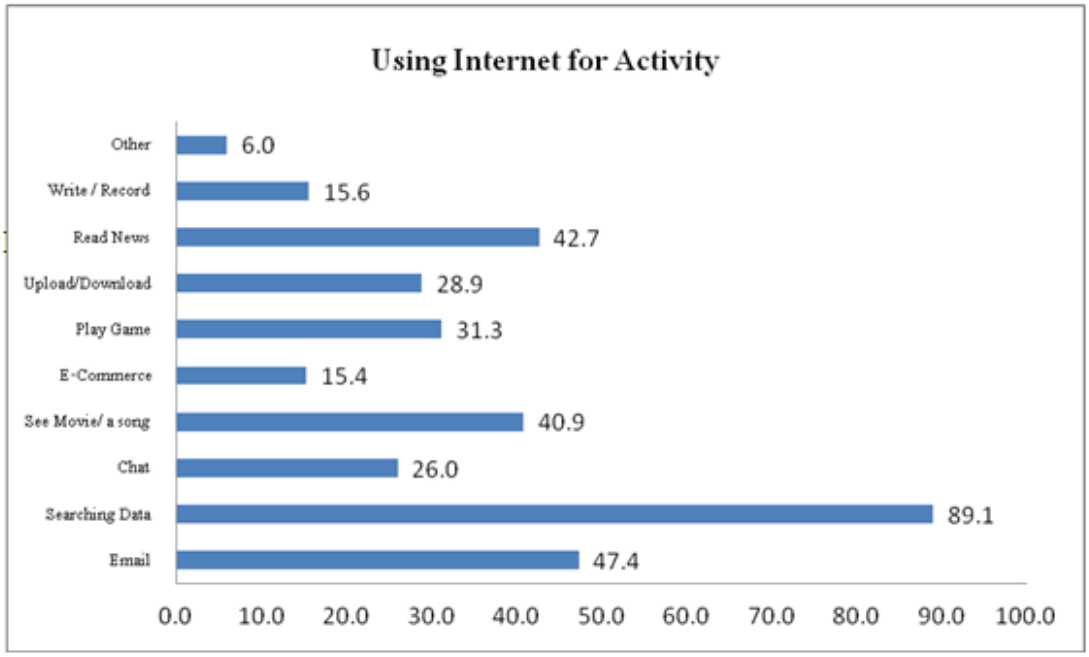

Figure 4.17 Percent of Purpose in Using Internet

Table 4.65 Percent of Purpose in Using Internet

No	Purpose	Frequency	Percentage
1	Email	182	47.4
2	Searching Data	342	89.1
3	Chat	100	26.0
4	See Movie/ a song	157	40.9
5	E-Commerce	59	15.4
6	Play Game	120	31.3
7	Upload/Download	111	28.9
8	Read News	164	42.7
9	Write / Record	60	15.6
10	Other	23	6.0

Findings from Table 4.65 and Figure 4.17 indicated that majority 342 questionnaire respondents or 89.1percent used Internet to search for data whereas 182 of them or 47.4 percent used for sending e-mail and 164 questionnaire respondents or 42.7 percent used Internet to read news.

4.4.8 Purposes for using Internet Services, type of merchandise and services ordered through Internet and average spending on each purchase (E-Commerce Usage)

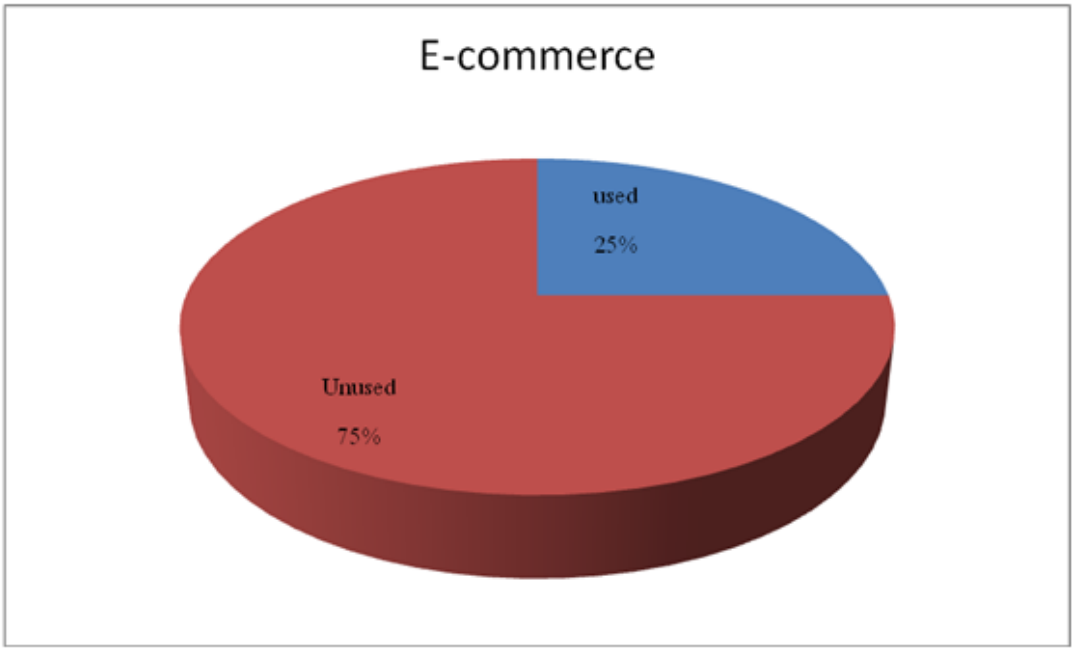

Figure 4.18 Percent of used E-commerce

Table 4.66 Using E-Commerce to purchase merchandise and request services through Internet

Particulars	Frequency	Percentage
Used	96	25.0
Unused	288	75.0
Total	384	100.0

Findings from Table 4.66 and Figure 4.18 indicated that majority 288 questionnaire respondents or 75 percent had not bought merchandises or services through Internet whereas 96 of them or 25 percent used Internet for such transaction.

Type of merchandise and services ordered through Internet

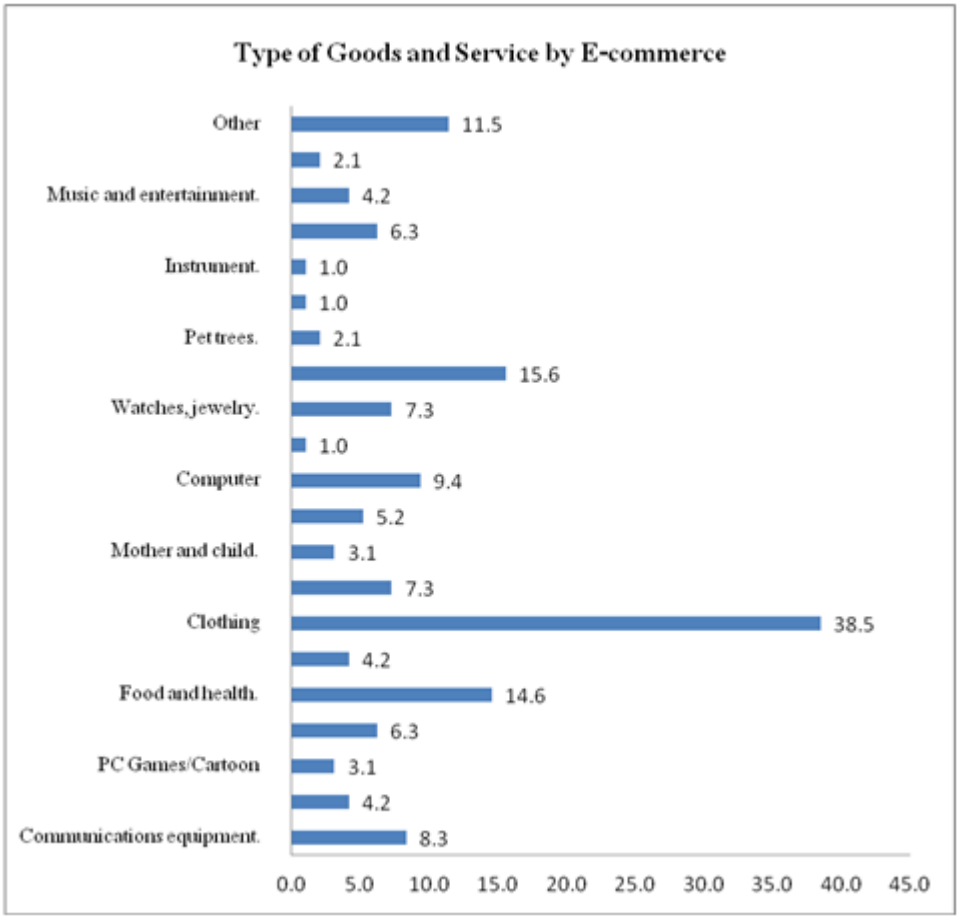

Figure 4.19 Percentage of merchandise and services ordered through Internet

Table 4.67 Number and Percentage of merchandise and services ordered through Internet

No	Type of Goods	Frequency	Percentage
1	Communications equipment.	8	8.3
2	Collectibles and Bric-a-brac	4	4.2
3	PC Games/Cartoon	3	3.1
4	house equipment	6	6.3
5	Food and health.	14	14.6
6	Souvenirs and handicrafts.	4	4.2
7	Clothing	37	38.5
8	Books, stationery.	7	7.3
9	Mother and child.	3	3.1
10	Vehicles.	5	5.2
11	Computer	9	9.4
12	Camera imaging device.	1	1.0
13	Watches, jewelry.	7	7.3
14	Appliances.	15	15.6
15	Pet trees.	2	2.1
16	Toys and hobbies.	1	1.0
17	Instrument.	1	1.0
18	Sport	6	6.3
19	Music and entertainment.	4	4.2
20	Office equipment.	2	2.1
21	Other	11	11.5

Findings from Table 4.67 and Figure 4.19 indicated that majority 37 questionnaire respondents or 38.5 percent bought clothe, followed by 15 questionnaire respondents or 15.6 percent bought Appliances and 14 of them or 14.6 percent bought healthy foods.

Values on Each Purchase

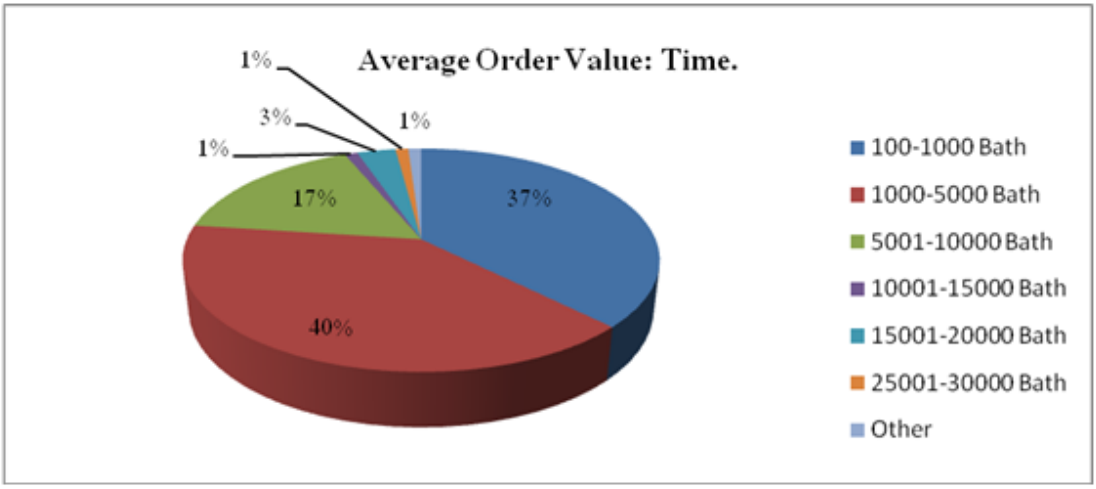

Figure 4.20 Percent of average order value goods with E-commerce

Table 4.68 Mean Value of each Purchase

Value		**Frequency**	**Percentage**
Valid	100-1000 Bath	36	9.4
	1000-5000 Bath	38	9.9
	5001-10000 Bath	16	4.2
	10001-15000 Bath	1	0.3
	15001-20000 Bath	3	0.8
	25001-30000 Bath	1	0.3
	Other	1	0.3
	Total	96	25
Missing	System	288	75
Total		384	100

Findings from Table 4.68 and Figure 4.20 indicated that 38 questionnaire respondents or 40 percent bought merchandises on the average 1000-5000 baht each time, followed by 36 questionnaire respondents or 38 percent bought 100-1000 baht

each time and 16 questionnaire respondents or 17 percent bought 5001-10000 baht each time.

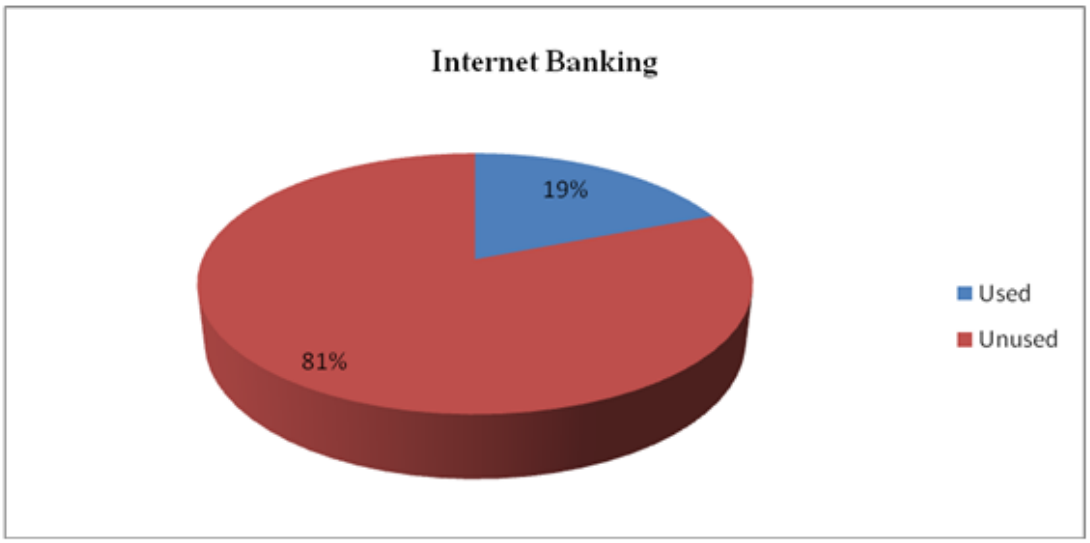

Figure 4.21 Percent of used Internet banking

Table 4.69 Number and Percentage of users for Internet Banking

Internet banking		**Frequency**	**Percentage**
Valid	Used	73	19.0
	Unused	311	81.0
	Total	384	100.0

Reasons for not using Internet Banking

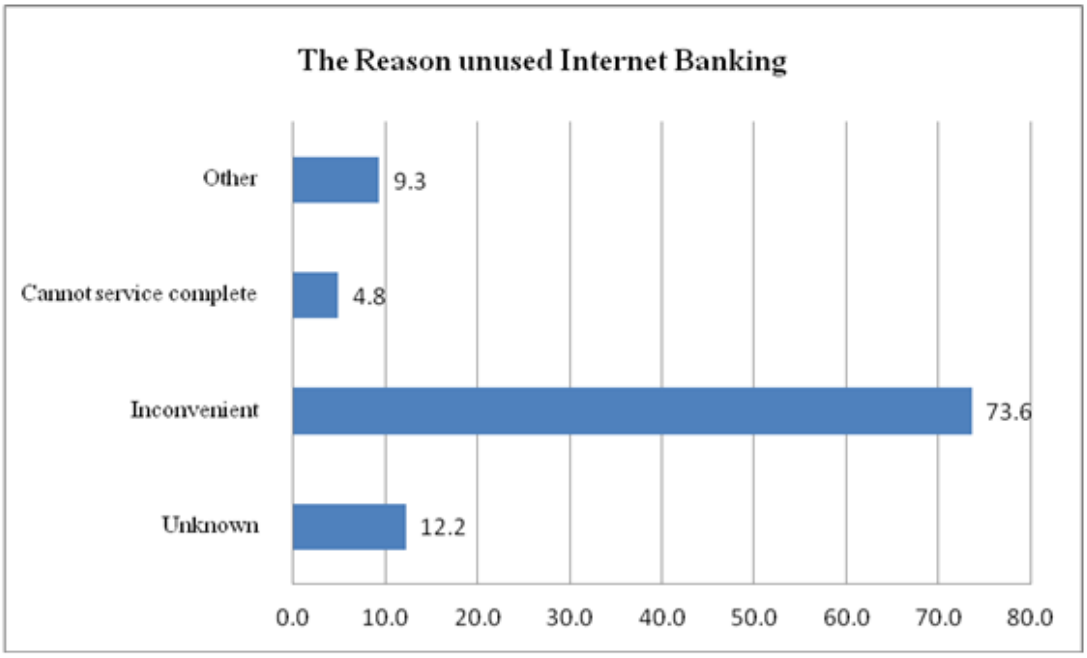

Figure 4.22 Percent of Reason for not using Internet Banking

Table 4.70 Number and percent of reasons for not using Internet Banking

Reason	**Frequency**	**Percentage**
Unknown	38	12.2
Inconvenient	229	73.6
Cannot service complete	15	4.8
Other	29	9.3
Total	311	100

Findings from Table 4.70 and Figure 4.22indicated the reason for 229 questionnaire respondents or 73.6 percent refrained from using Internet because of its inconvenience, followed by 38 questionnaire respondents or 12.2 percent of unknown and other 29 questionnaire respondents or 9.3 percent.

