Information and Communication Technology (ICT) Applications by Small and Medium-Sized Tourism Enterprises (SMTEs) in Thailand

Sirirat Chobkhay

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Thesis Title	Information and Communication Technology (ICT) Applications by Small and Medium-Sized Tourism Enterprises (SMTEs) in Thailand
Author	Miss Sirirat Chobkhay
Major Program	Hospitality and Tourism Management (International Program)

Major Advisor

.....

(Dr. Ilian Assenov)

Co-advisor

.....

(Assoc. Prof. Manat Chaisawat)

.....

(Dr. Aree Tirasatayapitak)

Examining Committee:

..... Chairperson

(Assoc. Prof. Dr. Ranee Esichaikul)

..... Committee

(Asst. Prof. Dr. Natthawut Srikatanyoo)

..... Committee

(Assoc. Prof. Manat Chaisawat)

..... Committee

(Dr. Ilian Assenov)

The Graduate School, Prince of Songkla University, has approved this thesis as partial fulfillment of the requirements for the Master of Business Administration Degree in Hospitality and Tourism Management (International Program)

.....

(Assoc. Prof. Dr. Krerkchai Thongnoo)

Dean of Graduate School

ชื่อวิทยานิพนธ์	การประยุกต์ใช้เทคโนโลยีสารสนเทศและการสื่อสารของธุรกิจท่องเที่ยวขนาดกลางและขนาดย่อมในประเทศไทย
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บทคัดย่อ

ความก้าวหน้าของเทคโนโลยีสารสนเทศและการสื่อสาร (ไอซีที) ได้เปลี่ยนแปลงรูปแบบการดำเนินธุรกิจของอุตสาหกรรมท่องเที่ยวอย่างมากในปัจจุบัน โดยไอซีทีส่งผลให้มีการใช้เครื่องมืออิเล็กทรอนิกส์ที่มีประสิทธิภาพสูงขึ้น อันนำมาสู่การลดค่าใช้จ่าย การประหยัดเวลาและก่อให้เกิดความมั่นใจในการสื่อสารที่ทันสมัย เมื่อกล่าวถึงความสำคัญของธุรกิจท่องเที่ยวขนาดกลางและขนาดย่อม(เอสเอ็มทีอี) ของประเทศไทยและความสำคัญของไอซีทีเพื่อการปฏิบัติงานอย่างมีประสิทธิภาพของบริษัทท่องเที่ยวแล้ว งานวิจัยนี้มุ่งหวังที่จะประเมินระดับการรับและการใช้ไอซีทีของของธุรกิจท่องเที่ยวขนาดกลางและขนาดย่อมในประเทศไทย โดยตรวจสอบผลกระทบของไอซีทีและระบุปัญหาจากการการรับและการใช้ไอซีที รวมถึงชี้แจงและเสนอแนะแนวทางเพื่อการรับและการใช้ไอซีทีที่มีประสิทธิภาพของธุรกิจท่องเที่ยวขนาดกลางและขนาดย่อมในประเทศไทย ซึ่งเอสเอ็มทีอีหมายถึง ธุรกิจท่องเที่ยวที่มีจำนวนพนักงานน้อยกว่าห้าสิบคนหรือมีห้องพักน้อยกว่าห้าสิบห้องสำหรับธุรกิจที่พัก

งานวิจัยชิ้นนี้ได้วิเคราะห์กลุ่มประชากรตัวอย่างของธุรกิจตัวแทนท่องเที่ยวและธุรกิจที่พักขนาดกลางและขนาดย่อมทั้งหมด 355 บริษัทจาก 4 จังหวัดท่องเที่ยวที่สำคัญของประเทศไทย ได้แก่ กรุงเทพมหานคร เชียงใหม่ ภูเก็ตและอุบลราชธานี โดยใช้แบบสอบถามภาษาไทยและภาษาอังกฤษ นอกจากนั้น ยังได้ทำการสัมภาษณ์ตัวแทนธุรกิจท่องเที่ยวและธุรกิจที่พักเป็นจำนวนรวม 30 บริษัท

ผลการวิจัยชี้ให้เห็นถึงระดับการใช้ไอซีทีของธุรกิจท่องเที่ยวขนาดกลางและขนาดย่อมของกลุ่มตัวอย่าง คืออยู่ในระดับเบื้องต้น ซึ่งเกือบทั้งหมดใช้คอมพิวเตอร์กับซอฟท์แวร์พื้นฐาน รวมทั้งใช้เว็บไซต์ขั้นต้นที่ไม่จำเป็นต้องมีการปรับปรุงบ่อย และใช้จดหมายอิเล็กทรอนิกส์ซึ่งเป็นการสื่อสารออนไลน์ระหว่างลูกค้าและบริษัทคู่ค้า อย่างไรก็ตาม เอสเอ็มทีอีเกือบทั้งหมดได้ตระหนักถึงความสำคัญและประโยชน์ของการใช้ไอซีที ถึงแม้จะเป็นระดับการประยุกต์ใช้เบื้องต้น แต่หลายๆ บริษัทได้มุ่งเน้นถึงการฝึกอบรมทรัพยากรบุคคลเพื่อส่งเสริมความรู้และทักษะการใช้ไอซีที ซึ่งสันนิษฐานได้ว่าจะเป็นผลกระทบด้านบวกในการใช้ไอซีทีในอนาคต

เอสเอ็มทีอีส่วนใหญ่ได้ตระหนักถึงประโยชน์ของไอซีทีสำหรับธุรกิจท่องเที่ยวในหลายๆ ด้าน คือ มีการให้บริการและการปฏิบัติงานที่ดีขึ้น ได้แก่การดำเนินงานในแต่ละวันง่ายขึ้น

การสื่อสารสะดวกและรวดเร็วขึ้น พัฒนาคุณภาพการให้บริการแก่ลูกค้าดีขึ้น และเป็นการเพิ่มรายได้ของบริษัท นอกจากนี้ยังทำให้การบริหารต้นทุนมีประสิทธิภาพมากขึ้น และสามารถวางแผนการดำเนินงานได้ดียิ่งขึ้น รวมทั้งเป็นการเพิ่มโอกาสทางการตลาดและโอกาสสำหรับการตลาดขายตรง เช่น สามารถดึงดูดลูกค้าได้มากขึ้น เข้าถึงตลาดสากล และสามารถสื่อสารกับลูกค้า ณ เวลาจริง อีกทั้งไอซีทียังเอื้อต่อดำเนินงานระหว่างธุรกิจได้ดียิ่งขึ้น สำหรับการติดต่อประสานงานกับบริษัทคู่ค้าที่ดีขึ้นและโอกาสสำหรับการสร้างความสัมพันธ์ระหว่างบริษัทคู่ค้าใหม่ อย่างไรก็ตาม การใช้ไอซีทียังมีปัญหาและอุปสรรคบางประการ ได้แก่ ต้นทุนในการลงทุนครั้งแรก การบำรุงรักษา รวมทั้งการปรับปรุงซอฟท์แวร์ให้ทันสมัยอยู่ในระดับที่สูง การเผชิญกับสภาวะการแข่งขันที่สูงขึ้น ความเสี่ยงของการจ่ายเงินทางอิเล็กทรอนิกส์ และความมั่นใจในความสามารถและความรู้ด้านการควบคุมไอซีทีอยู่ในระดับที่ต่ำ รวมทั้งความยากของการสรรหาพนักงานที่มีคุณภาพและความกังวลของลูกค้าและบริษัทคู่ค้าที่พอใจการติดต่อธุรกิจโดยตรงกับพนักงานหรือทางโทรศัพท์มากกว่าผ่านทางอินเตอร์เน็ต

ผู้ตอบแบบสอบถามส่วนใหญ่ แสดงทัศนคติไม่เห็นด้วยกับความไม่สำคัญของการดำเนินธุรกิจทางอินเตอร์เน็ตและการตลาดทางอินเตอร์เน็ต รวมทั้งไม่เห็นด้วยว่าอินเตอร์เน็ตสร้างความลำบากในการปฏิบัติงานของธุรกิจตัวแทนท่องเที่ยวและทำให้ธุรกิจที่พักขาดความเป็นอิสระจากธุรกิจตัวแทนท่องเที่ยว ความเสี่ยงบางประการที่เกิดขึ้นนั้นเกี่ยวข้องกับทักษะของบุคลากรในการใช้ไอซีทีที่ไม่เพียงพอ มากกว่าความเสี่ยงที่เกิดขึ้นจากระบบของไอซีทีเอง

จากผลการศึกษา มีข้อเสนอแนะ 3 ประการ เพื่อส่งเสริมการประยุกต์ใช้เทคโนโลยีสารสนเทศและการสื่อสารของธุรกิจท่องเที่ยวขนาดกลางและขนาดย่อมในประเทศไทย ประการแรก คือ ควรเพิ่มการฝึกอบรมที่มุ่งเน้นและคำนึงถึงความแตกต่างของผู้เข้าฝึกอบรมทั้งทางด้านระดับความรู้ ทักษะและความสามารถ และควรมีการแสวงหาความร่วมมือในการฝึกอบรมพนักงานจากภาครัฐบาล ภาคเอกชน และสถาบันการศึกษา ประการที่สอง ควรมีการสนับสนุนพัฒนาโครงสร้างพื้นฐานของไอซีทีจากหน่วยงานทั้งสามที่กล่าวมาข้างต้นทั้งในด้านการเงินและในด้านการกระจายความรู้แก่ผู้ประกอบธุรกิจท่องเที่ยวขนาดกลางและขนาดย่อม ประการสุดท้าย ควรมีการขยายเครือข่ายทางไอซีทีที่มีประสิทธิภาพมากยิ่งขึ้น และควรมีการร่วมมือที่เข้มแข็งเป็นที่น่าพอใจระหว่างผู้มีส่วนเกี่ยวข้องทุกฝ่าย รวมทั้งเจ้าของธุรกิจและผู้จัดการตลอดจนรัฐบาล องค์กรมหาชน และสถาบันการศึกษา

คำสำคัญ: การใช้ไอซีที การประยุกต์ใช้ไอซีที เอสเอ็มทีอี ตัวแทนจำหน่ายการท่องเที่ยว ธุรกิจที่พัก ประเทศไทย

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ABSTRACT

The advance of Information and Communication Technologies (ICTs) has revolutionized the way the tourism industry operates. ICTs provide effective electronic tools that bring cost reductions, save time and ensure up-to-date communication. Recognising the importance of small and medium tourism enterprises (SMTEs) to Thailand, and the importance of ICTs for the efficient operation of the tourism companies, this research has aimed to assess the adoption and use of ICTs by SMTEs in Thailand, investigate the impact of ICTs, identify problems with ICT adoption and usage, and make recommendations for effective ICT adoption and use by SMTEs in Thailand. SMTEs were defined as companies with less than fifty employees, or, for accommodations, these with no more than fifty rooms.

The research analyzed a sample of 355 small and medium-sized travel agents and accommodations in four tourism destinations in Thailand: Bangkok, Chiang Mai, Phuket and Ubon Ratchathani, who responded to an English-Thai questionnaire. In addition, interviews were carried out with over 30 travel agents and accommodations.

The results show that the level of ICT adoption by SMTEs is at a basic level, involving mostly the use of computers with basic application software, static websites, and e-mail as an online communication among customers and business partners. Most SMTEs in Thailand however are aware of the importance and benefits of using ICTs, and in spite of the basic adoption level many have emphasized on relevant human resource ICT training which presumably will have a positive impact on future ICT adoption.

Most SMTEs recognise several groups of current or potential benefits of ICT for the tourism business: better business service and operations, including easier daily operations, faster communication, improved customer service, and increased revenue; efficiencies due to cost and time saving, better planning abilities, and increased sales opportunities for direct marketing; marketing opportunities such as attracting more

customers, global market reach, and real time connection; and better business-to-business operations providing them with opportunities for new business partnerships and better interaction with them. However, there are some problems with, and barriers to, ICT adoption, including: high cost of the initial investment, maintenance and updating; facing higher competition; e-payment risk and low confidence in their own abilities and knowledge to handle ICTs; difficulty to find qualified staff; and concerns that both customers and business partners prefer face-to-face or phone contracts rather that through the Internet.

The respondents disagreed that Internet is not important and that Internet marketing is not important, as well as that the Internet has made the business of travel agents harder and hotels less dependent on travel agents. Some stated that the risks are related to people using ICT incompetently, rather than to the ICT itself.

Based on the result of the survey, recommendation are drawn into three areas as follows: first, more training and retraining is required at different levels of competence skills, and cooperation in training and retraining is needed between the government sector, public organizations, and educational institutions. Second, ICT infrastructure development needs support from the three sectors above, both financially and in terms of know-how diffusion. Lastly, better networking and strong collaboration is desirable between all stakeholders, including business owners and managers, government, public organizations, and educational institutions.

Keywords: ICT adoption, ICT application, SMTE, travel agencies, accommodations, Thailand

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LIST OF ABBREVIATIONS AND SYMBOLS

AGDCITA	Australian Government Department of Communication Information Technology and the Arts
ASPs	Application Service Providers
ATTA	Association of Thai Travel Agents
B2B	Business to Business
B2C	Business to Customer
CRSs	Computerized Reservation Systems
DMOs	Destination Management Organizations
DMS	Destination Management System
EDI	Electronic Data Interchange
E-commerce	Electronic Commerce
E-business	Electronic Business
E-mail	Electronic Mail
E-tourism	Electronic Tourism
FTP	File Transfer Protocal
GDSs	Global Distribution Systems
ICTs	Information and Communication Technologies
IFCT	The Industrial Finance Corporation of Thailand
IPR	Intellectual Property Rights
IS	Information System
LAN	Local Area Network
M-Commerce	Mobile Commerce
MOR	Minimum Overdraft Rate
NECTEC	National Electronics and Computer Technology Center
OSMEP	Office of Small and Medium Enterprises Promotion
PABX	Private Automatic Branch Exchange
PATA	The Pacific Asia Travel Association
SARS	Severe Acute Respiratory Syndrome
SIPA	Software Industry Promotion Agency
SMEs	Small and Medium-Sized Enterprises
SMHEs	Small and Medium-Sized Hospitality Enterprises

LIST OF ABBREVIATIONS AND SYMBOLS (CONTINUED)

SMHOs	Small and Medium-Sized Hospitality Organizations
SMMEs	Small, Medium, and Macro Enterprises
SMTEs	Small and Medium-Sized Tourism Enterprises
SPSS	Statistical Package for Social Sciences
SSL	Secure Socket Layer
TAT	Tourism Authority of Thailand
THA	Thai Hotels Association
THB	Thai Baht
TTAA	Thai Travel Agents Association
UK	United Kingdom
UNCTAD	The United Nations Conference on Trade and Development
US	United States
USA	United States of America
WAN	Wide Area Network
W-LAN	Wireless Local Area Network
WTO	World Tourism Organization
WWW	World Wide Web

CHAPTER 1
INTRODUCTION

1.1 Background and Rationale

The tourism industry in recent years has become the largest industry and income generator in the world. Being an information intensive sector, the exchange of information is very important for the sales cycle of tourism products. In order to meet the information needs of all stakeholders, Information and Communication Technologies (ICT) have evolved rapidly in recent years, providing a quick, reliable, and up to date communication, as well as efficiencies caused by time and cost reduction. ICTs are also creating new business linkages and opportunities across business sectors, cultures and distances (Ridoutt, 2003). ICT applications have evolved significantly over the year, from computer reservation system's (CRS) in the 1970s, to global distribution system's (GDS) developed in the 1980s, through to the Internet in the 1990s (E-business, 2003). To this, one can add the increasing use of mobile technologies in tourism observed in the early years of the millennium. At present the usage of ICT and E-tourism has become one of the most effective tools for addressing the imbalance between competing destinations in the global market. Although businesses use the Internet and the ICT in different ways, in particular to do marketing and selling via the Internet are rapidly becoming the accepted and preferred methods (Ridoutt, 2003).

In the tourism sector, which is one of the important sectors that apply to ICTs and are influenced by ICTs, Liikanen (1999) quoted in Badnjevic & Padukova (2006) reported that in every enterprises either big or small enterprises, the Internet can contribute to market the product, services as well as increase the effectiveness of the organization. As the Internet helps tourist's to gain immediate access to relevant in-depth information of great variety, therefore the Internet is becoming the primary channel for the communication (Bojnec & Kribel, 2005). Moreover, ICT has changed the patterns in tourist markets and tourist operation's, around 50% of population in developed countries are using the Internet to choose their holiday destinations on the basis of available information at the Internet. Besides, ICT has a great impact on the tourism industry, such as ICT facilitates mass customization of tourism products (Werthner & Klein, 1999).

Many tourism businesses in Thailand, a popular tourism destination, have adopted ICT in their business since 1995, which is the first year that the Internet was used commercially (National Electronics and Computer Technology Center-NECTEC, 2003). Moreover, the master plan and marketing plan 2005 of Thai Authority Tourism (TAT) that emphasizes on using ICT to support Thai tourism and to do more promotion on the Internet in order to attract more foreign tourists to stimulate the country economy (TAT, 2005).

Adoption of the ICT is particularly important in countries with strong tourism such as Thailand. Grammack, Amaya, Chu, and Chanpayom (2004) have discussed the high potential for developing the tourism industry in Thailand. The country has ambitions to turn into a regional aviation hub. Its plentiful attractions and natural resources, together with the famed Thai hospitality have turned it into a popular holiday destination already. Twenty strong points of Thai tourism are its enormous wealth in natural resources such as sun, sand, sea, mountain and so on, which attract many tourists to visit and spend their holiday in the country. As a result, the number of international arrivals in the country increased from 11.516 million in 2005 to 13.821 million in 2006, an increase of 20 percent.

Since the economy crisis in 1997, the Iraq war, and the SARS crisis, that affected the Thai tourism industry very negatively, the government had tried to reboots the Thai economy again in the stable way therefore they have put more emphasis on the development small and medium enterprises (SMEs) to recovery the crisis. The government stimulated and supported SMEs and also small and medium - sized tourism enterprises (SMTEs) by giving them special low interest loans via the Industrial Financial Corporation of Thailand and also PATA has launched a multi-country program to restore public confidence in traveling. At that time, promotion and growth of SME is a priority for recovery and stimulation of the economic by developing effective promotion strategies and programs, and to make the legal and regulative frameworks more favorable to SMTEs (Grammack et al., 2004). Therefore, it is the best opportunity for SMEs, particularly in the tourism businesses such as resorts, apartments, guesthouses, bungalows, inns, bed and breakfasts, local travel agents, etc., to support this service and to offer the best service to tourists and to reach the global market.

Apart from the government, the Software Industry Promotion Agency (Public organization) or SIPA which was established in 2003 is another stakeholder to cooperate with and to support using ICT in SMTEs in Thailand by creating programs for

hotels to use in both, front office and back office. Moreover, SIPA has launched Thai Tourism C - Commerce or TTCC, to encourage all tourism suppliers like hotel and travel agents, to work together in order to gain more power of SMTEs (SIPA, 2005).

1.2 Problem Statement

The Thai government efforts to stimulate small and medium-sized tourism businesses to adopt and use ICTs in their organization inspired them by providing many supporting resources for them. Unfortunately, the level of ICT adoptions is still low, as Cosh & Assenov (2007) reported the reason for Thailand has slow adoption of ICT to use in travel businesses that are the low average quality of website of the Thai travel industry as well as the low rates of replying e-mails to their on-line customers. Even though the number of on-line travel agents is quite small, due to those reasons they have very little chance to generate a lucrative business and therefore can not compete with the larger organizations in the tourism industry. However, Hoontrakul and Sahadev (2005) reported that small hotels were more prone to use the Internet and accepted more e-commerce concepts, than the large hotels, but they do not have the right connections and/or access to travel agents or travel wholesalers and because of their lack of proper contracts with the established travel intermediaries. This makes the study of the application of ICTs by SMTEs in Thailand important. Indeed, there is no study or research that related to ICT applications in SMTEs in Thailand before, consequence the research decided to study the ICT adoptions by SMTEs in Thailand and also to investigate the impacts of using ICTs and use the result to make recommendations to the SMTEs in Thailand.

1.3 Related Literature

1.3.1 ICT applications in the Tourism industry

The travel and tourism industry is a "horizontal" industry that comprises a wide range of economic and social activities, which produce a number of interrelated products and services. There are three main categories of service suppliers such as accommodation & food and beverage services, intermediation services such as travel agents, tour operators, and content services such as cultural and entertainment services as well as

recreation services (Badnjevic & Padukova, 2006). Therefore, the tourism industry becomes one of the main industries to stimulate the global economy as the revenue from the tourism industry can support a significant proportion of the economies of many countries. It is also one of the largest employments which contribute the gross national product, employment, and regional development (Boonthai, 2006).

The wide ranges of products and services in tourism, as well as the variety of service providers have underscored the need for the adoption of ICT to help to improve efficiency of operations and communications amongst the stakeholder. As a result, over the last two decades, tourism is the main sector that has effected by the technological revolution which is ICTs. Actually, Information and Communication Technology or ICT is the entire range of electronic tools that enhance the ability of organizations to manage their resources, to increase their productivity, communicate their policies, market their offering, and develop partnerships with all their stakeholders, namely consumers, suppliers, public sector organizations, interest groups etc. in order to achieve the company mission and goal (Buhalis, 2003).

O'Conner (1999) mentioned the importance of ICTs in the tourism industry because tourism is acknowledged to be very information intensive and the information has been described as the lifeblood of the industry. The tourists need for information is highlighted by the unique characteristic of tourism product that is intangibility and which means, tourists cannot inspect and pre-test the tourism product prior to the purchase. Therefore, the customers need information to help them plan and make decisions among a huge variety of options before going on a trip. According to that, ICT can provide the entire range of electronic tools to meet the demand for information in several ways such as the entire range of hardware, software, and netware, stand-alone computers and network devices, the Internet/intranet/extranet, network with partners for regular transactions (Electronic Data Interchange-EDI), Computer reservation system (CRS), Global distribution systems (GDSs), the Internet-based travel intermediaries, calling centers, management information system, etc. (Buhalis, 2003).

Buhalis (ibid) and O'Conner (1999) have summarized the Computerized Reservation System or CRS which was first used around 1970s. They were computerized systems that have been organized and developed by the airline industry. They began to place terminals in their high-volume agencies to allow the agents to search for information such as relevant flights and to do the booking directly by themselves. The systems support

tourism enterprises, handling their inventories profitably and the facilitating of the tourism product distribution. CRSs are normally operated by airlines, hotels and tour operators. Afterwards, airline CRS emerged to become Global Distribution Systems or GDS which is the basic network connecting and integrating the automated booking systems of the different organizations. Not only that, GDS also incorporates a comprehensive range of services and products and it also provides a global distribution info-structure for the entire industry. The supply of these services are at present highly concentrated, with four global suppliers who are owned by airline companies that are Sabre, Amadeus, Galileo International, and Worldspan. GDSs satisfy the need of customers for easy access to transparent and easy comparable information on a wide variety of choices of travel, lodging, and leisure service. Both CRSs and GDSs were essential for B2B and B2C application that buyers can search for travel services through world's global distribution systems and the Internet distribution system. Therefore, those systems have become electronic supermarkets that linking buyers to sellers and allowing reservations to be made quickly and easily. All GDSs have set up websites that allow travelers to view the information of their booking reservations and itineraries which provide more comfortable service to the customer (Boonthai, 2006).

Finally, the industry has been changed by ICTs, which have been changing the historical trading structures of the whole industry, the way tourism companies conduct their business and the entire system operators as well as the way that all key stakeholder in the tourism sector access products through the distribution channels. CRS and GDS were the most important facilitators of change in tourism industry before the arrival of the Internet (Nodder, Mason, Ateljevic, & Milne, 2002; Buhalis & Deimezi, 2003).

The Internet has transformed the modern tourism and has stimulated the change of customer's information searching behavior (Boonthai, 2006). The origins of the Internet lie in a communications system that was developed by the US military. Its use spread from the military to other sectors both government and non-government organizations. The Internet supports a wide variety of different tools and functions such as electronic mail and electronic commerce that can be used for communication or sharing data among tourism enterprises. It can also be used to moving them from a reactive to a proactive position with regard to meeting customer's changing information demand. The Internet serves for both distribution of information and also for reservation and the sale of services online. It can be accessed by anyone at anytime, and can reach more people than any other distribution channels.

Ridoutt (2003) mentioned that moving into the electronic business or e-business arena has provided opportunities for tourism stakeholders to offer fully developed web portals as comprehensive Destination Management System (DMS) including booking and transaction facilities thus promoting the opportunity to increase sales and to generate more revenue into a local economy.

As the European e-business Market Watch sector report (2003), presented that the Internet has become the new medium for interactions previously carried out through different means, it has allowed direct interaction between customers and suppliers. It has an impact on the role of traditional intermediaries, and has favored the entry of new e-intermediaries. In this case, there were some role of ICTs and e-business in the tourism industry such as accommodation, intermediation, air transportation, etc. For the role of ICTs and e-business in the accommodation sector, the hotel has introduced computer technologies for both, the back office such as administration and accounting, and the front office such as marketing, GDS databases, the Internet promotion and advertising, and also the intranet used in the hotel. In terms of intermediation, travel agents and tour operators, is one of the main areas that have been changed by using ICTs. Both have sought to strengthen their role by gradually implementing commercial projects on the web. The most important thing is, that they allow customers to purchase online from service providers – a process of dis-intermediation, which is a challenge for the management of complementary marketing channels (The European e-business Market Watch sector report, 2003).

Some statistics show the number of e-business adoptions in the tourism sector by e-business watch (2005) shown in table 1.1.

As the statistic shows on the table, small and medium-sized companies have their own website in order to reach the market, and they also do the online selling, allowing online payments as well as offering a secure payment facility. Not only that, an important part of an e-business application for the tourism sector is Customer Relationship Management or CRM for marketing activities. The table shows that large companies have applied CRM to provide detailed information on customer behavior and enable them to anticipate trends more accurately (e-Business Watch, 2005).

Presently, the Internet is one of the major sectors that provide the network in both, formal and informal network, which has many benefits to all companies who adopted the Internet in their business. Buhalis & Deimezi (2003) reported that the Internet allows tourism organizations to interact with their entire stakeholders, including potential

and loyalty customers, local groups and public authorities. Moreover, the Internet supports a wide variety of different tools and functions that enable communication and sharing of data such as electronic mail, Telnet, and File Transfer Protocol (FTP), World Wide Web or WWW, usenet newsgroup, chatting, and so on (Buhalis, 2003).

Table 1.1 E-Business Adoption in the Tourism Sector (2003)

	Have a website	Make online sales	Use CRM system
Denmark	96	60	17
Greece	78	39	2
Spain	66	31	8
Italy	76	39	9
Austria	87	60	12
Malta	66	52	3
EU-5 (Netherlands, Spain, France, Italy, Unite Kingdom)	76	37	14
Micro	61	33	5
Small	85	38	5
Medium	93	53	14
Large	92	39	37

Source: Adapt from the European e-business Market Watch, 2005

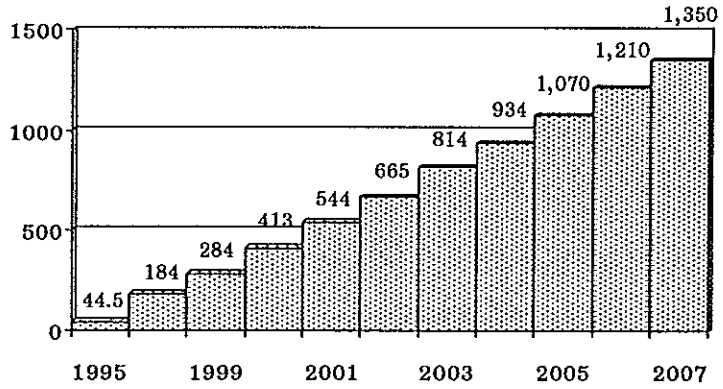
ICTs have played an important role in previous phases of the development of modern tourism. ICT are used as indispensable tools for almost all tourism business functions in order to increase efficiency and to reduce cost and time, required for undertaking activities and processes, such as quick communication, reliable and timely information transfer and retrieval, integration of the different divisions within organizations, flexibility of product specification and sharing of information. Not only that, ICTs have allowed most enterprises to redefine not only their own organizational structure but their relationships with partner organization, thus achieving the twin goals of optimizing operation costs and increasing ability to generate value for their customer (Buhalis, 2003; Ridoutt, 2003). Moreover, Barton and Bear (1999) quoted in Bourgouin (2002) reported that ICT can bring new momentum to the development for remote small enterprises such as ICTs can provide access to a variety of sources of information and supported networks as well as worldwide marketing channels and provide opportunities for electronic commerce as well. In addition, ICTs can be a means of support to informal communication networks by allowing them to tap new information from outside the locality and regarding.

1.3.2 Online demand for travel services

The rapidly ICT development has been driving the globalization and changing the business model of business processes. Brust Online Insights (2007) reported that the Internet has become the main source of searching holiday gift ideas during 2006 and the online customer will straightly increase on year 2007. In addition, some offline customers have planed on using the Internet for holiday gift searching during the 2007 holiday season.

