EXPLORING DETERMINANTS INFLUENCING THE ACCEPTANCE OF E-GOVERNMENT SERVICE

SUPAPORN CHOMCHALAO

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF SCIENCE
(TECHNOLOGY OF INFORMATION SYSTEM MANAGEMENT)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2010

Thesis
entitled

EXPLORING DETERMINANTS INFLUENCING THE ACCEPTANCE OF E-GOVERNMENT SERVICE

……

Miss Supaporn Chomchalao
Candidate

……

Asst. Prof. Thanakorn Naenna,
Ph.D. (Engineering Science)
Major advisor

……

Lect. Chanin Nantasenamat,
Ph.D. (Medical Technology)
Co-advisor

……

Lect. Tanawut Tantimongcolwat,
Ph.D. (Medical Technology)
Co-advisor

……

Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University

……

Asst.Prof. Rawin Raviwongse,
Ph.D. (Engineering Management)
Program Director
Master of Science Program in
Technology of Information
System Management
Faculty of Engineering,
Mahidol University

Thesis
entitled

EXPLORING DETERMINANTS INFLUENCING THE ACCEPTANCE OF E-GOVERNMENT SERVICE

was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Master of Science
(Technology of Information System Management)
on
October 15, 2010

……
Miss Supaporn Chomchalao
Candidate

……
Asst. Prof. Tuanjai Somboonwiwat,
Ph.D. (Industrial Engineering)
Chair

……
Asst. Prof. Thanakorn Naenna,
Ph.D. (Engineering Science)
Member

……
Lect. Chanin Nantasenamat,
Ph.D. (Medical Technology)
Member

……
Assoc. Prof. Walailak Atthirawong,
Ph.D. (Manufacturing Engineering
and Operations Management)
Member

……
Lect. Tanawut Tantimongcolwat,
Ph.D. (Medical Technology)
Member

……
Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University

……
Asst. Prof. Rawin Raviwongse,
Ph.D. (Engineering Management)
Dean
Faculty of Engineering
Mahidol University

ACKNOWLEDGEMENTS

I wish to express my deepest appreciation and gratitude to all the people that have contributed to the completion of this thesis.

The success of this thesis can be succeeded by the attentive support from my major advisor, Asst. Prof. Dr. Thanakorn Naenna. I would like to express my appreciation and deeply thank him for the valuable advices and several suggestions reinforced my perception and knowledge to practice this research.

I would like to express my appreciation and deeply thank to Asst. Prof. Walailak Atthirawong, the external examiner of the thesis defense and Assoc. Prof. Tuanjai Somboonwiwat for their kindness in valuable suggestion and time sacrifice through this study. Special thanks to Dr. Tanawut Tantimongcolwat and Dr. Chanin Nantasenamat, my co-advisor for attentiveness and time sacrifice for this research.

I would like to thank the entire respondent who was the sampling in this study for their participation.

Thank to my friends and staffs in Technology of Information System Management department, Mahidol University for their help, kindness, support and cooperation during this study.

I am very grateful to my family, especially my parents for unconditional support, entirely care, ever-present love and encouragement through my life. I hope that this thesis provides some guidelines in improving e-government services to citizens.

Lest but not least, I would like to thank all of those who I have not listed above.

Supaporn Chomchalao

EXPLORING DETERMINANTS INFLUENCING THE ACCEPTANCE OF E-GOVERNMENT SERVICE

SUPAPORN CHOMCHALAO 5036657 EGTI/M

M.Sc. (TECHNOLOGY OF INFORMATION SYSTEM MANAGEMENT)

THESIS ADVISORY COMMITEE: THANAKORN NAENNA, Ph.D. (ENGINEERING SCIENCE), CHANIN NANTASENAMAT, Ph.D. (MEDICAL TECHNOLOGY), TANAWUT TANTIMONGCOLWAT, Ph.D. (MEDICAL TECHNOLOGY)

ABSTRACT

To profit from information technology, e-government must provide various services to citizens anytime and anywhere. However, many services are little known to citizens. This study sought to investigate the factors that influence citizen acceptance of e-government services. The Technology Acceptance Model was used to examine citizen behavioral intention by developing an extended model.

Questionnaires were used to gather data from citizens in Bangkok who are internet users, and 400 respondents participated in the study. This study used parametric statistical techniques and analysis using One Way ANOVA and structural equation modeling to test hypotheses.