Training

Figure 4.23 Percent of ICT Trained Samples

Findings from Figure 4.23 indicated that majority of samples 57 percent had been trained and known about Information Technology whereas 43 percent had not been trained.

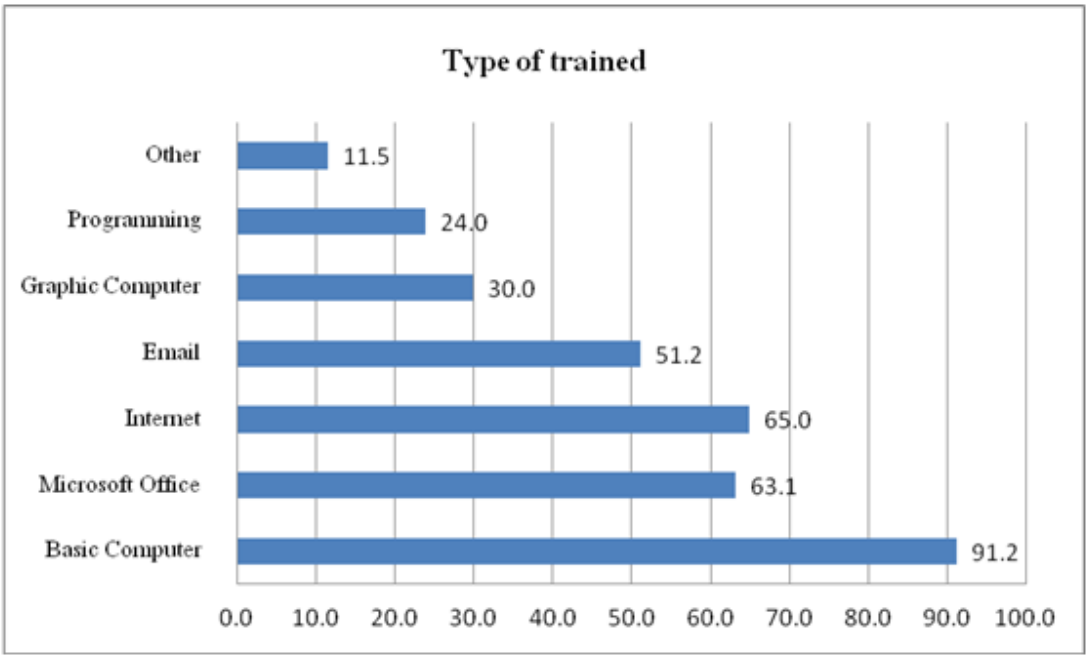

Figure 4.24 Percent of Training Types

Table 4.71 Number and percentage of type trained

Subject	Frequency	Percent
Basic Computer	198	91.2
Microsoft Office	137	63.1
Internet	141	65.0
Email	111	51.2
Graphic Computer	65	30.0
Programming	52	24.0
Other	25	11.5

From Table 4.71 and figure 4.24, the most preferred trained subject among trainees is Basic Computer with the frequency of 198 equaled to 91.2 percent, followed by Internet with frequency of 141 equaled to 65 percent and lastly Microsoft Office trained with frequency 137 equaled to 63.1 percent.

Training Facilities

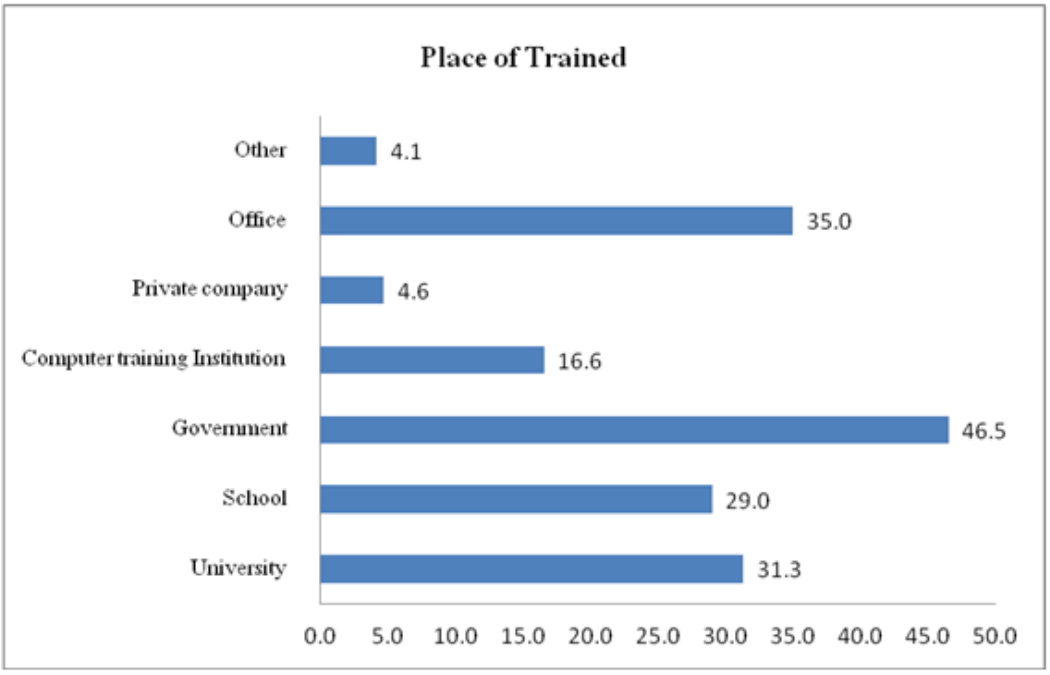

Figure 4.25 Percentage of training facilities

Table 4.72 Numbers and Percentage of Training Facilities

Facilities	Frequency	Percent
University	68	31.3
School	63	29.0
Government	101	46.5
Computer training Institution	36	16.6
Private company	10	4.6
Office	76	35.0
Other	9	4.1

Findings from Table 4.72 and Figure 4.25 indicated that majority 101 questionnaire respondents or 46.5 percent received training from the government agencies, followed by 68 questionnaire respondents or 31.1 percent received from Universities and 63 questionnaire respondents or 29 percent received from schools.

4.4.9 Information Technology Skills

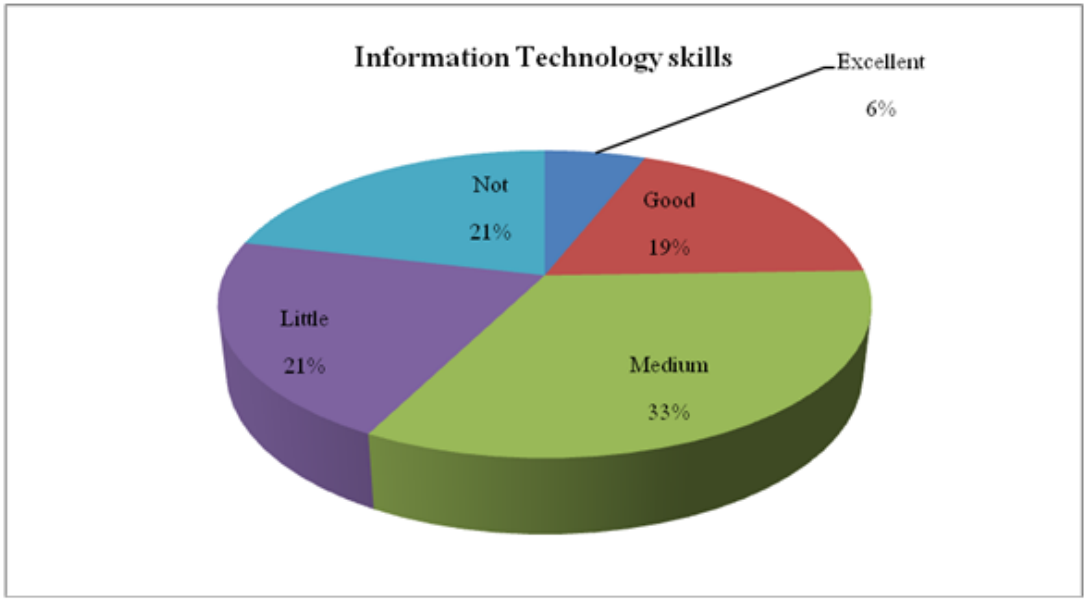

Figure 4.26 Percentages of Information Technology Competent and Skills Levels

Table 4.73 Percentages of Information Technology Competent and Skills Levels

Level skills	Frequency	Percent
Excellent	23	6.0
Good	71	18.5
Moderate	127	33.1
Less	81	21.1
None	82	21.4
Total	384	100.0

Findings from Table 4.73 indicated that majority 127 questionnaire respondents or 33.1 percent have moderate skills and competency in Information Technology, followed by 82 questionnaire respondents or 21.4 percent with no skills and competency and 81 of questionnaire respondents or 21.1 percent had less skills and competency.

4.4.10 Accepting the use of Internet

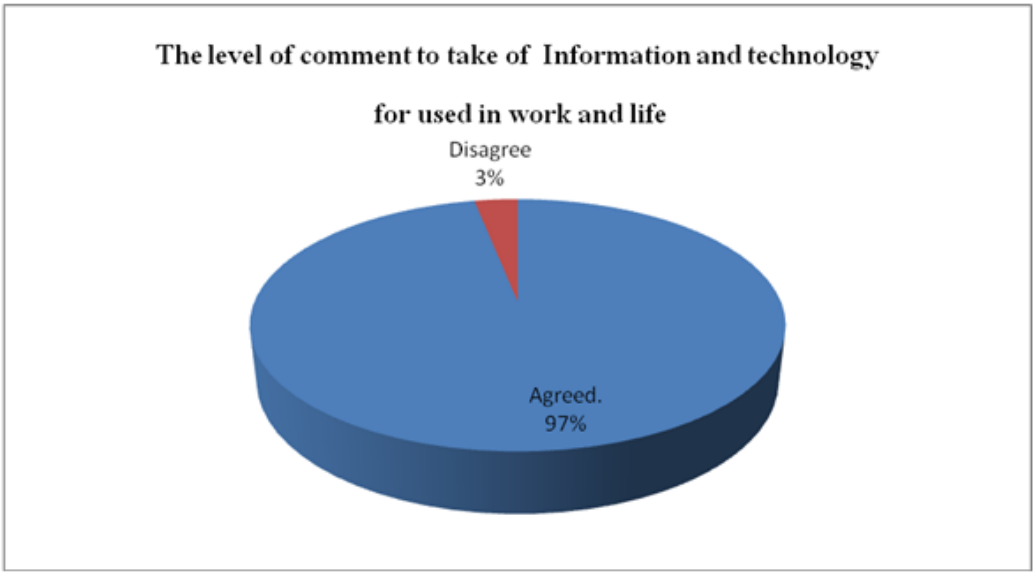

Figure 4.27 Percentage of Accepting and agreeing with the implementation of Information Technology with present working and lifestyles.

Table 4.74 Number and Percentage of accepting and agreeing with the implementation of Information Technology with present working and lifestyles

Particulars	**Frequency**	**Percentage**
Agreed	372	96.9
Disagreed	12	3.1
Total	384	100.0

Findings from Table 4.74 indicated majority 372 questionnaire respondents or 96.9 percent accepted and agreed with the implementation of Information Technology with present working and lifestyles whereas 12 questionnaire respondents or 3.1 percent disagreed.

Reasons for Implementing Technology with work and lifestyle

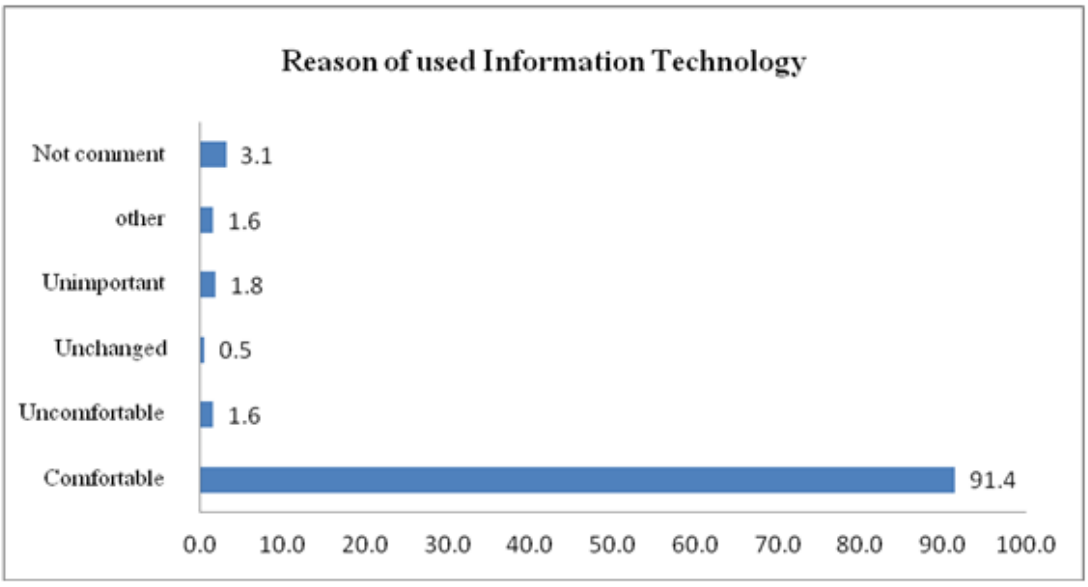

Figure 4.28 Reasons for implementing Information Communication Technology

Table 4.75 Number and Percentage of reasons for Implementing Technology with work and lifestyle

Reason	**Frequency**	**Percentage**
Convenience	351	91.4
Inconvenience	6	1.6
Unchanged	2	0.5
Unimportant	7	1.8
Other	6	1.6
Total	372	96.9
No comment	12	3.1
Total of N	384	100.0

Findings from Table 4.75 and Figure 4.28 indicated that 351 questionnaire respondents or 91.4 percent implementing technology with works and lifestyles because of its convenience.

4.4.11 Obstacles during the use of Computer, ordering merchandises and requesting services through Internet and classified based on basic characteristics of samples

Problems occurred during Internet Sale and Purchase Transactions

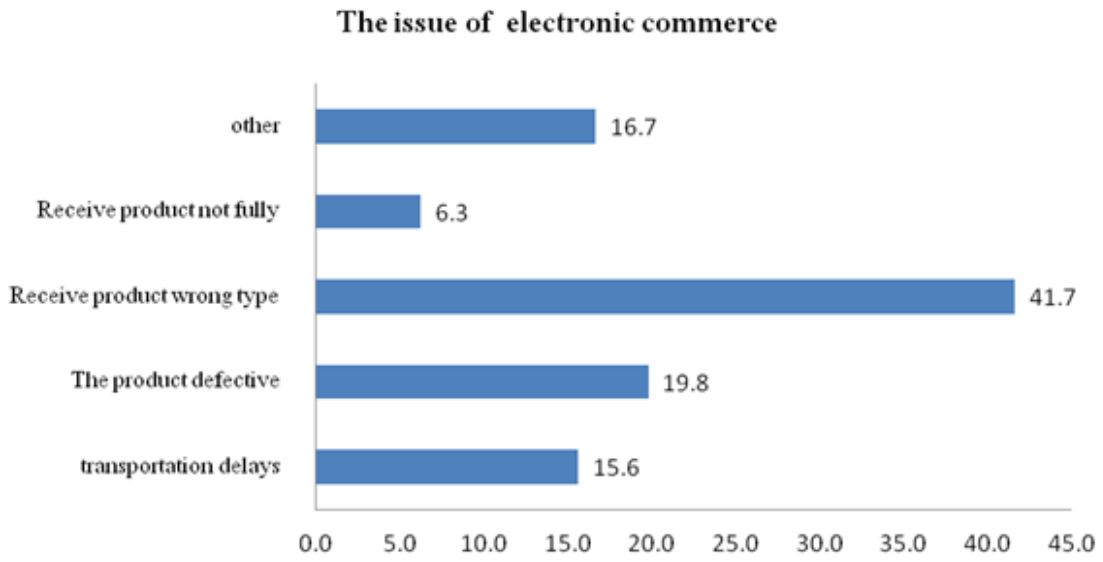

Figure 4.29 Percentage of Problems occurred during Internet Sale and Purchase Transactions

Table 4.76 Number and Percentage of Problems occurred during Internet Sale and Purchase Transactions

Issue	**Frequency**	**Percentage**
Delayed delivery	15	15.6
Defective product	19	19.8
Received wrong product	40	41.7
Received incomplete product	6	6.3
Others	16	16.7
Total	96	100.0

Findings from Table 4.76 and Figure 4.29 indicated that most questionnaire respondents 41.7 percent received wrong products, followed by 19 questionnaire respondents or 19.8 percent received defective product and 16 questionnaire respondents or 16 percent due to other causes.