In addition, Nodder et al. (2002) and Buhalis and Diemizi (2003) mentioned that the tourism business model has been changed by the development of ICT as well as the increase of customers who are familiar with ICTs (figure 1.1). Therefore a strong need for expanding the communication networks between service providers and customers has increased.

Figure 1.1 The number of Internet user worldwide in million



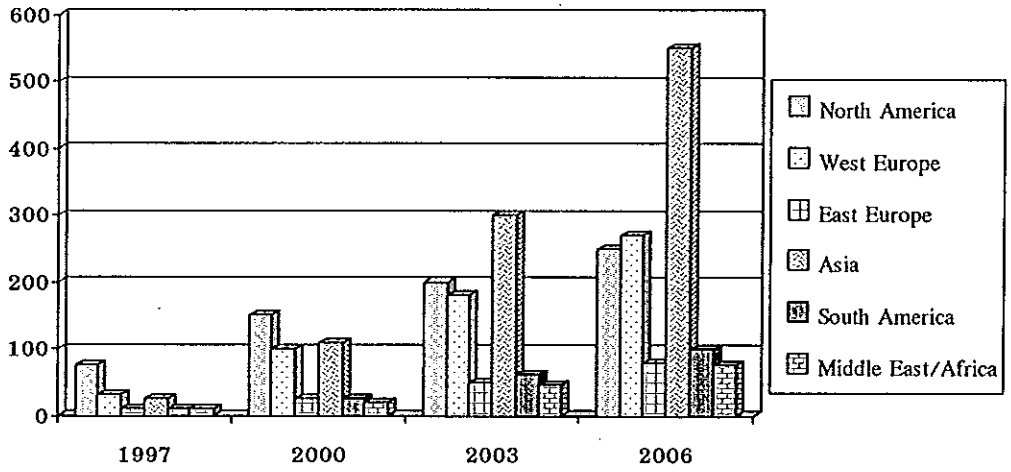
Source: Adapted from Carter, 2005

The figure 1.1 shows the estimation of number of Internet users worldwide that straightly increase about 800 million users from year 2001 (544 million) to 2007 (1,350 million) which can divide into each region of the world as the figure 1.2 that show the number of Internet user by region around the world namely Europe, Asia, America, and Africa, etc.

Carter (2005) reported that the number of Internet users straightly has increased from 413 millions in year 2000 to 1,210 millions in year 2006. Also, the forecast has forecasted the number of Internet users by region on July 2001 that quote in Carter (2005), showed that Asians will be the largest group of Internet users in year 2003

and year 2006 among other regions in the world. Not only that, Carter (2005) reported the number of Internet users in the USA from year 1997 to 2006 where the Internet users have straightly increased from 66.2 millions to 224.2 millions. Moreover, they can generated nearly 7 billions US dollars on the US online travel booking revenue at the same year and the forecasting of that revenue will increase to 94 billions in year 2009.

Figure 1.2 The number of Internet user by region



Moreover, Amponparn (2007a) reported the world top ten markets for online booking in 2006 are USA, UK, Japan, Germany, Canada, South Korea, Netherlands, France, Spain, and Italy which mostly the countries from European region. The top three countries forecast to be the fastest growing online travel retail markets on year 2010 are Poland, Argentina, and Turkey, with India and Vietnam is the fastest in Asia Pacific region.

Marcussen (2001) reported that the USA is the country with the most Internet users, particularly on travel and tourism service market. Therefore the Internet sales of leisure travel services were increased from $3 billion in 1998 to almost $30 billion in 2003. Half of the Internet users got their information for their trip via the Internet which are called "Internet travel looker" and most Internet lookers are booking online and becoming "Internet travel booker" (Morrison, Jing, O'Leary, & Cai, 2001). In contrast, even the increasing community of Internet users and increasing online travel booking in Europe, most of the Europeans are looking online but booking offline. Traditionally, Europeans, excluding the UK, are reluctant to make the Internet purchases and the web

usage includes lots of searching for holidays and travel planning data but booking is typically made offline (Marcussen, 2001). Besides, the Internet selling or E-commerce is now becoming the important business transaction which is showing increasing significance in travel and e-commerce by continuously growing year by year as table 1.2 showed the Internet Travel Sales in Western Europe compared with the US that are the percentage of Internet sales is increasing from 0.15% in year 1998 to 2.6% in year 2002 and the US Internet Travel Sales is four times as high than that of Europe (10% vs. 2.6%) (ibid). Amponparn (2007b) also mentioned that there will be 54% of American Internet bookers and 40% of European Internet bookers on year 2008.

Presently, many tourism companies have started using the Internet in order to differentiate themselves from their competitors in the intense market competition. The Internet can reach more people than other distribution channels, therefore the Internet is one of the main effects that changed traditional marketing strategies.

Table 1.2 Internet Travel Sales in Western Europe and the US

Year	Internet Sales ($ million)		Internet Sales in % of Market	
	W. Europe	US	W. Europe	US
1998	250	3,000	0.15	1.4
1999	800	7,800	0.45	3.5
2000	2,000	14,000	1.1	6
2001	3,700	21,400	1.9	9
2002	5,300	26,000	2.6	10
2003	-	29,500	-	11

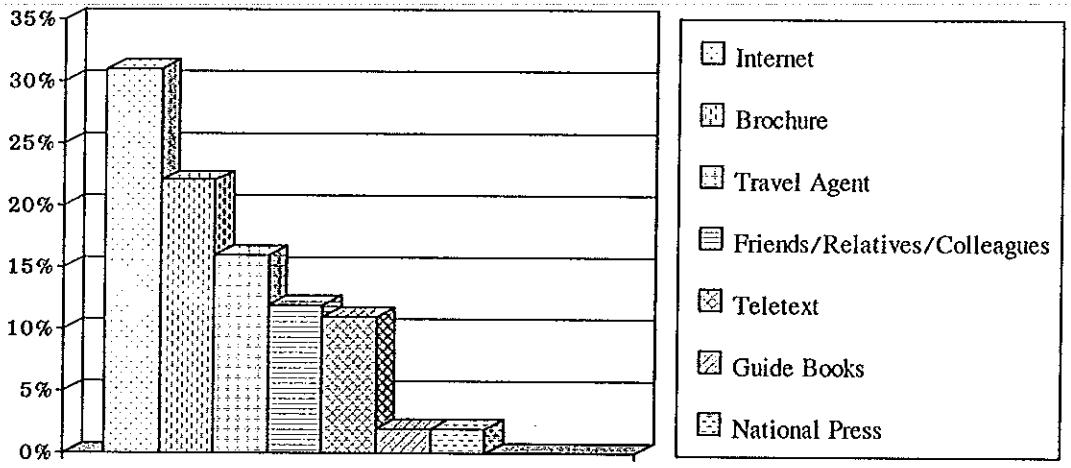
Source: Adapted from Marcussen, 2001

Frey, Schegg, and Murphy (2003) reported the relationship marketing which stresses on customer loyalty. Relationship marketing uses a customer-centered approach and it fits customers who have an ongoing desire for the product. They choose the supplier from several sources like the traditional marketing factors such as word-of-mouth, brand loyalty etc. A key part of relationship marketing is to work well and effective online as the Internet connectivity increases communication and personalization between companies and customers.

As the travel and tourism market of the UK, most of the UK customers search their trip information from the Internet which is the most significant source as the

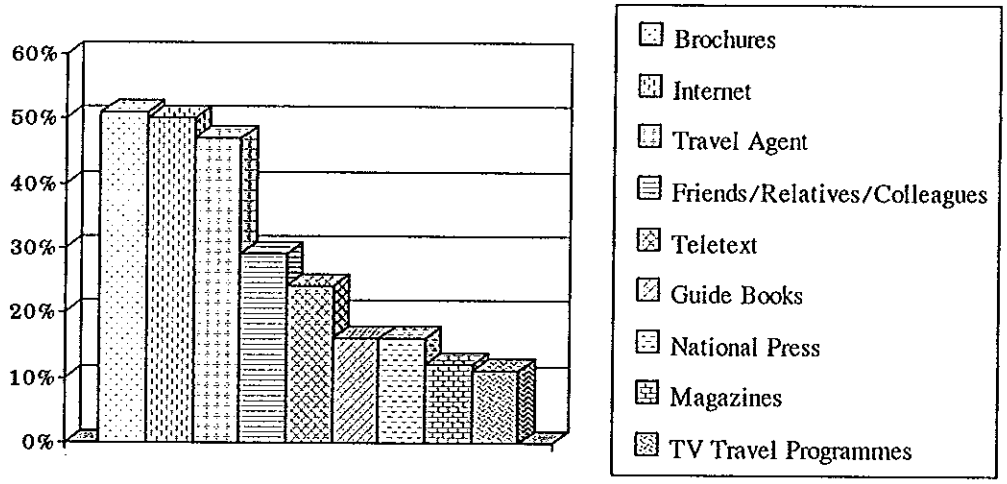
figure 1.3 that shows the proportion of source for researching and planning the travel and also the second best source of information for the booking decision.

Figure 1.3 The most complete source for researching and planning travel: UK consumers



Source: Adapted from WTO, 2001

Figure 1.4 The use of different sources of information for booking decisions: UK consumers



Source: Adapted from WTO, 2001

The majority of online travel US shoppers start planning their travel at an online travel website because of the one-stop shopping convenience. Most of the travel online purchasers researched their travel at a general site, but then went to a specific

company website to book the travel, attributing their decision to lower prices and special deals (Boonthai, 2006).

In summary, the fast rate of ICT adoption by the tourism and hospitality industry has been made possible by technological developments in recent years, but significantly, has been pulled by the rising demand of the public for online services. Therefore, slow adoption or ineffective use of ICT would simply mean ignoring one of the major trends in the demand for tourism services at present, and would significantly reduce the competitiveness of ICT-averse tourism enterprises.

1.3.3 ICT applications in the Thai Tourism business

According to NECTEC (2003) mentioned that the first Internet, an e-mail communication, was used in Thailand in 1987 between Prince of Songkhla University's Hat Yai campus and Melbourne University in Australia, in a cooperation project with Australian Government called the International Development Plan (IDP). In contrast, Palasri, Huter, and Wenzel (1991) and Khoman (2001) reported that the e-mail was first used in around 1986 to mid-1987 by a professor at the Asian Institute of Technology (AIT) with University of Melbourne and University of Tokyo. After that, AIT has joined the program and established the early network and .th domain in Bangkok. In 1992, NECTEC took the central supportive role for the whole network in Thailand under the name of "ThaiSarn". In 1995, the first commercial Internet Service Provider started its operation. Since 1995, the growth of the international bandwidth of Thailand was more than 200% each year. The average annual growth from year 1999-2003 in the Internet usage stood at 58.3% also there are 11,316 domain names under .th in August 2003 (NECTEC, 2003). Moreover the popularity of the Internet can be attributed to the fact that it is a new form of borderless communication technology, offering a diverse range of service.

NECTEC (2003) reported that Thailand's approach to the application of ICT in social and economic development is laid out in the IT 2010 Policy Framework, Cabinet approval, and the national ICT Master Plan 2002 - 2006, drawn up in response to rapid technology development in all sectors. The plan encourages business sectors particularly small and medium-sized enterprises to apply ICTs in order to boost up their competitiveness with the large enterprises and to globalization (ibid).

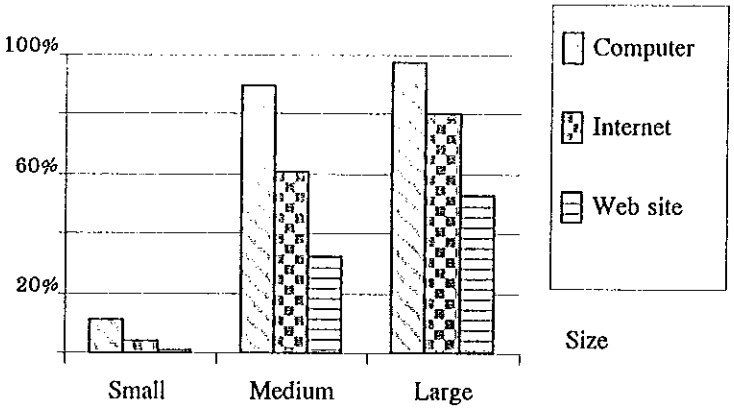
NECTEC has surveyed the understanding of the status of ICT development and reported the ICT indicators in Thailand 2005 showed that there was a straight increasing number of computer and the Internet usage in Thailand. The size of company was affected by the usage of computers as the size of the small and medium enterprises (SMEs) have not widely adopted the new technologies as shows on table 1.3 (NECTEC, 2005a). Moreover, the number of PC usage in private homes is increasing as NECTEC reported the big percentile jump of households with computers from 5.1% in year 2001 to nearly 11% in year 2004 as seen in figure 1.5 (ibid).

Table 1.3 The Ratio of Business Establishments with computers by the size of firm (2003)

Firm Size	%
1- 15 employees	10.1
16-25 employees	72.4
26-30 employees	68.7
31- 50 employees	78.2
51- 200 employees	90.1
More than 200 employees	97.4

Source: Adapted from NECTEC, 2005

Figure1.5 The percentage of establishment with ICT by size of company (2003)

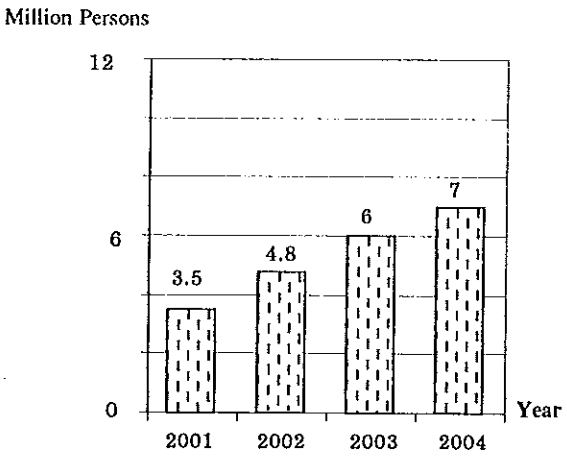


Source: Adapted from NECTEC, 2005

For the Internet parts, the results showed that the Internet has rapidly increased since the year 2004. There are 6,970,000 persons using the Internet (Figure 1.6) which Koanantakool (2007) has estimated the number of Internet user will increase up to 13.15

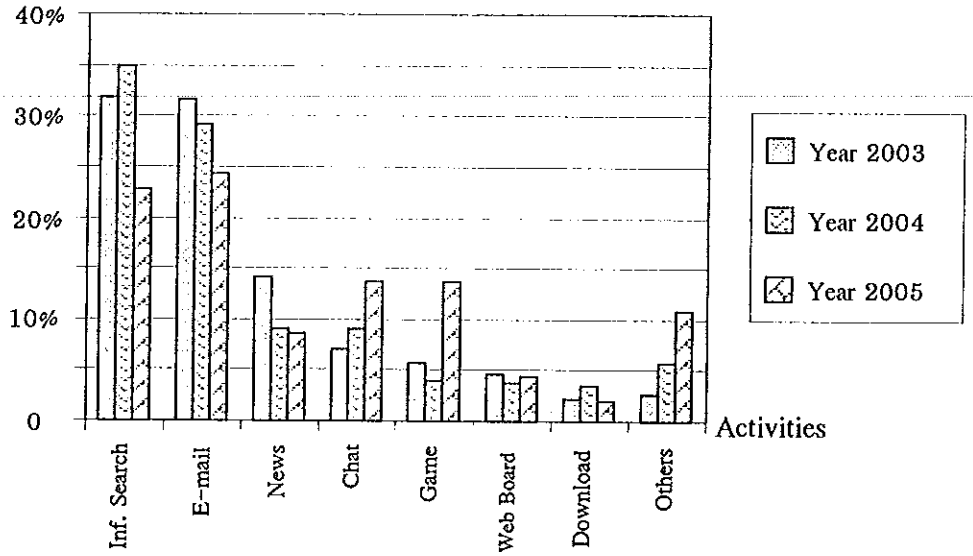
millions user in year 2007 and the 3 activities they do most is searching for information, e-mail, and chat (NECTEC, 2004). In the year 2005, the 3 main activities are e-mail, information search, and playing game as seen in figure 1.7 (NECTEC, 2005b). Moreover, Koanantakool (2007) also mentioned the entertainment and games websites are most visited around 50.33%, the others websites relating to getting information about the social aspects, reading news and business are the second most visited that about 24.9%, and only 1.75% visited the government website and 1.71% visited education website. Unfortunately, the results of NECTEC survey presented the low e-Commerce adoption in Thai hotels and restaurants and service businesses that have only 10.4% of the establishments with computers; 3.9% of the establishments with the Internet access and 1.7% of the establishments with a web site. The main reason why there is such low e-Commerce usage by customers, only 20.9%, is because the customer cannot see or feel the product, lack of trust and confidence in the Internet purchasing, not interested, too complicated and also customers do not want to reveal their credit card number (NECTEC, 2005a). However, on year 2006, Thai tourists are using Internet for only accommodation booking and purchasing as shown on figure 1.8 (Amponpam, 2007a). Furthermore, the number of ICT specialists in Thailand is rather low referring to the ratio of science and technology graduates to social sciences graduates at 31:69, showing one of the obstacles of ICT used in the business as well (NECTEC, 2005a).

Figure 1.6 The number of Internet and computer usage in Thailand (2005)



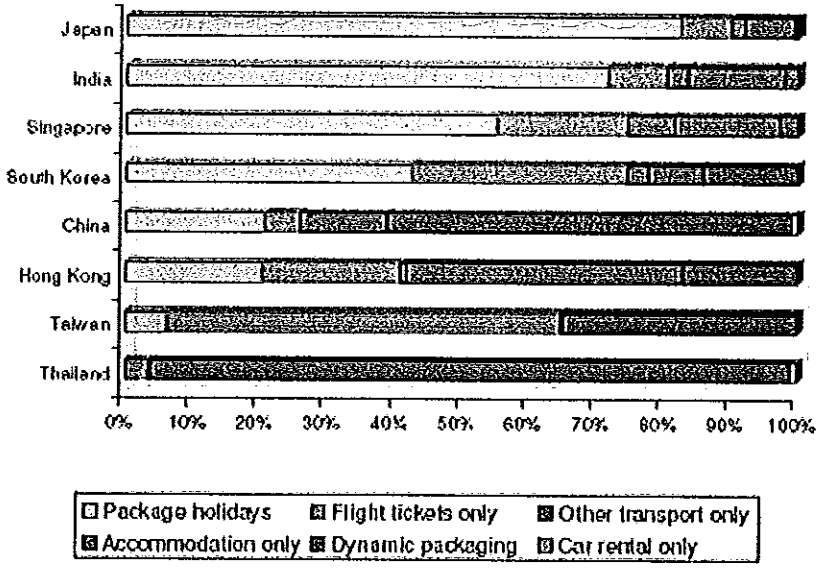
Source: Adapted from NECTEC, 2005

Figure 1.7 The frequency of Internet activities in Thailand (2005)



Source: Adapted from NECREC, 2005

Figure 1.8 The online travel retail sales by product (2006)



Source: Adapted from Amponparn, 2007

Apart from the government sector support, in terms of the national ICT master plan, the public sector which is the Software Industry Promotion Agency (SIPA)

also supports some campaigns to Thai tourism businesses which have launched "Thai Tourism C-Commerce or TTCC". This campaign is the Collaborative - Commerce amongst the group of private companies working together closely with SIPA and the government in order to create some innovative and focused solutions for the Thai tourism industry. There are some tourism collaborative groups to join these programs that are Sabai2go.com, Al soft Co., Ltd., Infotronics Co., Ltd., Commerce Net (Thailand) and E - business Solution Co., Ltd., Matrix Traveller Co.,Ltd., Microsoft, Image Technology Co., Ltd., Software Park Thailand (SIPA, 2005).

This campaign is a part of the destination management system that puts the focus on three main procedures: firstly, the integration, which is interacting with all business partners and result in B2C and B2B; secondly, the distribution, which assists service providers to go through the supply chain of the tourism product; lastly, the promotion helps the customer to get reliable information for preparing their tour program or make suitable recommendations to them. Hence, the target group of TTCC has been divided into four groups. They are travel suppliers, distribution channel or travel agents, tourists, and service providers or software developers to integrate all sectors to be Thailand Tourism c-Commerce Service Intermediary in the final. Therefore, it needs two main components that are a central repository or central information and utility software. Hence, SIPA re-divides the target group company into three main groups: manual group, offline group, and online group with each group being trained in different ways. The manual group is the non-computer-user, no software application for ordering and merchandising the product, and offline reservation system. The offline group is those companies who have their own web-site but do not have any software application for ordering and merchandising, also there is an e-mail facility to leave a message if the customer wants to buy the product. And the third group, the online group is those companies who have their own web-site with web-based reservation system and also online instant booking. Those three groups will be trained in different programs that are suitable for them in order to gain the ability to compete with the global competitor.

As the Thai tourism market relies on information, for example, a customer from other countries want to stay in a remote hotel on a Thai island, he needs the up - to - date information about boat connections, activities on offer, and even recommendations from other travelers. The Internet enables the providers of all these types of products and

services to interact directly with consumers around the world at a relatively low cost (The United Nations Conference on Trade and Development - UNCTAD, 2006).

However, e-Commerce used by the travel businesses remains low. Cosh & Assenov (2007) mentioned that tourist service providers have taken advantage of the direct link to customers provided by the Internet and the use of ICTs is still in an infancy stage, which has not much incentive for travel agents to modify their own successful business model. Researchers also found that only 13% of travel agents chose to use the Internet channel because Thai companies do not develop an online presence. Moreover, the researchers suggested that the reason for not using a web presence is a lack of knowledge and fear of using ICT, no web design capabilities, and they feel the online channel is already overpopulated.

E-mail service is one of the main methods to provide information to customers and to interact with the customer as well. In Thailand, only 20% of travel agents have an email address that is registered with the Bangkok Tourist Business and Guide Register Office. Moreover the response rate to email to the customers is still very poor and the quality if those responses is just average. The research showed, that there are only 7% of the emails sent to Thai travel agencies were answered (Cosh & Assenov, 2007). There are differences in the level of ICT adoption between smaller and larger tourism enterprises. For example, Thai hotels were divided by Sahadev and Hoontrakul into 2 groups that are tier-I which are typically large hotels and are generally part of a global hotel chain and are attached to a global website. The second is tier-II which is normally known as small hotels that are owned by local landowners and managed by themselves. Most of these small hotels do not have any major presence in the World Wide Web. Therefore, the transaction between the customers and the hotels through the web-site is very low (ibid). According to the small percentage of small hotels established on the Internet with a web-site, they have to find the intermediary to provide e-booking via those web-sites. Due to the small percentage of the small hotel that use the ICTs, Hoontrakul & Sehadev (2004) reported, the main factors that the owners are determined to use e-Commerce in the hotel, is the market size of the hotel's locations, the Internet penetration in the target market, occupancy rate, hotel class, age of the hotel, size of the hotel, scope of activities in the hotel, and level of ICT adoption in the hotel which analyze the ICT resources.

1.3.4 SMTEs in Thailand

Buhalis and Main (1998); Hallberg (2002); Pierson (2003) provided different definitions of SMTEs. Buhalis and Main (1998) defined that small and medium-sized hospitality organizations (SMHOs) offer less than 50 rooms, employ fewer than 10 people. Hallberg (2002) quoted in Badnjevic and Padukova (2006) mentioned the SMEs are measured by the employment size. For the small companies are 5-10 employees in both developed countries and developing countries. For medium sized companies there are some differences between those 2 countries, 50-100 employees in developed countries, but in developing countries the employment is between 100-250 employees. Pierson (2003) quoted in Badnjevic and Padukova (2006), they used a term of micro enterprises to define the small businesses with less than 10 employees. Also, Office of Small and Medium Enterprises Promotion (OSMEP) has defined small and medium enterprises by the number of employees in small size is less than 50 people and medium size is between 50 - 200 people. On the other hand, the total asset value of small sizes is less than 50 million baht, medium size is between 50 million baht but not more than 200 million baht (OSMEP, 2004).

The Office of Tourism Development mentioned that "there is recognition that small and medium-sized tourism enterprises can have an important impact on economic development and poverty reduction in the region. However, before these enterprises can be seen as effective, there is a need for ongoing development as well as financial and technical support. Small and medium-sized enterprises can include guiding businesses, bicycle rental operations, small restaurants, retail operations meeting the diverse needs of the tourists, small transportation outfits and the provision of accommodation in both homestay has well as guest house facilities" (Office of Tourism Development, 2003).

OSMEP launched the promotion plan for SMEs in the Tourism industry that will increase the quality of service, quality of manufacturing, and quality of management. For increasing the quality of service, all stakeholders should be aware of and nourish the reputation of Thai hospitality for sustainability simultaneously with increasing the quality of service in order to gain international recognition. For the quality of management, which includes resources management within an organization, marketing management, customer management, and time management, needed for manufacturing and service cost reduction and efficiency enhancement. Therefore, all relevant agencies need to have the awareness

and continue to develop skills and abilities, related to different aspects of management for SMEs in each of the tourism business groups. Besides, the products in the tourism businesses are food, clothing, souvenirs and adornments, etc. Those products require the development in terms of manufacturing technique, product designing, and distribution channel and so on in order to satisfy the tourist's demand with sustainable growth in the tourism industry (OSMEP, 2004).

As the tourism industry is one of the main sources of income of the country, the major enterprises are SMEs which include hotels, restaurants, souvenir or local goods shops and transport service operators as well as travel agents. OSMEP (2002) shows the statistic of SMEs in the tourism sector as the percentage of SME in tourism, hotel, and restaurant in 2002 is 35.96% (180,148) from the total of SMEs in Thailand (500,970) and also this sector was the highest employment rate in all SME that is 40.1% of employment rate. In 2003, the service sector was the second highest number of SME and a few decreased from year 2002 that is 627,772 SMEs or 31.5% of total SMEs in Thailand also the number of employee in hotel and restaurant business is highest when comparing it with all SMEs in the service sector that is 33.3% (OSMEP, 2004). In the year 2004, SME hotels and restaurants generated THB 337.3 billion representing 19.1 percent of the private service in the service sector and employees hired 590,200 workers, representing 80.1% (ibid). Grammack et al. (2004) noted that the small and medium-sized tourism enterprises (SMTEs) in Thailand experienced the worst effects from the Iraq war and SARS (Severe Acute Respiratory Syndrome). At that time, the government gave them special low interest loans via the Industrial Finance Corporation of Thailand (IFCT) and the SME Development Bank of Thailand.

In response to the nation ICT master plan, NECTEC (2003) has distributed the Promotion of ICT Utilization amongst SMEs which is an important strategy to add value to the overall economy with the objective to promote SMEs, to use the basic software programs such as accounting, finance, administration, production management, and links into supply chain management within each industry sectors suitable for clustering. Initially, it should focus on strategic industries, such as tourism, food, automobile parts, textiles, and retailing.

The national ICT master plan 2002-2006 devises seven keys strategies which require public, private and people sectors collaboration with the purpose to provide guidelines for the country and to earn benefits by using ICT in order to enhance the quality

of life of the citizens and to strengthen the nation's competitiveness (NECTEC, 2003). As the sixth strategy of the ICT master plan, focusing on the utilization of ICT in SMEs that try to encourage SMEs to apply ICT to develop their businesses and to boost competitiveness, focusing on ICT for management, production, and linkages to large firms. This will prepare SMEs for future competition, as a result of globalization, and it will also lessen impacts from economic fluctuation.

This strategy, the eight activities are: first, to have mechanisms for technology transfer to SMEs in order to build up their skills and knowledge and minimize the cost related intellectual property. The second activity is to provide incentives, to set up SME alliances in each business sector in order to boost efficiency and reduce costs among alliance members, also enhancing administrative transparency. Third is to accelerate the promotion and development of e-business that includes linkage between SME sectors and large enterprises in related industries as well. Forth is to utilize ICT in management, business operation and communication in order to reduce costs and increase management efficiency from the initial process origin through to the customer. Fifth is to develop knowledge and understanding of the benefits of using ICT among private entrepreneurs from local sources and the potential cost savings. Sixth activity is to set up databases for the planning and provision of services to the business. Seventh is to have SME support agencies cooperate in developing an SME Portal, which will provide services for entrepreneurs wanting to contact the relevant divisions of the government. The last activity is to strengthen the creativity and experience of undergraduate students in order to enhance their entrepreneurship. This includes the cooperation with the private sector in field-work training and the promotion of new entrepreneurs in the economic system by using the SME support mechanisms from related agencies (Details of the ICT master plan are provided in Appendix B).

1.3.5 The level of ICT adoption

There are several concepts for the level of ICT adoptions in the tourism industry and this study focuses on concepts proposed by Murphy (2005); Allan, Annear, Beek & Beveren, (2003); Sahin (2006), Khemthong, Roberts, & Whitelaw (2006), and the Australian Government Department of Communication and Information Technology and the Arts (AGDCITA, 2004).

Murphy (2005) has developed a new matrix model from Gamble's theory to five stages which highlighted ICT diffusion in SMHEs, identifying factors that influence the adoption of data and technologies building on that are pre-computers, clerical hotel computers, administration hotel computers, tactical computers and creative connected computers as table 1.4 shows.