From the results, it was found that increased self-efficacy, personal innovativeness in IT, service quality, and system quality directly enhanced the perceived ease of use of e-government services. System quality, information quality, service quality, social influence, and perceived ease of use were enhanced by citizens' perceived usefulness of e-government services. Perceived ease of use and perceived usefulness were positively correlated with e-government services acceptance. The results of the analysis showed that the most important factor which increased citizens' behavioral intention to use e-government service was self-efficacy, followed by perceived usefulness and perceived ease of use. These results may provide valuable recommendations for government to improve their e-government services to citizens.

KEY WORDS: E-GOVERNMENT / ACCEPTANCE / TECHNOLOGY ACCEPTANCE MODEL / DELONE AND MCLEAN'S IS SUCCESS MODEL / STRUCTURAL EQUATION MODELING

111 pages

การศึกษาปัจจัยที่มีอิทธิพลต่อการยอมรับรัฐบาลอิเล็กทรอนิกส์
EXPLORING DETERMINANTS INFLUENCING THE ACCEPTANCE OF E-GOVERNMENT SERVICE

สุภาพร โฉมเฉลา 5036657 EGTI/M

วท.ม. (เทคโนโลยีการจัดการระบบสารสนเทศ)

คณะกรรมการที่ปรึกษาวิทยานิพนธ์ : ธนกรณ์ แน่นหนา, Ph.D. (ENGINEERING SCIENCE), ธนาวุฒิ ตันติมงคลวัฒน์, Ph.D. (MEDICAL TECHNOLOGY), ชนินทร์ นันทเสนามาตร์, Ph.D. (MEDICAL TECHNOLOGY)

บทคัดย่อ

ประโยชน์ของเทคโนโลยีสารสนเทศทำให้รัฐบาลต้องให้บริการที่หลากหลายกับประชาชน เพื่อให้สามารถเข้าไปใช้บริการได้อย่างสะดวกทุกที่ทุกเวลา อย่างไรก็ตามแม้ว่าจะมีบริการต่างๆมากมาย แต่บริการเหล่านั้นก็ยังไม่เป็นที่รู้จักเท่าที่ควร การศึกษาครั้งนี้ต้องการศึกษาปัจจัยที่มีอิทธิพลต่อการยอมรับบริการรัฐบาลอิเล็กทรอนิกส์ของประชาชน โดยได้ขยายโมเดลการยอมรับเทคโนโลยี (Technology Acceptance Model) เพื่อตรวจสอบเจตนาเชิงพฤติกรรมของประชาชน

การศึกษาครั้งนี้เป็นการศึกษาเชิงสำรวจเพื่อให้ทราบถึงปัจจัยที่มีผลต่อการยอมรับรัฐบาลอิเล็กทรอนิกส์ (E-government) ของประชาชน โดยมีกลุ่มตัวอย่างเป็นผู้ที่มีประสบการณ์ในการใช้งานอินเตอร์เน็ตจำนวน 400 คน เก็บข้อมูลโดยการเก็บแบบสอบถามให้กับผู้ที่สมัครใจในการเข้าร่วมตอบแบบสอบถาม นำผลที่ได้มาวิเคราะห์โดยใช้สถิติแบบใช้พารามิเตอร์ คือ การทดสอบความแปรปรวนแบบทางเดียว (One Way ANOVA) เพื่อทดสอบสมมติฐานในการหาความแตกต่างของ ระดับการศึกษา ประสบการณ์ในการใช้อินเตอร์เน็ต ความถี่ในการใช้งานเว็บไซต์จะมีผลต่อการยอมรับปัจจัยต่างๆ ที่จะนำไปสู่การยอมรับรัฐบาลอิเล็กทรอนิกส์ และใช้การวิเคราะห์โมเดลสมการโครงสร้าง (Structural Equation Modeling) เพื่อทดสอบสมมติฐานในการหาความสัมพันธ์ของตัวแปรว่ามีตัวแปรใดบ้างที่มีผลต่อการยอมรับรัฐบาลอิเล็กทรอนิกส์ของประชาชน

ผลการวิจัยพบว่า การรับรู้ปัจจัยด้านการรับรู้ความสามารถของตนเอง การยอมรับนวัตกรรมส่วนบุคคลคุณภาพการให้บริการ และด้านคุณภาพของระบบ จะนำไปสู่การรับรู้ปัจจัยการรับรู้ถึงการใช้งานง่าย นอกจากนี้การเพิ่มการรับรู้ปัจจัยด้านคุณภาพของระบบ คุณภาพของข้อมูล คุณภาพของการให้บริการ อิทธิพลทางสังคม และการรับรู้ถึงการใช้งานง่าย จะทำให้การรับรู้ปัจจัยการรับรู้ถึงประโยชน์ นอกจากนี้ปัจจัย การรับรู้ถึงการใช้งานง่ายและการรับรู้ถึงประโยชน์ มีความสัมพันธ์ต่อการยอมรับบริการรัฐบาลอิเล็กทรอนิกส์

111 หน้า

CONTENTS

CONTENTS (cont.)