Introduce Phuket ICT CITY

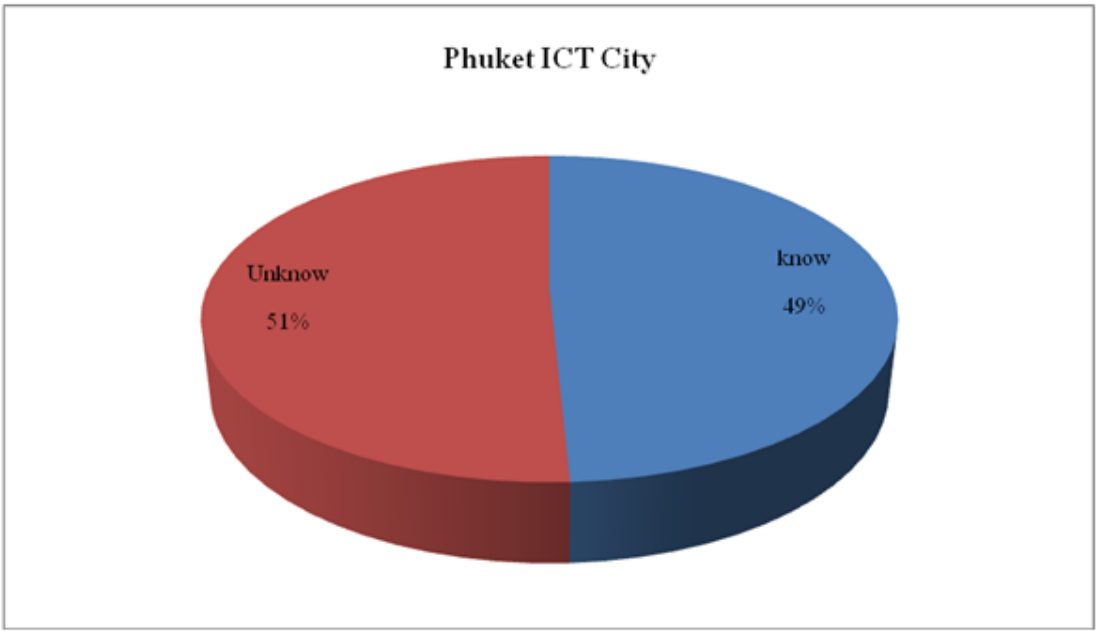

Figure 4.30 Percent of Persons knowing Phuket ICT CITY

Findings from Figure 4.30 indicated that majority of respondents 51 percent had never known about Phuket ICT City before.

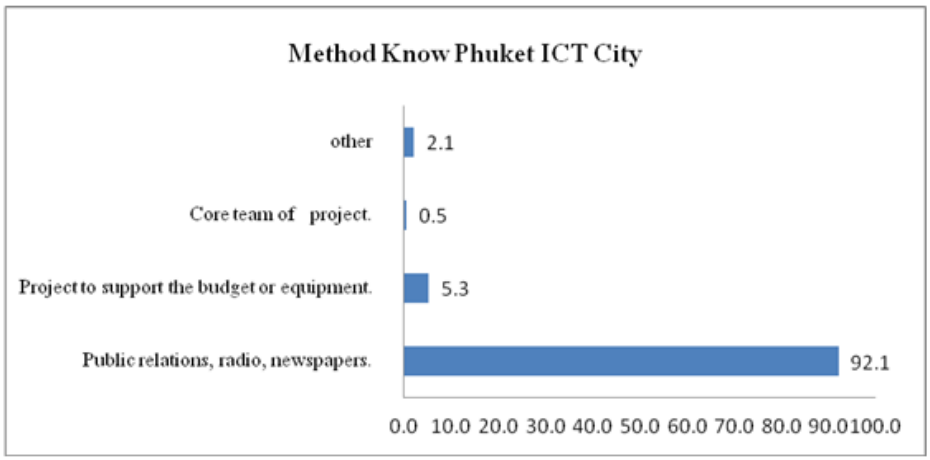

Figure 4.31 Percent of Respondents learning about Phuket ICT City form different channels

Table 4.77 Number and Percentage of Respondents learning about Phuket ICT City from different channels

Channel	**Frequency**	**Percentage**
Public relations, radio, newspapers.	174	92.1
Project to support the budget or equipment.	10	5.3
Core team of project.	1	0.5
Other	4	2.1
Total	189	100.0

Findings from Table 4.77 and Figure 4.31 indicated that majority or 174 respondents equaled to 92.1 percent learnt about Phuket ICT City from Public relations, radio, newspapers.

Roles of Phuket ICT CITY

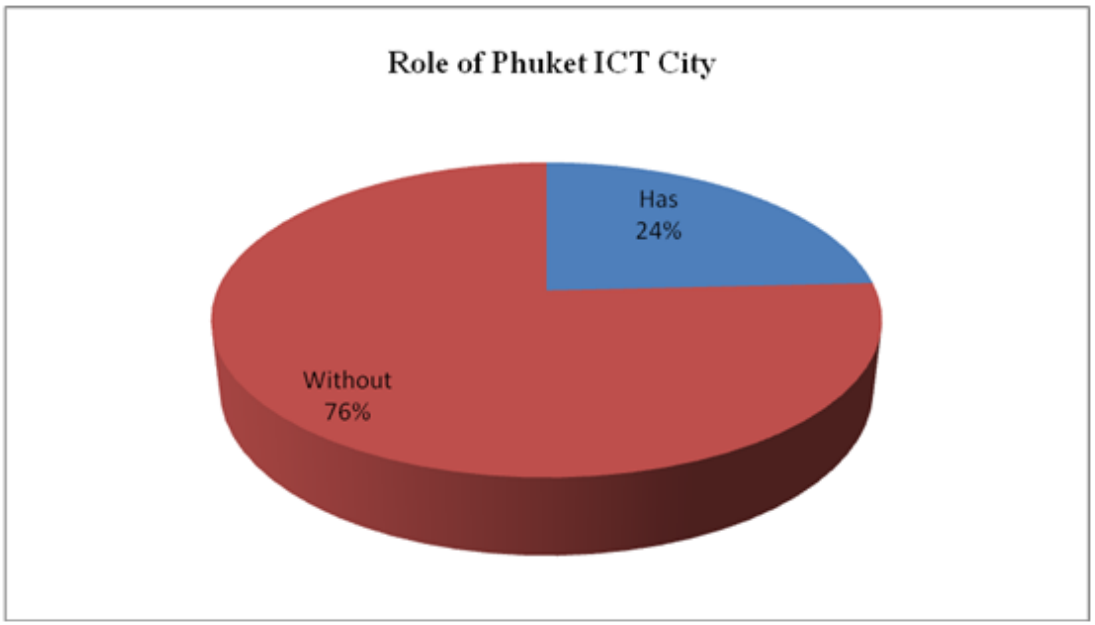

Figure 4.32 Percentage of roles of Phuket ICT CITY per Household

Table 4.78 Numbers and Percentage of Roles of Phuket ICT CITY per household

	Frequency	**Percentage**
Yes due to	93	24.2
Not at all	291	75.8
Total	384	100.0

Findings from Table 4.78 indicated that majority or 291 respondents equaled to 75.8 percent found no impacts from Phuket ICT City.

4.5 Public Administration

Table 4.79 Show average value of evaluation levels

No	**List**	**Evaluation level**
1	The master plan for the management of information technology.	3.20
2	The vision, mission and strategy of the organization that you are responsible for bringing ICT to participate or not.	3.15
3	Use software in their daily operations, such as Ms Word, Ms Excel, Ms Power point etc.	4.88
4	Use the software only for internal management. Stakeholder management of the agency.	3.65
5	A data network to communicate data between agencies within and outside the organization.	2.90
6	System for Internet applications and services.	4.88
7	Website of the Organizations	4.78
8	Contact the Organization or service can be reached via E-Mail.	4.58

Table 4.79 Show average value of evaluation levels (cont.)

No	**List**	**Evaluation level**
9	Intranet system for internal management.	2.23
10	There is a belief system with others.	2.73
11	The procurement. The electronic systems such as e-Auction,.	1.78
12	Development personnel are competent in the use of information technology departments.	3.90
13	The indicators of success in the information technology department.	1.95
14	Monitoring and evaluation of information technology departments.	2.93
15	The budget. For the provision of computer equipment, software, database and network of agencies.	3.08
16	The regulations or guidelines on the use of information technology departments.	2.95
17	To provide for the maintenance of information technology, the quality that is always used effectively.	1.95
18	The report assessed the impact assessment on all parties to get results.	2.13
19	The results were used to plan next time.	2.10
Average		3.14

Findings from Table 4.79 Public Administration have average value equals 3.14 show management of public administration is label good . When look for special case findings Usages software in their daily operations, such as Ms Word, Ms Excel, Ms Power point etc have average value equals 4.88 meaning excellent level follow by System for Internet applications and services have average value equals 4.88 meaning excellent level

CHAPTER V
DISCUSSION AND RECOMMENDATION

5.1 Discussion

The research on the topic of "Evaluation of Phuket ICT City" was to study Phuket ICT City project, overall prospective and results assessment including the study and analysis problems and obstacles in the Phuket ICT City operational system.

5.1.1 Phuket ICT CITY overall prospective

In 1999, Banhan Silpaarcha's administration planned to develop Phuket as International City by assigning Office of the National Committee for Economic and Social Development to set up an operational plan (1999-2011) which was unanimously approved by the Cabinet in February 29, 2000. The plan had 5 strategies as follows:

1. Area development together with balancing nature
2. Developing standard quality and services basic structure
3. Human and Social Development
4. Information Technology Development
5. Phuket International City Management

As for the 4th strategy, Information Technology Development has been assigned to NECTEC under the Greater Phuket Digital Paradise Project (PhD).NECTEC had arranged pre-feasibility study under Information Technology Development to develop Phuket province. Later, the Ministry of Information Communication Technology had taken over to keep up with developing trend of Digital Economy in Phuket. The government set up a master plan for Phuket Information Technology and Communication (2005-2006) based on the Nation Policies and Principles 2002-2006 and Strategic Plan year 2004-2008, including Phuket strategy based on the Office of Prime Minister's regulations on integrated administration 2003. The ICT vision had been set up for Phuket to be "The leader in

modern ICT application for learning and administering at all times and all places" with the assessment and monitor results from the project in 2005.

Table 5.1 Brief Summary of Phuket ICT City

Year	Leader / Initiator	Responsible Parties	Project / Activities
1999	Mr. Banhan Silpaarcha	Office of National Economic and Social Development	Prepared Phuket ICT City (ICT as 4th strategy)
1999-03	-	NECTEC	Prepared operational plan and project the Greater Phuket Digital Paradise (PhD), having the office at Phuket Merlin Hotel
2000-01	Dr. Jira Hongladarom	-	Arranging Phuket Cyber Port rotating twice (once a year)
Ending2003	Phuket Governor. MrPongpayom Vasputhi and related group (SIPA Sub-committee Group 1)	-	Meeting the former ICT Minister , Doctor Surapong Suabvonglee to push Phuket towards being ICT City
Ending 2003	ICT Ministry	-	Government announcing Chiangmai and Khonkaen as ICT City
March 1, 2004	SIPA Sub-committee Group 1	SIPA	Established SIPA Phuket
2005-2006		-	Unofficial changes in development scope - Phuket SIPA for private software industry - Government ICT Development Office
2007	SIPA Phuket and Phuket Mimicipality	-	Established Phuket ICT Center to develop skill and learning

Table 5.1 Brief Summary of Phuket ICT City (cont.)

Year	Leader / Initiator	Responsible Parties	Project / Activities
November 23, 2008	Mr. Nirand Kulyanamitr, Phuket Governor and Dr. Mun Putnithai, Ministry of Information Technology and Communication	-	Phuket in collaboration with Software Industry Promotion (Public Company), CAT Telecom (PCL) and TOT Public Company Limited, having signed MOU in Phuket ICT Innovation Paradise to built Phuket as World ICT Center for Research and Innovation thus adding economic value
2008	Southern Thailand Software Science Park and Blue Lagoon Phuket Co., Ltd.	-	Established Software Park Phuket
March 8, 2009	Medical Doctor Kongkiet Kedpetch, Phuket Software Industry Director	-	Presenting Phuket development report under Phuket ICT City guidelines to Commissioner of Science, Technology, Communication and Telecommunication
March 10, 2009	Commissioner of Science, Technology, Communication and Telecommunication, Senate	-	Monitoring Phuket development for IT CITY and considering duplicated operation
March 19, 2009		-	Inviting Permanent Secretary of Ministry of Information and Communication and Technology, TOT Public Company Limited Executive and CAT Telecom (PCL) Executive to attend conference and find facts, including project progress

5.1.2 Phuket ICT City Assessment Results :

Complete summary of the developed level of ICT in Phuket province

The evaluation was defined for Phuket ICT City development which based on the United Nation index Indicator (2005) on OEDC IMD and Thailand ICT Master Plan No.1 and 2 in the following 5 dimensions:

1. Basic Infrastructure
2. Education and Human Resources
3. Business Operation
4. Culture
5. Public Administration

Comparison between 2010 information and communication technology of Thailand and completed summary develop level of ICT in Phuket province is as follows :

Table 5.2 Basic Structure Dimension

INDICATORS	**Thailand 2010**	**Phuket 2010**
1.Number users/ regular phone registration per 100 people	10.5 %	64.6 %
2.Number users/ mobile phone registration per 100 people	61.8 %	98.4%
3.Numbers of computer hardware per 100 people	30.9 %	40.6 %
4.Proportion of internet users per 100 people	22.4%	30.1%
5.Monthly Internet service fees (20 hours per month)	448 ฿	N/A
6.Mobile service fees (20 hours per month)	504 ฿	563.63฿
7.Government Internet Service access based on number of population (rural/urban)	N/A	39.3 %
8. ICT investment value	N/A	2,435,450,000 ฿

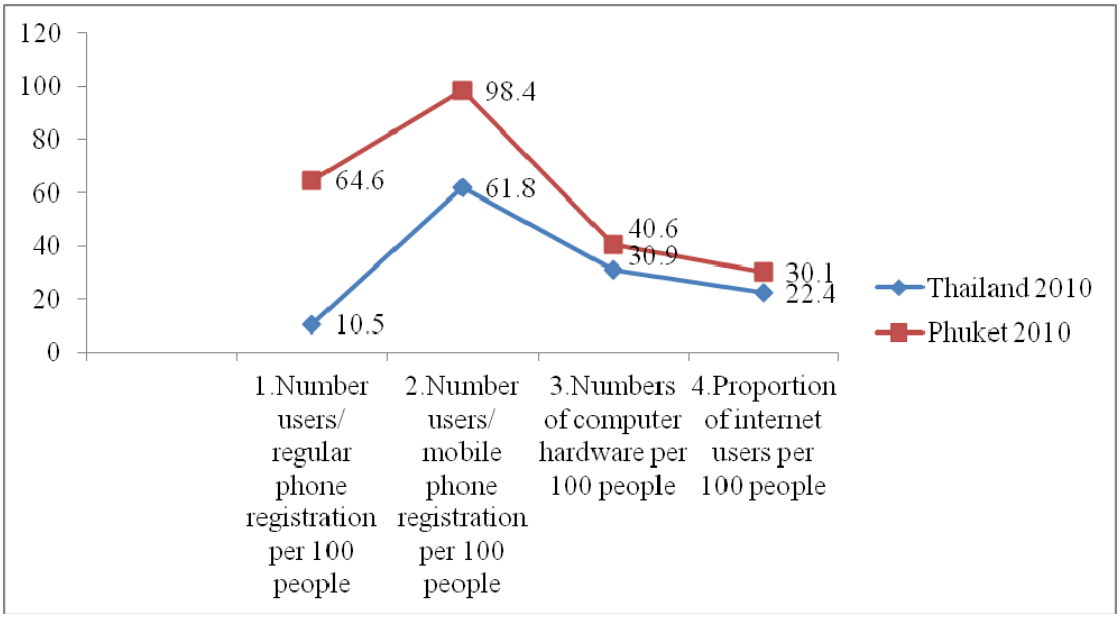

Figure 5.1 Comparisons between result of indicates infrastructure of Phuket and Bangkok

Table 5.2 and figure 5.1 show comparisons between result of infrastructure indicates of Phuket and Bangkok. The data show that Phuket had percentage of [number of users in fix-line phone registration, number of users in mobile phone registration, used computer ,and numbers of had computer and proportion of internet users all there percentage] higher more than infrastructure indicators of Thailand. It indicates that Phuket is more ready in term of ICT basic structure and accessibility than the whole country by judging from mean values of the results in which all indicators had higher mean values. It confirms the readiness of Phuket in basic structure, which can support a purpose of Phuket as a ICT City.