Table 1.4 Matrix model of ICT diffusion in SMHEs

STAGE	CHARACTERISTIC	ICT Application and Infrastructure
Stage 0 Pre-computer	Paper-based office system, Photocopies, telex, Private Automatic Branch Exchange (PABX), electric typewriters, adding machines, calculators, electronic registers and guest accounting machine	Property Management System, Word Processing and Accounting
Stage 1 Clerical Hotel Computer	Stand-alone back office system Stand-alone front office system Food and beverage control	Global Distribution System and Computer Reservation System (GDS/CRS)
Stage 2 Administration Hotel Computer	Integrated front office, food and beverage control	Outsourcing Application Software Rise of the Destination Management System
Stage 3 The Tactical Hotel Computer	An integrated system which goes beyond ordinary business functions to allow access to external information on markets, consumer behavior, links to travel agent, tour operator	Web-based Applications, ASPs, Destination Management Systems, New Role of GDS
Stage 4 The creative connected Computer	A total integrated system that include electronic purchasing and buying	Ambient Technology E-Commerce and M-Commerce

Source: Adapted from Murphy (2005)

In addition, Allan et al. (2003) studied the four stages of ICT adoption by SMEs together with the security and trust. They are the following:

1. No usage: there is no ICT usage or limited usage and therefore security technologies are not required and trust is limited.
2. Basic ICT usage: E-mail and static Web pages are implemented within the business. Therefore the basic security should be implemented such

as passwords, secure web mail, antivirus software, and configuration of browser setting and trust is also required

3. Intermediately ICT usage: eCommerce platforms are being used including online payment systems. An increased level of security is required. Technologies that could be adopted at this stage are Secure Socket Layer (SSL), Digital certificates, and secure payment options. Trust is required.
4. Advance ICT usage: eBusiness platforms are used including Business to Business (B2B) process. A higher level of security is required which allow secure business-to-business communications. Trust is essential in the relationship between partners who use this technology.

Sahin (2006) studied the Rogers' diffusion of innovations theory. The theory can be approximated by a normal distribution of the time of adoption and it results in five adopter categories which can be grouped into two main groups that are earlier adopter and later adopter that is concerned about the significant difference between the ages of earlier adopters and later adopters. The earlier adopter group consists of three categories which are innovators, early adopters, and early majority. The later adopter group consists of two categories which are late majority, and laggards.

1. Innovators are the gatekeepers bringing the innovation in from outside of the system. They may not be respected by other members of the social system because of their venturesomeness and close relationships outside the social system. Their venturesomeness requires innovators to have complex technical knowledge.
2. Early adopters are more likely to hold leadership roles in the social system, other members come to them to get advice or information about the innovation. Thus, as role models, early adopters' attitudes toward innovations are more important. Finally, early adopters put their stamp of approval on a new idea by adopting it.
3. Early Majority is the companies that they are deliberate in adopting an innovation and they are neither the first nor the last to adopt it. Thus,

their innovation decision usually takes more time than it takes innovators and early adopters.

4. Late Majority is the companies who wait until most of their peers adopted the innovation. Although they are skeptical about the innovation and its outcomes, economic necessity and peer pressure may lead them to the adoption of the innovation.
5. Laggards are the companies that have the traditional view and they are more skeptical about innovations and change agents than the late majority. As the most localized group of the social system, their interpersonal networks mainly consists of other members of the social system from the same category.

Khemthong et al. (2006) proposes a different classification according to the Roger theory that becomes the degree of adoption of Internet and Web based marketing activities in the Hotel industry, dividing hotels into three levels that ate 1) **Laggards** are hotels that have no Web site but only have e-mail, and hotels that have e-mail and a basic Web page for advertising, 2) **Late Majority adopters** are hotels that have e-mail and a Web site for receiving online booking, and 3) **Early adopters** are hotels that have e-mail and a Web site for receiving online bookings, confirming bookings immediately, receiving payment by a security system, and the completing transaction as the table below:

Table 1.5 The Degree of Adoption Internet and Web Base Marketing Activities

	Laggards	Late Majority adopters	Early adopters
Degree of adoption	E-mail, No Web site E-mail and basic Web page for promoting and advertising (Basic Web Page)	E-mail and Web site for advertising and receiving online booking	E-mail, Web site for advertising, receiving online bookings, confirm bookings intermediately, receiving payment by security system, and completing transaction on their Web

Source: Adapted from Khemthong et al. (2006)

Apart from those four studies, AGDCITA (2004) also defines the model of e-business that supports the business owner to consider the current engaged in and what the other modes are. This model is divided into five modes. They are:

1. Participating mode: the business is connected to the Internet and has an e-mail address which provides participation in the online world and the Internet is used to communicate with customers and suppliers, to receive orders via e-mail, do the order, and to do online banking.
2. Supporting mode: the business has a website which promotes and supports the existing business activities and the Internet is used to promote the business via a website, to provide information on their website about existing products and services, and to receive orders via the website.
3. Expanding mode: the business uses its website to develop new business activities and to accelerate growth. It is also used to develop new markets and customer nationally and overseas, to increase sales and cash flow via an e-commerce facility, and to create operation efficiencies.
4. Assimilating mode: the online and offline business activities and operations are fully integrated and mutually dependent and the Internet is used to coordinate and rationalize all its databases and company information, manage customer relationships, procurement and logistics, engage in e-marketing places and present an e-catalogue, to provide an interface for their accounting and financial systems with that of their customers and suppliers.
5. Transformed mode: the use of Internet technology by the business has fundamentally changed its core business and the way it operates and projected it onto a higher level of business activities and profitability. The Internet is used to re-brand themselves as an online and offline business, generate and offer new products and services, develop new online distribution channels and partners and supply-chains. Moreover, there are high requirements of staff with skill-sets matching the online needs as well as the traditional needs of the business.

Finally, this research has summarized the level of ICT adoption into four levels as the Allan's (2003) concept and also emerged it with the Sahin's (2006) concepts with can define the characteristic and the status of businesses.

Table 1.6 The levels of ICT adoption

Stage	ICT	Adopter categories
1. No usage	No ICT	Laggards and Late Majority
2. Basic	E-mail/ Static website, GDS/ CRS, Basic Application software	Early Majority
3. Intermediate	eCommerce, online payment,	Early Adopter
4. Advanced	E-business/ B2B exchange	Innovator

Source: Adapt from Allan (2003) and Sahin (2006)

1.3.6 Related research

Levels of ICT adoption

Many researchers focus on the level of ICT adoptions in business that are Nodder et al., (2002); Braun (2002); Vickery, Sakai, Lee, and Sim (2004); Badnjevic and Padukova (2006); Cosh and Assenov (2007); and Buhalis and Deimezi (2003a).

Many papers discussed the slow adoption in small and medium-sized enterprises, Braun (2002) reported, that large Australian tourism enterprises have accepted and embraced ICT such as GRS and web-based travel service providers much more than the small enterprises. Moreover, Vickery et al. (2004) reported that small businesses are slower than large business to adopt new ICTs. The potential small business benefits and firm sectors have specified strategies to drive the adaptation and use of ICTs. The issues for governments sectors are to foster appropriate business environments for e-business, ICT uptake and target program to overcome market failure to the extent that they are needed in particular areas. However, commercial considerations and potential returns are the principle drivers of small business adoption and profitable use. Not only that, Badnjevic and Padukova (2006) reported that the ICT adoption in India is quite low considering the availability of ICT solutions, the opportunities and the growing ICT market. Also, Cosh and Assenov (2007) mentioned that the ICT used in Thailand is still in the beginning stage and therefore has a low ICT adoption. According to the study, only 13% of travel agents choose to use the Internet channel and there are very low response to e-mail customers

requiring some information, is only 7%. Even the quality of the tourism industry websites including the websites of hotels, travel agents, and on-line travel agents, were evaluated and the result about the quality of the website is only 2.68 which is the average level of the web presence. Besides, Buhalis and Deimezi (2003a) reported the ICT adoption by SMTEs in Greece is generally lower than other European countries which is mainly due to lack of awareness and IT skills. Also, low e-commerce transactions confirm that Mediterranean customers are in the habit of buying through interpersonal network.

For the level of ICT uptake, Nodder et al. (2002) reported that the levels of ICT adoptions are highest in the tourism sector including tour operators, travel agents, transportation, accommodation, and particularly travel agents which have the highest level of ICT uptake. The tourism sector is a strong link between the amounts a business uses the Internet and boarder ICTs. However, other businesses in the tourism sector such as spas, restaurants, and crafts have a low level of ICT uptake even if there is a basic web-presence. Those businesses do not see the need of using the Internet to directly reach their visitors and clients, but they prefer to use local word of mouth. Moreover, some rural areas, where infrastructure provision is great, are doing well in adopting and effective use of ICTs, together with their specialist who has ICT understanding and has been able to adopt ICTs. Unfortunately, small business owners are often frightened by he hidden costs of ICT adoption such as training and upgrading software.

E-business watch (2006) reported the percentage of ICT adoption and e-business activity in 2006. Around 98% of all small and medium-sized tourism companies have the Internet access (table 1.7). In terms of ICT supporter, there are only 9% of all tourism companies hiring ICT staff and only 37% have regular ICT training for the employees. Not only that, 63% of the tourism companies have a LAN network, 26% have W-LAN network, 20% use an intranet, 46% use accounting software, and 8% have used a document management system. In terms of e-commerce, 39% of the tourism companies placing orders to suppliers online and 36% accept orders from customers online.

Table 1.7 ICT adoption and e-business activity in the EU Tourism Industry in 2006

	Internet Access		Demand for ICT skills and skills development		Networks and protocol used		ICT system for internal processing integration			Companies receiving orders from customer online
	Company with Internet Access	Average share of employees with Internet access	Company employing ICT practitioners	Regular ICT training of employees	LAN	W-LAN	Intranet	Accounting Software	Document Management System	
Tourism (EU-10)*	90	53	12	11	39	15	20	46	8	36
Micro	90	57	11	9	35	13	20	45	7	35
Small	98	33	9	13	63	26	30	63	10	46
Medium	98	26	20	24	73	58	36	79	10	55
Large	93	39	51	33	92	45	80	91	22	61
Tourism sub-sector										
Accommodation sector	98	43	12	19	45	22	20	40	15	62
Gastronomy	80	38	11	1	18	5	9	37	1	16
Travel agent & tour operation	100	95	13	18	77	27	48	78	13	40

Source: Adapted from European e-business watch, 2006

Remark: * The EU-10 cover the Czech Republic, Germany, Spain, France, Italy, Hungary, the Netherlands, Poland, Finland and the UK.

Marketing Opportunities created by ICTs

The Internet provides a comparatively cheap technology for all players to participate in the electronic market place and to approach private households directly which leads to the complex market being able to move in the rapidly changing environment (Werthner and Klein, 1999).

However, Sahadev and Hoontrakul (2004) mentioned that the marketing opportunity for companies, which provide the search engines to customers on some of the most popular search engines like google.com, yahoo.com. It increases the transaction levels by increasing the traffic to the site. In addition, the search engine optimization aims to keep the company's web-sites in the first ten positions in the list that comes out when the customer types the key words. Moreover, for a small fee companies can advertise themselves on the search engine web-site, google.com to obtain sponsored links for certain key words.

Kim (2004) presented that SMTEs gets the opportunities from electronic businesses to undertake their business in new and more cost effective ways. The opportunities and holds for SMTEs to expand their capabilities and growth's, also have a competitive advantage in the e-commerce marketplace. Braun (2002) mentioned that it is too difficult to keep up with the rapidly changing marketing trends, but SMEs were able to intuitively grasp their market by emerging digital technology which is increasingly altering market segmentation and market predictability and therefore, making the small firm more valuable to market changes. In order to interact with markets, Bourgouin (2002) reported that information is important. The report explained that information needs are diversified and based on the type of an enterprise, the market in which they operate, the goods and service they provide, and the capacities of the employees and owners of the business. This information is grouped into three main categories which are external information, internal information, and sent. The result shows that the most frequently cited information needs are external information that is sought by the enterprise about the environment which is dependent on its commercial viability. On the other hand, less frequently site information needs are sent information that are sent by the enterprise to the market-marketing and advertising. Moreover, an important consideration in addressing the information needs of SMMEs is the method of access by entrepreneurs.

Werthner and Klein (1999) again mentioned that the new technology as CRS, GDS, and hotel chains not only enable direct access to the customer via the Internet but

also improves the internal information flow and cooperation process among external or extranet. Moreover, the Internet becomes an electronic interface to the world. Likewise with Bojnec and Kribel (2005) studied and emphasized on the on-line tourism and travelers demand and supply response by building and maintaining competitive advantages using ICTs. The paper concluded with the importance of both, the virtualization of the tourist industry and the development of a destination management system in tourism management and marketing using intranet-extranet-internet-supported tools, the computer reservation system and a global distribution system.

Impact of ICT on SMTEs

Braun (2002) reported that using information technology can slash the marketing cost, remove intermediaries, and redefine marketing relationships as same as Kim (2004), which reported the main benefits of e-commerce are providing easy access to information on tourism services, better information on tourism service, convenience for customers that results in SMTE can create the new market, improve customer service, establishing interactive relationship with customers, reducing operating cost, interacting with other business partners, founding new business partner. Bourgouin (2002) mentioned ICT is rapidly transforming business practices across the world and provide new business opportunities as well.

The use of Internet and World Wide Web can help businesses to reach customers in terms of easier access to information and more convenient to interact or communicate among all stakeholders with quality and quantity information. Vickery et al. (2004) mentioned that ICT applications can make communication within the company faster and also increases the speed and reliability of transaction of inter-firm.

ICT can improve efficiency and increase productivities in many ways. Wolf (2001) mentioned that as improving efficiency in resource allocation, it is reducing transaction costs, technical improvement, etc. Also Hung, Lin, Shang, Wang, & Kou (2007) reported that Taiwanese hotel performance has significant relationships with ICT adoption which means, the hotels adopting ICT get better operational performance and increased revenue by using ICT. In terms of cost reduction, Wolf (2001); Vickery et al. (2004); Badnjevic and Padukova (2006) reported the computer, the Internet and e-commerce usage provide a great potential for reducing transaction cost.

ICT provides many advantages to businesses and the factors for ICT adoption are cost reduction, time saving, more efficiency communication and interaction with all stakeholders, improvement of productivities and so on.

In contrast, using ICT in small firms without any supporters such as ICT infrastructure, ICT specialist, ICT knowledge and understand, etc. In this case, small firms will be affected in a negative way such as the mismatch between the capabilities of the technology and the information acumen of managers on investing in ICT equipment, but they have limited adoption of ICT with the result of lost or failure of ICT adoption (Nodder et al., 2002). Moreover, Yang, Flynn, and Anderson (2003); Badnjevic and Padukova (2006) mentioned some small firm who operate in local markets and the main target market is local customers or domestic, many of them will loose their market after they adopt ICT because many customers are concerned about security which makes them afraid to pay an invoice through the Internet despite the information provided on the website.

Factors affecting ICT adoption

Many research studies show that the factors effecting ICT adoption are the location, size of company, employees, ICT knowledge, cost of investment, etc.

In part of Push and Pull factors, which are influencing the forces that companies adopt and use ICTs in their business processes as Buhalis and Main (1998) reported. The push factors and also the pull factors enable SMHOs to incorporate IT in their strategic and operational management. Push factors are external factors which oblige enterprises to use ICTs in order to avoid potential treats or jeopardize some of their functions. Push factors are new wired tourists, education and training, government & public agencies, ICT suppliers, connection and global competition, strategic partners and paradigm shifts. As the new wired tourist who has easy access to the Internet in order to search information as well as making online reservations. Apart from, Pull factors provide incentives for enterprises to incorporate their ICTs in order to gain benefits in their operation that includes customer demand, interconnectivity, marketing alliances, travel trade, and accounting systems. In this scenario a recognized market need is present and enterprises draw on ICTs to satisfy that need (Buhalis, 2003).

As companies try to grow and develop through the changing, so there are many factors that lead those companies to adopt ICT. Some researchers focus on the location

factor for example, Hoontrakul and Sahadev (2005) found that a hotel located in a large market size will be more interested in adopting ICTs than others. On the other hand, Nodder et al. (2002) reported that the adoption and effective use of ICT is higher in urban areas where infrastructure provision is great. While, Hung et al. (2007) mentioned that accommodation operators who are not located in well-known destinations have more difficulty to find customers and therefore, the Internet strategies become more critical to use in order to generate awareness of them.

In terms of the size of company factor, Badnjevic and Padukova (2006) reported the awareness factor of ICT adoption is in the different sizes of the companies, it showes that large companies are more aware of ICT than smaller ones. In contrast, Hoontrakul and Sahadev (2005) found that the size of a hotel would not affect a hotel's propensity too much to adopt new technologies.

Moreover, Badnjevic and Padukova (2006) and Hoontrakul and Sahadev (2005) reported that the age of hotel also affects the ICT adoption and that newer hotels are more prone to use the Internet than older hotels. The main reason is that old hotels may have a good association with conventional intermediaries which makes them less reliant on the Internet, and new hotels are more receptive to an innovative concept like e-commerce than older hotels.

In terms of competition level in regard to globalization, Werthner and Klein (1999) mentioned that the tourism industry has a high demand on information system (IS) support to reach the global market and meet the trends in customer behavior which has changed in different ways such as most of tourists started to ask for better services, they want more specific offers, become more mobile using, more price sensitive by comparing more and more offers, and tend to take shorter vacations as well as make their purchasing decision in the last minute.

Not only that, the level of education in business enterprises is one of the main factors. Mistilis, Agnes, and Presbury (2004) and Van Hoof and Combrick (1998) quoted in Khemtong et al. (2006) reported that the education level of business enterprises and executive managements had a significant effect on their use of the Internet and E-mail and the manager's perceived performance and budgetary as well.

There are several researches that studied the barrier of ICT adoptions. Vickery et al. (2004) reported that principal reasons for non-adoption is the lack of applicability and little incentive to change business models when returns are unclear. SMEs

also face generic barriers to adoption including trust and transaction security and Intellectual Property Rights-IPR concerns as well as challenges in areas of management skills, technological capabilities, productivity and competitiveness. Moreover, O'Connor (1999) suggested that SMEs also have limited resources, not only in terms of finance, but also in terms of management and staff time, and using electronic channels is perceived as being complicated and unwieldy. Not only that, most SMEs sell a relatively low price/low margin product, therefore any fixed transaction fee represents a higher proportion of revenue that is the case with their higher-priced, more business focused ones. In addition, most electronic channels necessitate the payment of commission.

Besides, Kim (2004), Nodder et al. (2002), and Van Hoof and Combrick (1998) quoted in Khemtong et al. (2006), reported that the main barrier of using ICT in SMTEs are: limited knowledge and training of available technology, lack of awareness, lack of capital and the high cost of initial investment and maintenance, lack of confidence in the benefits of new technology, cost of shortage of skilled human resource, resistance to adoption of e-commerce, insufficient e-commerce infrastructure and small e-commerce market size. Not only that, Van Hoof and Combrick (1998) quoted in Khemtong et al. (2006), reported that one of the main barriers of using ICT in tourism business is the level of industry experiences. He reported that the respondents over 55 years rated its effectiveness significantly lower than the younger age groups did.

Methodology of study

Past ICT related researches had collected secondary data by different methods such as survey methods, observation method, case studies, database analysis, and some papers had a mixture off the methods all together.

The most common and simplest survey is a questionnaire and many researches conducted by it for example Kim (2004) studied E-tourism: an innovative approach for small and medium-sized tourism enterprises (SMTEs) in Korea. This study used questionnaires to get the information on the challenges and opportunities faced by the tourism industry. The survey covered e-commerce activities, benefits, barriers, and key success factors. Furthermore, Hoontrakul and Sahadev (2004, 2005) studied ICT adoption propensity in the hotel industry: an empirical study and exploring the determinants of e-commerce usage in the hotel industry in Thailand: an empirical study, the study was

conducted using a questionnaire for 95 hotels in different locations and that those located in the main 7 famous destinations in Thailand and together with the number of tourist visits.

Another survey method is an interview which is one of the most common used and normally many researches use it together with a questionnaire. Only interview data collection was used by Bourgouin (2002) and Nodder et al. (2002). Bourgouin (2002) studied information communication technologies and the potential for rural tourism SMME development: the case of the Wild Coast, used semi-formal interviews to find results for the research undertaken within the theoretical framework and current database. Also, Nodder et al. (2002) studied ICT adoption and use in New Zealand's small and medium-sized tourism enterprises: a cross sectoral perspective doing quality research, conducted the result from 250 in-depth interviews with the small and medium tourism business related enterprises during 1998 to 2002.

Others methods were used in different purposes for each study. Cosh and Assenov (2007) researched reviewing the use of online services by the tourism industry in an emerging market. In the case of Thailand which focused on the evaluation of websites in the Thai travel industry and email customer service. For websites in the Thai travel industry, they had evaluated the current performance of 323 websites of different sectors in the tourism industry. For email customer services, they had contacted on travel agents by using a mystery guest approach and sending 2,258 emails under an alias name to evaluate the response.

Hung et al. (2007) studied ICT adoption and hotel performance: in the case of Taiwan a data collection was drawn from the Taiwan Industrial and Commercial Census. The survey was conducted to research 3,038 ordinary hotels of which 1,140 of these hotels are computerized and only 210 of the total have adopted e-commerce.

In another, researchers used a case study to analyze the information in order to find out the result as Yang et al. (2003) studied E-business application in the hospitality industry: a case study which used 2 case studies, one is a local hotel/motel industry's effort to use the Internet in Macon, Georgia to boost its local market, another is the strategy and operation of a major online travel agency.

However, Multi-methods is the mix methods between questionnaire and interview which provides more reliable data for the research. Buhalis and Deimezi (2003b) and Badnjevic and Padukova (2006) used this method in their research. Buhalis and Deimezi (2003b) researched E-tourism developments in Greece by using both qualitative

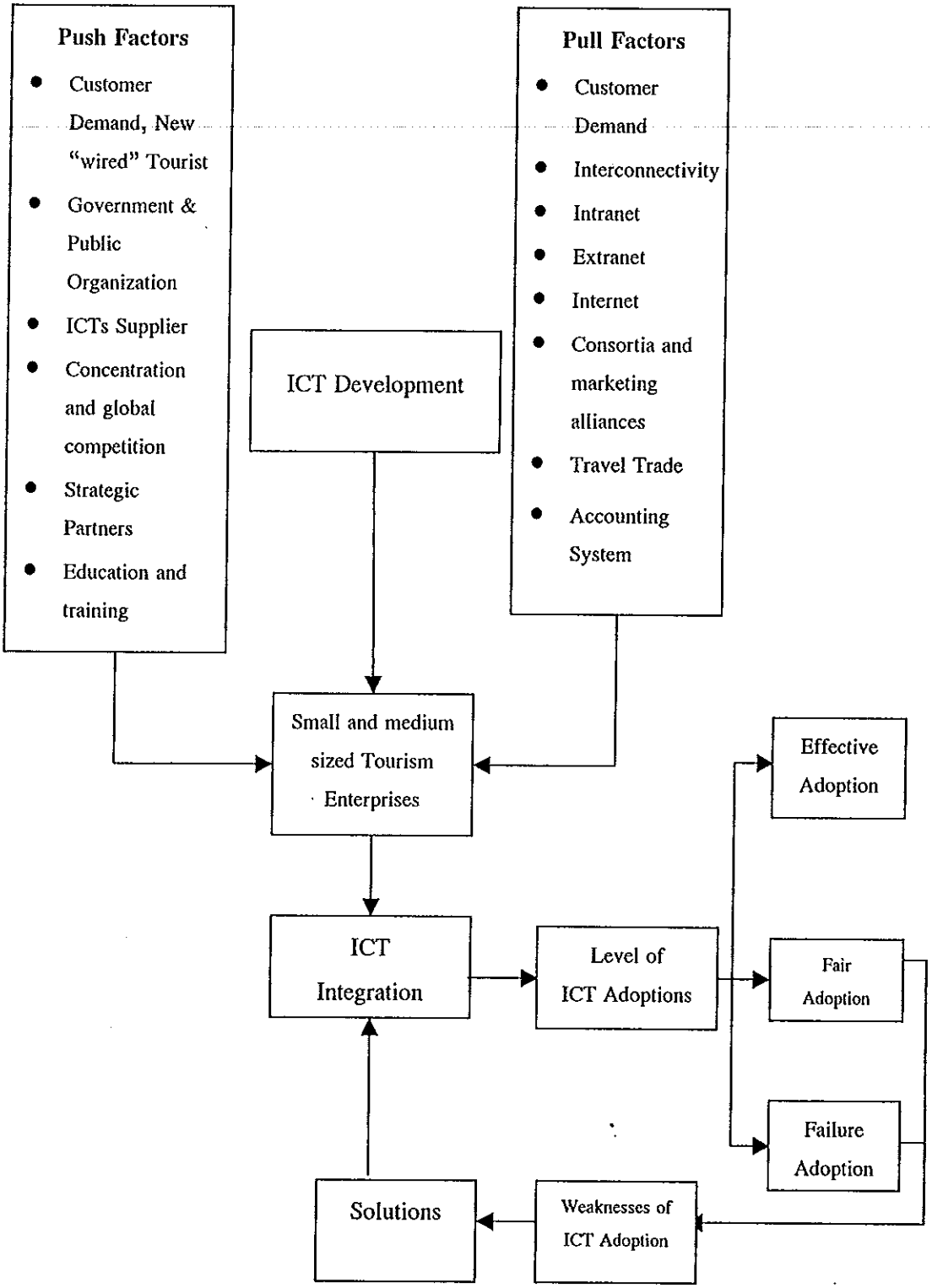
quantitative methods which were divided into 3 stages. In the first stage, they had used a questionnaire to identify the level of e-tourism presence. For the second stage, a semi-structure face to face interview was used to identify the critical issues and key factors that determine e-tourism in Greece. Finally, in the third stage, they had used an e-mail questionnaire to increase the number of respondents and to reach participants from remote regions. Badnjevic and Padukova (2006) also studied ICT awareness in small enterprises in the Indian tourism branch. They conducted the data via both, a questionnaire and a semi-structure interview. To distribute the questionnaire they used a web-based questionnaire and they did the interview from those respondents that offered the possibility for asking additional relevant questions.

Finally, this research is a survey research which used multi-methods like a questionnaire and a semi-structured interview in order to collect the necessary primary data.

1.4 Conceptual Framework

There are several factors that push and pull small and medium-sized tourism enterprises (SMTEs) to decide to integrate new technologies in their business such as the ICT development, customer demand, suppliers, marketing, and the global competition which results in the four levels of ICT adoption that are no usage, basic, intermediate, and advanced (see more details on 1.3.5) and those levels lead to three different stages of ICT adoption by SMTEs that are: intermediate and advance are effective adoption stage, basic is fair adoption stage, and no usage is failure adoption stage. The researcher emphasized on the fair and failure adoption stage that researcher will analyze the main problems and weaknesses of ICT adoption, also suggest some recommendation to recover and development in order to become the effective adoption (Figure 1.9).

Figure 1.9 Conceptual Framework



Source: Author, 2007

1.5 Objectives of the study

1.5.1 To assess the level of adoption and use of ICT by SMTEs in Thailand

1.5.2 To investigate the impacts of ICT on SMTEs in Thailand and identify problems with ICT adoptions and usage

1.5.3 To make recommendations for effective ICT adoption and use by SMTEs in Thailand

1.6 Significance of the study

This study contributed the results as an opportunity for SMTEs in Thailand to improve their business in order to strengthen them. The results emphasized on the impacts of using ICT and also the potential of adoption ICT for them. Not only that, the results investigated the useful recommendation to the SMTEs in Thailand to improve their performance.

1.7 Scope of study

1.7.1 Scope of area

This study has limited the areas to investigate and examine ICT applications by SMTEs in Thailand in four main destinations, namely Phuket, Bangkok, Ubon Ratchathani and Chiang Mai. The main reason for selecting those destinations is according to the TAT promotion plan that divided Thailand into four clusters and each cluster stands for a main destination. For cluster I: beach and seaside the main destination is Phuket, Cluster II: park, nature, forest and mountain that the main destination is Chiang Mai, Cluster III: history and culture the main destination is Bangkok; Cluster IV is special interest such as festival, the gateway of neighbor country tourism, etc. that the main destination is Ubon Ratchathani (Sriyaporn, n.d). Moreover, there are three main branches of the Software Industry Promotion Agency (SIPA) in Chiang Mai, Phuket, Bangkok, and Khon Kaen which those provinces is located in top ten of the most famous and well-known tourist destinations in Thailand. The reason that select Ubon Ratchathani insead of Khon Kaen is because Ubon Ratchathani is more suitable and fixer for the Cluster 4 in terms of special interesting and

gateway of the neighbor tourism as mentioned on the TAT promotion plan. Also, Ubon Ratchathani is one of the main tourism destinations in northeastern region which has variety of tourism activities such as pilgrimage and meditation, the Emerald Triangle tourism.

1.7.2 Scope of demography

This research was planed to study on SMTEs including travel agents and accommodations.

1.8 Definition of key terms

- Accommodation. For this research the accommodation focuses on small hotels and guesthouses with less than 50 guestrooms
- Business-to-business. B2B sites are constructed to sell business products and services to other businesses
- Business-to-consumer. B2C sites are constructed by business to sell their products and services to consumers
- Information Communication and Technology (ICT) is the entire range of electronic tools (includes hardware, software, telecommunications, netware, groupware, and humanware) to manage the information, functions, and processes as well as to communicate with stakeholder (Buhalis, 2003).
- Small and Medium Tourism Enterprises (SMTEs) are defined by the number of employees and the number of guest rooms. Small and medium-sized travel agencies are those companies with less than 50 employees. Small and medium-sized in accommodation are those accommodations with less than 50 guest rooms available. Alternative definitions of SMTEs were discussed in 1.3.4
- Thai Tourism Business. Normally, tourism business should consist of many businesses such as accommodation, travel agent, tour operator, restaurants, entertainment, spas and massage, transportation, souvenirs, etc. But this study focuses only on Thai Travel Agents and Thai accommodations because those 2 businesses are closely related

to each other in terms of the intermediary that normally accommodation or hotel can not much reach their customers directly. Therefore, they create their room sale promotion for travel agents who are their distribution channel, to combine with other business such as airline, activities, restaurants and so on. The result is a tour package to do a marketing campaign to the target customer. In terms of benefit, the hotel can sell their rooms through the travel agent and the travel agent will get some commission in return.

CHAPTER 2
METHODOLOGY

The purpose of this chapter is to describe the methodology used to collect data to achieve the objective of this research. This section discusses the study area, the selection of the sample, the collection of data, and data analysis procedure.

2.1 Target population, sample size, and sampling method

2.1.1 Target population

The target groups of this study are small and medium-sized Thai travel agents and Thai accommodations whereas SMTEs include also restaurants, spas and massage, entertainments, etc. The main of focusing only travel agent and accommodation is there are significance to the tourism industry. Travel agents are the persons who position themselves at close contact with the customer (Hoontrakul & Sahadev, 2004). In contrast, the hotel, as a service provider would not like to burden themselfs by selling their rooms directly to the customers. Therefore, hotels set their promotions to travel agents to attract tourist. In other way, the travel agent is the distribution channel and managing the inventory of the hotel (ibid). The change after having adopted ICT in the business is that the customer can search the destination's information that shows on the website as well as they can book or buy the service directly via the Internet. Other businesses who will be the company's partner can check any information before they deal with the business and the competitors as well.

As there is no statistic published which identifies the total number of SMEs of Thai accommodations, our populations were drawn from the availability of company addresses which we retrieved from the Tourism Authority of Thailand (TAT) in June, 2006 and the total amount was 745 hotels (Table 2.1). There are a total of approximately 6,105 travel agents in Thailand. According to the TAT promotion plan, which divided the tourism product, particularly the product for international markets in four clusters. Cluster I is beach and seaside; Cluster II are park, nature, forest and mountain; Cluster III are history and culture; Cluster IV is special interest such as shopping, food, MICE, etc. (Sriyaporn, n.d) combined with the number of tourist visiting each province (TAT, 2006) that results

in the four main destination of the area of studying. Therefore, the target population of this study refers to Thai travel agents and Thai accommodations who are located in the four main destinations Chiang Mai, Ubon Ratchathani, Bangkok and Phuket. According to Bangkok Tourist Business and Guide Register Office, 2006, the total amount was 3,997 travel agents (Table 2.1). Therefore, the total of target population is 4,742 which Travel agent is 84% and Thai accommodation is only 16% from the total.

Table 2.1 Target population of SMTEs in Thailand

Tourism Businesses / Location	Thai Travel Agent	%	Thai Accommodation	%	Total
North-Chiang Mai	595	14.9	197	26	
Northeast-Ubon Ratchathani	16	0.4	25	4	
Central - Bangkok	2442	61.1	97	13	
South zone 2-Phuket	944	23.6	426	57	
Total	3997	(100%)	745	(100%)	4742

Sources: Bangkok Tourist Business and Guide Register Office (2006), and TAT (2006)

2.1.2 Sample size

Sample size of travel agents and hotels is determined by Taro Yamane's theory. The total number of travel agents and hotels is 4,742.

The Taro Yamane (1967) theory was used to specify target sample sizes which a confidence interval of 95%

According to the formula:

$$n = \frac{N}{1 + N(e)^2}$$

e = Confidence interval at 95%, so e = 0.05

N = number of population = 4,742

n = sample size

Substituting into the equation

$$n = \frac{4742}{1 + 4742(0.05)^2}$$

$$n = \frac{4742}{1+11.86}$$

$$n = 368.74$$

Therefore, sample size of small and medium-sized travel agents and accommodations is 369.

However, since the actual statistic was not identified the total number of travel agents and accommodation as well as the sample size of accommodation in Chiang Mai, Bangkok, and Ubon Ratchathani is less than 30, and sample sizes of travel agents in Ubon Ratchathani, which will results in unreliable data, was adjusted from 369 to 355 in order to be reliable.

The questionnaires were distributed to Thai travel agents and Thai accommodation which was divided into those destination accords with the percentage of sample size in each destination. Interviews were carried out with those of them who, in addition to filling up the questionnaire, showed willingness to be interviewed. The number of the questionnaire distribution is shown on the table 2.2:

Table 2.2 The number of questionnaire distribution to SMTEs in Thailand

Tourism Businesses / Location	Calculated Sample Size		Adjusted Sample Size	
	Travel Agent	Accommodation	Travel Agent	Accommodation
North-Chiang Mai	46	15	50	31
Northeast-Ubon Ratchathani	2	4	9	17
Central - Bangkok	189	7	110	30
South zone 2-Phuket	73	33	74	34
Total	310	59	243	112

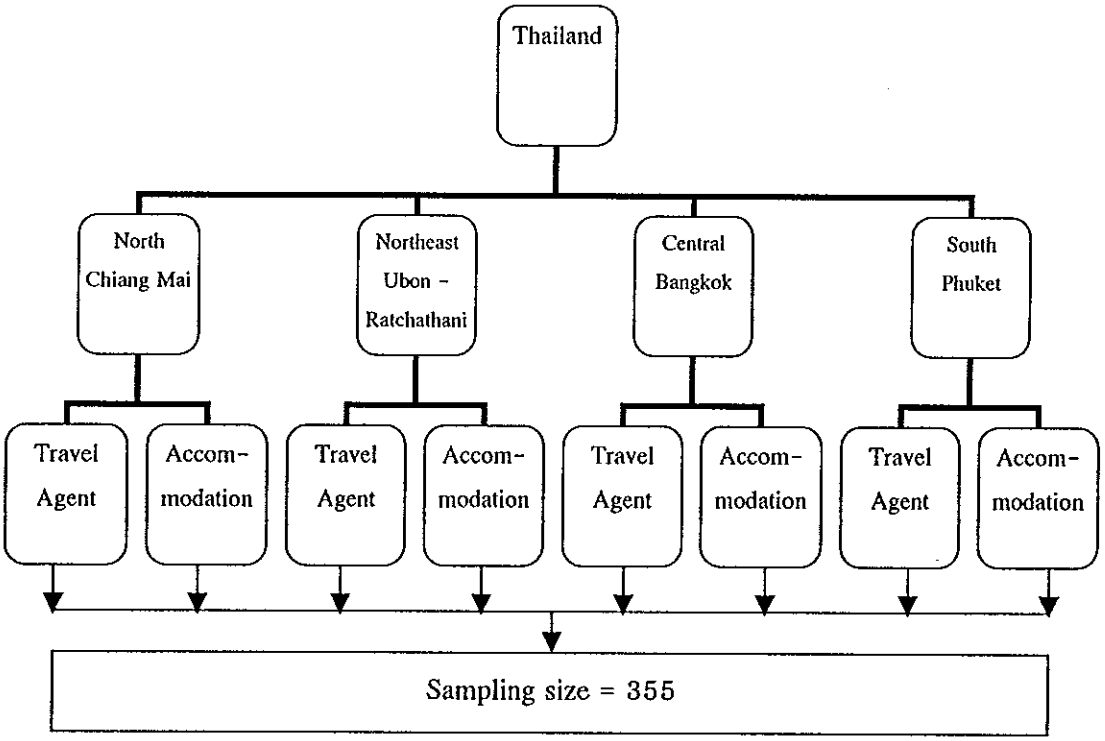
Sources: Bangkok Tourist Business and Guide Register Office (2006), and TAT (2006)

2.1.3 Sampling method

This study used the multi-stage sampling method which combines the simple methods in a variety of useful ways that results in the number of samples (Trochim,

2006). The multi-stage stages consist of stratified sampling, cluster sampling, simple Random sampling and accidental sampling which is explained in the following steps:

Figure 2.1 Sample distribution



1. Divided Thailand into four main regions, north, northeast, central, and south (stratified sampling).

2. Selected the main destination of each region that refers to the TAT marketing plan of 2005, therefore it results in four main destinations, Chiang Mai, Ubon Ratchathani, Bangkok, and Phuket. Moreover, to draw cluster sampling the tourism business is divided into two categories, travel agents and hotels or accommodations.

3. Did simple random sampling and accidental sampling until the amount of sample size is complete.

2.2 Research design

The research was classified as a mixed method one, combining quantitative and qualitative study. Quantitative data was prepared with a questionnaire which was pre-

tested with several travel agents and small accommodations. After that, some questions in the questionnaires were modified in order to be clearer and easier to understand.

The questionnaire was distributed through three channels, post mail, electronic mail, and by researcher. For the post mail channel, questionnaires were sent to 95 tourism companies in Chiang Mai including travel agents and accommodation and only 15 questionnaires were returned which is about 15.8%. For the e-mail channel, questionnaires were sent to 200 tourism companies, both travel agents and accommodation in Bangkok but none of them were returned. The remaining 340 questionnaires were collected by the researcher.

2.2.1 Primary data

The research methodology is a survey that collects data from two different sectors in Tourism business - Travel agents and accommodation from four main destinations in Thailand, by questionnaires and semi-structured interviews.

2.2.2 Secondary data

The data was collected from difference sources such as the related research, journals, articles, news, and so on. The data collected was useful to be able to complete this research.

2.3 Instruments and data collection

2.3.1 The Questionnaire is in bilingual version, English-Thai, combined closed-end questions and open-end questions. The closed-end questions commonly asked the respondents to answer with yes or no, the multiple-choice questions provided the alternative lists were the respondents had to select what was the most suitable answer for them and also what they real faced. The rating scale commonly asks them to rate what they are strongly agree on and what they strongly disagree with.

For this research, there are four parts in the questionnaire:

Part 1 is the general company information

Part 2 is the ICT infrastructure

Part 3 is the Impact of using ICT

Part 4 is the ICT support

The mean scores were classified into 4 interval scales, calculated as follows:

The Interval level = (Max-Min)/n

= (4-1)/4

= 0.75

Then, the researcher had ranged the impact of using ICT level as follows:

Table 2.3 Rating scale for the results

Rating scales	Scores
Strongly agree	3.26 - 4.00
Agree	2.51- 3.25
Disagree	1.76-2.50
Strongly disagree	1.00-1.75

2.3.2 Semi-structured interviews. The interview is in English-Thai version and it had some guideline questions to ask the respondents who are business owner, manager, and supervisor to collect the main data that is useful for the study and other questions were depend on the interviews.

The main questions are:

1. The current situation of using ICT
2. The reason of adoption or non-adoption of ICT
3. The main benefits and weaknesses of using ICT
4. The importance of ICT in their business
5. Recommendations for ICT development

2.4 Data analysis

After sorting out the information by questionnaire, data was being coded, computed and analyzed by the Statistical Package for Social Sciences or SPSS version 14 by some functions. They are:

Frequency: results in the number of the respondents who answer each question and it gives the percentage.

Mean: it is the average of the investigated value.

Standard Deviation: the common measures of spread or variability which standard deviation summarizes how far away from average the data values typically.

In order to analyze the variable this is individual variables are used depending on that are the type of business, the location of the company, the year of company there are some function to analyze:

Pearson Chi-square: it is probably the most widely used nonparametric test of significance, involving nominal data, typical are cases where data is grouped in two or more nominal categories. Interpretation was analyzed at 95% confidence level with 5% level of significance.

Independent - Sample T-Test: is used for comparing the difference between variables which are independent from each other.

ANOVA: analysis of variance or ANOVA, where the testing is used to analyze the means of several groups. Normally, it is widely used to analyze the independent variables that have more than two sub variables for nominal scale. Interpretation was analyzed at 95% confidence level which 5% level of significance.

Factor analysis: Factor analysis is a general term for several specific computational techniques. All have the objective to reduce variables to manageable numbers that belong together and have overlapping measurement characteristics. The predictor-criterion relationship that was found in the dependence situation is replaced by a matrix of inter-correlations among several variables, none of which is viewed as being dependent on another.

The results were represented in tables that were generated to provide a bigger picture of the overall ICT applications by SMTEs in Thailand.

2.5 Pretest of the Survey Instrument

The survey instrument was revised and to strengthen its validity, the questionnaire was circulated to travel agents and small hotels located in Phuket. Based on the feedback received from the pretest sources, the questionnaire was modified. The main purpose of the pretest was to validate the questionnaire of the study.

CHAPTER 3
RESULTS

This research aims to study the adoption and use of ICTs by small and medium sized tourism enterprises in Thailand, therefore this chapter focused on the results from the quantitative studies. The analysis of the quantitative data and qualitative data derived from the questionnaire and semi-interview of assessment, the ICT applications in SMTE's in Thailand which are divided into four sections. General company information, ICT infrastructure, impact of using ICT, and ICT support. The data was conducted from two main businesses of the tourism industry which are travel agents and accommodation, located on the four main destinations of each region. These analyses were designed to achieve the objectives of this research and were presented with tables as following. Therefore, the researcher presented results as follows:

3.1 The adoption and usage of ICT

3.2 The impacts of ICT adoptions by SMTEs

3.2.1 The impacts of ICT adoption

3.2.2 Respondent comments

3.1 The adoption and usage of ICT

3.1.1 The general information of respondents

Thai tourism businesses particularly travel agencies and accommodations were located in every part of Thailand (Bangkok Tourist Business and Guide Register Office, 2006; TAT, 2006). The number of enterprises may vary depending on tourism's growth and the popularity of tourist destinations in each region. Thailand is categorized into four main regions, central, south, north and northeast, almost all tourism businesses were located in the famous provinces like Bangkok, Chonburi, Phuket, Suratthani and Chiang Mai. These provinces were in the central, southern and northern regions. Therefore, the number of agencies in these three regions was quite high.

Table 3.1 Number of Thai tourism business categorized by region

Tourism Businesses / Location	Travel Agent	Accommodation	Total	%
North - Chaing Mai	595	197	792	16.7
Northest - Ubon Ratchathani	16	25	41	0.9
Central - Bangkok	2442	97	2539	53.5
South - Phuket	944	426	1370	28.9
Total	**3997**	**745**	**4742**	**100**

Source: Bangkok Tourist Business and Guide Register Office, 2006; TAT, 2006

In the table 3.1, more than half (53.3%) of the total of tourism businesses were located in Bangkok and the central part of Thailand. Many of the tourism businesses, which were about 28.9% and 16.7% are located in southern-Phuket and the northern regions--Chaing Mai. For the northeast region, there was no famous tourism destination and less tourism growth. Therefore, the number of tourism businesses in that region was low, only 0.9% (Table 3.1).

Due to that database, the total number of respondents in Bangkok was the largest one, 39.4% or 140 from 355 respondents and the respondents from Phuket were about 108 or 30.4%, Chiang Mai was about 22.8% and the rest 7.3% were the respondents from Ubon Ratchathani. Moreover, the significant difference of area had an impact to the type of business using the Pearson chi-square test at the significant level at 0.05 (P=0.000) (Table 3.2).

Table 3.2 The percentage of respondent categorized by area and type of business

Area	Number of Respondents		Type of Business				Pearson Chi-square		
	Frequency	%	Travel Agent	%	Accom-modation	%	Value	df.	Sig. (2-sided)
Bangkok	140	39.4	110	45.3	30	26.8	22.118	3	0.000
Chiang Mai	81	22.8	50	20.6	31	27.7			
Phuket	108	30.4	74	30.5	34	30.4			
Ubon Ratchathani	26	7.3	9	3.7	17	15.2			
				100		100			
Total	355	100	243	68.5	112	31.5			

Remark: Chi-square were used to test for statistically significant differences between groups

For the percentage of respondents that categorized by the number of employees, most of the small and medium-sized tourism businesses had less than ten employers or 55.8%. Also 36.6% of the small and medium-sized tourism businesses had ten to thirty employers in their company, and less than 10 % of all respondents had more than thirty employees. In addition, there was no significant difference between types of businesses and the number of employees which used the Pearson chi-square test at the significant level at 0.05 (P=0.166) (table 3.3).

Table 3.3 The percentage of respondent categorized by the number of employee and type of business

Number of employee	Number of Respondents		Type of Business				Pearson Chi-square		
	Frequency	%	Travel Agent	%	Accom-modation	%	Value	df.	Sig. (2-sided)
Less than 10	198	55.8	143	58.8	55	49.1	5.084	3	0.166
10-30	130	36.6	86	35.4	44	39.3			
30-50	19	5.4	10	4.1	9	8.0			
Upper than 50	8	2.3	4	1.6	4	3.6			
Total	355	100	243	100	112	100			

Remark: Chi-square were used to test for statistically significant differences between groups

Most of the small and medium-sized tourism businesses established between 2001-2005 had 28.2%, 78 businesses established between 1991-1995 about 22%, the businesses were established before 1990 20.6% or 73 businesses, the 67 businesses or 18.9% established between 1996-2000, and the last 10.4% or 37 businesses established between 2006-2007. The largest group of travel agents that were established between 2001-2005, and the second largest group were travel agents that were established before 1990 and the third largest group were travel agents that were established between 1991-1995 and 1996-2000 which was differt from the accommodation that the largest group of accommodations established between 2001-2005 was the same as between 1991-1995, and the second largest group was accommodations that were established before 1999. Moreover, there was no significant difference between the type of businesses and the year the company was established, using the Pearson chi-square test at the significant level at 0.05 (P=0.0.685) (Table 3.4).

Table 3.4 The percentages of respondent categorized by the year of company establishment and type of business

Year of establish	Number of Employee		Type of Business				Pearson Chi-square		
	Frequency	%	Travel Agent	%	Accom-modation	%	Value	df.	Sig. (2-sided)
Before 1990	73	20.6	51	21.0	22	19.6	2.277	4	0.685
1991-1995	78	22.0	48	19.8	30	26.8			
1996-2000	67	18.9	48	19.8	19	17.0			
2001-2005	100	28.2	70	28.8	30	26.8			
2006-2007	37	10.4	26	10.7	11	9.8			
Total	355	100	243	100	112	100			

Remark: Chi-square were used to test for statistically significant differences between groups

In terms of the size of accommodation, the number of guestrooms was used to be the consideration criteria that the result presented the average number of guestroom was 30.2 rooms were most of the accommodations had 50 guest rooms available.

Moreover, the highest number of guest rooms was 53 rooms and the lowest number of guest room was 6 rooms (Table 3.5).

Table 3.5 The average size of accommodations

Average number of guestroom	Max	Min	Mode
30.2	53	6	50

In addition, the first main accommodation's customer was a walk-in customer with an average of 57.6 persons. The second main group was the customers from the telephone channel, the average was 16 persons and the third were the customers who came from the e-mail channel with an average of 9.8 persons. Also, the main travel agent's customer was the walk-in customer where the average was 37.7 persons and the second main group was from the telephone channel where the average of customers was 19.4 persons and the third main group were the customers who came from the partner of the travel agents where the average was 17.8 persons (Table 3.6).

The highest percentage of each channels shows in the Max column. For walk-in customers, there were 100% of walk-in customers in some travel agents and accommodations, also the customer of some travel agent came from their partner which is located in different provinces. The customer from the telephone channel of some travel agent was 95% and 80% of some accommodations. Not only that, the highest percentage of both businesses customers who came from e-mail channels was 80% and 70%. Moreover, some accommodations got 90% of their customers from their travel agent partner (Table 3.6).

Table 3.6 The average of customers from the different channels

The channels of customer	Travel Agent		Accommodation	
	Average	*Max	Average	*Max
Walk in	37.7	100	57.6	100
Telephone	19.4	95	16.0	80
Mail	2.8	40	1.8	30
E-Mail	11.2	80	9.8	70
Hotel Referral			2.3	50
Contract with travel agent			7.6	90
Online direct sales			1.0	70
online travel agent			1.2	30
Contract with hotel	4.6	90		
Partner of travel agent	17.8	100		
Online real time sales	2.2	90		
Others	4.2	50	2.7	98
Total	100		100	

Remark: *Max is the highest percentage of respondent's customer in each channel.

3.1.2 The adoption and usage of ICT

It could be divided to be ICT infrastructure and ICT support that showed the frequency of each categories usage and also the percentage when compared with the total of respondents. Finally, researchers had compared all ICT infrastructures with the area of business, type of business and the year the company was established.

All of the small and medium-sized tourism businesses had used ICT hardware and most of the ICT hardware they used were telephone, computer, and facsimile. All 355 businesses using telephone 100% and 328 business from 355 or 92.4% used computer in their business operation, 269 businesses or 75.8% had facsimile, and 262 businesses or 73.8% had printer, 190 businesses or 53.5 had photocopy machine, nearly half of the respondents 49% or 174 had credit card machines. For others, the ICT hardware they used were walkie talkies, time keeping records, scanner, finger scanner, the Internet router, and Uninterruptible Power Systems or UPS (Table 3.7).

Table 3.7 ICT hardware usage

ICT Hardware	Number	ICT Hardware Usage	
		Frequency	%
Telephone	355	355	100
Computer	355	328	92.4
Facsimile	355	269	75.8
Printer	355	262	73.8
Photocopy Machine	355	190	53.5
Credit Card Machine	355	174	49.0
Others (Scanner, walkie talkie, etc.)	355	10	2.8

In terms of ICT software usage, there was a small percentage of ICT software usage when compared with the total of respondents. Almost all small and medium-sized tourism businesses or 91.5% had adopted the basic software package in their business which was the Microsoft Office program: word, excel, access, and outlook. As the table 3.5 shows the number of businesses that had used computers were 328 businesses and there were 325 businesses which used Microsoft. As for the other ICT software, there were a few businesses which had adopted Amadeus 24.2%, 10.4% had adopted Abacus, 7% had adopted Micros, and 19.4% had adopted others software like Galileo International, Web design programs, HIS, Worldspan, Easy Account. TOPAX Reservation system, RT, HOTSOFT, DPACK, AccPayRoll, Fidelio, EASYFO, COMMANCY, SMART, ADOBE Photoshop, PROMART, PONEX, SITRIX, XP4, PRO CONTROL, EXPRESS, and database (Table 3.8).

Table 3.8 ICT software usage

ICT Software	Number	ICT Software Usage	
		Frequency	%
Microsoft	355	325	91.5
Amadeus	355	86	24.2
Others (Galileo, Worldspan, Easy Account, etc.)	355	69	19.4
Abacus	355	37	10.4
Micros	355	25	7.0

In terms of the ICT facilities in small and medium-sized tourism businesses, the respondents had used the Internet in their business was 88.2% or 313 businesses, also 275 businesses or 77.5% had used E-mail, there were 101 businesses that used LAN/WAN but none used extranet (Table 3.9).

Table 3.9 The percentage of ICT connection usage

ICT Facilities	Number	Usage	
		Frequency	%
The Internet	355	313	88.2
E-mail	355	275	77.5
LAN/WAN	355	101	28.5
The Wireless Internet	355	43	12.1
Intranet	355	17	4.8
Extranet	355	0	0

The main reasons of using computers, most of the respondents used document records 88.2%, the Internet access and customer database were 79.7% and 61.7%. Only 3.4% used computers to report all daily reports to their manager or owner, sell tickets to customers, and do documents such as invoices, contract letter etc., respectively (Table 3.10).

Table 3.10 The percentage of computer usage compared with the type of businesses

Computer Usage	Number	Usage	
		Frequency	%
Document Record	355	313	88.2
The Internet Access	355	283	79.7
Customer Database	355	219	61.7
Product Database	355	112	31.5
Web Design	355	88	24.8
Others (Ticketing, doing report, etc.)	355	12	3.4

Most of the accommodation respondents, 65% do not have the Internet facilities for their customers. The main reason is that many of them are located in the well-known areas such as Patong Beach, Karon Beach, Khao San Road, Prathunam, and Night

Bazaar Market, etc. There are a lot of the Internet cafes around the hotels and guesthouses, therefore many hotels and guesthouses do not provide any the Internet facilities. On the other hand, there are about 22% who provide business center in hotels and guesthouses and the rest, 15% provide LAN, Wireless, and both LAN and Wireless in all guestrooms (Table 3.11). Not only that, 79% of the hotels and guestrooms provide the Internet facilities and have an extra charge for using those the Internet facilities and there are only 21% that are free of charge (Table 3.12).

Table 3.11 Accommodation Internet facilities

Accommodation Internet Facilities	Frequency	%
None	71	64.5
Business center	24	21.8
LAN in all room	5	4.5
Wireless in all room	5	4.5
Both LAN and Wireless	5	4.5
Total	110	100

Table 3.12 Accommodation Internet fee

Internet fee	Frequency	%
Paid for	30	79
Free	8	21
Total	38	100

In terms of online presence, table 3.13 shows that most of the respondents had e-mail, e-mail booking and their own website. There were 68.5% of respondents had e-mail, 51.8 had e-mail booking without the booking form, and 34.1% had their own website. There were only 0.6% for other online presence which was an electronic brochure.

Table 3.13 Online presence

Online Presence	Number	Usage	
		Frequency	%
E-mail	355	243	68.5
E-mail Booking	355	184	51.8
Own website	355	121	34.1
Web in directory	355	56	15.8
Online form booking	355	52	14.6
Online real time booking	355	13	3.7
E-payment	355	18	5.1
Other online presence (E-brochure)	355	2	0.6

Moreover, the main reason that most of the companies, that had provided a website for marketing, provided the up to date information, and shared information between partners. For the other website usage, they had used the website to communicate with the head office (Table 3.14).

Table 3.14 Website usage

Website Usage	Number	Usage	
		Frequency	%
Marketing	355	138	38.9
Up to date Information	355	116	32.7
Sharing Information	355	66	18.6
CRM	355	64	18.0
Linking to GDS	355	46	13.0
Other website usage (Networking)	355	2	0.6

Table 3.15 shows that more than half of all the respondents, or 69% did not have ICT support staff in their company and there were about 30.7% or 109 companies that had their own ICT support staff. Also, most of these companies had only

one ICT support staff in their company which was 75.2%, nearly 22% had two ICT support staff and the last 3.7% had three ICT support staff in their company (Table 3.16).

Table 3.15 ICT support staff

ICT support staff	Frequency	%
Do not have ICT support staff	245	69.0
Have ICT support staff	109	30.7
Total	354	99.7

Table 3.16 The number of ICT support staff

Number of ICT support staff	Frequency	%
1	82	75.2
2	23	21.1
3	4	3.7
Total	109	100

In terms of ICT staff recruitment plans, nearly half of all respondents or 40.3% did not have any plan to recruit ICT support staff, because they had enough staff and some companies did not have enough budgets for it. There were 76 companies or 21.4% which had some plan to recruit more ICT support staff and the rest 38.2% were not sure yet, the plan would depend on the future situation (Table 3.17).

Table 3.17 ICT staff recruitment plans

Plan to recruit more ICT staff	Frequency	%
Yes, they have the recruitment plan	76	21.4
Not sure, depends on the future situation	136	38.3
No, they haven't have any plan	143	40.3
Total	355	100

In terms of ICT training and retraining program that the companies provided to their staff, there were about 50.2% of all the respondents that had trained their staff by in house training which was on the job training and structured training (Table 3.18).

Table 3.18 ICT training and retraining programs

ICT Training Program	Frequency	%
Do not have any training	166	46.8
On the job training	101	28.5
In house structured training	78	22.0
Pay for training outside the company	10	2.8
Total	355	100

Not only that, 2.8% of all the respondents paid for their ICT staff to train or retrain outside the company. Most of the respondents had organized ICT training or retraining for their employees one to two times per year (23.1%) and there were 16.9% of all the respondents who organized ICT training or retraining less than one time per year also the companies that organized more than two times per year (13.2%) (Table 3.19).

Table 3.19 The frequency of ICT training

Frequency of ICT training	Frequency	%
Do not have any training	165	46.5
Less than 1 time per year	60	16.9
1-2 times per year	82	23.1
More than 2 times per year	47	13.2
Total	354	99.7

Table 3.20 shows that only 16.3 % of all the respondents had some plans about the budgeting for ICT training or retraining and there were 38.9% who still were not sure whether to plan the budgeting for ICT training, the plan depended on the future situation and also 44.8% of all respondents did not have any budgeting plan for ICT training.