Table 5.3 Education and Human Resources Dimensions

INDICATORS	**Thailand 2010**	**Phuket 2010**
1.An admission rate in primary and secondary education level primary secondary	 82.04 % 81.95 %	 132.44 % 137.72 %
2.Population of people with basic education	77.67 %	75.74 %
3. A proportion of those completed secondary education	81.36 %	82.81 %
4. Population Basic education	Upper Secondary	Bachelor Degree
5. Literacy rate of Phuket population	92.6 %	99.88 %
6. A proportion of computer per students in each level	20:1 (Person:Computer)	10:1 (Person:Computer)
7.Numbers of participants received training from Professional Training Institute and certified with vocational standard qualification	N/A	98,806.25 (Person :Year)
8.A proportion of ICT educators per students	N/A	19.8 %
9.A proportion of ICT graduates	104,684 (Person :Year)	1788.33 (Person :Year)

The findings indicated that the educational dimensions of Phuket on the admission rate is higher than 100 percent which was resulted from students relocated their schools from rural areas to Phuket. The finding is coincided with the educational information in 2008-2010 of the Office of Basic Educational Committee, Basic Educational Policies and Plans, Ministry of Education. Total of 75.74 percent completed the compulsory education and majority of people have bachelor degree, and 99.88 percent are literate. Moreover, people of Phuket were encouraged to use

ICT equipment by looking at the result of proportion of 10 student per a computer that is less than the standard at 20 students per a computer

However, only 19.8 percent of students graduated in ICT areas. After comparison of the graduates in 2009 and 2010, there was 6- folds increment during the Phuket ICT City project. Three additional courses in ICT for the students, general public, and company staffs were introduced to improve themselves. There are more trainees passed the Processional Training Institute standard at the learning centers and also received standard qualification certifications.

The comparison results of ICT development between Phuket and proportion of Thailand indicated that Phuket development levels are mostly higher which shown that Phuket is ready to be Phuket ICT City.

Table 5.4 Business Operation Dimensions

INDICATORS	**Thailand 2010**	**Phuket 2008**	**Phuket 2010**
Accessing standard ICT comprised			
1.proportion of company with standard phone	N/A	81.7 %	92.2 %
2.proportion of company with mobile phone	N/A	84.3 %	74.9 %
3. proportion of company with computer	21.9 %	64.8 %	92.6 %
4.proportion of business accessing Internet	13 %	50.5 %	89.5 %
5. Percentage of workers with ICT skills	43.2 %	N/A	26 (Person : Company)
6. Percentage of workers accessing ICT and searching for data through Internet.	85.7 %	N/A	23 (Person : Company)

Table 5.4 Business Operation Dimensions (cont.)

INDICATORS	**Thailand 2010**	**Phuket 2008**	**Phuket 2010**
Accessing and ICT usage in progressive level comprised			
1.Internet speed covered local network, website and ICT investment	N/A	N/A	1- 4 Mb
- local network	N/A	35.5 %	53.5 %
- website	4.4 %	N/A	32.7 %
- ICT investment		N/A	53.9 %
2. A proportion of workers using ICT	N/A	Daily (70.1 %)	Daily (72.8 %)
- Objective usage Internet	Searching Data	N/A	Searching Data
3.application of E-commerce for Internet Administration and display values of purchase transactions among customers	2.3 % :Buy 1.6 % :Sale	N/A	35.8 %
- Objective usage E-commerce	2.3 :Buy 1.6 :Sale	N/A	Contact Customer (32.12 %)
- display values of purchase	N/A	N/A	1001-5000 ฿
- among customers	Hospital ,Transport, and Travel agencies.	N/A	Hotel and Restaurants
4.number of ICT training hours	N/A	16.8 %	1 Time : Year (58.5%)
5.ICT investment and ICT personnel	N/A	N/A	53.9%
- Type of ICT business	N/A	N/A	Computer

The findings indicated that Phuket ICT City project had impact on the hotel and tour business operators with having 1-15 workers. All of studied businesses

have employed ICT in their business operations. The results show that 100 % used computer whereas 92.6 percent used Internet in the operations. 89.5 percent used high speed internet of 1-4 Mbps. Internet is being used daily to search for information. Most computers were connected as Local area Network. Only 32 percent had their own websites.

For training of staffs, 58.5% of businesses provided at least one training per year to their staff in 2010, which increase from 16.8% in 2008. The training was in computer basic skill, and the courses were usually provided by government agencies. In 2010, 53.9% of businesses has plan to invest on computer hardware.

As for the usage of E-commerce, there was only 35.8% of businesses running E-commerce in their operations. Most of businesses using E-commerce is hotel one travelling businesses.

Phuket's income in 2010 was mainly from hotel and tourism businesses. Phuket had welcomed 5,471,218 Thai and Foreign tourists, and generated income of 108,446.18 million bath. This has created tremendous benefit from applying ICT in hotel and travelling businesses. ICT creates channel for public information, accommodations, restaurants, and traveling. The research indicated that 56.20 percent of the hotel businesses has their own websites.

As for Problems and obstacles, the internet speed is too slow and computer had problems from computer viruses. For e-commerce applications, the problems are too complication of buying merchandises through internet, too many steps involved, cannot purchase without credit card, and lack of confident in purchasing process.

Meanwhile the establishment has a great important role in driving economy of Phuket. Thus, using ICT affects the province on competitive capacity in current circumstances. To compare the effectiveness of Phuket ICT City Project on successfulness in launching, the proportion of using computers, the Internet, and websites of the establishment in Phuket and in Bangkok in 2010 were compared. The figure 5.2 illustrates that in Phuket, 92.6% of the establishment used computers in their work, 89.5% of them accessed the Internet, and 32.7% had their own websites. Considering about ICT using in Bangkok in 2010, it was found that the ratio of using computers was less than it was in Phuket. Only 42.8% of the establishment used computers in operating their work. The findings also showed that an overview of

computer using in the country was 21.9%. The study revealed that using the Internet and owning websites was recognized as the highest proportion in Phuket. All in all, it is visible that Phuket ICT City Project was successful in hotel business and tourism establishment by adding a channel for operating business and publicizing information, which resulted in gaining high income and the first high growth economy in the south.

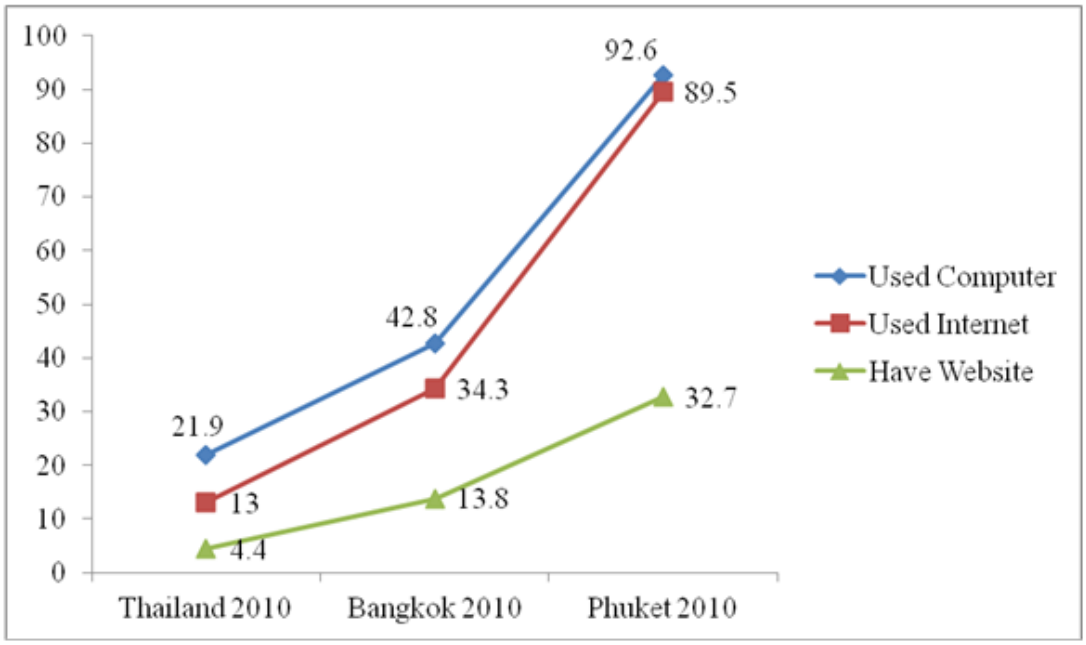

Figure 5.2 Percentage to an average of using computer, access to the Internet and business had website themselves

Table 5.5 Culture Dimensions

INDICATORS	**Thailand 2010**	**Phuket 2008**	**Phuket 2010**
1. Proportion of household with standard phone service	18.6 %	54.5 %	64.4 %
2. Proportion of household with computer	24.7 %	61.2 %	74.5 %
3.Proportion of household with access to Internet	13.4 %	20.0 %	90.1 %
4.Accessing Internet and usage	Fix Broadband	N/A	Dial with phone
5. Internet location	Education/House (50.8 %)	House (52.4%)	House/dormitory (64.5%)
6. Internet Frequency	1-4 Day/week (55.2%)	Daily (61.6%)	Daily (44.8 %)
7. Purposes for using Internet.	Searching Data (97.4%)	Searching Data (79.7%)	Searching Data (89.1%)
8.Type of merchandise and services ordered through Internet - Average spending on each purchase	Clothing (27.3%) 1000-2,999 ฿	N/A N/A	Clothing (38.5%) 1000-5000 ฿
9.Information Technology Skills	N/A	N/A	Medium (33.1 %)
10.Accepting the use of Internet	N/A	N/A	97 %
11.Obstacles during the use of Computer, ordering merchandises and requesting services through Internet classified by basic characteristics of samples	N/A	N/A	Receive product wrong type (41.7 %)

The study from samples as the household representatives mostly from Kratu District were females with age from 31-35 years old, with Bachelor Degrees, and monthly income between 10000-20000 baht. It was found that 74.5 percent used computer in the operations and at least own one computer in household. Amongst 4 household members, there are two members in a household using computer. 57 percent of the subjects knew basic computer skill and 90.1 percent can access and use Internet. 89.1 percent of the subjects used Internet daily at the house /dormitory for searching data and 33 percent have skills in Information Technology at moderate level and connected Internet using phone dial-up with modem.

Only 25 percent of the subjects used E-commerce for buying cloths. They spent about 1000-5000 baht for each transaction, while 19 percent of them used the Internet for E-Banking. Some people never used the Internet because of its complicated applications. 97% of total subjects accepted and used ICT application because it was reliable.

Moreover, the Phuket ICT City project supported a minor cultural development. Only 49% of the subjects knew the Phuket ICT City project from public relation, radio and newspaper. The project didn't affect the subjects on their lifestyles.

The findings showed that a development level of Phuket was much higher comparing to the indicator of Thailand. This was because Phuket ICT City has been helped by ICT development mechanism and the public policies proactively.

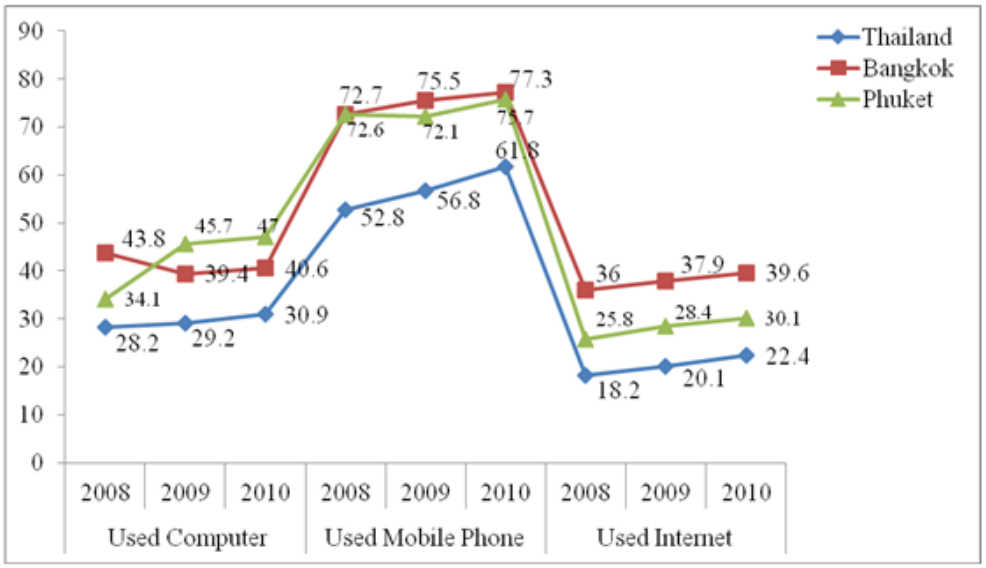

Figure 5.3 comparison of using technology between Phuket, Bangkok and Thailand

However, the comparison of using technology between Phuket, Bangkok and Thailand was found that usage of computer in Phuket is higher than in Bangkok and the whole country, and Phuket tended to have growth in computer usage.

Usage of mobile phones of people in phuket is higher than national level, but Phuket and the big city like Bangkok was not much different. The results of using mobile phone between Phuket and Bangkok were very close, therefore using of mobile phone in Phuket is at high level.

Usage of Internet in Phuket was higher than national average, but lower than Bangkok. The population using Internet tended to increase which was similar to Bangkok and whole country.

Therefore, it can be concluded that the Phuket ICT City has been supported and promoted use of technology in Phuket. Which has the same trend in Bangkok and the whole country.

Public Administration management dimension

Publics agency is an important factor in driving Phuket ICT project. The research indicated that 62.8 percent of the Public Administration management using

information communication technology. It was found that 97.6 percent had and use Internet, website and Microsoft Office.

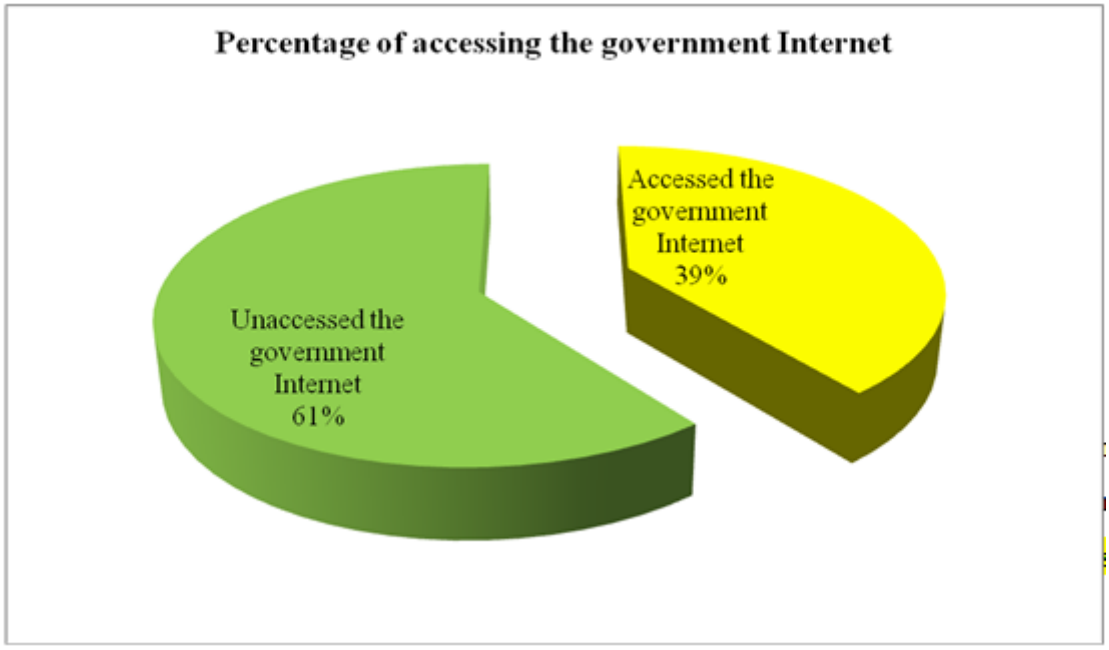

Figure 5.4 Percentage of accessing the government Internet

Phuket ICT City in the dimension of Publics agency dose not support the effectively administration. The majority of people (76 %) know public online services such as tax online payment, e-auction but only 39 percent used the public online services because there was inconvenience and complicate. It made the public online services to be less useful for people.