Table 3.20 The budgeting plan of ICT training

ICT training budgeting planning	Frequency	%
No, we do not have any plan yet	159	44.8
Not sure, depends on the future situation	138	38.9
Yes, we have planned already	58	16.3
Total	355	100

3.1.3 Comparison of ICT infrastructure in different areas of business

As table 3.2 had shown the percentage of the type of businesses categorized by area, therefore the percentages of the ICT infrastructure usage was based on the number of respondents in each area, Bangkok with 140 respondents, Chiang Mai 81 respondents, Phuket 108 respondents and Ubon Ratchathani with 26 respondents. Therefore, firstly telephone was used by all companies from all four regions which was 100%. The second most used ICT hardware were computers used by over 90% of all the respondents from Bangkok, Chiang Mai and Phuket, and 73.1% of the respondents from Ubon Ratchathani. The third, 78.6% of the respondents in Bangkok, 86.1% of the respondents in Phuket, and 65.4% of the respondents in Ubon Ratchathani had used facsimile, but there were 67.9% of the respondents in Chiang Mai had used printers. Additionally, a Chi-square test was performed to determine whether differences in ICT hardware usage in the different areas were significant. It was considered significantly different at 95% of confidence interval, that means the area of business had an impact to ICT hardware usage except the other ICT hardware usage (Table 3.21).

In terms of the ICT software usage, most of the ICT software used in all areas was Microsoft, the next in the rank was Amadeus, and other ICT software such as Galileo, Worldspan, Easy Account etc., respectively. In Bangkok, 90.7% of all the respondents had used Microsoft, 42.1% used Amadeus, and 32.1% used other ICT software. In Chiang Mai, 98.8% of all the respondents had used Microsoft, 11.1% used Amadeus, and 9.9% used other ICT software. In Phuket, 91.7% of all the respondents had used Microsoft, 12% used Amadeus and other ICT software, and 11.1% used Micros. Also in Ubon Ratchathani, there were 73.1% of all respondents had used Microsoft, 19.2% used Amadeus, and 11.5% used others ICT software. Moreover, a Chi-square test at the significant level at 0.05, indicated statistically significant differences in ICT software usage between the 4 regions except the micros software usage (see table 3.21 for details).

For the ICT connection, most ICT connection used by respondents was the Internet, the next was e-mail, and the third ICT connection used was LAN/WAN. In Bangkok, 90.7% of all the respondents had the Internet, 88.6% had e-mail, and 40% had LAN/WAN. In Chiang Mai, 95.1% of all the respondents had the Internet, 63.0% had e-mail, and 14.8% had LAN/WAN. In Phuket, 87% of all the respondents had the Internet, 80.6% had e-mail, and 25% had LAN/WAN. In Ubon Ratchathani, 57.7% of all the

respondents had the Internet, 50% had e-mail, and 23.1% had LAN/WAN in their company. Moreover, a Chi-square test was performed to determine whether differences in ICT usage in the different areas were significant. It was considered significantly different at 95% of confidence interval that means that the area of business had an impact to ICT facilities usage except the Wireless Internet and Intranet.

For the computer usage, the three main reasons of using the computer were document recording, the Internet access, and customer database. In Bangkok, 90% of all respondents used computer to record document, 84.3% used computer to access the Internet, and 62.1% used computers to record customer database. In Chiang Mai, 90.1% of all respondents used computers to record documents, 74.1% used computers to access the Internet, and 56.8% used computers to record customer database. In Phuket, 88% of all the respondents used computers to record documents, 84.3% used computers to access the Internet, and 68.5% used computers to record customer database. Also in Ubon Ratchathani, 73.1% of all the respondents used computers to record documents, 53.8% used computers to access the Internet, and 46.2% used computers to record customer database. Moreover, a Chi-square test at the significant level of 0.05, indicated that there were no statistically significant differences in computer usage between the 4 regions (see table 3.21 for details) that means the different areas of business had no impact to the reason of computer usage except the Internet access and other reasons.

In terms of online presence, E-mail was most used in Bangkok, Chaing Mai, and Phuket, the next was e-mail booking and the third was own website. In Bangkok, 83.6% of all the respondents that presented online by e-mail, 72.9% presented online by e-mail booking, and 35.7% presented online through their own website. In Chiang Mai, 50.6% of all the respondents used e-mail for online presence, 34.6% presented online by e-mail booking, and 27.2% presented online through their own website. In Phuket, 69.4% of all the respondents had e-mail, 42.6% presented online by e-mail booking, and 40.7% presented online through their own website. But in Ubon Ratchathani, the main online presence channel was web in directory which was 42.3%, the next was online presence by e-mail which was 38.5% and 30.8% that presented online by e-mail booking. Moreover, a Chi-square test at the significant level at 0.05, indicated that the statistically significant differences in online presence between the four regions were on web in directory, e-mail, e-mail booking, and online form booking, except own website, e-payment, and other online presence (see table 3.21 for details).

In terms of website usage, 37.1% of all the respondents in Bangkok had used their website for marketing and providing the up to date information, 22.9% used the website for linkage with GDS, and 22.1% used a website for sharing information between partners. In Chiang Mai, 33.3% of all the respondents used their website for marketing, 27.2% used the website for providing up to date information, and 19.8% used a website for CRM and sharing information. In Phuket 45.4% of all the respondents had used their websites for marketing, 30.6% used the website for providing up to date information, and 15.7% used the website for sharing information. In Ubon Ratchathani, 38.5% of all the respondents had used their website for marketing, 3.6% used the website for providing up to date information, and 11.5% used the website for CRM and linking to GDS. Moreover, the significant difference of areas of business had no impact to website usage by using the Pearson chi-square test at the significant level at 0.05 except linking to GDS.

Not only that, the significant difference in area of business had an impact to accommodation Internet facilities by using the Pearson chi-square test at the significant level at 0.05 (P=0.019). In contrast, the significant difference between areas of business had no impact to accommodation Internet fee (P=0.667) (Table 3.21).

Table 3.21 The comparison between the areas of business with the ICT infrastructure

ICT Infrastructure	Area of Business								Pearson Chi-Square		
	Bangkok		Chiang Mai		Phuket		Ubon Ratchathani		Value	df	Sig. (2-sided)
	Frequency	%	Frequency	%	Frequency	%	Frequency	%			
ICT Hardware											
Telephone	140	100	81	100	108	100	26	100			
Facsimile	110	78.6	49	60.5	93	86.1	17	65.4	18.715	3	0.000
Photocopy Machine(X-Rox)	96	68.6	27	33.3	62	57.4	5	19.2	38.963	3	0.000
Computer	128	91.4	80	98.8	101	93.5	19	73.1	18.866	3	0.000
Printer	107	76.4	55	67.9	89	82.4	11	42.3	19.433	3	0.000
Credit Card Machine	71	50.7	23	28.4	71	65.7	9	34.6	28.190	3	0.000
Others	5	3.6	1	1.2	4	3.7	0	0	2.096	3	0.553

Table 3.21 (Continued)

ICT Infrastructure	Area of Business								Pearson Chi-Square		
	Bangkok		Chiang Mai		Phuket		Ubon Ratchathani		Value	df	Sig. (2-sided)
	Frequency	%	Frequency	%	Frequency	%	Frequency	%			
ICT Software											
Microsoft	127	90.7	80	98.8	99	91.7	19	73.1	17.048	3	0.001
Amadeus	59	42.1	9	11.1	13	12.0	5	19.2	41.167	3	0.000
Micros	10	7.1	2	2.5	12	11.1	1	3.8	5.727	3	0.126
Abacus	31	22.1	3	3.7	3	2.8	0	0.0	34.301	3	0.000
Others	45	32.1	8	9.9	13	12.0	3	11.5	23.974	3	0.000
ICT Connection											
Internet	127	90.7	77	95.1	94	87.0	15	57.7	27.842	3	0.000
Wireless Internet	19	13.6	4	4.9	17	15.7	3	11.5	5.540	3	0.136
E-mail	124	88.6	51	63.0	87	80.6	13	50.0	31.477	3	0.000
Intranet	8	5.7	1	1.2	6	5.6	2	7.7	3.127	3	0.372
LAN/WAN	56	40.0	12	14.8	27	25.0	6	23.1	17.573	3	0.001
Computer Usage											
Customer Database	87	62.1	46	56.8	74	68.5	12	46.2	5.621	3	0.132
Product Database	54	38.6	21	25.9	31	28.7	6	23.1	5.652	3	0.130
Internet Access	118	84.3	60	74.1	91	84.3	14	53.8	15.544	3	0.001
Document Record	126	90.0	73	90.1	95	88.0	19	73.1	6.428	3	0.093
Web Design	36	25.7	22	27.2	29	26.9	1	3.8	6.672	3	0.083
Others	10	7.1	0	0.0	2	1.9	0	0.0	10.584	3	0.014
Online Presence											
Web in directory	17	12.1	15	18.5	13	12.0	11	42.3	16.761	3	0.001
Own website	50	35.7	22	27.2	44	40.7	5	19.2	6.577	3	0.087
E-mail	117	83.6	41	50.6	75	69.4	10	38.5	37.628	3	0.000
E-mail Booking	102	72.9	28	34.6	46	42.6	8	30.8	42.771	3	0.000
Online form booking	26	18.6	5	6.2	19	17.6	2	7.7	8.133	3	0.043
E-payment	10	7.1	2	2.5	6	5.6	0	0.0	3.830	3	0.280
Other online presence	1	0.7	0	0.0	1	0.9	0	0.0	.917	3	0.821

Table 3.21 (Continued)

ICT Infrastructure	Area of Business								Pearson Chi-Square		
	Bangkok		Chiang Mai		Phuket		Ubon Ratchathani		Value	df	Sig. (2-sided)
	Frequency	%	Frequency	%	Frequency	%	Frequency	%			
Website Usage											
CRM	30	21.4	16	19.8	15	13.9	3	11.5	3.252	3	0.354
Linking to GDS	32	22.9	3	3.7	8	7.4	3	11.5	21.311	3	0.000
Sharing Information	31	22.1	16	19.8	17	15.7	2	7.7	3.859	3	0.277
Marketing	52	37.1	27	33.3	49	45.4	10	38.5	3.143	3	0.370
Up to date Information	52	37.1	22	27.2	33	30.6	9	34.6	2.655	3	0.448
Other website usage	0	0.0	0	0.0	2	1.9	0	0.0	4.600	3	0.204
Accommodation Internet Facilities											
Business center	14	46.7	3	9.7	4	12.1	3	18.8	24.248	12	0.019
LAN in all room	0	0	3	9.7	2	6.1	0	0.0			
Wireless in all room	2	6.7	0	0.0	2	6.1	1	6.3			
None	14	46.7	22	71.0	23	69.7	12	75.0			
Both LAN and Wireless	0	0	3	9.7	2	6.1	0	0.0			
Total	30	100	31	100	33	100	16	100			
Accommodation Internet Fees											
Free	2	13	2	22.2	3	33.3	1	25.0	1.566	3	0.667
Paid for	14	88	7	77.8	6	66.7	3	75.0			
Total	16	100	9	100	9	100	4	100			

Remark: Chi-square were used to test for statistically significant differences between groups

3.1.4 Comparison of ICT infrastructure between travel agents and accommodation

According to table 3.2 which shows the number of respondents categorized by the type of area, there were 243 respondents or 68.5% Travel Agents and 112

respondents or 31.5% Accommodation or hotels and guesthouses. Therefore, the percentage on table 3.22 was based on the number of respondents in each type of business.

In terms of ICT hardware usage, all of the travel agents and accommodation respondents had used telephone, 97.9% of travel agent respondents used computer, and 84.4% of the travel agent respondents used facsimile which was a little different from the accommodation respondents which showed 80.4% of them used computers and 54.5% used printers. Moreover, the significant difference between the areas of business had an impact on ICT hardware usage by using the Pearson chi-square test at the significant level at 0.05, except other hardware usage (more detail on table 3.22).

For ICT software usage, there were some differences in software usage between travel agents and accommodation. The most three ICT software used by travel agents were Microsoft, Amadeus, and others software but the most three ICT software were used by accommodations were Microsoft, other software, and Micros. 97.1% of the travel agent respondents used Microsoft, 35% used Amadeus and 20.2% used others software such as Galileo, Worldspan, TOPEX, etc. In accommodation, 79.5% used Microsoft, 17.9% used other software such as HIS, SMART, Easy Account, etc., and 6.3% used Micros. Besides, the significant difference in the area of business had an impact to ICT software usage by using the Pearson chi-square test at the significant level at 0.05, except the micros software usage.

In terms of ICT connection, the Internet, e-mail, and LAN/WAN were the most three ICT connections that were used by the respondents. On the travel agents side, 95.5% of all the respondents had used the Internet, 88.1% had used e-mail, and 33.7% had used LAN/WAN which was similar to the accommodation side which was that 72.3% of all the respondents had used the Internet, 54.5% had used e-mail, and 17% had used LAN/WAN. Moreover, none of the companies had used extranet. In addition, the significant difference in the type of business had an impact to ICT connection usage by using the Pearson chi-square test at the significant level at 0.05, except Wireless Internet and Intranet usage.

In terms of computer usage, the main three reasons of computer usage were document recording, the Internet access, and customer database. On travel agent side, 95.9% of all the respondents had used computers for document recording, 90.9% had used computers to access Internet or surf the Internet, and 67.1% had used computers to record a customer database. Also, 71.4% of all accommodation respondents that had used

computers for document record, 55.4% had used computers to access Internet and 50% had used computers for customer database. Moreover, the significant difference in the type of business had an impact to computer usage by using the Pearson chi-square test at the significant level at 0.05, except others reason of computer usage.

For online presence, the most 3 online presence channels of all respondent were e-mail, e-mail booking, and their own website. Travel agents, there were 79.4% had presented online by their own e-mail, 56.4% had presented online by e-mail booking, and 34.6% had presented online by their own website as similar as accommodation respondents, which was 44.6% had presented online by their e-mail, 42% had presented online by e-mail booking, and 33% had presented online by their own website. In addition, the significant difference in the type of business had no impact on the online presence by using the Pearson chi-square test at the significant level at 0.05, except E-mail and E-mail booking.

For website usage, 38.7% of all the travel agent respondents had used their websites for marketing, 33.7% had used the website for providing up to date information, and 21.4% had used the website for sharing information among partners. Also, 39.3% of all the accommodation respondents had used their website for marketing, 30.4% had used the website for providing up to date information, and 16.1% had used the website for CRM. Moreover, the significant difference in the type of business had no impact to website usage by using the Pearson chi-square test at the significant level at 0.05, except linking to GDS (Table 3.22).

Table 3.22 The comparison between ICT infrastructure and type of business

ICT Infrastructure	Frequency	Type of Business				Pearson Chi-Square		
		Travel Agent		Accommodation		Value	df	Sig. (2-sided)
		Frequency	%	Frequency	%			
ICT Hardware								
Telephone	355	243	100.0	112	100.0			
Facsimile	269	205	84.4	64	57.1	30.942	1	0.000
Photocopy Machine	190	151	62.1	39	34.8	23.000	1	0.000
Computer	328	238	97.9	90	80.4	33.737	1	0.000
Printer	262	201	82.7	61	54.5	31.649	1	0.000
Credit Card Machine	174	131	53.9	43	38.4	7.386	1	0.007
Other	10	4	1.6	6	5.4	3.857	1	0.050
ICT Software								
Microsoft	325	236	97.1	89	79.5	30.888	1	0.000
Amadeus	86	85	35.0	1	0.9	48.525	1	0.000
Micros	25	18	7.4	7	6.3	.157	1	0.692
Abacus	37	37	15.2	0	0.0	19.038	1	0.000
Others	69	49	20.2	20	17.9	.261	1	0.610
ICT Facilities								
Internet	313	232	95.5	81	72.3	39.394	1	0.000
Wireless Internet	43	33	13.6	10	8.9	1.558	1	0.212
E-mail	275	214	88.1	61	54.5	49.585	1	0.000
Intranet	17	12	4.9	5	4.5	.038	1	0.846
Extranet	0	0	0.0	0	0.0			
LAN/WAN	101	82	33.7	19	17.0	10.605	1	0.001
Computer Usage								
Customer Database	219	163	67.1	56	50.0	9.461	1	0.002
Product Database	112	87	35.8	25	22.3	6.452	1	0.011
Internet Access	283	221	90.9	62	55.4	60.058	1	0.000
Document Record	313	233	95.9	80	71.4	43.958	1	0.000
Web Design	88	71	29.2	17	15.2	8.105	1	0.004
Others	12	9	3.7	3	2.7	.247	1	0.619
Online Presence								
Web in directory	56	33	13.6	23	20.5	2.792	1	0.095

Table 3.22 (Continued)

ICT Infrastructure	Frequency	Type of Business				Pearson Chi-Square		
		Travel Agent		Accommodation		Value	df	Sig. (2-sided)
		Frequency	%	Frequency	%			
Own website	121	84	34.6	37	33.0	.080	1	0.777
E-mail	243	193	79.4	50	44.6	42.945	1	0.000
E-mail Booking	184	137	56.4	47	42.0	6.380	1	0.012
Online form booking	52	39	16.0	13	11.6	1.210	1	0.271
Online real time booking	13	11	4.5	2	1.8	1.633	1	0.201
E-payment	18	13	5.3	5	4.5	.113	1	0.737
Other online presence	2	2	0.8	0	0.0	.927	1	0.336
Website Usage								
CRM	64	46	18.9	18	16.1	.424	1	0.515
Linking to GDS	46	43	17.7	3	2.7	15.328	1	0.000
Sharing Information	66	52	21.4	14	12.5	4.012	1	0.045
Marketing	138	94	38.7	44	39.3	.012	1	0.914
Up to date Information	116	82	33.7	34	30.4	.400	1	0.527
Other website usage	2	2	0.8	0	0.0	.927	1	0.336

Remark: Chi-square were used to test for statistically significant differences between groups

3.1.5 Comparison between ICT infrastructure and year of company establishment

According to table 3.4 which shows the percentage of respondents categorized by the year the company was established, and the companies established before 1990 was 73 companies, during 1991-1995 was 78 companies, during 1996-2000 was 67 companies, during 2001-2005 was 100 companies, and 37 companies had been established between 2006-2007. Therefore, the percentage that shows on table 3.23 was based on the number of all the respondents in each year they were established.

In terms of ICT hardware usage, firstly all of the respondents used telephone or 100%. The next ICT hardware that most used was computer. Second, 89% of

the companies that were established before 1990, 91% of companies established between 1991-1995, and 92.5% of the companies established between 1996-2000. Third, 96% of company that had established on 2001-2005, and 91.9% of the companies that were established between 2006-2007 used computers. Besides, the other third ICT hardware was most used by respondents were printers and facsimile and more than 70% of the companies that were established between 1991-2005 used printers, and nearly 80% of the companies that were established before 1990 and 2006-2007 used facsimile. Moreover, the significant differences of the year a company was established had no impact on ICT hardware usage by using the Pearson chi-square test at the significant level at 0.05 (Table 3.22).

For ICT software usage, the most three ICT software used by companies which were established before 1990 and between 1996-2000 were Microsoft, Amadeus, and other software. 89% and 91% of those two groups had used Microsoft, 38.4% and 28.4% had used Amadeus, and 21.9% and 11.9% had used other software such as Galileo, Worldspan, etc., respectively. Also, the other three ICT software mostly used by companies established between 1991-1995, and between 2001-2007 were Microsoft, other software, and Amadeus. 89.7% of the companies that were established between 1991-1995, 95% of the companies that were established between 2001-2005, and 91.9% of the companies established between 2006-2007 had used Microsoft, there was 25.6% of the companies established between 1991-1995 and about 18% of the companies established between 2001-207 had used other software such as Galileo, Worldspan, etc., and 23.1% of the companies that were established between 1991-1995 and around 16% of the companies established between 2001-2007 had used Amadeus. Moreover, the significant difference of the year a company was established had no impact to website usage by using the Pearson chi-square test at the significant level at 0.05, except the micros software usage.

For the ICT connection, companies that were established before 1990 had used the Internet (83.6%), e-mail (76.7%), and LAW/WAN (37%). 88.5%, 79.5%, and 17.9% of the companies that were established between 1991-1995 use the Internet, e-mail, LAN/WAN, respectively. 91%, 80.6%, and 38.8% of the companies established between 1996-2000 used the Internet, e-mail, and LAN/WAN, respectively the same as companies that were established between 2001-2005, 90%, 74%, and 27% used the Internet, e-mail, and LAN/WAN, respectively. But 86.5% of the companies that were established between 2006-2007 used the Internet, 78.4% used e-mail, and 18.9% used

Wireless Internet and LAN/WAN. Besides, the significant difference in the year when a company was established had no impact to website usage by using the Pearson chi-square test at the significant level at 0.05, except LAN/WAN usage.

In terms of computer usage, most three reasons for using computers in the company that were established between 1990-2005 were document recording, the Internet access, and customer database. There were more than 80% of the companies that used computer for document recording, about 70%-84% used computer to access the Internet, and about 50%-70% used computer for customer database. Moreover, 78.4% of the companies that were established between 2006-2007 used computers to record documents and access the Internet, 56.8% of these companies used computers to record their customer database, and 27% of them used computers to design their website and record product database. In addition, the significant differences in the year a company was established had no impact to computer usage by using the Pearson chi-square test at the significant level at 0.05.

Also, the most three online presence channels were e-mail, e-mail booking, and their own website. Most of the respondents presented themselves online by e-mail which was between 64.4%-71%, companies who presented themselves online by e-mail booking was between 46%- 56.4%, and about 27.4%-upper than 38% presented themselves by their own website. In addition, the significant differences in the year a company was established had no impact to online presence by using the Pearson chi-square test at the significant level at 0.05.

For the website usage, the most three reasons of using a website by companies that were established before 1990 and between 1996-2000 were marketing (35.6% and 38.8%, respectively), to provide up to date information (31.5% and 32.8%, respectively), linking to GDS and sharing information among partners (20.5%) but companies that were established between 1996-2000 used their website for sharing information among partners which was 25.4%. The most three reasons of using a website by companies established between 1991-1995 and 2001-2005 were marketing (37.2% and 44%, respectively), to provide up to date information (29.5% and 34%, respectively), and CRM (16.7% and 24%, respectively). Besides, 37.8% of the companies that were established between 2006-2007 used a website for providing up to date information, 35.1% used the website for marketing, and 18.9% used the website for CRM. In addition, the significant differences in the year the company was establish had no impact to website usage by using the Pearson chi-square test at the significant level at 0.05.

Moreover, the significant difference in the year the company was established had no impact to accommodation Internet facilities and Internet fees by using the Pearson chi-square test at the significant level at 0.05 (P=0.163 and P=0.464) (Table 3.23).

Table 3.23 The comparison between ICT infrastructure and year of company establishment

ICT Infrastructure	Year of Establishment										Pearson Chi-Square		
	Before 1990		1991-1995		1996-2000		2001-2005		2006-2007				
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Value	df	Sig. (2-sided)
ICT Hardware													
Telephone	73	100	78	100	67	100	100	100	37	100			
Facsimile	58	79.5	57	73.1	49	73.1	76	76	29	78.4	1.241	4	0.871
Photocopy Machine	40	54.8	41	52.6	35	52.2	53	53	21	56.8	.287	4	0.991
Computer	65	89	71	91	62	92.5	96	96	34	91.9	3.241	4	0.518
Printer	50	68.5	58	74.4	51	76.1	77	77	26	70.3	2.030	4	0.730
Credit Card Machine	39	53.4	36	46.2	31	46.3	49	49	19	51.4	1.107	4	0.893
Others	2	2.74	5	6.4	1	1.5	1	1	1	2.7	5.318	4	0.256
ICT Software													
Microsoft	65	89	70	89.7	61	91	95	95	34	91.9	2.489	4	0.647
Amadeus	28	38.4	18	23.1	19	28.4	15	15	6	16.2	14.549	4	0.006
Micros	8	11	3	3.9	7	10.4	4	4	3	8.1	5.593	4	0.232
Abacus	10	13.7	9	11.5	6	9	8	8	4	10.8	1.732	4	0.785
Others	16	21.9	20	25.6	8	11.9	18	18	7	18.9	4.747	4	0.314
ICT Connection													
Internet	61	83.6	69	88.5	61	91	90	90	32	86.5	2.445	4	0.655
Wireless Internet	12	16.4	4	5.13	7	10.4	13	13	7	18.9	6.716	4	0.152
E-mail	56	76.7	62	79.5	54	80.6	74	74	29	78.4	1.288	4	0.863
Intranet	7	9.6	3	3.9	3	4.5	4	4	0	0	5.853	4	0.210
LAN/WAN	27	37	14	17.9	26	38.8	27	27	7	18.9	12.123	4	0.016

Table 3.23 (Continued)

ICT Infrastructure	Year of Establishment										Pearson Chi-Square		
	Before 1990		1991-1995		1996-2000		2001-2005		2006-2007				
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Value	df	Sig. (2-sided)
Computer Usage													
Customer Database	48	65.8	45	57.7	35	52.2	70	70	21	56.8	6.873	4	0.143
Product Database	23	31.5	22	28.2	16	23.9	41	41	10	27	6.715	4	0.152
Internet Access	52	71.2	63	80.8	55	82.1	84	84	29	78.4	4.712	4	0.318
Document Record	62	84.9	70	89.7	58	86.6	94	94	29	78.4	7.743	4	0.101
Web Design	19	26	19	24.4	16	23.9	24	24	10	27	.230	4	0.994
Others	4	5.5	5	6.4	1	1.5	2	2	0	0	5.786	4	0.216
Online Presence													
Web in directory	13	17.8	8	10.3	13	19.4	15	15	7	18.9	2.999	4	0.558
Own website	20	27.4	26	33.3	25	37.3	38	38	12	32.4	2.511	4	0.643
E-mail	47	64.4	55	70.5	45	67.2	71	71	25	67.6	1.078	4	0.898
E-mail Booking	39	53.4	44	56.4	36	53.7	46	46	19	51.4	2.192	4	0.701
Online form booking	15	20.5	8	10.3	10	14.9	13	13	6	16.2	3.530	4	0.473
Online real time booking	3	4.1	2	2.6	2	3	4	4	2	5.4	.746	4	0.946
E-payment	3	4.1	4	5.1	6	9	4	4	1	2.7	2.885	4	0.577
Other online presence	1	1.4	0	0	1	1.5	0	0	0	0	3.098	4	0.542
Website Usage													
CRM	13	17.8	13	16.7	7	10.4	24	24	7	18.9	5.139	4	0.273
Linking to GDS	15	20.5	6	7.7	9	13.4	11	11	5	13.5	6.010	4	0.198
Sharing Information	15	20.5	10	12.8	17	25.4	18	18	6	16.2	4.098	4	0.393
Marketing	26	35.6	29	37.2	26	38.8	44	44	13	35.1	1.744	4	0.783

Table 3.23 (Continued)

ICT Infrastructure	Year of Establishment										Pearson Chi-Square		
	Before 1990		1991-1995		1996-2000		2001-2005		2006-2007				
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Value	df	Sig. (2-sided)
Up to date Information	23	31.5	23	29.5	22	32.8	34	34	14	37.8	.935	4	0.920
Other website usage	0	0	0	0	2	3	0	0	0	0	8.646	4	0.071
Accommodation Internet Facilities													
Business center	5	22.7	5	16.7	3	16.7	6	20.7	5	45.5	21.417	16	0.163
LAN in all room	0	0	1	3.3	2	11.1	0	0.0	2	18.2			
Wireless in all room	1	4.6	0	0	1	5.6	2	6.9	1	9.1			
None	15	68.2	24	80	11	61.1	19	65.5	2	18.2			
Both LAN and Wireless	1	4.6	0	0	1	5.6	2	6.9	1	9.1			
Total	22		30		18		29		11				
Internet Fees													
Free	1	14.3	2	33.3	2	28.6	3	30	0	0	3.590	4	0.464
Paid for	6	85.7	4	66.7	5	71.4	7	70	8	100			
Total	7	100	6	100	7	100	10	100	8	100			

Remark: Chi-square were used to test for statistically significant differences between groups

3.1.6 Comparison between ICT support and type of business

In terms of ICT support, the percentage of companies that had their own ICT support staff showed not much difference between Travel agents and accommodation also most of them had only one ICT support staff. Although, 40.3% of the travel agent respondents that had not any plan to recruit more ICT support staff but also there were 43.8% of accommodation respondents that still were not sure and were waiting to see the future situation. However, 55.2% of the travel agents and 40.2% of accommodations

provided in-house structure training and retraining to their staff also they had organized those ICT trainings one to two times per year. Moreover, there were less than 20% of the respondents that already had a training budgeting plan. In addition, the Chi-square test was performed to determine whether differences in the type of businesses among ICT support were not significant. It was considered significantly different at 95% of confidence interval that means the type of business had no impact to ICT support except the ICT training budget plan (Table 3.24).

Table 3.24: The comparison between ICT support and type of business

ICT Support	Type of Business				Pearson Chi-square		
	Travel Agent		Accommodation				
	Frequency	%	Frequency	%	Value	df	Sig. (2-sided)
ICT support staff	76	31.3	33	29.5	0.085	1	0.770
Number of ICT supporter							
1	58	23.9	24	21.4	4.021	2	0.134
2	17	7.0	6	5.4			
3	1	0.4	3	2.7			
Recruitment Plan							
Yes, they have the recruitment plan	58	23.9	18	16.1	8.799	4	0.066
Not sure, it depends on future situation	87	35.8	49	43.8			
No, they do not have the recruitment plan	98	40.3	45	40.2			
ICT Training and retraining program							
In house training	58	23.9	20	17.9	7.204	3	0.066
On the job training	76	31.3	25	22.3			
Pay for training outside the company	7	2.9	3	2.7			
Do not have any training program	102	42.0	64	57.1			
Frequency of training							
Less than 1 time per year	46	18.9	14	12.5	6.922	3	0.074
1-2 times per year	61	25.1	21	18.8			

Table 3.24 (Continued)

ICT Support	Type of Business				Pearson Chi-square		
	Travel Agent		Accommodation				
	Frequency	%	Frequency	%	Value	df	Sig. (2-sided)
More than 2 times per year	34	14.0	13	11.6			
Budgeting plan of ICT Training							
Yes, we have plan already	41	16.9	17	15.2	7.941	2	0.019
Not sure, depend on the future situation	105	43.2	33	29.5			
No, we do not have any plan yet	97	39.9	62	55.4			

Remark: Chi-square were used to test for statistically significant differences between groups

3.1.7 Comparison between ICT support and year of company establishment

Table 3.25 shows the percentage of ICT support bases on the year the company was established, the highest percentage of the company that had their own ICT support staff were companies that were established between 1996-2000 (44.8%), the next highest were companies that were established before 1990 (38.4%), and the third highest were companies that were established between 2001-2005 (26%). Also those companies were the three highest percentage of the companies which had only one ICT support staff 38.8%, 31.5%, and 19%, respectively (see table 3.25 for details). On the other hand, some companies had two ICT support staffs that the highest percentage was the company that were established between 1991-1995 (7.7%), the next highest were companies that were established between 2001-2005 (7%), and the third highest were companies that were established before 1990 (6.8%). In addition, the Chi-square test at 95% of confidence interval indicated statistically significant differences in ICT support staff between the differences in the year of company establishment.

In terms of number of ICT supporter, less than 30% of all the respondents had planed to recruit new ICT supporter with the highest percentage were companies that

had been established before 1990 (28.8%), the next highest were companies that were established between 2006-2007 (24.4%), and the third highest were companies that were established between 2001-2005 (22%). In addition, the Chi-square test at 95% of confidence interval indicated statistically significant differences in number of ICT supporter between the different years of company establishment.

Besides, companies established before 2001 were the highest percentages of all respondent groups that did not have any ICT recruitment plan which was 47.8% of the companies established between 1996-2000, 43.8% of the companies that were established before 1990, and 39.7% of the companies that were established between 1991-1995. Therefore, there were less than 30% of the respondents in each year of company establishment had ICT staff recruitment plans. Moreover, the Chi-square test indicated no statistically significant differences in ICT staff recruitment plans between the different years of company establishment.

For the ICT training and retraining program, only the companies that were established before 1990 provided in-house structure training to their staff more than on the job training 38.4% and 20.5%, respectively, otherwise they preferred to train by on the job training programs. Besides, there were less than 4% of the respondents in each year that paid for staff to train outside the company. Moreover, the Chi-square test indicated no statistically significant differences in ICT training and retraining programs and frequency of ICT training between the different years the company was established.

In terms of frequency of ICT training or retraining, the companies that were established before 1990 and between 2001-2005 had arranged training one to two times per year for their staff or 31.5% and 30%, respectively. Companies established between 1996-2000 and 2006-2007 had arranged ICT training less than one time per year, and only the companies that were established between 1991-1995 had arranged ICT training more than two times per year to their staff (15.4%). Not only that, 23.3% of the companies established before 1990, 19.2% of the companies that were established between 1991-1995, 13.4% of the companies established between 1996-2000. 12% of the companies that were established between 2001-2005, and 13.5% of the companies that were established between 2006-2007 had planed the budget for an ICT training program already, otherwise they were not sure about the future situation and they did not consider about it yet. Moreover, the Chi-square test indicated no statistically significant differences

in budgeting planning for ICT training between the different years the company was established.

Table 3.25 The comparison between ICT support and year of company establishment

ICT Support	Year of establishment										Pearson Chi-square		
	Before 1990		1991-1995		1996-2000		2001-2005		2006-2007		Value	df	Sig. (2-sided)
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%			
ICT support staff	28	38.4	18	23.1	30	44.8	26	26.0	7	18.9	14.067	4	0.007
Number of ICT supporter													
1	23	31.5	9	11.5	26	38.8	19	19.0	5	13.5	16.556	8	0.035
2	5	6.8	6	7.7	3	4.5	7	7.0	2	5.4			
3	0	0	3	3.8	1	1.5	0	0.0	0	0.0			
Recruitment Plan													
Yes, they have the recruitment plan	21	28.8	14	18.0	10	14.9	22	22.0	9	24.4	22.921	16	0.116
Not sure, it depends on future situation	20	27.4	33	42.3	25	37.3	42	42.0	16	43.2			
No, they do not have the recruitment plan	32	43.8	31	39.7	32	47.8	36	36.0	12	32.4			
ICT Training and retraining program													
In house training	28	38.4	15	19.2	13	19.4	16	16.0	6	16.2	19.601	12	0.075
On the job training	15	20.5	18	23.1	22	32.8	33	33.0	13	35.1			
Pay for training outside the company	2	2.7	1	1.3	2	3.0	4	4.0	1	2.7			
Do not have any training program	28	38.4	44	56.4	30	44.8	47	47.0	17	45.9			
Frequency of training													
Less than 1 time per year	14	19.2	11	14.1	13	19.4	13	13.0	9	24.3	16.489	12	0.170

Table 3.25 (Continued)

ICT Support	Year of establishment										Pearson Chi-square		
	Before 1990		1991-1995		1996-2000		2001-2005		2006-2007		Value	df	Sig. (2-sided)
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%			
1-2 times per year	23	31.5	11	14.1	12	17.9	30	30.0	6	16.2			
More than 2 times per year	11	15.1	12	15.4	9	13.4	10	10.0	5	13.5			
Budgeting plan of ICT Training													
Yes, we have plan already	17	23.3	15	19.2	9	13.4	12	12.0	5	13.5	7.559	8	0.478
Not sure, depend on the future situation	26	35.6	32	41.0	23	34.3	44	44.0	13	35.1			
No, we do not have any plan yet	30	41.1	31	39.7	35	52.2	44	44.0	19	51.4			

Remark: Chi-square were used to test for statistically significant differences between groups

3.2 Impacts of using ICTs by SMTEs

Respondents were asked to state level of agreement with 30 statements related to ICT adoption and impacts. A Likert scale from 1 to 4 in which 4 was indicated strongly agree, 3 was indicated agree, 2 was indicated disagree, and 1 was indicated strongly disagree.

Table 3.26 shows the mean and standard division of the impact of ICT usage in the respondents company. The respondents which strongly agreed on eight impacts of ICT usage that were connecting with customers in real time, attracting more customers, global market reach, communicate faster with customers, more distribution channels, sale opportunities for direct marketing, time saving and improve customer service. Moreover, they agreed on 16 impacts of using ICT that were facing higher competition, easier day to day operations system, improved planning ability, cost reduction, better interaction with business partners, improve the range of company products, increased opportunities for new

business partnerships, revenue growth, the business partners prefer face to face or phone contact, customers prefer face to face contact, high cost of initial investment, increased expense for ICT maintenances adoption, staff has problem using ICT, they need to go online because other companies do it, higher risk of e-payment and difficulty to find qualified staff. Besides, the respondents disagreed on 6 impacts of using ICT that were possible ICT failure increases, operation risk, the owner is not confident in using technology in the business, the Internet has made the business of travel agents harder, the Internet has made hotels less dependent on travel agents, the Internet marketing is not important for my business and the Internet is not important for my business.

Table 3.26 Impacts of using ICTs

Factors	N	Mean	Std. Deviation	Level of Agreement
Connecting with customers in real time	355	3.41	0.57	Strongly Agree
Attracting more customers	355	3.37	0.52	Strongly Agree
Global market reach	355	3.36	0.55	Strongly Agree
Communicate faster with customers	355	3.34	0.58	Strongly Agree
More distribution channels	355	3.31	0.55	Strongly Agree
Sale opportunities for direct marketing	355	3.28	0.56	Strongly Agree
Time saving	355	3.27	0.57	Strongly Agree
Improve customer service	355	3.26	0.58	Strongly Agree
Facing higher competition	355	3.21	0.62	Agree
Easier day to day operations system	355	3.19	0.56	Agree
Improved planning ability	355	3.18	0.56	Agree
Cost reduction	355	3.17	0.63	Agree
Better interaction with business partners	355	3.15	0.55	Agree
Improve the range of company products	354	3.12	0.61	Agree
Increased opportunities for new business partnerships	355	3.12	0.51	Agree
Revenue growth	355	3.07	0.63	Agree
My business partners prefer face to face or phone contact	355	2.97	0.69	Agree

Table 3.26 (Continued)

Factors	N	Mean	Std. Deviation	Level of Agreement
My customers prefer face to face contract, not the Internet	355	2.93	0.71	Agree
High cost of initial investment	354	2.92	0.78	Agree
Increase expense for ICT maintenances adoption	355	2.83	0.69	Agree
Staff has problem using ICT	355	2.69	0.7	Agree
We need to go online because others company do it	355	2.66	0.69	Agree
Higher risk of e-payment	355	2.58	0.68	Agree
Difficult to find qualified staff	353	2.58	0.7	Agree
Possible ICT failure increases operation risk	355	2.48	0.71	Disagree
I'm not confident using technology in my business	355	2.32	0.65	Disagree
The Internet has made the business of travel agents harder	355	2.19	0.71	Disagree
The Internet has made hotels less dependent on travel agents	355	2.17	0.7	Disagree
The Internet marketing is not important for my business	355	2.01	0.64	Disagree
The Internet is not important for my business	355	1.96	0.68	Disagree

In order to reduce the large number of variables to several key factors, factor analysis were used. Principal component and varimax rotation procedures were used to identify orthogonal factor dimensions. The latent roots (Eigenvalues) criterion of 1.0 was used for factor extraction, and the factor loading values considered significant must be greater than ± 0.45 when interpreting the factor matrix of loadings. The factor analysis aggregated the impacts of using ICT variables into 9 new factors that were; (1) Better business's service and operation, (2) Efficiency, (3) Scepticism, (4) Cost and competition, (5) Risk and unconfident, (6) Marketing, (7) Effect of changing business model, (8) B2B concerns, and (9) Better B2B (Table 3.27). Those new factors were

derived with eigenvalue that were 2.81, 2.57, 2.33, 2.03, 2.02, 1.97, 1.94, 1.74, and 1.74, respectively, and accounted for 63.55% of the total variance.

Table 3.27 Factor analysis of ICT adoptions and impacts

Factor	Factor Loading	Eigenvalue	Variance Explained (%)
Factor 1: Better business's service & operation (0.80)[a]		**2.81**	**9.37**
Revenue growth	0.64		
Communicate faster with customer	0.49		
Improve the range of company product	0.74		
Improve customer service	0.78		
More distribution channel	0.60		
Easier day to day operation system	0.35		
Factor 2: Efficiency (0.72)		**2.57**	**8.58**
Cost reduction	0.76		
Time saving	0.79		
Improved planning ability	0.65		
Sale opportunities for direct marketing	0.36		
Factor 3: Scepticism (0.81)		**2.23**	**7.44**
The Internet is not important	0.79		
The Internet marketing is not important	0.78		
Factor 4: Cost & competition (0.61)		**2.03**	**6.78**
Facing higher competition	0.45		
High cost of initial investment	0.81		
Increase expense for ICT maintenance	0.78		
Factor 5: Risk & unconfident (0.71)		**2.02**	**6.74**
Possible ICT failure increase operation risk	0.61		
Higher risk of e-payment	0.50		
Difficult to find qualified staff	0.60		
Others company do it	0.73		
Unconfident of using ICT	0.45		
Factor 6: Marketing (0.68)		**1.97**	**6.55**
Global market reach	0.80		
Attracting more customer	0.84		

Table 3.27 (Continued)

Factor	Factor Loading	Eigenvalue	Variance Explained (%)
Connecting in real time	0.50		
Factor 7: Effect of Changing business model (0.62)		1.94	6.46
Staff has problem using ICT	0.61		
Internet make the business of travel agent harder	0.74		
Internet made hotel less dependent on travel agent	0.72		
Factor 8: B2B concern (0.71)		1.74	5.81
Customer prefer face to face contract	0.82		
Business partner prefer face to face or phone	0.84		
Factor 9: Better B2B (0.72)		1.74	5.80
Increased opportunities for new business partnership	0.72		
Better interaction with business partners	0.72		
Total variance explained			63.55
a. Reliability score (Cronbach's alpha) for each factor grouping is shown in parentheses.			

The new factors were divided into two main categories that were positive attitude and negative attitude. In terms of positive attitude, there were four factors (15 variables) related to positive attitude that were better business's service & operation, efficiency, marketing, and better B2B called "ICT adopter". For the negative attitude or "ICT averse", there were five factors (15 variables) that were skepticism, cost & competition, risk & unconfident, effect of changing business models, and B2B concerns.

In positive ways, most of the respondents strongly agreed on seven positive variables that communication was faster with customers, improved customer service, time saving, global market reach, attracting more customers, connecting in real time, and sales opportunities for direct marketing. The last variable had the factor loading less than 0.45 but it was in closed relation with the Efficiency factor. Respondents also agreed with eight positive variables that were revenue growth, improved range of company product, more distribution channels, cost reduction, improved planning ability, increased opportunities for new business partnerships, better interaction with business partners, and easier day to day operation systems (the factor loading of the last variable is less than 0.45).

For the negative way, most of the respondents agreed with nine negative variables that were, facing higher competition, high cost of initial investment, increased expense for ICT maintenance, higher risk of e-payment, difficulty to find qualified staff, the company wants to be online because the other company do it, staff has problem in using ICT, customer and business partners prefer face to face contact or phone contact more than the Internet, that means those variables were the main obstacles of adoption ICT by SMTEs. In contrast, the respondents did not agree on some negative variables that were the Internet and the Internet Marketing was not important, possible ICT failure increased operation risk, the owner is not confident in using ICT, the Internet made the business of travel agents harder and the Internet made hotels less dependent on travel agents. Therefore, those six variables were not the main obstacle of ICT adoption by SMTEs.

Moreover, table 3.28 shows the result of Independent T-tests between the type of business and ICT attitude, where ICT Adopter was the mean of fifteen variables indicating positive attitude towards ICT, and ICT Averse was the mean of the fifteen variables indicating negative attitude. The T-value or statistical significance was accepted at 0.05. It resulted in the mean of ICT adopter of travel agents (3.2713) was higher than accommodation (3.1750), in opposite, the mean of ICT averse of accommodation (2.6565) was higher than travel agents (2.5234) that means more travel agents had a positive attitude in ICT adoption than accommodation. Moreover, the different type of business had an impact on the ICT adopter and ICT averse that T-value is 0.012 and 0.001 (see table 3.28 for details).

Table 3.28 Independent T-test between type of business and ICT user

ICT Attitude	Mean of Type of Business		Independent Samples T-Test		
	Travel Agent	Accommodation	t	df	Sig. (2-tailed)
ICT Adopter	3.2713	3.1750	2.515	352	0.012
ICT Averse	2.5234	2.6565	-3.439	351	0.001

Remark: Independent T-test were used to test for statistically significant differences between groups

Besides, ANOVA test was used to compare the difference of year which had more than two variables with the F-value or statistically significant was accepted at 0.05. Table 3.29 shows that the differences in the year a company was established had no

impact to ICT adopter and ICT averse (P-value = 0.201, 0.098) that meant either the older or the newer company had a similar attitude in impact of using ICTs.

Table 3.29 ANOVA Test of the year of company establishment and ICT user

	df	F	Sig.
Year of establish			
ICT Adopter	4	1.502	0.201
ICT Averse	4	1.975	0.098

Remark: ANOVA test were used to test for statistically significant differences between groups

3.3 Respondents Comments

The respondents gave some comments on the impact of ICT adoption and grouped it into several topics that are:

In terms of customer relationship management or CRM, due to the number of the Internet customers was increasing therefore, companies could reach more customers, both Thai and foreigner customer than previously, and the number of direct customers increased as well. Moreover, they could keep in touch with overseas customers via e-mail that helped them to retain their customer. Not only that, for some companies that did not provide e-mail booking but they had the royalty customer who had visited the place before and could make the booking directly to the owner via a personal e-mail. Besides, the number of guesthouse and hotel customer bookings via telephone had increased because of the beautiful website that they designed. Moreover, the Internet gave more convenience for interacting with customers and also with business partners because they could directly communicate with customers and allowed easier access to get the product of their business that resulted in increases numbers of guest visits.

In Contrast, the main negative impacts were that the number of customers decreased both potential customers and their main customer or walk-in. Moreover, some companies had faced more no-show customers who booked from e-mail. Not only that, the number of Internet customers increased also e-booking customers, some companies like offline companies had lost this group. Some of the newer companies that had established their business with ICT and also online, those companies could steal the customers from the

older companies who operated offline. Moreover, the number of walk-in customers declined, therefore it was harder to sell the product of offline customer than previous.

In terms of operation systems, ICT provided easier and more convenient process to interact with direct customers, faster communication and service to customers and business partners that they could check all information in the computer. They also could save phone cost and time. Moreover, ICT gave them more convenience to run a business with their partner who is located aboard, to be faster to check all information for customer reservation from the Internet such as air fares, hotel room rates, and car rental rates, etc. Also, the online company had better booking process. On the other hands, due to the Internet connection which sometimes was too slow to run a business, therefore mistakes would occur. When the speed of the Internet was very low, it affected the quality of the service because of the slow response service to the customer. Besides, travel agents could not check their e-mail booking that some customer who booked in last minute, so they lost that customer. Moreover, travel agents faced harder to run businesses with hotels that had their own website which allowed e-booking. Also, exchange of information was difficult to do individually because there were a lot of conditions when they signed the contract. Finally, complicated ICTs which most of the staff was unfamiliar with, resulted in making mistakes.

For the revenue and cost, better operation and service could increase the sale volume and revenue. Some hotels could save their commission cost that they used to pay to online travel agents. Moreover, they could decrease expense from using the Internet and website to interact with customers and business partners that they could contact a lot of agencies through those channels. Travel agents had direct impacts on the volume of flight bookings and hotel bookings, both in Thailand and overseas because some hotels and airlines allowed customers to do booking directly from the Internet. According that the revenue or commission from selling hotel rooms and the airline booking was decreased with less than the target sale and revenue volume. Not only that, the company that wants to be online had to plan their budget for setting up a website: domain registration fees, hosting design, maintenance and updating the website was expensive. Besides, it was high cost for first investment and they had to hire skilled staff that had to be paid higher.

For the competition, companies that had established their company with ICTs and also some companies that adopted ICTs later could gain more business power from their e-mail and website, and also to deal with business partners. For the price

competition, it had become the alternative choice for customers because the Internet price sometimes was lower than rack rate so it should make customer wonder which one was better between travel agents and the Internet. Moreover, increasing number of competitors was one of the main effects to them because there were a lot of companies that operated the same product and also the Internet provided similar opportunities for them. Meanwhile customers could choose the one they preferred, therefore they had to plan their business more well-fitting, besides the other companies who had effective the Internet booking systems could steal some of their potential customers from the other companies. Therefore, there was a higher competition among online companies and offline companies. Some companies, who had done well with the Internet marketing, were normally international companies to just deal and run the business through the Internet which is much easier and direct affect to Thai companies who had to do marketing using other channels.

For the impact on marketing, the company could expand their market by the Internet. Some companies could expand their market by solving problems with the guests very fast so it offered satisfactory service. Moreover, they could expand distribution channels or increase more distribution channels to the world wide market and also could reach global customers by posting pictures of their products and also some comments on the web board pages. According to that, customers could check information and product before they decided to purchase. Not only that, for some companies that registered with the famous web search engines (Google.com) could be a world wide reputation more than others. Besides, the Internet helps them to do better advertising, marketing public relations, and other marketing activities.

In opposite, offline companies needed to plan the new promotion planning in order to compete with the online companies and other competitors. The last one was if they did not use ICTs, it was difficult and hard to do marketing because travel agents have been cutting from the supplier and those companies had to develop all processes to be suitable to the changing of the market.

3.4 Semi-structured interview results

Thirty small and medium-sized tourism business including owner, manager, and supervisor were interviewed by researcher with some main questions.

- The current situation of using ICT in their company and the reason of adoption or non-adoption of ICT

For the company who adopted ICT mostly travel agent mentioned that they cannot operate and offer service to customer without ICT. The main ICTs most necessary for their service operations are computer, facsimile, telephone, printer-all of them the basic machines that all businesses should have. For example, some of company mentioned that telephone is the common machine which they use in order to communicate among business partners and customers.

In contrast, some respondents mentioned about they are too small to operate with professional equipments and software. For example small guesthouse with less than 10 guest rooms feel it is not necessary to operate with computer and no need to have online presence. However, some small accommodations where do not present online, but they allow the personal e-mail of owner to their royal customer in order to keep in touch with customer.

- The main benefits and weaknesses of using ICT

Most respondents mentioned the faster and easier business operation is the main benefit of using ICT. In particularly important is computer usage, for example, for writing invoice, daily records, daily reports, brochures, and so on. Also most respondents mentioned the opportunities to do wider marketing if they are present online by website which help economize their marketing budget, more accurate and clearer information for business management. Moreover, ICT can increase and retain number of customer from their website and e-mail booking.

In contrast, the small guesthouses mentioned the cost of using ICT, the complication of using computer, the possible staff failure as the main problem of adoption. In term of cost of using ICT, most respondents mentioned that even though today the price of ICT machine is cheaper than in the past but they still cannot afford it because of the limited budget and capital. Many of small and medium-sized tourism business have been operated before 1990, and their staffs are mostly too old to study the new technology therefore learning ICT is rather difficult. Not only that, the functions of ICT operation system is normally in English which those staff is not much familiar, therefore failures or the error could occur.

- **The importance of ICT for the business**

ICTs adoption provides the business opportunities in term of business competition with other companies particularly the Internet and website. Most respondents mentioned that ICT is very important for their business management such as reservation management, financial management, and sale and marketing. Also, the increasing of service quality that provided to customers resulted from the increasing of business efficiency by using computer and website such as more convenience, easier access for searching tourism information, easier booking and buying of tourism products, faster communication with customers, and so on. Presently, ICT becomes the main elements of global marketing, so service providers have to adopt ICT in order to take some advantages from it.

- **Recommendations for ICT development**

Some specific software for small and medium-sized tourism enterprises that can cover all of business functions in both front office and back office is most requested such as accounting and financial, reservation, marketing, data transfer, etc. The specific software should be easy to use and reasonably priced.

Moreover, ICT training is required in order to develop their staff's skills. Some respondents mentioned the ICT training course particularly web design course and e-commerce is most necessary for them in order to develop themselves. In addition, some respondents mentioned that educational institution could develop and produce qualified ICT students in order to provide qualified ICT staff for tourism industry.

Some respondent also mentioned that SMTEs should have strong support and collaboration each others also from government and related sectors. For example, the government could revise the nation policy such as price of utility usage, fee of deposit security of TAT license in case of if the company wants to present online by website which the type of travel agent license will be change automatically from domestic travel agent to inbound, etc.

CHAPTER 4
SUMMARY

The purpose of this chapter is to draw some conclusions, discussions, and make recommendations based on the research findings and also to suggest the limitations of this research. In this research, the researcher discussed the results based on the research objectives that are to assess the adoption and use of ICT by SMTEs in Thailand, to investigate the impact of ICT, present the results of testing the hypotheses set in chapter 1, and identify problems with ICT adoptions and usage, and also to make recommendation for effective ICT adoption and use by SMTEs in Thailand.

The research collected the data from 355 respondents like travel agents and accommodations in four main tourism destinations in Thailand. The questionnaire conducted the level of ICT adoptions by SMTEs, moreover, the researcher aimed to compare the results which were to analyze whether there are any differences in ICT adoption depending on the type of business and year the company was established. To analyze the information collected, the use of SPSS was intervened. The SPSS functions used in this study included Frequency, Mean, Standard Deviation, Pearson Chi-square, Independent t-test, ANOVA, and Factor analysis. In this chapter, the researcher presented results as follows:

4.1 Summary of main findings

According to the sample size of 355 respondents who were small and medium-sized travel agents and accommodations, located in the four main destinations of Thailand were Bangkok, Chiang Mai, Phuket, and Ubon Ratchathani. Therefore, the respondents from Bangkok was 39.4%, Chiang Mai was 22.8%, Phuket was 30.4%, and Ubon Ratchathani was only 7.3%, also there were 68.5% small and medium-sized travel agents and 31.5% small and medium-sized accommodations which most of them were established between the year 2001-2005 or 28.2% and most of them had less than 10 persons employed.

One objective of this study was to assess the level of adoption and the use of ICTs by SMTEs. The respondents had answered the questionnaire with the result in percentage of ICT usage and adoption. For ICT hardware, the three mains ICT hardware in use are the telephone which is used by 100% of the respondents, 92.4% computer usage,

and 75.8% of facsimile usage. All of the hardware were the main communication channels within the company, with business partners, and customers.

As table 3.6 showed, travel agents get 19.4% of their customers from the telephone, 17.8% from partner of travel agents which is normally contacted by telephone and facsimile, and 11.2% from e-mail which have access to a computer. Also, accommodations get 16% of customer from telephone, 9.8% from e-mail, and 7.6% from travel agents who have contract licenses.

In terms of ICT software, the most commonly used software is Microsoft office used by 91.5% of the respondents, and Amadeus - 24.2%. Normally, Microsoft office was the basic software all computers had installed. Other software used by 19.4% of the respondents such as easy account, HIS, TOPAX Reservation system, and Galileo. All of this software is specific software which is most suitable for some companies and therefore, some companies had adopted it but some had not. Moreover, Amadeus was one of the GDS software which was used worldwide and it is well known, therefore, most of the travel agents had to adopt it to make them more efficient to compete with other competitors.

For the ICT connection, none of the respondents used extranet and the most widely used three ICT connections were the Internet which 88.2% of respondents had used, 77.5% had used e-mail, and 28.5% had used LAN/WAN, respectively. Due to the worldwide use of the Internet to get more benefits as NECTEC (2005) showed, the main activities of Internet use were information searching, news, and e-mail, also the Internet and e-mail was the easiest connection to compete in the global market. In terms of LAN/WAN, many companies used the connection for more convenience within the company even if they did not use the Internet.

The three main reasons for using computers were document record (88.2%), the Internet access (79.7%), and a customer database (61.7%). Most of the respondents had used computers to manage their daily documents such as invoices, daily guest register history, daily room sale revenue, etc.

In terms of the hotels Internet facilities, 21.8% of the accommodation respondents had provided business centers to their customers. Only 4.5% in each facility that provided only LAN in all guestrooms, provided only wireless in all guestrooms, and provided both LAN and Wireless Internet to their customers. Moreover, 79% of the accommodations asked for an extra fee for the Internet use, and 64.5% of accommodations respondents did not provide any Internet facilities.

For online presence, most of the respondents approached by e-mail 68.5%, 51.8% of respondents had presented online by e-mail booking, and 34.1% had presented online by their own website. In terms of some companies that presented online by e-mail, 79.4% were travel agents and 44.6% of accommodations had presented online by e-mail, which resulted in the higher percentage than Boonthai (2006) finds in her study of the quality of websites in Thailand. Boonthai mentioned that there were only 28% of travel agents and 16% of the hotels provided e-mail and two thirds were non-branded email addresses which registered with other free e-mail websites. The reason for the differences is that she studied random samples of tourism businesses from around Thailand, thus including destinations with less intensive tourism, whereas this study includes three of the most popular destinations in Thailand, where presumably ICT adoption is higher than average. Moreover, 6% of travel agents and 19% of the hotels provide a website were 94% of them were branded websites and the rest were non-branded. For this research, 34.1% of the respondents provided websites and 15.8% provided websites in a directory.

The three main reasons of website usage were marketing purposes 38.9%, such as posting beautiful pictures, use multi-language, information about special prices, etc. 32.7% of respondents had used websites to update information such as information about a product, price updating, etc., and 18.6% had used the website for sharing information among partner, respectively.

In terms of ICT support, only 30.7% of all the respondents had their own ICT support staff, while most of them, 75.2% had only one staff. Therefore, most respondents prefer outsourcing services instead of hiring their own staff. The main reason was that there were a lot of outsource-service companies or computer shops which also provided technicians to check and fix the computers if necessary. Not only that, some computer centers provided post-selling services that customers could call them when they had some trouble on their computer. Moreover, 21.4% of all respondents had planned to recruit more ICT support staff. The main reasons of the company that did not have any ICT staff yet, were that they did not have enough budget and they had enough staff already as well.

However, 53.3% of the respondents provided some ICT training to their staff which was mostly on the job training 28.5% and in-house structure training 22%, and only 2.8% of respondents that paid for training outside the company to their staff such as ECC school. The reason of using in-house training was the easiest training method, it

saves cost and time, it is easy to train the staff particularly "on the job training" where the trainer was the senior staff who had been trained, had enough knowledge and experience, and they could evaluate the training as much as they needed. Also, 23.1% of the respondents had organized the ICT training one or two times per year for their staff, 16.9% had organized training less than one time per year, and 13.2% had organized training more than two times per year, respectively. Nevertheless, there were only 16.3% of the respondents that had a budgeting plan of ICT training already.