5.1.3 Perceptions and Status of Using Information Technology in Phuket

Most of establishment in Phuket know information technology such as computers and the Internet rather than those in other groups. This is because they use information technology as a tool for running their work. In general, people and the establishment know well enough in ICT. Only 7.4% of the establishment and 25.5% of general people didn't own computers. Additionally, 9.9% of people didn't know how to use the Internet. Likewise, 10.1% of the establishment did.

Table 5.6 proportion of people and businesses provider unused ICT

Type of ICT	General people	Business establishments
Computer	25.5	7.4
Internet	9.9	10.1

The results showed that many more people accessed the Internet at home visibly. According to the results taken from the questionnaire, the informants revealed that they owned the computers and used the Internet at home because the price of computers and the Internet service fee declined. They could buy ICT equipments and used them easily.

5.1.4 The Investment trends

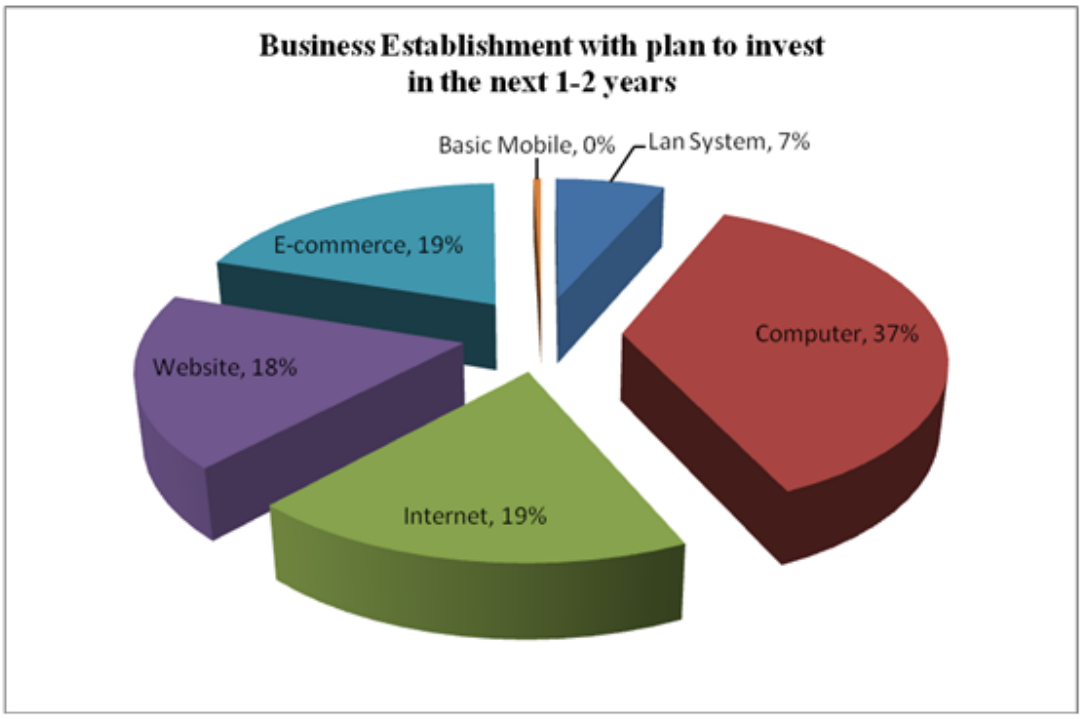

Figure 5.5 Percentage of the business with plan to invest in the next 1-2 years

The result indicated that 169 businesses or 74.8 percent have planned to invest in computers followed by 89 business establishments or 39.4 percent planned an investment on Web Site and 64 businesses or 28.3 percent wanted to invest in E-commerce.

5.2. The Problems and Obstacles in Phuket ICT City Operational System

5.2.1. The roles of TOT and CAT in Phuket are complicated. According to the documents and meeting minutes, it was found that the Ministry of Information Communication Technology has the policy for TOT and CAT to operate their transaction in the same way, and employ the same mission. The Ministry also stipulates them that they can compete freely. They can work on their own and take responsibility on their own business. This causes to have duplication on a basic structure in Network. The examples were described as follow.

TOT settled Fiber to the X (FTTx) to provide TOT Fiber2U service, with the speed of 10 mbps to 100 mbps. TOT spent 200 million baht to managing the network around Phuket Island. It offered 3,200 ports, which consisted of 1,200 ports in Muang District, 1,000 ports in Patong and 1,000 ports in Talang. TOT also installed equipments and added many more ports to suit 20,000 ports.

CAT placed Fiber to the x (FTTx) to provide CAT ON Net service through OLT (Optical Line Terminal) as functioning as a fiber optic cable. Then, it is transmitted a fiber optic through an Optical Splitter to split one fiber optic cable to many terminal lines, which are connected with ONU (Optical Network Unit) for GE-PON in users' houses, townhouses and offices.

Considering these two companies, they both contribute FTTx around Phuket causing the competition among them. They both are also supervised by the same Ministry. This leads to a great impact on a double budget contributing to two organizations with a duplicated work. In terms of other conditions, not only CAT

gives concessions to DTAC and True Move, but TOT also provides its to AIS and TT&T. As a result, the operations of these two companies cannot be united together.

5.2.2. There was a lack of human resources in ICT in Phuket. The study showed that 4,453 students from 22,489 students, who are studying in all educational institutes, are majoring in ICT, averaging only 19.8%. Comparing to the numbers of ICT entrepreneurs in Bangkok, it was founded it was less than 5.5% of those in Phuket. The study also showed that general people in Phuket have no any knowledge in ICT, calculating about 21%. Most of people know only a basic computer usage.

5.2.3. The project lacked main people in charge to run the project successfully. Studying an overview of an organization structure involving the project revealed that lack of assigned people taking responsibility to the project caused many problems. For instance, there were no people working for the project directly because of a role and authority of each organization, which cannot be controlled and commanded straightforwardly. They are not under each other.

5.2.4. There were management limitations of each government sector in the Ministry. Among the government organizations have never cooperated on any MOUs.

5.2.5. There was no enough publicizing information and cooperation from various organizations for a government sector. The study showed that only 49% of general people knew the project. 24% of them thought that Phuket ICT City project had an influence on their life.

5.3 Limitations and Suggestions in the Study

5.3.1. The comparison of ICT development level of Phuket taken from Phuket ICT City Project has been done in a certain level. This was because five dimension indicators have never used, yet. Therefore, an in charge organization should collect data following the indicators mentioned in the study continuously, which result in a usefulness in planning ICT capacity development in Phuket. It can also indicate successful operation of involved organizations.

5.3.2. Due to time limitation, the study couldn't cover subjects in all careers and areas. The further study should vary the subjects accordingly to education, occupations in both towns and the country.

5.3.3. Successfulness of Phuket ICT City Project was analyzed by using indicators chosen from literature review, which didn't show in-depth data caused by incomplete data to be compared.

5.4 Recommendations for Studying ICT Phuket City to Increase its Efficiency

It was successful to launch ICT Phuket City Project to encourage general people, entrepreneurs, and government sectors to be alert in using ICT. Although Phuket cannot be pushed to be a centre of ICT effectively, with starting this project, Phuket is prompt in ICT infrastructure, which is strong with a satisfied level. It is an important basis in ICT development in the future. To enhance ICT development, the strategies below should be employed in order to fulfill its efficiency.

1. Duplication of work in telecommunication organizations in Phuket should be managed by combining FTTx of CAT and TOT together. One is a major whereas another is a minor in networks.

2. Zone division should be arranged between CAT and TOT.

3. The internet centre should be provided in a local level for people in the community to reach and take benefits from ICT.

4. Provincial Office should be a centre to manage ICT covering the budget, human resource development, and government infrastructure planning by establishing provincial strategy development and having connection with government sectors. Phuket ICT City Association should be founded to be a core representative to lead Phuket being an ICT CITY.

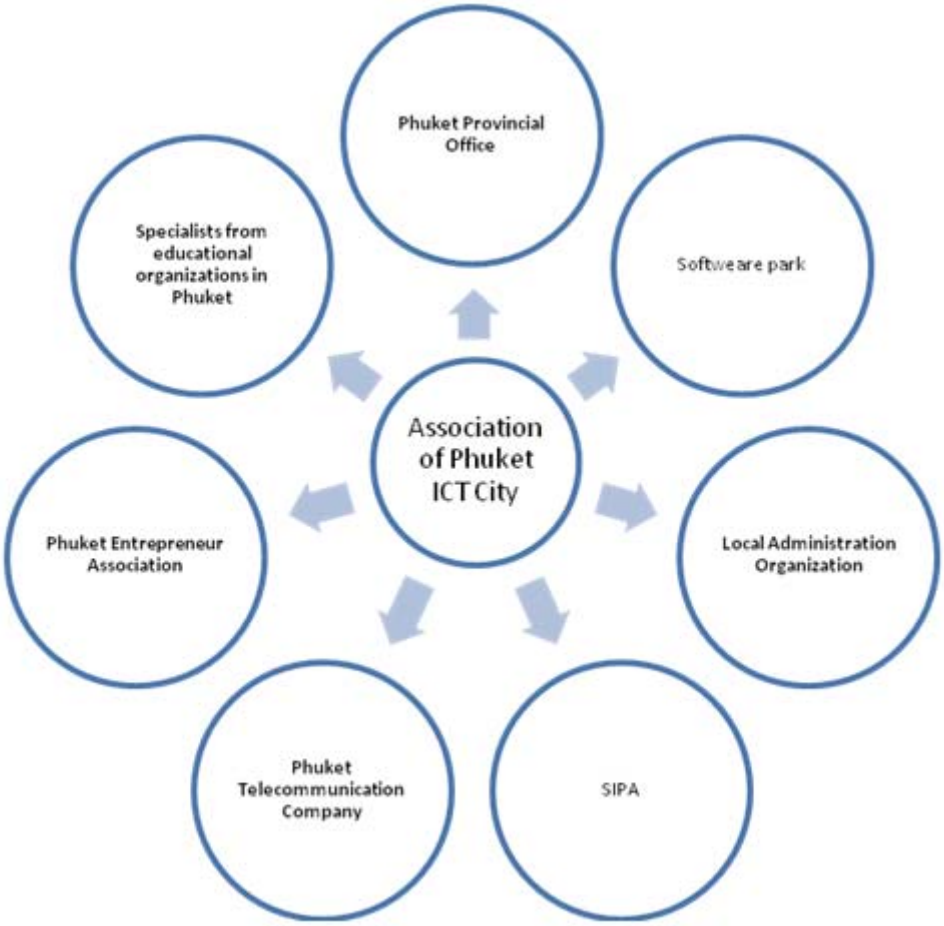

Figure 5.6 Phuket ICT City Association structures

5. Budget should be gathered from a Local Administration Organization and Private Business Establishment Association to support Software Part, SIPA, and Sapanhin ICT Centre to be in charge in developing ICT, creating technological

software innovation in ICT, conducting research, and promoting foreign investment in ICT industry in Phuket.

6. The government should support seriously in publicizing ICT information. People should be encouraged to approach government services via electronic media, including monitoring and guaranteeing the quality for ICT users in order to motivate the entrepreneurs to have an investment and enhance them to know and to follow an ICT law severely.

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APPENDICES

APPENDIX A

แบบสอบถามเพื่อการวิจัย

เรื่อง การประเมินประสิทธิผลโครงการ Phuket ICT CITY

วัตถุประสงค์

แบบสอบถามฉบับนี้เป็นการศึกษาวิจัยถึงประสิทธิผลของโครงการ Phuket ICT CITY จังหวัดภูเก็ต ปี 2553 ทั้งนี้ผลสำรวจที่ค้นพบจะเป็นข้อมูลพื้นฐานขององค์กร หน่วยงานราชการที่เกี่ยวข้องเพื่อให้ได้ข้อมูลในเชิงลึกต่อไป

คำชี้แจ้งในการตอบแบบสอบถาม

1. แบบสอบถามชุดนี้แบ่งออกเป็น 3 ส่วนคือ
   ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม
   ส่วนที่ 2 ข้อมูลเกี่ยวกับพฤติกรรมการใช้เทคโนโลยีสารสนเทศ
   ส่วนที่ 3 ข้อมูลปัญหาและอุปสรรคในการใช้งานเทคโนโลยีสารสนเทศ
2. โปรดอ่านคำชี้แจงในการตอบแบบสอบถามแต่ละส่วนให้เข้าใจก่อนตอบ
3. โปรดตอบแบบสอบถามให้ครบทุกส่วน และทุกข้อตามความเป็นจริง
4. การตอบแบบสอบถามครั้งนี้ จะไม่ส่งผลกระทบใดๆ ต่อการทำงานของท่านคำตอบของท่านจะเป็นความลับ และจะไม่เปิดเผยในที่ใดๆ ทั้งสิ้น นอกจากนำผลรวมต่างๆ ไปใช้เพื่อการวิจัยในครั้งนี้เท่านั้น ทุกคำตอบของท่าน จะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ ผู้วิจัยขอขอบพระคุณเป็นอย่างสูง ที่ท่านได้เสียสละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

นางวรรดี เคี่ยมการ
นักศึกษาปริญญาโท
คณะวิศวกรรมศาสตร์
สาขา เทคโนโลยีการจัดการระบบสารสนเทศ
มหาวิทยาลัยมหิดล

ตอนที่ 1

สภาพของผู้ตอบแบบสอบถาม

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงใน ❒ หรือเติมข้อความที่เว้นไว้ตามข้อมูลเกี่ยวกับตัวท่าน

---

1) เพศ

❒ ชาย ❒ หญิง

2) อายุ

❒ 15-20❒21-25 ❒ 26-30 ❒31-35 ❒36-40

❒41-45 ❒ 46-50 ❒51-55 ❒ 56 ปีขึ้นไป

3) ระดับการศึกษาสูงสุด

❒ ประถมศึกษา❒ ม.3 ❒ม.6 ❒ ปวช.❒ปวส/ปวท/ปทส /อนุปริญญา

❒ปริญญาตรี ❒ปริญญาโท ❒สูงกว่าปริญญาโท ❒ อื่นๆ

4) รายได้เฉลี่ยต่อเดือนของทั้งครอบครัวอยู่ในช่วง

❒ต่ำกว่า 10,000 บาท ❒10,001-20,000 บาท❒20,001-30,000 บาท ❒30,001-50,000 บาท

❒50,001-70,000 บาท ❒70,001-90,000 บาท❒90,001-110,000 บาท ❒110,001-130,000 บาท

❒130,001-150,000 บาท❒มากกว่า 150,000 บาท

5) ท่านมีชื่อในสำเนาทะเบียนบ้านอยู่ในอำเภอใดของจังหวัดภูเก็ต

❒อ.เมือง ❒อ.กะทู้ ❒ อ.ถลาง ❒ ต่างจังหวัด/มาประกอบอาชีพในภูเก็ต

ตอนที่ 2 พฤติกรรมการใช้งานเทคโนโลยีสารสนเทศ

6) ท่านใช้บริการโทรศัพท์พื้นฐานจากหน่วยงานใด (ตอบได้มากกว่า 1 ข้อ)

❒TOT ❒TT&T ❒ ไม่มี

7) ปัจจุบันท่านใช้บริการโทรศัพท์มือถือจากหน่วยงานใด (ตอบได้มากกว่า 1 ข้อ)

❒CAT ❒ DTAC ❒ True Move ❒ AIS

❒TOT ❒ ไม่มี ❒ อื่น ๆ……

8) ท่านและครอบครัวมีคอมพิวเตอร์(แบบตั้งโต๊ะหรือกระเป๋าหิ้ว)

❒ มี จำนวน……เครื่อง

❒ ไม่มี

9) จำนวนสมาชิกในครอบครัว……..คน

10) จำนวนสมาชิกในครอบครัวที่ใช้คอมพิวเตอร์เป็น……คน

11) ท่านและครอบครัวสามารถใช้ Internet ได้หรือไม่

❒ ได้ จำนวน……คน

❒ ไม่ได้

12) ท่านใช้บริการ Internet บ่อยครั้งเพียงใด

❒ ทุกวัน ❒ 1ครั้ง/สัปดาห์ ❒ 2-3 ครั้ง/สัปดาห์

❒ 2-3 ครั้ง/ เดือน ❒ อื่นๆ (ระบุ).....

13) ท่านใช้บริการ Internet จากสถานที่ใด

❒ บ้าน/หอพัก ❒ ที่ทำงาน ❒ บ้านเพื่อน/ญาติ ❒สถานศึกษา

❒ ห้องสมุดสาธารณะ ❒ Internet Café❒ อื่นๆ (ระบุ).....

14) ท่านใช้บริการ Internet เพื่อกิจกรรมใดบ้าง (สามารถตอบได้มากกว่า 1 ข้อ)

❒ E-mail ❒ ค้นหาข้อมูล ❒ chat

❒ ดูหนัง/ฟังเพลง ❒ ซื้อ-ขายสิ้นค้าออนไลน์ ❒ เล่นเกมส์

❒ Upload/download ❒ อ่านข่าว ❒ เขียนบันทึก

❒ อื่นๆ (ระบุ).....

15) วิธีการเข้าถึง Internet

❒ ต่อผ่านสายโทรศัพท์ ❒ISDN ❒ADSL

❒ เคเบิล โมเด็ม ❒Leased Line ❒ระบบเชื่อมต่อไร้สาย

❒ อื่นๆ (ระบุ).....

16) ท่านและครอบครัวเคยใช้พาณิชย์อิเล็กทรอนิกส์หรือไม่ (ใช้ในการสั่งซื้อสินค้า และบริการ)

❒ ใช้ (ให้ตอบคำถามข้อ 16.1 /16.2) ❒ ไม่ใช้ (ให้ห้ามไปตอบข้อ 17)

16.1 ชนิดของสินค้าและบริการที่สั่งซื้อผ่านระบบอินเตอร์เน็ต

❒ อุปกรณ์สื่อสาร ❒ ของสะสมและของเก่า ❒ เครื่องเล่นเกม การ์ตูน

❒ อุปกรณ์ภายในบ้าน ❒ อาหารและสุขภาพ ❒ ของที่ระลึก และหัตถกรรม

❒ เสื้อผ้า ❒ หนังสือ เครื่องเขียน ❒ แม่และเด็ก

❒ ยานพาหนะ ❒ คอมพิวเตอร์ ❒ กล้องอุปกรณ์ถ่ายภาพ

❒ นาฬิกา เครื่องประดับ ❒ เครื่องใช้ไฟฟ้า ❒ สัตว์เลี้ยง ต้นไม้

❒ ของเล่นและงานดิเรก ❒ เครื่องดนตรี ❒ กีฬา

❒ ดนตรี และบันเทิง ❒ อุปกรณ์สำนักงาน ❒ อื่น ๆ …….

16.2 มูลค่าในการสั่งซื้อเฉลี่ยต่อครั้ง

❒ 100-1000 บาท ❒ 1000 -5000 บาท ❒ 5001-10000 บาท

❒ 10001-15000 บาท ❒ 15001 -20000 บาท ❒ 25001 -30000 บาท

❒ อื่น ๆ ระบุ……..

17) ท่านเคยมีการใช้งาน Internet Banking หรือไม่

❒ใช้ ❒ไม่ใช้ (สาเหตุที่ไม่ใช้ ❒ไม่ทราบว่ามีบริการ
❒ไม่สะดวก
❒ไม่สามารถบริการท่านได้ครบถ้วน
❒อื่นๆ ระบุ……)

18) ท่านทราบหรือไม่ว่ามีบริการภาครัฐผ่านสื่ออิเล็กทรอนิกส์แบบออนไลน์ เช่น การชำระภาษีออนไลน์ , e-auction เป็นต้น

❒ทราบ ❒ไม่ทราบ

19) ท่านเคยใช้บริการภาครัฐผ่านสื่ออิเล็กทรอนิกส์ออนไลน์

❒ใช้ ❒ไม่ใช้(สาเหตุที่ไม่ใช้ ❒ไม่ทราบว่ามีบริการ
❒ไม่สะดวก
❒ไม่สามารถบริการท่านได้ครบถ้วน
❒อื่นๆ ระบุ……)

20) ท่านเคยได้รับการอบรมหรือมีความรู้ให้หลักสูตรด้าน ICT ทางด้านใดบ้าง (ตอบได้มากว่า 1 ข้อ)

❒ คอมพิวเตอร์พื้นฐาน
❒ ไมโครซอฟท์ ออฟฟิศ
❒ อินเตอร์เน็ต
❒ อีเมล์
❒ คอมพิวเตอร์กราฟิก
❒ เขียนโปรแกรม
❒ อื่น ๆ ระบุ……..
❒ ไม่เคยอบรม

21) สถานที่ที่ให้การอบรม

❒ มหาวิทยาลัย ❒โรงเรียน ❒หน่วยงานราชการ
❒ สถาบันสอนคอมพิวเตอร์ ❒ บริษัทเอกชน ❒สถานที่ทำงาน
❒อื่น ๆ ระบุ……..

22) ท่านมีความสามารถและทักษะทางด้านเทคโนโลยีด้านสารสนเทศ (Information Technology Skills) อยู่ในระดับใด

❒ ดีมาก ❒ ดี ❒ ปานกลาง ❒ น้อย ❒ ไม่มี

23) ท่านเห็นด้วยกับการนำเทคโนโลยีสารสนเทศมาใช้ในการทำงานและการดำเนินชีวิตในปัจจุบันหรือไม่

❒ เห็นด้วย ❒ไม่เห็นด้วย

24) ท่านมีความคิดเห็นในการนำเทคโนโลยีมาใช้ในการทำงานและการดำเนินชีวิตอย่างไร

❒สะดวก ❒ไม่สะดวก ❒ไม่มีการเปลี่ยนแปลง
❒ไม่จำเป็น ❒อื่น ๆ…….

25) ส่วนใหญ่ท่านพบปัญหาใดจากการซื้อ ขายสินค้าและบริการผ่านอินเตอร์เน็ต

❒การขนส่งล่าช้า ❒ได้รับสินค้าชำรุด มีตำหนิ ❒ได้รับสินค้าผิดแบบ

❒ไม่ได้รับสินค้าตามจำนวน ❒อื่น ๆ……..

26) ท่านรู้จักโครงการ Phuket ICT CITY หรือไม่

❒ รู้จัก จาก
❍ การประชาสัมพันธ์ สื่อ วิทยุ หนังสือพิมพ์
❍ โครงการให้การสนับสนุนงบประมาณ หรือ อุปกรณ์
❍ เป็นแกนหลักในการขับเคลื่อนโครงการ
❍ อื่น ๆ……..……
❒ไม่รู้จัก

27) Phuket ICT CITY มีบทบาทอย่างไรกับครอบครัวของท่าน

❒ มี เนื่องจาก……..

❒ ไม่มี

ส่วนที่ 3 ข้อมูลปัญหาและอุปสรรคในการใช้งานเทคโนโลยีสารสนเทศ

1) ท่านพบปัญหาและอุปสรรคใดจากการใช้งานด้านคอมพิวเตอร์

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2) ท่านพบปัญหาและอุปสรรคใดจากการใช้งานด้านอินเตอร์เน็ต

APPENDIX B

แบบสอบถามเพื่อการวิจัย

เรื่อง การประเมินประสิทธิผลโครงการ Phuket ICT CITY

วัตถุประสงค์

แบบสอบถามฉบับนี้เป็นการศึกษาวิจัยถึงประสิทธิผลของโครงการ Phuket ICT CITY จังหวัดภูเก็ต ปี 2553 ทั้งนี้ผลสำรวจที่ค้นพบจะเป็นข้อมูล พื้นฐานขององค์กร หน่วยงานราชการที่เกี่ยวข้องเพื่อให้ได้ข้อมูลในเชิงลึกต่อไป

คำชี้แจ้งในการตอบแบบสอบถาม

1. แบบสอบถามชุดนี้แบ่งออกเป็น 3 ส่วนคือ
   ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม
   ส่วนที่ 2 ข้อมูลเกี่ยวพฤติกรรมการใช้ เทคโนโลยีสารสนเทศ
   ส่วนที่ 3 ข้อมูลปัญหาและอุปสรรคในการใช้งานเทคโนโลยีสารสนเทศ
2. โปรดอ่านคำชี้แจงในการตอบแบบสอบถามแต่ละส่วนให้เข้าใจก่อนตอบ
3. โปรดตอบแบบสอบถามให้ครบทุกส่วน และทุกข้อ ตามความเป็นจริง
4. การตอบแบบสอบถามครั้งนี้ จะไม่ส่งผลกระทบใด ๆ ต่อการทำงานของท่านคำตอบของท่านจะเป็นความลับ และจะไม่เปิดเผยในที่ใดๆ ทั้งสิ้น นอกจากนำผลรวมต่าง ๆ ไปใช้เพื่อการวิจัยในครั้งนี้เท่านั้นทุกคำตอบของท่าน จะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ ผู้วิจัยขอขอบพระคุณเป็นอย่างสูง ที่ท่านได้เสียสละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

นางวรรดี เคี่ยมการ
นักศึกษาปริญญาโท
คณะวิศวกรรมศาสตร์
สาขา เทคโนโลยีการจัดการระบบสารสนเทศ
มหาวิทยาลัยมหิดล

ตอนที่ 1

ข้อมูลเกี่ยวกับผู้ตอบแบบสอบถาม

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงใน ❒ หรือเติมข้อความที่เว้นไว้ตามข้อมูลเกี่ยวกับตัวท่าน

1) ตำแหน่ง/หน้าที่ความรับผิดชอบของท่าน
- ❒ เจ้าของธุรกิจ
- ❒ กรรรมการผู้จัดการ
- ❒ ผู้จัดการ
- ❒ หัวหน้าฝ่าย…….

2) ประเภทของสถานประกอบการ

❒ ผู้ประกอบทั่วไป(ให้ตอบข้อ 2.1) ❒ ผู้ประกอบการทางด้าน ICT (ให้ตอบข้อที่ 2.2)

2.1 ประเภทของธุรกิจที่ดำเนินกิจการ

❒ ก่อสร้าง ❒ อสังหาริมทรัพย์

❒ การขาย/ บำรุงรักษา/ ซ่อมแซมยานยนต์ ❒ การผลิต

❒ การขายส่ง/ การค้าเพื่อค่านายหน้า ❒ การขายปลีกรวมทั้ง การซ่อมแซมของใช้

❒ ในครัวเรือน ❒ โรงแรมและภัตตาคาร

❒ การขนส่งทางบกและตัวแทนธุรกิจ ❒ ท่องเที่ยว

❒ การให้เช่าเครื่องจักรและเครื่องอุปกรณ์ ❒ โดยไม่มีผู้ควบคุม

❒ กิจกรรมนันทนาการและการบริการอื่นๆ ❒ อื่นๆ……

2.2 ประเภทของธุรกิจที่ดำเนินกิจการ

❒Hardware ❒Software Reseller

❒Internet Service Provider ❒Computer Graphic /Web Design

❒Web Hosting /Data Center Service ❒อินเตอร์เน็ต คาเฟ่

❒Software House / Software Developer ❒เครื่องมือสื่อสาร

❒ อื่น ระบุ……

3) มูลค่าทุนจดทะเบียนของบริษัท……..บาท

4) จำนวนพนักงานในหน่วยงาน

❒1-15 คน ❒16-20 คน ❒21-25 คน ❒26-50 คน ❒51-200 คน ❒มากกว่า 200 คน

ตอนที่ 2 พฤติกรรมการใช้งานเทคโนโลยีสารสนเทศ

5) บริษัทของท่านมีเทคโนโลยีสารสนเทศและการสื่อสาร (โทรศัพท์พื้นฐาน โทรศัพท์มือถือ โทรสาร คอมพิวเตอร์โทรทัศน์ โทรสาร คอมพิวเตอร์)เพื่อใช้ในการดำเนินกิจการหรือไม่

❒มี (ให้ตอบข้อ 5.1) ❒ไม่มี

5.1 จำนวนอุปกรณ์ทางด้านเทคโนโลยีสารสนเทศและการสื่อสารที่มี (ตอบได้มากกว่า 1 ข้อ)

❒โทรทัศน์จำนวน……...เครื่อง ❒โทรศัพท์พื้นฐานจำนวน……หมายเลข

❒โทรศัพท์มือถือจำนวน……..หมายเลข ❒โทรสาร (FAX) จำนวน……...เครื่อง

❒ คอมพิวเตอร์จำนวน……..เครื่อง

6) บริษัทของท่านมีระบบ Internet เพื่อใช้ในการดำเนินกิจการหรือไม่

❒มี (ให้ตอบข้อ 6.1) ❒ไม่มี

6.1 ความเร็วของอินเตอร์เน็ตที่ใช้งานในหน่วยงาน

❒1-4 MB ❒5-10 MB ❒มากกว่า 10 MB

7) บริษัทของท่านมีค่าใช้จ่ายเกี่ยวกับการใช้บริการโทรศัพท์และอินเตอร์เน็ต

7.1 ค่าโทรศัพท์

❒ ต่ำกว่า 500 บาท/เดือน ❒ 501-1000 บาท/เดือน ❒ 1001-2000 บาท/เดือน

❒ 2001-5000บาท/เดือน ❒ 5001 –10,000 บาท/เดือน ❒ อื่น ๆ ระบุ.....บาท/เดือน

7.2 ค่าโทรศัพท์มือถือ

❒ ต่ำกว่า 500 บาท/เดือน ❒ 501-1000 บาท/เดือน ❒ 1001-2000 บาท/เดือน

❒ 2001-5000บาท/เดือน ❒ 5001 –10,000 บาท/เดือน ❒ อื่น ๆ ระบุ.....บาท/เดือน

7.3 ค่าอินเตอร์เน็ต

❒ ต่ำกว่า 500 บาท/เดือน ❒ 501-1000 บาท/เดือน ❒ 1001-2000 บาท/เดือน

❒ 2001-5000บาท/เดือน ❒ 5001 –10,000 บาท/เดือน ❒ อื่น ๆ ระบุ.....บาท/เดือน

8) รูปแบบการทำงานทางด้านเทคโนโลยีสารสนเทศในหน่วยงานเป็นแบบใด

❒เครือข่ายภายในท้องถิ่น (LAN) ❒ ไม่มีเครือข่าย

❒เครือข่ายภายในแบบไร้สาย (Wireless)

9) หน่วยงานของท่านมีเว็บไซต์ เป็นของตัวเอง

❒มี โปรดระบุ URL……. ❒ไม่มี

10) จำนวนพนักงานในบริษัทที่ใช้ Internet และค้นหาข้อมูลเป็น……..……..คน

11) จำนวนพนักงานที่มีความรู้และความสามารถในการใช้ ICT ……คน

12) พนักงานในบริษัทของท่านใช้บริการ Internet บ่อยครั้งเพียงใด

❒ ทุกวัน ❒ 1ครั้ง/สัปดาห์ ❒ 2-3 ครั้ง/สัปดาห์

❒ 2-3 ครั้ง/ เดือน ❒ อื่นๆ (ระบุ).....

13) ท่านใช้บริการ Internet เพื่อกิจกรรมใดบ้าง (สามารถตอบได้มากกว่า 1 ข้อ)

❒ e-mail ❒ ค้นหาข้อมูล ❒ chat
❒ ดูหนัง/ฟังเพลง ❒ ซื้อ-ขายสิ้นค้าออนไลน์ ❒ เล่นเกมส์
❒ upload/download ❒ อ่านข่าว ❒ เขียนบันทึก
❒ อื่นๆ (ระบุ).....

14) วิธีการเข้าถึง Internet

❒ ต่อผ่านสายโทรศัพท์ ❒ISDN ❒ADSL
❒ เคเบิล โมเด็ม ❒Leased Line ❒ระบบเชื่อมต่อไร้สาย
❒ อื่นๆ (ระบุ).....

15) บริษัทของท่านเคยใช้พาณิชย์อิเล็กทรอนิกส์หรือไม่ (ใช้ในการสั่งซื้อสินค้า และบริการ)

❒ ใช้ (ให้ตอบคำถามข้อ 15.1 /15.2/15.3) ❒ ไม่ใช้ (ให้ข้ามไปตอบข้อ 16)

15.1 ชนิดของสินค้าและบริการที่สั่งซื้อผ่านระบบอินเตอร์เน็ต

❒ อุปกรณ์สำนักงาน ❒ วัตถุดิบในการผลิต ❒ ติดต่อลูกค้า
❒ อุปกรณ์สื่อสาร ❒ คอมพิวเตอร์ ❒ ยานพาหนะ
❒ กล้องอุปกรณ์ถ่ายภาพ ❒ หนังสือ เครื่องเขียน ❒ สิ่งทอ เสื้อผ้า
❒ อาหาร ❒ เครื่องใช้ไฟฟ้า ❒ การท่องเที่ยว/จองตั๋ว
❒ อื่น ๆ ……..

15.2 มูลค่าในการสั่งซื้อเฉลี่ยต่อครั้ง

❒ 100-1000 บาท/ครั้ง ❒ 1001-5000บาท/ครั้ง ❒ 5001-10000 บาท/ครั้ง
❒ 10001-15000 บาท/ครั้ง ❒ 15001-20000บาท/ครั้ง❒ 25001 -30000 บาท/ครั้ง
❒ อื่น ๆ ระบุ……..

15.3 จำนวนครั้งที่ซื้อต่อปี

❒ 1-5 ครั้ง/ปี ❒ 5-10 ครั้ง/ปี ❒ 11-15 ครั้ง/ปี
❒ 16-20 ครั้ง/ปี ❒ 21-25 ครั้ง/ปี ❒ อื่น ๆ ระบ……..