In addition, the researcher had examined the differences in ICT adoption and usage by areas of business, type of business, and the year the company was established. The results of the different areas of business with an ICT infrastructure were small and medium-sized tourism enterprises, located in Bangkok had the highest percentage of ICT infrastructure, which are ICT software, ICT connection, Computer usage, online presence, and website usage. Next highest in ICT infrastructure using was Phuket, which had the highest percentage of ICT hardware usage and others ICT infrastructure was the second. The third highest was Chiang Mai, Ubon Ratchathani had the lowest percentage of ICT infrastructure usage but at the same time had the highest percentage on providing websites in a directory. This is due to the fact that most of the tourism businesses in this province had cooperated in order to provide accommodation with the Internet facilities to customers, particularly business centers, and wireless in all guestrooms which was the same number as Phuket.

Comparing the ICT infrastructure between the different types of business, the results were small and medium-sized travel agents had better adopted all ICT infrastructures than the small and medium-sized accommodation businesses. The reason was that travel agents had to work with ICT in terms of providing services, information to the customers such as booking air ticket via GDS, checking the room rate, booking the tour packages by telephone or fax, and also to deal with business partners. Some of the accommodations could run their business without an ICT infrastructure such as computer, printer, credit card machine, ICT software, and even some online presence channels. Most of those accommodation mentioned that "We are a small sized hotel or guesthouse, we can control our service by using a manual system that is easier, cheaper and is also saving costs. Not only that, we have a small number of guest rooms available therefore, online booking is not necessary". Besides, some guesthouses that are located on the famous destinations like Patong beach, Khao San Road, and Night Bazaar Market, online presence

was not necessary as they mentioned, "we do not need the online presence because we have been recommended in some tourism book such as Lonely Planet which is used worldwide by foreigner backpacker tourists" or "there are some tourists who have visited their hotel and have posted some recommendation to their friends on their website that is one kind of our global advertising".

In terms of comparing the ICT infrastructure and the year the company was established, the results were that companies that were established between 2001-2005 showed the highest percentage of ICT hardware usage, computer usage, and website usage. The second highest were companies that were established between 1996-2000 that had highest percentage of ICT connection and online presence. The third highest percentage were companies that were established before 1990 had the highest percentage of ICT software usage. Moreover, most of the accommodations that were established between 2001-2005 provided business centers, wireless in all guestrooms, and both LAN and Wireless. Most of the accommodations established between 1996-2000 that provided LAN in all guestrooms, were the same amount as the accommodations established between 2006-2007.

4.2 Discussion of findings

The researcher proceeds the discussion on results of the study based on objectives and hypotheses of this research.

4.2.1 Assessment the adoption and use of ICT by SMTEs in Thailand

This objective aims to study the adoption and use of ICT by SMTEs. Looking through the results on chapter 3 that all of the respondents had adopted ICT at least ICT hardware, telephone and facsimile, to communicate with their customers and business partners. Most of them had used computers for their daily operations, some application software and basic software such as Microsoft Office, had used the Internet as the network connectivity, and online presence by e-mail. Moreover, there were a few companies who had their own website, provided e-mail booking and online real time booking, allowed customer to pay through the Internet or e-payment, and used website for CRM as well.

Therefore, the level of ICT adoption by SMTEs in Thailand is in a basic stage or the early majority that emphasized on the basic software adoption, providing e-mail, and a static website as the Promotion of ICT Utilities which was distributed by NECTEC (2003) to promote SMTEs and to use the basic software programs. Cosh and Assenov (2007) also mentioned that the ICT used in Thailand was still in the beginning stage with the results of their study presented the low ICTs adoptions because only 13% of the travel agents choose to use the Internet channels. The percentage showed that most of the SMTEs in Thailand had adopted telephone, computer and facsimile to communicate with customers and business partners, they also used Microsoft Office which is the basic software, as well as GDS software. Moreover, most of the respondents had the Internet access, provided e-mail, and provided their own website but there was a small percentage of companies that used e-commerce and e-payment in their business. As, Boonthai (2006) and Saweksup (2006) advocated that there was a small percentage of Thai tourism businesses who provided e-mail, the online service quality is still at an average rate, and the low response rate and fair quality of e-mail response as well. Badnjevic and Padukova (2006) discussed similar problems with low ICT adoption in India, especially considering about the availability of ICT, the opportunities, and the growing ICT market.

Moreover, the relationship of the age of company and ICT adoption and usage was examined. Pearson Chi-square and ANOVA were used in order to examine the different years of company establishments toward ICT adoption and the use which the result that the age of the company was not affected to ICT adoption by SMTEs in Thailand as shown in table 3.23 and table 3.25 which was statistically insignificant. Indeed, table 3.23 showed the newer companies that were established between 2001-2005 were the highest percentage of ICT hardware user, computer user, and website user. On the other hand, however, the companies that were established between 1996-2000 had the highest percentage of ICT connections and online presence. Also, companies that were established before 1990 had the highest percentage of ICT software usage, but these results of the differences were not found to be statistically significant by ANOVA that opposite from Hoontrakul and Sahadev (2005) reported the age of a hotel has effected the ICT adoption which new hotels were more prone to use the Internet but their study focused on the hotel industry in main tourism destinations of Thailand and all sizes of businesses large, small, and medium sized. However, the age of a company had effected to the hiring of ICT support staff were an old company had a higher frequency of ICT staff recruitment than a

new company. That might be because old companies are stronger and more stable with financial and budgeting issues than new companies.

Another important reason to strongly support those results is the future plan of using ICT, because either company new or old also want to develop their operations performance by using ICT. Also, all of the respondents have used ICT hardware, at least a telephone. Some of them are averse to ICT, these are companies that operated their business without any computer and other ICT hardware but they want to adopt it to develop their performance such as changing from manual operation system to computer operation system, especially for accounting and recording data, etc. The main reason is the awareness of business owners towards the importance of ICT applications as travel agent owners mentioned that they have recognized how important ICT is for them, particularly on using the Internet which allowed them to do many things on the Internet. For the ICT adopter or the company who adopted some ICT in their business but offline, some of them want to develop their ICT system to be online such as website and e-mail. Also, they wanted to develop their ICT operation as the accommodation owners have mentioned that they will provide the Internet LAN in all guestrooms soon, and also if possible they will provide the Wireless Internet in some part of their hotel. Moreover, some of them want to develop their internal network between e-mail booking with the room reservation booking system that should be automatically linked to each other which is more convenient to check the customer information and guest requirement. Also, they will change from using the key to keycards to open the door of the guestroom.

Besides, some travel agent owners want to improve their own software to make it more suitable, friendly price, easy to operate, easy to understand, and easy to maintenance for them. The owner mentioned that they wanted new software that should cover all of their operations, both front office and back office tasks which normally include accounting and financing, reservation, marketing, etc. and also the data transfer between departments are needed. Some online companies have a low quality website and average e-mail, they want to develop their website to be professional, complete services or a one stop service website that includes all activities such as information providing, booking system, e-payment, online real time booking, E-CRM and E-HRM, etc. Accordingly, they have improved and developed themselves for global competition.

Some respondents had mentioned about the staff and staff training, they wanted to learn more about the Internet and websites in order to gain our knowledge for our

team and also they wanted to participate in some ICT training classes. This means the respondents either the new company or the old company believed that the updated technology can improve their service quality perfectly.

4.2.2 The impacts of ICT on SMTEs in Thailand and the problems with ICT adoptions and usage

This objective aims to examine overall impacts of using ICT by SMTEs in Thailand. This expanded its scope relative to previous research which was based on impacts and barriers of ICT adoptions.

Benefits

Looking through results of this research, the respondents strongly agreed on four factors of using ICT which were: better business operation and service including easier day to day operations system, revenue growth, faster communication with customers, improvement of the range of company products, improved customer service, and more distribution channels; efficiency included cost reduction, time saving, improved planning ability, and sale opportunities for direct marketing; marketing included global market reach, attracting more customers, and connecting with customers in real time, as well as better B2B including better interaction with business partners and increased opportunities for new business partnership. According to that, those four factors are the benefit of adoption and using ICT as Kim (2004); Bourgouin (2002); and Vickery et al. (2004) had mentioned. ICT, Internet, website, and e-commerce provided easy access to information on tourism services, better information on tourism services, convenience for customers, establishing faster interactive relationship with customers, faster interacting with other business partners, and finding new business partners. Moreover, ICT can improve the efficiency and increase productivity and Wolf (2001), Braun (2002) and Kim (2004) also mentioned that ICT can slash the marketing cost, reduce operation cost, create new markets, and improve customer service.

Business's operation and service respondents agreed that ICT can make their day to day operation easier for writing invoices, daily records, daily reports and also daily sales volume where the owner can directly check everything, and also the range of

products that should be changed to fit the situation. Moreover, ICTs can increase the speed of communication with the customers and business partners, which is one part of service quality improvement that resulting in company revenue increase. Apart from that, ICT can increase the distribution channels for e-mails and websites as well.

For efficiency, many companies could improve their planning ability, particularly a marketing plan and financial plan, reduce their operation cost such as telephone cost, gasoline cost for the vehicle of marketing staff in terms field work, distributing the invoice and also collecting money. They could also save the time of driving to the business partners' office by using telephone, facsimile, and e-mail. Not only that, they could increase their sales opportunities from the Internet, website, e-mail which they get directly from online customers and business partners who operate in difference destinations.

In terms of positive impacts on marketing, ICTs can provide them the opportunities of expanding their market by using the Internet and websites for both, domestic markets and international markets. Moreover, ICT can increase and retain the number of customers from their ICT adoption. Like some offline accommodations have provide the personal e-mails to their customers who had been visiting in order to keep in touch with them and also provide some convenience of room reservation for the next time. Company websites can attract more customers with beautiful pictures, fluent explanation, and special prices. Also, the Internet can connect with customers in real time.

The last positive impact is better collaboration with B2B as ICTs provides the opportunities to improve the communication between customers and business partners but not only the communication, but also the transaction of information is improved. Moreover, ICT can increase opportunities for new business partnerships by searching the name of potential business partners on the website of the Tourism Authority of Thailand (TAT) and Bangkok Tourism Business and Guide Register Office. Besides, ICT also increases the opportunities for new business partners overseas. Those results is the same as Bourgouin (2002) studied and mentioned that ICT is rapidly transforming business practices across the world and provides new business opportunities. Moreover, Boonthai (2006) mentioned that Internet is essentially for B2B applications for buyers to search for travel services through the world's global distribution systems and the Internet distribution systems. Although, some of respondents agree that their business partners prefer face to face or phone contact, but also most of their business partners still use some ICT hardware

to interact with them such as telephone, mobile phone, and facsimile. Also Vickery et al. (2004) mentioned in their study of ICT, E-business and SMEs, that ICT applications can make communication within the firm faster and also the speed and reliability of transaction of inter-firm. Moreover, ICT can increase opportunities for new business partnerships by searching the name of potential business partners on the website of the Tourism Authority of Thailand (TAT) and Bangkok Tourism Business and Guide Register Office. ICT also increases the opportunities for new business partners from overseas.

Moreover, ICT using increase the efficiency of B2C interaction as the average customers come from different channels as shown in table 3.6, most of the customers of travel agents and accommodation were walk-in customers which was 37.7 and 57.6, respectively. The second group were customers who book or purchases via telephone which were 19.4 of travel agents customers and 16 of them were accommodation customers. The third group of travel agent customers came from partner travel agents that was 17.8 and the third group of accommodation customers was 9.8 of the customer who booked or purchased via e-mail. Those average percentages could present the interaction within their company, with business partners, and customers that many of SMTEs were more concerned about the new channels of business interaction like online real time sales, even though the average number presented was 2.2 but there were some opportunities for development.

According to that, there were some respondents that agreed that their customers preferred face to face contract not Internet, but also most of their customers still used some ICT hardware to interact with them, such as telephone, mobile phone, and facsimile because it is the fastest interaction and communication method and also it is the kind of two ways communication that customers can communicate their required service directly to the service provider and get immediately the feedback from the service provider. Finally the customer requirements are achieved by the service that is served by the company. These results with ICT can increase the efficiency of interacting between their customers and also the transaction of information is improved even most of them are online companies whether using computers or not as Boonthai (2006) mentioned that the Internet has become electronic supermarkets linking buyers to sellers and allowing reservations to be made quickly and easily, allowing travellers to view their booking reservations and itineraries which provide more comfortable service for customers. Therefore, ICTs particularly the Internet is a perfect medium for selling travels because it brings a vast

network of suppliers and a widely dispersed customer pool together into a centralized market place.

Barriers to ICT application

As the result on table 3.26 and 3.27 presents the impact of using ICT towards the respondents' attitude. Most of the respondents agreed on 3 factors that were: cost and competition that are facing higher competition, high cost of initial investment, and increased expense for ICT maintenances adoption; risk and low confidence include a higher risk of e-payment, difficulty to find qualified staff, and the feeling of some respondents that they need to go online because other company do it; and B2B concerns are that business partners prefer face to face or phone contact and my customers prefer fact to face contact not the Internet. Not only that, respondents also agreed on staff having problems using ICT which is caused by the effect of the changing business model. Moreover, most of the respondents were afraid to adopt ICT because they did not have enough knowledge of using it. The lack of ICT supporters, particularly ICT specialist stopped them even if they wanted to adopt it. That means those three factors are the main problem of ICT adoption by SMTEs as Kim (2004) and Nodder et al. (2002) mentioned that the main barriers of ICT adoption by SMTEs were limited knowledge and training, lack of awareness, lack of capital, shortage of skilled human resource, and the high cost of initial investment and maintenance. Not only that, Yang et al. (2003) and Badnjevic and Padukova (2006) mentioned, that some small firms who operate in local markets and the main target market are domestic customers, many of them will lose their market after they adopted ICT because many customers are concerned about the security. They are afraid to pay an invoice through the Internet even the information is clearly provided on the website. Also Nodder et al. (2002) mentioned that there will be a mismatch between the capabilities of the technology and the information acumen on investing in ICTs equipment which results in the loss or failure of ICT adoption.

In term of cost and competition, the ICT averse company would lose their customer to the ICT adopter company either offline or online company, because those companies are better on marketing activities such as advertising, promotion, and also online sale. Not only that, the ICT averse company who wants to be the ICT adopter company has to pay a high amount of money to purchase some ICT equipments such as computer,

printer, the Internet broadband, network connection tools, etc. that is a higher amount than the maintenance and update cost, those ICTs even it costs big amount of money but it is still less than the cost of initial investment. Apart from that, today the competition in the tourism business is very high because there are many companies that have the same product such as adventure activities, culture visiting, place for sleeping and eating, etc. and the price of those products is the same. Therefore, tourism companies face stronger competition and they have to try to presence themselves in difference ways in order to differentiate themselves from other, by presenting themselves on the Internet with a website, traveller magazine, tourism directory book, etc.

Not only that, the last section of the questionnaire asked all respondents about the ICT support which resulted in only 30.7% of respondents had their own ICT support staff, 21.4% had the recruitment ICT staff plan because those respondents preferred to outsource ICT service from many computer shops that provided technician to customer therefore the specialist staff was not necessary, also there was 16.3% of the respondents that have their own ICT support staff had the budgeting plan for ICT training because they have a limited budget to hire the specific staff who can do only one job therefore they have to hire someone who can do everything even not much excellence that mean they prefer to recruit the multi-skilled staff than specialist staff. Moreover, 53.3% of the respondents had provided some ICT training to their staffs that normally used the on the job training method done by senior staff, supervisor, and manager who had been trained and had enough knowledge. The other training method was in-room structure training which is training by a training manager and/or external trainer. Only 2.8% of the respondents had set the budget for outside training for their staff which had to be trained. Respondents also mentioned about the budget that they faced limited budget to pay for the cost that originate from ICT using such as purchasing computer and monitor, purchasing the application software, designing and updating the website etc. Some expenses emerge after adopting ICT which are maintenance and updating. In addition, the small accommodation had mentioned that even so they were small sized businesses, they have to pay the same tax rate as the big companies such as utilities cost-electric unit, water unit, tax rate, and also the others expenses that government compute at the same rate as the big hotels. Some of the travel agents mentioned about the cost after launching their website and that TAT will automatically change the travel agents type from domestic travel agent to be international travel agent after which they have to pay a higher fee. They also have to pay for the web

design if they cannot do it well enough in terms of comparing with the businesses that are owned by foreigners because the market target of those companies is foreign markets, therefore the easiest and cheapest interaction with their customer is the website.

In terms of the risk and low confidence, it is too difficult to recruit qualified ICT staff which has knowledge about ICT terms and the tourism industry and even if the owner wants to show online presence like other companies, this has become the main reason for low confidence of owner. As well as most of the owner afraid to face the business risk that could arise from adopting ICTs, such as the risk of failure of their online presence because they paid a large amount of money to set the website up. Besides, they do not want to face the risk of payment from the Internet channels, called e-payment where customers normally have to give out their credit card number then the company has to contact the bank to be able to withdraw the money. This process is not really difficult but also not that easy because many companies are not familiar with this kind of process of collecting money. Not only that, the other reasons were summarized from interviewing business owners, showing that some company owners had low confidence in using ICT because of their lack of understanding ICT and lack of ICT skilled staff as well. One of the main reasons could be the age of the respondent and staff which is higher than 40 years old and they are the originator in the tourism business, particularly accommodations which have first established with manual operation systems and they believed that it was the most suitable and the best method for them. Also most of their staff was elder staff, therefore it should be difficult to educate them and learn about the new technology, and also new language.

In terms of B2B concerns, some respondents felt that their business partners and customers prefer face to face or phone contact rather than the Internet or e-mail. The main reason could be the low confidence of using ICT. The speed of the Internet connection sometimes causes a main operational problem such as very late response to customer e-mails, error message sending the important document to business partner via e-mail such as e-invoice.

In opposite, the respondents disagree with two negative factors. Firstly, scepticism when asked the questions about the agreement respondent answered to the Internet marketing is not important for their business, and the Internet itself is not important for the business. That means all of the respondents have recognized the importance of ICT and also the Internet should help them to improve the business to be more professional,

increase the opportunities of global market competition, and also the efficiency of operation. Secondly, the effect of changing the business model that most of the respondents disagree on the Internet has made the business of travel agents harder and the Internet has made hotels less dependent on travel agents. Possible ICT failure also increases operation risks, and the low confidence of owner in terms of using new technology. That means after adopting ICT the operation procedures are not more difficult than the previous one and some operation processes are even easier. Moreover, the Internet makes all business partners more independent because they can do the Internet marketing by themselves and they can set any special price as well. Also, many of the respondents believed that ICT can give them more benefits and they are interested to adopt it but they are not at the proper state yet to adopt it.

However, there are some companies that do not adopt ICT because they are not confident if they will receive better response in term of revenue and sales volume. Some small hotel owners said that even though they want to use computers but they do not have anyone who can response or take care of it, and therefore, it is not worth to use a computer. Not only that, they believe that their traditional manual service style can serve the best service without computer because they can have closer relationship with their customer by face to face service. Also some of the travel agent owners mentioned that they want an online presence like a website which allows customers to book directly through the website, but they do not have anybody to do it for them. There are also some conditions of the TAT license registration where they have to pay a higher rate of the fee of deposit security of TAT license because TAT will automatically change the type of travel agent from domestic travel agent to be inbound travel agent.

Therefore, the problem of ICT adoption can be grouped in to three problems which are finance and budgeting, low confidence and reluctance which include: lack of ICT knowledge, lack of ICT skilled staff, lack of ICT software support and ICT equipment support, as well as B2B concerns. The suggestions in section 4.3 are based on the findings of this research and point out four main issues for development.

4.3 Suggestions

4.3.1 Recommendations

The result of this study summarized the three main problems of ICT adoption, firstly finance and budgeting, secondly low confidence and reluctance which includes: lack of ICT knowledge, lack of ICT skilled staff, lack of ICT software support and ICT equipment support, and lastly B2B concerns. Therefore, the researcher had proposed guidelines to improve the adoption and usage of ICTs by considering the following three main issues based on the findings obtained throughout of this research.

1. Training
2. ICT infrastructure support
3. Network and collaboration

1. Training

The main problem of ICT adoption and use is the lack of understanding and knowledge as per the result of the research, that the owner is not confident in using those ICTs or even online presences. Also the lack of ICT qualified staff, particularly the staff who has the knowledge and understands on service industry and in the field of computer technology. Therefore, training is the most significant and necessary area for them, in order to up-grade and increases their efficiency in services. The respective training courses should be included to up-grade and increases their efficiency in the area of language skills, computer skills and up selling techniques. Also, it should help to create and maintain a positive attitude of the business owner toward ICTs.

Most of the respondents require some training courses like basic use of the Computer, application software such as Microsoft Office, Adobe Photoshop and website design programs. Moreover, they also require the courses of e-commerce and how to be professional on e-commerce environment as well. Hence, all respective stakeholders such as government, educational institutions, Destination Management Organization or DMO which is Tourism Authority of Thailand (TAT), also private sector such as The Association of Thai Travel Agents (ATTA), Thai Hotel Association (THA) and private training schools should organize training and also retraining on ICT in the above areas, since the global ICT environment is changing over the time. These initiatives enable them to improve ICT skills

and which support them to be a competitor in a free global competitive environment in the field of tourism. Those sectors should arrange required training courses to improve ICT knowledge for the tourism service providers step by step either the short-term courses or long-term courses continuously. For example, the training courses should divide into four stage of professional development level.

First stage could be introduction classes for the participants of the tourism service providers who do not have basic computer knowledge.

In the second stage, it could be trained on software applications which frequently use by these providers to use as an efficient manner in the area of accounting, database handling and record keeping, etc.

The third stage, the training classes such as web design, e-commerce and uploading to the Internet could be included.

Finally, as a fourth stage, a necessary advance training on professional e-commerce web design to geared the respective business providers to be the one stop service provider in a e-business environment could be given.

On all levels training materials are necessary as a CD-ROM which could be provided to each training stage for them to make it easy to repeat, practice and get familiar with it easily when required. Also, all stages could have an evaluation process to check whether the participants have been obtained the required knowledge during the respective stages in order to give them a certification. The organizations who organize the training for tourism business providers should arrange educational visits to the selected successful tourism business providers in an ICT environment to ensure to the participant that how ICT can support to their business operations.

Furthermore, training in ICT should be provided to the owners and also to the management team in order to increase their awareness of the importance of ICT for tourism business, since they are the key players those who can make decisions in the respective service providing companies. That can lead them to place ICT adoption in higher priority of their business development plan. Also, by considering the future ICT adoption in the tourism sector, the ICT software suppliers and developers should have knowledge about what the service provider needs as per their requirements in tourism and hospitality field in order to develop the proper software for SMTEs.

2. ICT infrastructure support

Finance and budgeting

In terms of finance and budgeting, the respondents mentioned that it is the main barrier of ICT adoption for the offline companies in terms of initial investment, the maintenance cost and the expenses for utilities. The online companies also have to bear the cost for updating their online systems and also maintenance of their ICT infrastructure as expenses which they cannot avoid. Therefore, it necessary to have a financial support from the relevant sectors for the SMTEs those who can not afford such a cost mentioned above in connection with ICT adoption.

Firstly, policy of soft loans provided by the SME banks and the commercial banks, should provide the loans to SMTEs who wants to adopt and use of ICT in to their business with low interest rates with extending the respective period of return in order to stimulate them to adopt ICTs which could assist them to manage their capital better. For example, the banks could provide soft loans with lower rate than the minimum of the Minimum Overdraft Rate (MOR), because it will sustain and encourage SMTEs to investment as well in ICT. Additionally, those banks should launch promotional campaigns in ICT by providing low interest rate for credits to purchase ICT hardware and software such as computers, application software, GDS software, etc. through the bank and alliance suppliers at a wholesale price to SMTEs to encourage them. Apart from that, the respective ICT application software could be provided as a flexible packages for SMTEs, since most of them cannot afford when packages are compact itself together. In this case, service providers could be allowed to decide on respective software programs mostly related to their business environment which can be useful for them to run their business. During this whole process, tourism business owners should consider about their customers and their target market needs in order to recognize how level of ICT adoption they need and also to ensure that their services and operations can achieve the customer expectations to provide an efficient and effective service in future operations.

Secondly, ministry of ICT and public organizations which belong to the ministry such as NECTEC and SIPA should provide continuous awareness on web settings to SMTEs by providing free web hosting for 3 month period and after at a concessionary price for the above services. Also, the relevant organizations should provide creating,

designing, updating and developing of the above web settings when SMTEs request. This will enable tourism business providers to reduce their expenses for website settings and also it might be one of the stimulating strategies which can help to encourage SMTEs to adopt the Internet and website.

Finally, the relevant sectors such as government and educational institutions should arrange a required training courses to SMTEs at a concessionary prices, hence the government can support to the respective SMTEs through above educational institutions by allocating required budget for such trainings. In addition, relevant organizations which relates to providing of training in ICT should introduced a membership program by specifying the benefits of this membership giving a discount of their future training or considering the priority basis when SMTEs required getting training from them. As summarizing of the whole mentioned above, this new development enable SMTEs to save their training costs and to gain a more knowledge on ICT. And also which help them to get direct assistance from those sectors in terms of ICT development in global competition when they required in future.

ICT hardware and software

In terms of ICT hardware and software support, SMTEs had to afford more budgets for the hardware and related software since the prices for those items are high. Hence, this creates a direct impact on SMTEs to adopt and use of ICT. Therefore, it is needy to have affordable prices for ICT hardware & software and also to have software which is more specific and easy to handle in their regular operations in the SMTEs sector in order to be professional in their service operations. And this will enable to create a good opportunity for them to compete with the other companies. Therefore, the relevant sectors should launch campaign by providing credit to owners of the SMTEs to purchase the high-quality ICT equipments at an affordable price as mentioned above, that can assist the small-sized tourism enterprises to manage their cost and budget as well.

In terms of software, many of the small and medium sized tourism enterprises want to set the standards of their services and operations as well as the internal control but the required application software packages are usually more expensive, hence they can not afford. In order to recover this problem, the educational institution, Ministry of ICT, and related public organizations could cooperate with each other and to develop task

oriented Thai software as a cheaper alternative to professional software from aboard which are simpler to use, easier language, not complicated, and with a specially friendly price to those SMTEs. The Thai software should be free copyright for that tourism business can download free from Internet or can get the free CD for installing the software from the relevant organizations. This solution also can assist the government in terms of reducing the order of import software from aboard that normally is very expensive and the government can balance of the overall Thai economy as well.

Furthermore, the guidelines of ICT application are necessary for SMTEs to adjust themselves before adopting new technology, which could be help them to have a decision to adopt the respective ICT or not. Therefore, as a suggestion the relevant sectors i.e. SIPA, Ministry of ICT, and educational institutions should setup the general ICT application guidelines for the above area and the same have to be distributed among the SMTEs who have been obtained their membership under the accredited reputed organization in ICT field.

ICT support staff

In terms of ICT support staff, most of the educational institutions have the curriculum about ICT which relates to the tourism industry such as Management Information System, Computer Science, and Computer for Management, etc. Those curricula can distribute qualified staff to the labor market in the tourism industry. Therefore, those institutions and the government particularly Commission on Higher Education and Vocational Education Commission should create the curriculum and develop more relevant and practice courses that prepare students for their future career that goes direct to ICT for hospitality and tourism in order to create and prepare the qualified potential ICT employee of tourism industry. Not only that, during the study, public organizations or SIPA can provide some extra courses of ICT training to the students to give them more knowledge and practices.

Moreover, staff should always develop themselves by training to make sure that they can operate with new technologies for the successful of the business, and to ensure that they are ready to provide the best service to customers via ICT, particularly online channels. For the government and public organizations that organize some ICT training, they should record an unemployment staff who have been trained already and looking for a

vacant positions in the tourism industry, then the organization can provide this information and recommendation to the tourism business owners who want to recruit some ICT staff or just hiring someone to be part-time staff to develop their online presence.

The manager should recruit qualified staff who has both knowledge in ICT and tourism service industry because they normally feel comfortable to use ICT particularly Internet, they are familiar with foreign languages and have a good attitude towards customer service. Nevertheless, the travel agency owners or managers should have positive attitudes towards Internet as well.

3. Network and collaboration

In order to compete with large companies on the global market, small and medium-sized tourism businesses need to have a strong network with all stakeholders such as tourism businesses, local and center government, public organizations, private associations, and educational institutions.

In terms of business network, the best strategy of being successful in the global competition is building a strong collaboration between tourism business providers such as accommodation, travel agents, tour operators, restaurants and entertainment, and transportation as the cooperation group in order to assist each others in term of business management. All of those tourism business providers also should consider about the ethics of doing business such as ethic of selling, ethic of cooperating with business partners, ethic to social and so on. Not only that, all tourism businesses should consider about relationships between them in terms of helping each other on marketing stimulations. For example, some of them can use the same web directory in order to provide the information of each company as e-brochure and e-booking where customers can go through that website directly to the company that they want to do some information searching. These can provide more convenience to customers who have limited time of searching their trip information. Also they can inform each others by using news letter from website or from journal about training courses, news, exhibition programs, etc. that will result in the stronger network which means the level of competition in each region is softer.

In terms of public organizations and government, relevant sectors such as SIPA, Ministry of Tourism and Sports, Ministry of Information and Communication Technologies, NECTEC, and educational institution, private organization such as TTAA,

ATTA, and THA should be the centre of ICTs for hospitality and tourism development by training and educating all members in order to up-grade and increase their efficiency in services. Also those organizations should set the membership program of small and medium-sized tourism business on using ICTs to give them more benefits and advantages on information, training, etc. Moreover, those organizations should arrange some seminars or meetings that provide opportunities to all tourism business sectors to meet each other for having stronger and better network and connection among tourism sectors. In addition, TAT could try to convince travel firms to use ICTs, particularly online presence with a website in order to make their businesses more international which can be reached from all over the world by anyone at anytime and anyplace. Also, TAT should coordinate policies with other tourism organizations. The collaboration and assistance should cover the financial sector and ICT equipment and software that also is strongly needed to apply and adopt in order to gain the competitive opportunities.

Table 4.1 shows the summary of recommendation the recover issue of those 3 problems to relevant sectors that are:

Table 4.1 Responsibility of concerned sector for ICT problem solutions

Problem	Recommendation	Responsibility of
1. Financial and budgeting -limited budget for ICT adoption and high expense	The soft loans with low interest rate and extending the grace period before principal repayment The flexible software packages that allow SMTEs to purchase task oriented software which relate to their business environment Continuous awareness on web settings to SMTEs by providing free web hosting for agreed period and after at a concessionary price. Concessionary price for training and retraining, special price for memberships	• SME Bank • Commercial banks • Government- Ministry of ICT • Public organizations- SIPA, NECTEC • Educational Institutions • Private sector-private schools, private associations such as TTAA, ATTA, THA
2. Low confidence and reluctance - Lack of knowledge - Lack of ICT skilled staff	The professional ICT training and retraining are necessary to develop their performance of staff, increase the awareness on ICT adoption	• Governments- Ministry of ICT, local government • DMO-TAT

Table 4.2 (Continued)

Problem	Recommendation	Responsibility of
- Lack of ICT infrastructure support	in management level, increase understanding on tourism field for software supplier and developer Formed the qualified staff from the collaboration among educational institution, government, and public sectors Low interest credits for purchasing of quality ICT equipments at wholesale prices from suppliers Developing task oriented Thai software with free copyrights that cover all function with affordable prices or free download for memberships Prepare and distribute the guidelines of ICT applications to SMTEs in order to prepare themselves before adopt ICTs	• Public organization-SIPA • Educational Institutions • ICT equipment and software suppliers and developers • SMEs bank • Commercial banks
3. B2B Concerns	Build up the networking among tourism business enterprises with concerning on the ethics of business in terms of cooperation. Collaboration among all stakeholders such as government (centre and local), public organizations, private associations, private tourism business to provide opportunities such as meeting, seminar, etc. to get to know with each others Set the membership program of small and medium-sized tourism business	• Governments-Ministry of ICT, Ministry of Tourism and Sports, and local government • DMO- TAT • Public organization-SIPA • Private associations-TTAA, ATTA, THA, etc. • Educational Institutions • ICT suppliers • Business partner

4.3.2 Contribution of the study

- This is the first research that did a study on ICT applications by SMTEs in Thailand
- The motivation of the this research was not purely academic, it aims to provide a broader range of practical measure for a successful development of ICT adoption in Thailand
- The recommendation could be used as a base for a future action plan for ICT development

4.3.3 Limitations of the study

There are a number of limitations in the study on ICT applications by SMTEs in Thailand. The questionnaire is a bi-lingual version that consists of Thai and English version in the same page that is too much alphabet to read and also the level of agreement on Likert scale only has 4 choices that ignore the middle level which some respondents hesitated to answer some of the questions. Moreover, the time of collecting the data is uncontrolled because the researcher had distributed some questionnaires via the post mail and had to wait for a reply without the final day even researchers had specified the date of reply mail but some of them had replied later than that day. Not only that, the incomplete and not updated statistic of the real number of travel agencies and also the real number of accommodations that make researcher cannot obtain the exact target sample that results in data insufficiency. In addition, the number of tourism business were located in every part of Thailand and those number of enterprises were vary depending on the popularity of tourism destinations, therefore the number of tourism business was difference, particularly in Ubon Ratchathani which the number of tourism business is smaller than other regions.

4.3.4 Suggestions for future research

1. There should be a study on the service quality of those respondents to point out the gap of service quality between ICT adopter companies and ICT averse companies.

2. The study should be a study on all tourism businesses, not only travel agents and accommodation but it should include restaurants, entertainments, and transportations sector.
3. The study should be expanded to compare between large, small and medium sized tourism businesses to investigate the gap of ICT adoption and also the service quality.
4. Comparative study of Thai SMTEs and those in other countries in order to identify common problems and Thai-specific problems.

4.4 Conclusion

The aim of this research has been to provide an overview of the adoption and use of ICT by small and medium sized tourism enterprises in Thailand including travel agencies and accommodation companies. The study assesses the adoption and use of ICTs by SMTEs in Thailand, investigates the impact of ICTs, identifies problems with ICT adoption and usage, and makes recommendations for effective ICT adoption and use by SMTEs in Thailand. The research analyzed a sample of 355 small and medium-sized travel agents and accommodations in four tourism destinations in Thailand: Bangkok, Chiang Mai, Phuket and Ubon Ratchathani, who responded to an English-Thai questionnaire. In addition, interviews were carried out with over 30 travel agents and accommodations.

The results show that the level of ICT adoption by SMTEs is at a basic level, involving mostly the use of computers with basic application software, static websites, and e-mail as an online communication among customers and business partners. Most SMTEs in Thailand however are aware of the importance and benefits of using ICTs, and in spite of the basic adoption level many have emphasized on relevant human resource ICT training which presumably will have a positive impact on future ICT adoption.

Most SMTEs recognise several groups of current or potential benefits of ICT for the tourism business: (1) better business service and operations, including easier daily operations, faster communication, improved customer service, and increased revenue. (2) Efficiencies due to cost and time saving, better planning abilities, and increased sales opportunities for direct marketing. (3) Marketing opportunities such as attracting more customers, global market reach, and real time connection,. (4) Better business-to-business operations providing them with opportunities for new business partnerships and better

interaction with them. However, there are some problems and barriers with ICT adoption, including high cost of the initial investment, maintenance and updating, facing higher competition, e-payment risk and low confidence in their own abilities and knowledge to handle ICTs, difficulty to find qualified staff, and concerns that both, customers and business partners prefer face-to-face or phone contracts rather that through the Internet.

The respondents disagreed that the Internet is not important and that Internet marketing is not important, as well as that the Internet has made the business of travel agents harder and hotels less dependent on travel agents. Some stated that the risks are related to people using ICT incompetently, rather than to the ICT itself.

Based on the result of the survey, recommendations are drawn into three areas as follows: first, more training and retraining is required at different levels of competence skills, and cooperation in training and retraining is needed between the government sector, public organizations, and educational institutions. Second, ICT infrastructure development needs support from the three sectors above, both financially and in terms of know-how diffusion. Lastly, better networking and strong collaboration is desirable between all stakeholders, including business owners and managers, government, public organizations, and educational institutions.

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APPENDICES

APPENDIX-A

No.....

QUESTIONNAIRE

ICT Applications by SMTE's in Thailand

I am an MBA student in Hospitality and Tourism Management (International Program), Faculty of Service Industries at Prince of Songkla University, Phuket campus. For my MBA thesis I am researching ICT* (computer and Internet) applications in small and medium sized tourism enterprises (SMTE) in Thailand. The data collected with this survey will be used for academic purposes and will be useful for indicating the potential of ICT adoption and use by SMTEs in Thailand. I would very much appreciate if you could spare about 10 minutes of your valuable time to participate in this survey.

Thank you for your participation.

Ms. Sirirat Chobkhay

* ICT: Information & Communication Technology (Usage of computers and Internet in your business)

Please write down your answer or tick √in the box which corresponds to your answer/ กรุณา กรอกแบบสอบถามหรือทำเครื่องหมาย √หน้าคำตอบ

Part 1: Company information /ข้อมูลทั่วไปของบริษัท

1. Name of company /ชื่อบริษัท: .....
2. Area (province) /ที่อยู่ (จังหวัด)
   - ☐ Bangkok /กรุงเทพฯ
   - ☐ Chiang Mai /เชียงใหม่
   - ☐ Phuket /ภูเก็ต
   - ☐ Ubon Ratchathani /อุบลราชธานี
3. Type of business /ประเภทธุรกิจ:
   - ☐ Travel Agent
   - ☐ Accommodation/ ที่พัก.....rooms/ ห้อง

4. Number of employees /จำนวนพนักงาน

☐Less than 10/น้อยกว่า 10 คน ☐10-30/ 10-30 คน

☐30-50/ 30-50 คน ☐Over 50/มากกว่า 50 คน

5. Year the company was established /ปีที่เปิดกิจการหรือเริ่มดำเนินธุรกิจ

☐Before 1990/ก่อนปี พ.ศ.2533 ☐1991-1995/พ.ศ.2534-2538

☐1996-2000/พ.ศ. 2539-2543 ☐2001-2005/พ.ศ.2544-2548

☐2006-2007/พ.ศ.2549-2550

6. What is the approximately percentages of your customers come from the following channel? /สัดส่วนโดยประมาณของการติดต่อสื่อสารและทำธุรกิจกับลูกค้าและบริษัทคู่ค้า

Hotel/ สำหรับโรงแรม:

☐Walk in .....%

☐Telephone.....%

☐Mail.....%

☐E-mail.....%

☐Hotel to hotel refer.....%

☐Contract with travel agent.....%

☐Online direct sales.....%

☐Online travel agent.....%

☐Others /อื่นๆ.....%

Travel Agent/ สำหรับบริษัททัวร์:

☐Walk in.....%

☐Telephone.....%

☐Mail.....%

☐E-mail.....%

☐Contract with hotel.....%

☐Partner of travel agent.....%

☐Online real time sales.....%

☐Others /อื่นๆ.....%

Part 2: ICT Infrastructure /โครงสร้างพื้นฐานของ ICT

7. What ICT hardware do you use in your company? (you can select more than 1 choice) บริษัทของท่านใช้อุปกรณ์อำนวยความสะดวกด้าน ICT อะไรบ้าง (สามารถเลือกได้มากกว่า 1 ข้อ)

☐Telephone /โทรศัพท์ ☐Facsimile /โทรสาร

☐Photocopy machine (Xerox) /เครื่องถ่ายเอกสาร ☐Computer /คอมพิวเตอร์

☐Printer /ปริ้นเตอร์ ☐Credit card machine /เครื่องรูดบัตรเครดิต

☐Others /อื่นๆ.....

8. What ICT software do you use in your company? (you can select more that 1 choice) /บริษัทของท่านได้ประยุกต์ใช้โปรแกรมอะไรบ้าง? (สามารถเลือกได้มากกว่า 1 ข้อ)

☐ Microsoft Office/ไมโครซอฟท์ ออฟฟิศ ☐ Amadeus/ อมาดิอุส

☐ Micros/ ไมครอส ☐ Abacus/ อบาคัส

☐ Others /อื่น ๆ.....

9. What ICT facilities do you have in your company? (you can select more than 1 choice)/บริษัทของท่านได้นำระบบ ICT มาใช้ในการดำเนินธุรกิจ ได้แก่อะไรบ้าง (สามารถเลือกได้มากกว่า 1 ข้อ)

☐ Internet/ อินเตอร์เน็ต ☐ Wireless Internet/อินเตอร์เน็ตไร้สาย

☐ E-Mail/ อีเมล์ ☐ Intranet/ อินทราเน็ต

☐ Extranet/ เอ็กตราเน็ต ☐ LAN/WAN / ระบบแลนหรือแวน

10. You use computers for (you can select more than 1 choice)/ท่านใช้คอมพิวเตอร์เพื่อ (สามารถเลือกได้มากกว่า 1 ข้อ) :

☐ Customer database /จัดเก็บข้อมูลลูกค้า ☐ Product database /จัดเก็บข้อมูลผลิตภัณฑ์

☐ Internet access /เชื่อมโยงกับอินเตอร์เน็ต ☐ Document records /จัดทำเอกสาร

☐ Web design /จัดทำเว็บไซต์ ☐ Others /อื่น ๆ.....

10.1 For Hotels only: What Internet facilities for your customers do you have? / สำหรับโรงแรม: สิ่งอำนวยความสะดวกด้านอินเตอร์เน็ทสำหรับให้บริการแก่ลูกค้าในโรงแรมของท่านมีอะไรบ้าง

☐ Business center/ศูนย์กลางธุรกิจ

☐ LAN Internet in all room/ ระบบแลนในห้องพัก

☐ Wireless Internet in all rooms / มีระบบอินเตอร์เน็ตระยะไกลไร้สายในห้องพัก

☐ None/ ไม่มี

10.2 Are they: ☐ Free/ฟรี ☐ Paid for/มีค่าใช้จ่าย

11. Online presence (you can select more than 1 choice)/ ดำเนินธุรกิจออนไลน์ (สามารถเลือกได้มากกว่า 1 ข้อ)

☐ Website in directory (e.g. www.phuketdir.com/myhotel)/มีเว็บไซต์ในศูนย์กลางเว็บไซต์

☐ Own Website (e.g. www.myhotel.com) / มีเว็บไซต์เป็นของตัวเอง

☐ E-mail/อีเมล์

☐ E-mail booking/จองผ่านอีเมล์

☐ Online form booking/แบบฟอร์มการจองออนไลน์

☐ Online real time booking/การจอง ณ เวลาที่ออนไลน์

☐ E-Payment/การจ่ายผ่านอินเตอร์เน็ต

☐ Others /อื่น ๆ_____

12. Website usage for / ใช้เว็บไซต์เพื่อ :

☐ CRM/การสร้างความสัมพันธ์กับลูกค้า

☐ Linking to GDS/ เชื่อมโยงกับระบบการจองสากล

☐ Sharing information /แชร์ข้อมูล

☐ Marketing / การตลาด

☐ Up-to-date information provision / ให้ข้อมูลที่ทันสมัย

☐ Others /อื่น ๆ_____

Part 3: Impact of using ICT /ผลกระทบของการประยุกต์ใช้ ICT

13. Evaluate the impact of ICT on your company (please tick √ in the correct box) การประเมิณผลกระทบของ ICTในธุรกิจของท่าน (โปรดทำเครื่องหมาย √ ในช่องที่ถูกต้อง):

Impacts ผลกระทบ	Strongly Agree เห็นด้วยอย่างยิ่ง	Agree เห็นด้วย	Disagree ไม่เห็นด้วย	Strongly disagree ไม่เห็นด้วยอย่างยิ่ง
1. Global market reach /เข้าถึงตลาดโลกได้				
2. Attracting more customers /ดึงดูดใจลูกค้ามากขึ้น				
3. Connecting with customers in real time / สามารถติดต่อกับลูกค้าได้ทันที				
4. Cost Reduction /ลดต้นทุนการปฏิบัติงาน				
5. Time Saving /ลดต้นทุนด้านเวลา				
6. Improved planning ability /เพิ่มประสิทธิภาพการวางแผน				
7. Facing higher competition /เผชิญกับการแข่งขันมากขึ้น				
8. Sale opportunities for direct marketing / เพิ่มโอกาสทางการขายตรงมากยิ่งขึ้น				

Impacts ผลกระทบ	Strongly Agree เห็นด้วยอย่างยิ่ง	Agree เห็นด้วย	Disagree ไม่เห็นด้วย	Strongly disagree ไม่เห็นด้วยอย่างยิ่ง
9. High cost of initial investment / มีค่าใช้จ่ายสูงในการนำเทคโนโลยีสารสนเทศมาใช้				
10. Increased expense for ICT maintenances adoption/เพิ่มค่าใช้จ่ายในการบำรุงรักษา				
11. Easier day-to-day operations system/ มีการดำเนินงานในแต่ละวันที่ง่ายขึ้น				
12. Revenue growth /รายได้เพิ่มขึ้น				
13. Communicate faster with customers/ ติดต่อสื่อสารกับลูกค้าได้เร็วขึ้น				
14. Improve the range of company products/ พัฒนาผลิตภัณฑ์ของบริษัท				
15. Improved customer service / เพิ่มคุณภาพการบริการลูกค้า				
16. More distribution channels / เพิ่มช่องทางการจัดจำหน่าย				
17. Possible ICT failure increases operations risk / เพิ่มความเสี่ยงในการล้มเหลวของปฏิบัติงานมากขึ้น				
18. Higher risk of e-payment / มีความเสี่ยงในการจ่ายทางอินเตอร์เน็ตมากขึ้น				
19. Increased opportunities for new business partnerships / เพิ่มโอกาสในการสร้างมิตรภาพกับกลุ่มธุรกิจใหม่				
20. Better interaction with business partners/ มีการติดต่อประสานงานกับบริษัทคู่ค้าที่ดีขึ้น				
21. Difficulty to find qualified staff / สรรหาพนักงานที่มีคุณภาพได้ยาก				
22. Staff has problems using ICT / พนักงานมีปัญหาในการใช้งาน ICT				
23. We need to go online because others companies do it / ต้องการเข้าสู่ระบบออนไลน์เนื่องจากกระแสของบริษัทอื่น				

Impacts ผลกระทบ	Strongly Agree เห็นด้วยอย่างยิ่ง	Agree เห็นด้วย	Disagree ไม่เห็นด้วย	Strongly disagree ไม่เห็นด้วยอย่างยิ่ง
24. I'm not confident using technology in my business / เจ้าของธุรกิจไม่มั่นใจในเทคโนโลยีที่ใช้ในการธุรกิจ				
25. My customers prefer face to face contact, not Internet / ลูกค้าต้องการการติดต่อโดยตรงกับพนักงานมากกว่าการติดต่อผ่านอินเตอร์เน็ต				
26. My business partners prefer face to face or phone contact/ บริษัทคู่ค้ายังต้องการใช้การติดต่อกับลูกค้าโดยตรงหรือใช้การติดต่อผ่านทางโทรศัพท์มากกว่า				
27. Internet is not important for my business / อินเตอร์เน็ตไม่มีความสำคัญในธุรกิจของฉัน				
28. Internet marketing is not important for my business / การตลาดทางอินเตอร์เน็ตไม่มีความสำคัญสำหรับธุรกิจของฉัน				
29. Internet has made the business of travel agents harder /อินเตอร์เน็ต ทำให้การดำเนินธุรกิจ ทราเวล เอเย่น ยากขึ้น				
30. Internet has made hotels less dependent on travel agents/ อินเตอร์เน็ท ทำให้ธุรกิจโรงแรมขาดความเป็นอิสระจาก ทราเวล เอเย่น				

Part 4: ICT support /ส่วนสนับสนุน ICT

14. Do you have ICT support staffs in your company? (if yes, how many?) /บริษัทท่านมีพนักงาน ด้าน ICT (ช่างเทคนิคด้านคอมพิวเตอร์) หรือไม่ (ถ้ามี มีกี่ท่าน)

☐ No, we don't have/ ไม่มีพนักงานด้าน ICT

☐ Yes, we have/ เรามีพนักงานด้าน ICT ทั้งหมด .....

15. Do you have plans to recruit more ICT specialists? ท่านมีโครงการที่จะสรรหาพนักงานด้าน ICT เพิ่มหรือไม่

☐ Yes, we have already decided to do it /ใช่ ได้ดำเนินการแล้ว

☐ Yes, we will in the near future /ใช่ โครงการจะเริ่มในเร็วๆ นี้

☐ Not sure, depends on the future situation /ยังไม่แน่ใจต้องรอดูเหตุการณ์ในอนาคต

☐ No, we have enough ICT staff /ไม่ เรามีพนักงานเพียงพอแล้ว

☐ No, we do not have enough budget /ไม่ เรามีงบประมาณจำกัด

16. What kind of ICT training programs do you have for your employee?/ ท่านให้การอบรมเกี่ยวกับ ICT ในรูปแบบใดแก่พนักงานของท่าน

☐ In house structured training / อบรมภายใน

☐ On the job training /ฝึกอบรม ณ การปฏิบัติงานจริง

☐ Pay for training outside the company /ให้งบประมาณไปฝึกอบรมเอง

☐ None / ไม่มี

17. How often do you organise ICT training or retraining for your employee? / ท่านให้การฝึกอบรมบ่อยครั้งเพียงใดแก่พนักงาน

☐ Less than 1 time/year/น้อยกว่า 1 ครั้งต่อปี

☐ 1-2 times/year /1-2 ต่อปี

☐ More than 2 times/year /มากกว่า 2 ครั้งต่อปี ☐ None / ไม่มี

18. Have you planned some budget for future ICT training?/ท่านได้วางแผนงบประมาณสำหรับการจัดฝึกอบรมด้าน ICT หรือไม่

☐ Yes, we have planned already / ใช่ เรามีโครงการเรียบร้อยแล้ว

☐ Not sure, depends on the future situation /ยังไม่แน่ใจต้องรอดูเหตุการณ์ในอนาคต ☐ No /ยังไม่มีโครงการเลย

19. Does ICT impact your reservation system?/ICT มีผลกระทบต่อระบบการจองของคุณหรือไม่

☐ No, it doesn't /ไม่มีผลกระทบใดๆ

☐ Yes, the main impacts are / ใช่ มีผลกระทบหลัก คือ

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20. Does ICT impact your marketing? /การใช้ ICT มีผลกระทบทางการตลาดของคุณหรือไม่

☐ No, it doesn't /ไม่มีผลกระทบใดๆ

☐ Yes, the main impacts are / ใช่ มีผลกระทบหลัก คือ

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21. Future plans for ICT usage /แผนงานการใช้ระบบ ICT ในอนาคต

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22. Any others comments /ข้อเสนอแนะอื่นๆ

Thank You Very Much!

APPENDIX-B

Thailand ICT Master Plan: The Utilization of ICT in SMEs

The Ministry of Information and Communication Technology (MICT) has set the ICT master plan that devises 7 keys strategies whose require public private and people sectors collaboration (NECTEC, 2003).

According to the purpose of the ICT master plan, that provides guidelines for the country to earn benefits of using ICT in order to enhance the quality of life of the citizens and also to strengthen the nation's competitiveness. As the 6th Strategy of ICT master plan, that focus on the utilization of ICT in SMEs that try to encourage SMEs to apply ICT to develop their businesses and to boost competitiveness, focusing on ICT for management, production, and linkages to large firms. This will prepare SMEs for future competition, as a result of globalization, and also lessen impacts from economic fluctuation.

Goals

1. Enabling at least 100,000 SMEs to utilize ICT in their back-office operations by 2006.
2. Enabling 40% of SMEs to utilize ICT in major business operations -- such as design and engineering -- by 2006.
3. Increasing the number of entrepreneurs in the supply chain by 10% each year.

Plan and Activities

6.1 To have mechanisms for technology transfer to SMEs in order to build up their skills and knowledge and minimize the cost related to intellectual property.

6.2 To provide incentives to set up SME alliances in each business sector in which the whole ranges of ICT system integration are used in administration and management in order to boost efficiency and reduce costs among alliance members, as well as enhancing administrative transparency. Major activities are:

(1) Establishing a private sector mentor to efficiently coordinate each alliance.

(2) Choosing a potential business area from each alliance, to be run as a pilot- project model for other members and other groups.

(3) Publicizing the successful results of each alliance as 'best practice' model for further expansion.

(4) Setting up support measures that encourage linkage between both manufacturing and operation of SMEs and those of large industries, in order to enable SMEs to participate in large-scale manufacturing projects and increase their knowledge of technology and management. This will also boost the potential of Thai SMEs.

6.3 To accelerate the promotion and development of e-business -- especially in facilitation of taxing system, telecommunication system, correspondence with government, management and production system, and transportation* among high-potential SMEs, such as electronics and automobile industries. This includes linkage between SME sectors and large enterprise in related industries.

6.4 To utilize ICT in management, business operation and communication -- especially supply chain management -- in order to reduce costs and increase management efficiency from the initial process origin through to the customer. Major activities are:

(1) Having government agencies, the Federation of Thai Industries, Institute for Small and Medium Enterprises Development and academia, jointly transfer knowledge on and create understanding of supply chain management to SMEs.

(2) Establishing the standards to be used for information exchange by modern electronic media, such as UN/CEFACT and XML.

(3) Determining the use of barcode's reading standards and data collection, using EAN.UCC and EANCOM barcodes in order to reduce the number of various communication methods in the B2B business communication.

(4) Improving import-export tax rates for ICT material so that Thai entrepreneurs are not placed at a disadvantage, in comparison with the finished products in terms of ready-made imported products

6.5 To develop knowledge and understanding among private entrepreneurs of the benefits of using hardware and software from local sources, and the potential cost savings.

6.6 To set up databases for the planning and provision of services to the business, manufacturing, and consumer sectors. In this regard, ICT is viewed as major tools for storing, collecting, analyzing and distributing information to related business.

6.7 Having SME support agencies cooperate in developing an SME Portal, which will provide services for entrepreneurs wanting to contact the relevant parts of government. This should include the management of public information, support policies and other facilities, knowledge about the government, support policies or incentives, including a convenient one-stop service.

6.8 Strengthening the creativity and experience of undergraduate students in order to enhance their entrepreneurship. This will include cooperation with the private sector in field-work training and the promotion of new entrepreneurs in the economic system by using the SME support mechanisms from related agencies.

Promotion of ICT Utilization among SMEs

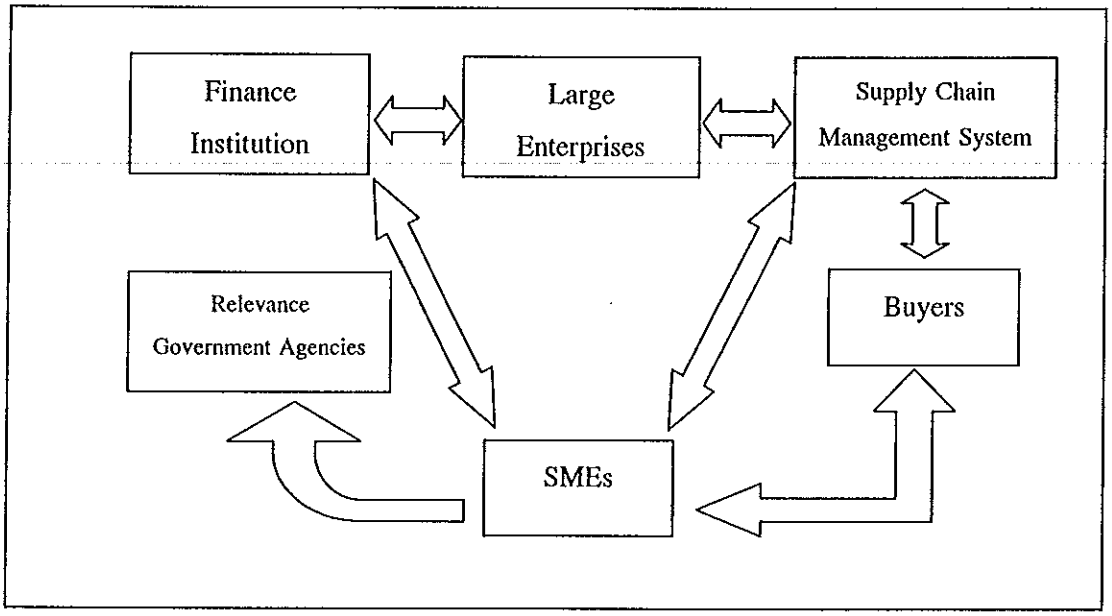
This prime mover is an important strategy for New Economy expansion, added value to the overall economy and supporting the development of the country's ICT industry. The major projects are:

Strengthening SMEs through ICT

The objective is to promote SMEs to use the basic software programs such as accounting, finance, administration, production management, and link into supply chain management within each industry sectors suitable for clustering. Initially, it should focus on strategic industries, such as tourism, food, automobile parts, textiles, and retailing. The relevant public organizations, in cooperation with the private sector, will be the hosts supporting SMEs in terms of ICT application, with a target of at least 100,000 SMEs involved by 2006.

The government must create measures enabling SMEs to benefit from ICT utilization in their administration. Examples are: tax incentives (SMEs being able to deduct more than 100% of their ICT investment); and special interest rate for those SMEs that develop standard systems accounting and finance.

Figure 1 The interconnection of the basic ICT systems for SMEs in each industry



VITAE

Name	Miss Sirirat Chobkhay
Student ID	48A2035

Educational Attainment

Degree	Name of Institution	Year of Graduation
Bachelor of Business Administration (Hotel and Tourism Management)	Khon Kaen University	2002

Scholarship Award during Enrolment

2004-2007 U.D.C. Scholarship, Commission on Higher Education

Work-Position and Address

Lecturer, Hospitality Management

Faculty of Management Science

Ubon Rajathanee University

Warinchamrab

Ubon Ratchathani, 34190

E-mail: chobor@hotmail.com

List of Publication and Proceeding

Chobkhay S. and Assenov I. (2007). *Information and Communication Technology Applications by Small and Medium-Sized Tourism Enterprises in Thailand.* The Sixth Asia Pacific Forum for Graduate Student Research in Tourism, September 21-23, 2007, Xiamen, China