16) ท่านและบริษัทของท่านเคยมีการใช้งาน Internet Banking หรือไม่

❒ใช้ ❒ไม่ใช้ใช้ (สาเหตุที่ไม่ใช้ ❒ไม่ทราบว่ามีบริการ
❒ไม่สะดวก
❒ไม่สามารถบริการท่านได้ครบถ้วน
❒อื่นๆ ระบุ……

17) บริษัทของท่านจัดอบรมพัฒนาบุคลากรด้าน ICT หรือส่งไปอบรม ต่อปี

❒ไม่เคยอบรม ❒ 1 ครั้ง ❒ 3 ครั้ง ❒ 4 ครั้ง ❒ 5 ครั้ง
❒มากกว่า 5

18) สถานที่ที่พนักงานเข้ารับการอบรม

❒โรงเรียน ❒สถาบันสอนคอมพิวเตอร์ ❒หน่วยงานราชการ
❒มหาวิทยาลัย ❒บริษัทของท่านเอง
❒หน่วยงานเอกชน ❒อื่นๆ……

19) หลักสูตรที่พนักงานเข้ารับการอบรม

❒การเขียนโปรแกรม ❒ใช้คอมพิวเตอร์กราฟิก
❒การใช้อีเมล์ ❒การใช้อินเตอร์เน็ต
❒ใช้ไมโครซอฟท์ออฟฟิศ ❒คอมพิวเตอร์พื้นฐาน ❒อื่นๆ……..

20) บริษัทของท่านมีนโยบายที่จะลงทุนด้าน ICT ภายใน 1-2 ปีข้างหน้า หรือไม่

❒ลงทุน ด้านใด ❒โทรศัพท์มือถือ
❒ ระบบ LAN
❒ คอมพิวเตอร์
❒ อินเตอร์เน็ต
❒ เว็บไซต์
❒ ระบบพาณิชย์อิเล็กทรอนิกส์
❒ โทรศัพท์พื้นฐาน
❒ โทรสาร
❒ อื่น ๆ ระบุ.....
❒ไม่ลงทุน

21) ท่านรู้จักโครงการ Phuket ICT CITY หรือไม่

❒ รู้จัก จาก
❍ การประชาสัมพันธ์ สื่อ วิทยุ หนังสือพิมพ์
❍ โครงการให้การสนับสนุนงบประมาณ หรือ อุปกรณ์
❍ เป็นแกนหลักในการขับเคลื่อนโครงการ
❍ อื่น ๆ……..……
❒ไม่รู้จัก

22) Phuket ICT CITY มีบทบาทอย่างไรกับหน่วยงานหรือบริษัทของท่าน

❒ มี เนื่องจาก……..
❒ไม่มี

ตอนที่ 3 ข้อมูลปัญหาและอุปสรรคในการใช้งานเทคโนโลยีสารสนเทศ

1) บริษัทของท่านพบปัญหาและอุปสรรคใดจากการใช้งานด้านคอมพิวเตอร์

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2) บริษัทของท่านพบปัญหาและอุปสรรคใดจากการใช้งานด้านอินเตอร์เน็ต

APPENDIX C

แบบสอบถามเพื่อการวิจัย

เรื่อง การประเมินประสิทธิผลโครงการ Phuket ICT CITY

วัตถุประสงค์

แบบสอบถามฉบับนี้เป็นการศึกษาวิจัยถึงประสิทธิผลของโครงการ Phuket ICT CITY จังหวัดภูเก็ต ปี 2553 ทั้งนี้ผลสำรวจที่ค้นพบจะเป็นข้อมูล พื้นฐานขององค์กร หน่วยงานราชการที่เกี่ยวข้องเพื่อให้ได้ข้อมูลในเชิงลึกต่อไป

คำชี้แจ้งในการตอบแบบสอบถาม

1. แบบสอบถามชุดนี้แบ่งออกเป็น 3 ส่วนคือ
   ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม
   ส่วนที่ 2 ข้อมูลเกี่ยวกับพฤติกรรมการใช้งานเทคโนโลยีสารสนเทศ
   ส่วนที่ 3 ข้อมูลปัญหาและอุปสรรคในการใช้งานเทคโนโลยีสารสนเทศ
2. โปรดอ่านคำชี้แจงในการตอบแบบสอบถามแต่ละส่วนให้เข้าใจก่อนตอบ
3. โปรดตอบแบบสอบถามให้ครบทุกส่วน และทุกข้อตามความเป็นจริง
4. การตอบแบบสอบถามครั้งนี้ จะไม่ส่งผลกระทบใดๆ ต่อการทำงานของท่านคำตอบของท่านจะเป็นความลับ และจะไม่เปิดเผยในที่ใดๆ ทั้งสิ้น นอกจากนำผลรวมต่างๆ ไปใช้เพื่อการวิจัยในครั้งนี้เท่านั้น ทุกคำตอบของท่าน จะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ ผู้วิจัยขอขอบพระคุณเป็นอย่างสูง ที่ท่านได้เสียสละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

นางวรรดี เคี่ยมการ
นักศึกษาปริญญาโท
คณะวิศวกรรมศาสตร์
สาขา เทคโนโลยีการจัดการระบบสารสนเทศ
มหาวิทยาลัยมหิดล

ตอนที่ 1

ข้อมูลเกี่ยวกับผู้ตอบแบบสอบถาม

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงใน ❒ หรือเติมข้อความที่เว้นไว้ตามข้อมูลเกี่ยวกับตัวท่าน

1) ตำแหน่ง/หน้าที่ความรับผิดชอบของท่าน ❒ ผู้บริหาร
❒ หัวหน้าฝ่าย/งาน……..
❒ อื่น ……..……

2) ชื่อหน่วยงาน……สังกัด……

ตอนที่ 2

การใช้เทคโนโลยีสารสนเทศการบริหารจัดการของหน่วยงานภาครัฐ

<u>คำชี้แจง</u> โปรดพิจารณาข้อความแต่ละรายการว่าตรงกับสภาพการนำเทคโนโลยีสารสนเทศใช้ในการบริหารจัดการของหน่วยงานของท่านเพียงใด แล้วกา ✓ ลงในช่องที่ตรงกับสภาพของหน่วยงาน ดังนี้

กา ✓ ในช่อง 5 หมายถึง หน่วยงานของท่านนำเทคโนโลยีสารสนเทศใช้ในการบริหารจัดการในรายการนั้นอยู่ในระดับ**<u>มากที่สุด</u>**

กา ✓ ในช่อง 4 หมายถึง หน่วยงานของท่านนำเทคโนโลยีสารสนเทศใช้ในการบริหารจัดการในรายการนั้นอยู่ในระดับ**<u>มาก</u>**

กา ✓ ในช่อง 3 หมายถึง หน่วยงานของท่านนำเทคโนโลยีสารสนเทศใช้ในการบริหารจัดการในรายการนั้นอยู่ในระดับ**<u>ปานกลาง</u>**

กา ✓ ในช่อง 2 หมายถึง หน่วยงานของท่านนำเทคโนโลยีสารสนเทศใช้ในการบริหารจัดการในรายการนั้นอยู่ในระดับ**<u>น้อย</u>**

กา ✓ ในช่อง 1 หมายถึง หน่วยงานของท่านนำเทคโนโลยีสารสนเทศใช้ในการบริหารจัดการในรายการนั้นอยู่ในระดับ**<u>น้อยที่สุด</u>**

ตัวอย่างแบบสอบถาม

ข้อที่	รายการ	ระดับการใช้เทคโนโลยีสารสนเทศการบริหารจัดการของหน่วยงาน				
		5	4	3	2	1
00	การบริหารจัดการเทคโนโลยีสารสนเทศภายในหน่วยงาน		✓			

จากตัวอย่างข้อ 00

ผู้ตอบแบบสอบถามกา ✓ ในช่อง 4 หมายความว่า ในหน่วยงานมีการบริหารจัดการเทคโนโลยีสารสนเทศอยู่ในระดับ **“มาก”**

ต่อไปนี้ขอให้ท่านได้พิจารณาข้อความในแต่ละรายการอย่างรอบคอบ แล้วทำเครื่องหมายในช่องระดับระดับการใช้เทคโนโลยีสารสนเทศการบริหารจัดการของหน่วยงานที่เกิดขึ้นจริง

ข้อที่	รายการ	ระดับการใช้เทคโนโลยีสารสนเทศการบริหารจัดการ				
		5	4	3	2	1
หน่วยงานของท่านใช้เทคโนโลยีสารสนเทศในการบริหารในการรายการต่อไปนี้เพียงใด						
1	การกำหนดแผนแม่บทในการบริหารจัดการเทคโนโลยีสารสนเทศ					
2	การกำหนดวิสัยทัศน์ทางพันธกิจและยุทธศาสตร์ขององค์กรที่ท่านรับผิดชอบมีการนำ ICT ไปมีส่วนร่วมหรือไม่					
3	ใช้ซอฟแวร์ทั่วไปในการดำเนินงานประจำวัน เช่น Ms Word ,Ms Excel, Ms Power point เป็นต้น					
4	ใช้ซอฟแวร์เฉพาะด้านสำหรับการบริหารภายใน การบริหารผู้มีส่วนได้ส่วนเสียของหน่วยงาน					
5	มีเครือข่ายข้อมูลที่สามารถติดต่อสื่อสารข้อมูลอิเล็กทรอนิกส์ระหว่างหน่วยงานภายในและภายนอกองค์กร					
6	มีระบบ Internet เพื่อใช้งานและให้บริการ					
7	มี Website ของหน่วยงาน					
8	การติดต่อกับหน่วยงานหรือผู้รับบริการสามารถติดต่อได้ผ่านทาง E-Mail					
9	มีระบบ Intranet เพื่อการบริหารภายใน					
10	มีการเชื่องโยงระบบเทคโนโลยีสารสนเทศกับหน่วยงานอื่น					
11	มีการจัดซื้อจัดจ้าง ทำผ่านระบบอิเล็กทรอนิกส์ เช่น ระบบ e-Auction , e-Shopping					
12	การพัฒนาบุคลากรให้มีความรู้ความสามารถในการใช้เทคโนโลยีสารสนเทศของหน่วยงาน					
13	การกำหนดตัวชี้วัดความสำเร็จในการใช้เทคโนโลยีสารสนเทศของหน่วยงาน					
14	การกำกับติดตามและประเมินผลการใช้เทคโนโลยีสารสนเทศของหน่วยงาน					
15	การจัดหางบประมาณ เพื่อการจัดหาอุปกรณ์คอมพิวเตอร์ ซอร์ฟแวร์ ฐานข้อมูล และเครือข่ายของหน่วยงาน					

ข้อที่	รายการ	ระดับการใช้เทคโนโลยีสารสนเทศการบริหารจัดการ				
		5	4	3	2	1
16	การกำหนดระเบียบหรือแนวปฏิบัติเกี่ยวกับการใช้เทคโนโลยีสารสนเทศของหน่วยงาน					
17	การจัดให้มีการบำรุงรักษาเทคโนโลยีสารสนเทศของหน่วยงานให้มีคุณภาพที่ดี ใช้งานได้ อย่างมีประสิทธิภาพอยู่เสมอ					
18	การแจ้งผลการประเมินเมื่อประเมินแล้วให้ผู้เกี่ยวข้องทุกฝ่ายรับทราบผลการประเมิน					
19	การนำผลการประเมินมาใช้ในการปรับปรุงแผนครั้งต่อไปได้					

ตอนที่ 3 ข้อมูลปัญหาและอุปสรรคในการใช้งานเทคโนโลยีสารสนเทศ

3) หน่วยงานของท่านพบปัญหาและอุปสรรคใดจากการ ใช้งานด้านคอมพิวเตอร์

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4) หน่วยของท่านพบปัญหาและอุปสรรคใดจากการใช้งานด้านอินเตอร์เน็ต

APPENDIX D

แบบถามขออนุญาตใช้ข้อมูลเพื่อการวิจัย

เรื่อง การประเมินประสิทธิผลโครงการ Phuket ICT CITY

วัตถุประสงค์

แบบสอบถามฉบับนี้เป็นการศึกษาวิจัยถึงประสิทธิผลของโครงการ Phuket ICT CITY จังหวัดภูเก็ต ปี 2553 ทั้งนี้ผลสำรวจที่ค้นพบจะเป็นข้อมูล พื้นฐานต่อองค์กร หน่วยงานราชการที่เกี่ยวข้องเพื่อให้ได้ข้อมูลในเชิงลึกต่อไป

คำชี้แจ้งในการตอบแบบสอบถาม

1. แบบสอบถามชุดนี้แบ่งออกเป็น 2 ส่วนคือ
   ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม
   ส่วนที่ 2 ข้อมูลเกี่ยวโครงสร้างพื้นฐานทางด้านเทคโนโลยีสารสนเทศ
2. โปรดอ่านคำชี้แจงในการตอบแบบสอบถามแต่ละส่วนให้เข้าใจก่อนตอบ
3. โปรดตอบแบบสอบถามให้ครบทุกส่วน และทุกข้อ ตามความเป็นจริง
4. การตอบแบบสอบถามครั้งนี้ จะไม่ส่งผลกระทบใด ๆ ต่อการทำงานของท่านคำตอบของท่านจะเป็นความลับ และจะไม่เปิดเผยในที่ใดๆ ทั้งสิ้น นอกจากนำผลรวมต่าง ๆ ไปใช้เพื่อการวิจัยในครั้งนี้เท่านั้น
   ทุกคำตอบของท่าน จะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ ผู้วิจัยขอขอบพระคุณเป็นอย่างสูง ที่ท่านได้เสียสละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

นางวรรดี เคี่ยมการ
นักศึกษาปริญญาโท
คณะวิศวกรรมศาสตร์
สาขา เทคโนโลยีการจัดการระบบสารสนเทศ
มหาวิทยาลัยมหิดล

ตอนที่ 1

ข้อมูลเกี่ยวกับผู้ตอบแบบสอบถาม

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงใน ❒ หรือเติมข้อความที่เว้นไว้ตามข้อมูลเกี่ยวกับตัวท่าน

1) ชื่อหน่วยงาน_..... จังหวัดภูเก็ต……

2) ชื่อผู้ให้ข้อมูล……

3) ตำแหน่ง/หน้าที่ความรับผิดชอบของท่าน ❒ เจ้าของธุรกิจ
❒ กรรรมการผู้จัดการ
❒ ผู้จัดการ
❒ หัวหน้าฝ่าย……
❒ อื่น ๆ ระบุ……...

ตอนที่ 2

ข้อมูลเกี่ยวกับโครงสร้างพื้นฐาน

ที่	รายการ	2550	2551	2552	หมายเหตุ
1	จำนวนผู้ใช้/จดทะเบียนโทรศัพท์พื้นฐาน(โทรศัพท์บ้าน)				
2	จำนวนผู้ใช้/จดทะเบียนโทรศัพท์ (มือถือ)				
3	จำนวนผู้ใช้/จดทะเบียนอินเตอร์เน็ต				
4	จำนวนผู้ใช้อินเตอร์เน็ตความเร็วสูง				
5	จำนวนผู้ใช้อินเตอร์เน็ตที่มีความกว้างของช่วงสัญญาณแบบ Broadband				
6	สัดส่วนของประชากรที่มีโทรศัพท์มือถือ				
7	อัตราค่าบริการอินเตอร์เน็ตรายเดือน (20 ชั่วโมงต่อเดือน) สัดส่วนของค่าใช้จ่ายด้านอินเตอร์เน็ตต่อรายได้				
8	อัตราค่าบริการโทรศัพท์มือถือ (20 ชั่วโมง ต่อเดือน หรือ สัดส่วนของค่าโทรศัพท์ต่อรายได้)				
9	มูลค่าของการลงทุนทางด้าน ICTของหน่วยงาน				

APPENDIX E

แบบสอบถามขออนุญาตใช้ข้อมูลเพื่อการวิจัย
เรื่อง การประเมินประสิทธิผลโครงการ Phuket ICT CITY

วัตถุประสงค์

แบบสอบถามฉบับนี้เป็นการศึกษาวิจัยถึงประสิทธิผลของโครงการ Phuket ICT CITY จังหวัดภูเก็ต ปี 2553 ทั้งนี้ผลสำรวจที่ค้นพบจะเป็นข้อมูล พื้นฐานต่อองค์กร หน่วยงานราชการที่เกี่ยวข้องเพื่อให้ได้ข้อมูลในเชิงลึกต่อไป

คำชี้แจ้งในการตอบแบบสอบถาม

1. แบบสอบถามชุดนี้แบ่งออกเป็น 2 ส่วนคือ
   ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม
   ส่วนที่ 2 ข้อมูลเกี่ยวกับการศึกษาและทรัพยากรมนุษย์
2. โปรดอ่านคำชี้แจงในการตอบแบบสอบถามแต่ละส่วนให้เข้าใจก่อนตอบ
3. โปรดตอบแบบสอบถามให้ครบทุกส่วน และทุกข้อ ตามความเป็นจริง
4. การตอบแบบสอบถามครั้งนี้ จะไม่ส่งผลกระทบใด ๆ ต่อการทำงานของท่านคำตอบของท่านจะเป็นความลับ และจะไม่เปิดเผยในที่ใดๆ ทั้งสิ้น นอกจากนำผลรวมต่าง ๆ ไปใช้เพื่อการวิจัยในครั้งนี้เท่านั้น
   ทุกคำตอบของท่าน จะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ ผู้วิจัยขอขอบพระคุณเป็นอย่างสูง ที่ท่านได้เสียสละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

นางวรรดี เคี่ยมการ
นักศึกษาปริญญาโท
คณะวิศวกรรมศาสตร์
สาขา เทคโนโลยีการจัดการระบบสารสนเทศ
มหาวิทยาลัยมหิดล

ตอนที่ 1

ข้อมูลเกี่ยวกับผู้ตอบแบบสอบถาม

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงใน ❒ หรือเติมข้อความที่เว้นไว้ตามข้อมูลเกี่ยวกับตัวท่าน

1) ชื่อหน่วยงาน_……จังหวัดภูเก็ต……..……

2) ชื่อผู้ให้ข้อมูล……

3) ตำแหน่ง/หน้าที่ความรับผิดชอบของท่าน ❒ อธิการบดี/ผู้อำนวยการ
❒ รองผู้อำนวยการ
❒ หัวหน้าฝ่าย…….
❒ อื่น ๆ ระบุ……...

ตอนที่ 2

ข้อมูลเกี่ยวกับมิติการศึกษาและทรัพยากรมนุษย์

ที่	รายการ	2550	2551	2552	หมายเหตุ
1	จำนวนผู้ผ่านการอบรมจาก Professional Training Institute และได้รับการรับรองคุณภาพมาตรฐานวิชาชีพ				
2	หลักสูตรการเรียนการสอนด้านคอมพิวเตอร์ ในการศึกษาระดับต่างๆ				

2551	2552	2553

APPENDIX F

แบบสอบถามขออนุญาตใช้ข้อมูลเพื่อการวิจัย
เรื่อง การประเมินประสิทธิผลโครงการ Phuket ICT CITY

วัตถุประสงค์

แบบสอบถามฉบับนี้เป็นการศึกษาวิจัยถึงประสิทธิผลของโครงการ Phuket ICT CITY จังหวัดภูเก็ต ปี 2553 ทั้งนี้ผลสำรวจที่ค้นพบจะเป็นข้อมูล พื้นฐานต่อองค์กร หน่วยงานราชการที่เกี่ยวข้องเพื่อให้ได้ข้อมูลในเชิงลึกต่อไป

คำชี้แจ้งในการตอบแบบสอบถาม

1. แบบสอบถามชุดนี้แบ่งออกเป็น 2 ส่วนคือ
   ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม
   ส่วนที่ 2 ข้อมูลเกี่ยวกับการศึกษาและทรัพยากรมนุษย์
2. โปรดอ่านคำชี้แจงในการตอบแบบสอบถามแต่ละส่วนให้เข้าใจก่อนตอบ
3. โปรดตอบแบบสอบถามให้ครบทุกส่วน และทุกข้อ ตามความเป็นจริง
4. การตอบแบบสอบถามครั้งนี้ จะไม่ส่งผลกระทบใด ๆ ต่อการทำงานของท่านคำตอบของท่านจะเป็นความลับ และจะไม่เปิดเผยในที่ใดๆ ทั้งสิ้น นอกจากนำผลรวมต่าง ๆ ไปใช้เพื่อการวิจัยในครั้งนี้เท่านั้น
   ทุกคำตอบของท่าน จะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ ผู้วิจัยขอขอบพระคุณเป็นอย่างสูง ที่ท่านได้เสียสละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

นางวรรดี เคี่ยมการ
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สาขา เทคโนโลยีการจัดการระบบสารสนเทศ
มหาวิทยาลัยมหิดล

ตอนที่ 1

ข้อมูลเกี่ยวกับผู้ตอบแบบสอบถาม

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงใน ❒ หรือเติมข้อความที่เว้นไว้ตามข้อมูลเกี่ยวกับตัวท่าน

1) ชื่อหน่วยงาน_……จังหวัดภูเก็ต……..……

2) ชื่อผู้ให้ข้อมูล……

3) ตำแหน่ง/หน้าที่ความรับผิดชอบของท่าน ❒ อธิการบดี/ผู้อำนวยการ
❒ รองผู้อำนวยการ
❒ หัวหน้าฝ่าย…….
❒ อื่น ๆ ระบุ……...

ตอนที่ 2

ข้อมูลเกี่ยวกับมิติการศึกษาและทรัพยากรมนุษย์

ที่	รายการ	2551	2552	2553	หมายเหตุ
1	สัดส่วนเครื่องคอมพิวเตอร์ต่อนักเรียน นักศึกษาในระดับต่างๆ				
	ระดับชั้น ม.1-3				
	ระดับชั้น ม.4-6				
	ระดับชั้น ปวช.				
	ระดับชั้น ปวส.				
	ระดับชั้น ปริญญาตรี				
2	จำนวน/สัดส่วนของผู้ที่ศึกษาด้าน ICT ต่อจำนวนนักเรียนทั้งหมด				
3	จำนวน/สัดส่วนของผู้ที่สำเร็จการศึกษาในสาขา ICT				
4	จำนวนผู้สำเร็จการศึกษาในระดับต่างๆ ที่สามารถใช้ ICT ได้				
5	จำนวนผู้ผ่านการอบรมจาก Professional Training Institute และได้รับการรับรองคุณภาพมาตรฐานวิชาชีพ				

6. หลักสูตรการเรียนการสอนด้านคอมพิวเตอร์ ในการศึกษาระดับต่างๆ

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APPENDIX G

แบบสอบถามขออนุญาตใช้ข้อมูลเพื่อการวิจัย

เรื่อง การประเมินประสิทธิผลโครงการ Phuket ICT CITY

วัตถุประสงค์

แบบสอบถามฉบับนี้เป็นการศึกษาวิจัยถึงประสิทธิผลของโครงการ Phuket ICT CITY จังหวัดภูเก็ต ปี 2553 ทั้งนี้ผลสำรวจที่ค้นพบจะเป็นข้อมูล พื้นฐานต่อองค์กร หน่วยงานราชการที่เกี่ยวข้องเพื่อให้ได้ข้อมูลในเชิงลึกต่อไป

คำชี้แจ้งในการตอบแบบสอบถาม

1. แบบสอบถามชุดนี้แบ่งออกเป็น 2 ส่วนคือ
   ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสอบถาม
   ส่วนที่ 2 ข้อมูลเกี่ยวกับการศึกษาและทรัพยากรมนุษย์
2. โปรดอ่านคำชี้แจงในการตอบแบบสอบถามแต่ละส่วนให้เข้าใจก่อนตอบ
3. โปรดตอบแบบสอบถามให้ครบทุกส่วน และทุกข้อ ตามความเป็นจริง
4. การตอบแบบสอบถามครั้งนี้ จะไม่ส่งผลกระทบใด ๆ ต่อการทำงานของท่านคำตอบของท่านจะเป็นความลับ และจะไม่เปิดเผยในที่ใดๆ ทั้งสิ้น นอกจากนำผลรวมต่าง ๆ ไปใช้เพื่อการวิจัยในครั้งนี้เท่านั้น
   ทุกคำตอบของท่าน จะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ ผู้วิจัยขอขอบพระคุณเป็นอย่างสูง ที่ท่านได้เสียสละเวลาและให้ความร่วมมือในการตอบแบบสอบถามมา ณ โอกาสนี้

นางวรรดี เกี่ยมการ
นักศึกษาปริญญาโท
คณะวิศวกรรมศาสตร์
สาขา เทคโนโลยีการจัดการระบบสารสนเทศ
มหาวิทยาลัยมหิดล

ตอนที่ 1

ข้อมูลเกี่ยวกับผู้ตอบแบบสอบถาม

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงใน ❒ หรือเติมข้อความที่เว้นไว้ตามข้อมูลเกี่ยวกับตัวท่าน

1) ชื่อหน่วยงาน_……จังหวัดภูเก็ต……..……

2) ชื่อผู้ให้ข้อมูล……

3) ตำแหน่ง/หน้าที่ความรับผิดชอบของท่าน ❒ ผู้อำนวยการเขตพื้นที่ /นายกเทศมนตรี/นายกองค์การบริหารส่วนจังหวัด
❒ รองผู้อำนวยการ /นายก
❒ หัวหน้าฝ่าย……
❒ อื่น ๆ ระบุ……...

ตอนที่ 2

ข้อมูลเกี่ยวกับมิติการศึกษาและทรัพยากรมนุษย์

ที่	รายการ	2551	2552	2553	หมายเหตุ
1	จำนวนนักเรียนที่เข้าเรียนในระดับประถม มัธยม				
2	สัดส่วนของผู้สำเร็จการศึกษาภาคบังคับ				
3	สัดส่วนของผู้ที่สำเร็จการศึกษาในระดับมัธยมศึกษา				

APPENDIX H

แบบสัมภาษณ์เพื่อการวิจัย

เรื่อง การประเมินประสิทธิผลโครงการ Phuket ICT CITY

วัตถุประสงค์

แบบสัมภาษณ์ฉบับนี้เป็นการศึกษาวิจัยถึงประสิทธิผลของโครงการ Phuket ICT CITY จังหวัดภูเก็ต ปี 2553 ทั้งนี้ผลสำรวจที่ค้นพบจะเป็นข้อมูล พื้นฐานขององค์กร หน่วยงานราชการที่เกี่ยวข้องเพื่อให้ได้ข้อมูลในเชิงลึกต่อไป

คำชี้แจ้งในการตอบแบบสัมภาษณ์

1. แบบสัมภาษณ์ชุดนี้แบ่งออกเป็น 2 ส่วนคือ
   ส่วนที่ 1 ข้อมูลทั่วไปเกี่ยวกับผู้ตอบแบบสัมภาษณ์
   ส่วนที่ 2 แบบสัมภาษณ์ ตัวแทนภาครัฐที่เกี่ยวข้องกับโครงการ ICT
2. การตอบแบบสัมภาษณ์ครั้งนี้ จะไม่ส่งผลกระทบใดๆ ต่อการทำงานของท่านคำตอบของท่านจะเป็นความลับ และจะไม่เปิดเผยในที่ใดๆ ทั้งสิ้น นอกจากนำผลรวมต่างๆ ไปใช้เพื่อการวิจัยในครั้งนี้เท่านั้น
   ทุกคำตอบของท่าน จะเป็นประโยชน์อย่างยิ่งต่อการวิจัยในครั้งนี้ ผู้วิจัยขอขอบพระคุณเป็นอย่างสูง ที่ท่านได้เสียสละเวลาและให้ความร่วมมือในการตอบแบบสัมภาษณ์มา ณ โอกาสนี้

นางวรรดี เคี่ยมการ
นักศึกษาปริญญาโท
คณะวิศวกรรมศาสตร์
สาขา เทคโนโลยีการจัดการระบบสารสนเทศ
มหาวิทยาลัยมหิดล

ตอนที่ 1

ข้อมูลเกี่ยวกับผู้ตอบแบบสัมภาษณ์

คำชี้แจง โปรดทำเครื่องหมาย ✓ ลงใน ❒ หรือเติมข้อความที่เว้นไว้ตามข้อมูลเกี่ยวกับตัวท่าน

1) ชื่อหน่วยงาน……สังกัด……

2) ชื่อผู้ให้สัมภาษณ์……

3) ตำแหน่ง/หน้าที่ความรับผิดชอบของท่าน ❒ ผู้บริหาร
❒ หัวหน้าฝ่าย/งาน……
❒ อื่น ……..…….....

4) เกี่ยวข้องกับโครงการในด้าน……..

ตอนที่ 2

แบบสัมภาษณ์ ตัวแทนภาครัฐที่เกี่ยวข้องกับโครงการ ICT

1. ความคิดเห็นต่อความระดับประสิทธิผลของโครงการ Phuket ICT CITY

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2. ความคืบหน้าของโครงการ

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3. ปัญหาและอุปสรรคของโครงการ

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4. ความสำเร็จของโครงการ / และความคุ้มทุน

APPENDIX I

INDICATION PHUKET ICT CITY

No	Indicator	Definitions	Question								Sources
			A	B	C	D	E	F	G	H	
1	**Basic Infrastructure**										
	1.Number users/ regular p hone registration per 100 people	[26]	No.6								
	2.Number users/ mobile phone registration per 100 people	[26]	No.7								
	3.Numbers of computer hardware per 100 people	[26]									[35]
	4.Proportion of internet users per 100 people	[26]									[35]
	5Monthly Internet service fees (20 hours per month)	[26]				No.7					[36]
	6.Mobile service fees (20 hours per month)	[26]				No.8					[36]
	7.Government Internet Service access based on number of population (rural/urban)	[26]	No.19								
	8.ICT investment value	[26]				No.9					[37]

No	Indicator	Definitions	Question								Sources
			A	B	C	D	E	F	G	H	
2	**Education and Human Resources Dimensions**										
	1. An admission rate in primary education level	OECD							No.1		[39][40]
	2. A proportion of those completed compulsory education	OECD							No.2		[41]
	3. A proportion of those completed secondary education	OECD							No.3		[41]
	4. Population of people with basic education	OECD	No.3								
	5. Legible rate of Phuket population	OECD									[42]
	6. A proportion of computer per students in each level	Plan1 /2						No.1			
	7. Numbers of participants received training from Professional Training Institute and certified with vocational standard qualification	Plan1/2					No.1	No.5			[43]
	8. A proportion of ICT educators per students	Plan1 /2						No.2			[44]
	9. A proportion of ICT graduates	OECD						No.3			[45]
	10. Numbers Computer courses in each education level.	Plan1 /2					No.2	No.6			[46]

No	Indicator	Definitions	Question								Sources
			A	B	C	D	E	F	G	H	
3	**Business Operation Dimensions**										
	Accessing standard ICT comprised of six indicators :										
	1. Proportion of company with standard phone	[26]		No.5.1							
	2. Proportion of company with mobile phone	[26]		No.5.1							
	3. Proportion of company with computer	[26]		No.5.1							
	4. Proportion of business accessing Internet	[26]		No .6							
	5. Percentage of workers with ICT skills	[26]		No .10							
	6. Percentage of workers accessing ICT and searching for data through Internet.	[26]		No .11							
	Accessing and ICT usage in progressive level comprised of										
	7. Internet speed covered local network, website and ICT investment	[26]		No.8,9							
	8. Proportion of workers using ICT	[26]		No .11							
	9. Application of E-commerce for Internet Administration and display values of purchase transactions among customers	[26]		No .15							

No	Indicator	Definitions	Question								Sources
			A	B	C	D	E	F	G	H	
3	**Business Operation Dimensions**										
	10. Number of ICT training hours	[26]		No .17							
	11. Obstacles during the operation , the use of Internet, purchasing merchandise and requesting services through Internet and E-commerce	[26]		S.3							
	12. ICT investment and ICT personnel and size of ICT business	[26]		20							

No	Indicator	Definitions	Question								Sources
			A	B	C	D	E	F	G	H	
4.	**Culture Dimension**										
	1. Proportion of household with standard phone service	[26]	No.6								
	2.Proportion of household with computer	[26]	No.8								
	3.Proportion of household with access to Internet	[26]	No.11								
	4. Accessing Internet and usage	[26]	No.15								
	5. Internet location	[26]	No.13								
	6. Internet Frequency	[26]	No.12								
	7. Purposes for using Internet	[26]	No.14								
	8. Purposes for using Internet Services, type of merchandise and services ordered through Internet and average spending on each purchase	[26]	No.16								
	9. Information Technology Skills	IMD	No.22								
	10. Accepting the use of Internet	[26]	No.23								
	11. Obstacles during the use of Computer, ordering merchandises and requesting services through Internet and classified based on basic characteristics of samples.	[26]	S.3								

No	Indicator	Definitions	Question								Sources
			A	B	C	D	E	F	G	H	
5.	**Public Administration**										
	1.Numbers of government agencies using ICT for total administration	Plan1 /2			All						
	2.Public Internal Administration with ICT application	Plan1 /2			No.3,4						
	3.Types of government services provided in various levels through electronic system	Plan1 /2			No.6						
	4.Numbers of government services through electronic system in various levels	Plan1 /2			No.7						
	5.Government services with divisions link	Plan1 /2			No.5						
	6.Numbers of government procurement through electronic system	Plan1 /2			No.11						

BIOGRAPHY

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