LIST OF TABLES

LIST OF TABLES (Cont.)

LIST OF FIGURES

CHAPTER I
INTRODUCTION

1.1 Background and Problem Statement

The rapid development of information technology can help governments around the world delivering services to their citizens in better ways. E-government is one of innovations from Information and communications technology (ICTs). Information and communications technology is changing the lifestyle of citizens and the way of government to interact with their citizens (Akman et al, 2005; United Nations,2008).

E-government has enhanced users to access government services more conveniently at anyplace and anytime instead of visiting government offices which is much faster than traditional government. E-government services provide many advantages such as improving accountability and transparency, low corruption, better convenience, citizen involvement, better efficiency and cost reductions (Tung and Rieck, 2005).

Recently, many governments around the world provide government information and service to enhance citizen's satisfaction. Internet is a tool that governments use to interact with their citizens and businesses (Reddick and Frank, 2007). There are four types of e-government systems: government to government (G2G), government to business (G2B), government to employee (G2E), and government to citizen (G2C) (Carter and Belanger (2003). Therefore, this study aimed to understand the acceptance of citizen on G2C e-government context. G2C e-government is similar to B2C in e-commerce which citizens can access to information they need on the website (Chang et al., 2005). Various services on the website include tax- return filing, vehicle registration renewal, received payment, print out a form, etc.

The number of internet users has increased as shown in the table below. The number of Internet users in Thailand in 2008 increased to 10.96 million users

from 6.97 million users in 2004 (National Statistical Office Thailand, 2008a). However, these users still only represent 18.2 percent of Thailand's total population. This means 81.8 percent of Thai people have not received benefits from the e-government.

Table 1.1 Internet User during the period of 2004 – 2008

Year	User	Population	Percentage
2004	6,971,528	58,624,555	11.9
2005	7,084,201	59,081,233	12.0
2006	8,465,823	59,508,623	14.2
2007	9,320,126	59,973,699	15.5
2008	10,964,243	60,345,271	18.2

Source: Nation Statistical Office Thailand (2008a)

According to a survey of True Hits Statistics on the website usage in Thailand, the evidence shows that there are very low percent usages of e-government websites (1.05%) from the total internet users (http://www.truehits.net). Figure 1.1 presents the comparisons types of website usage in Thailand. In term of overall usage, citizens there are have no intention and no need of using them.

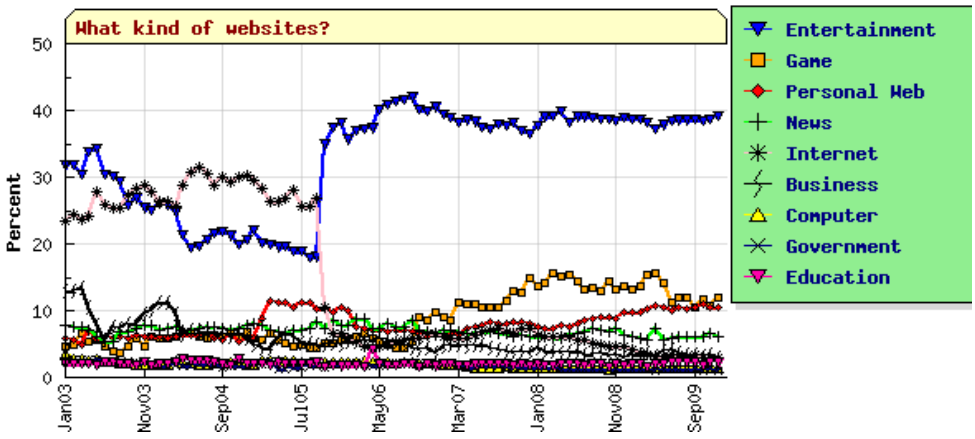


Figure 1.1 Comparison the kind of website usage in Thailand from Jan 2006 to Sep 2009
source: truehits.net

The survey of National Electronics and Computer Technology Center (NECTEC) revealed that all 267 Thai government agencies have their own websites to provide information (NECTEC, 2005). If citizens do not know how to use the e-government services, these services will be valueless. At present, little is known about current status of the use of e-government in regard to users' behavior, especially for Thai people. Thereby, it is important to understand the motivation of both citizen and business organization in term of using e-government services. (Tung and Rieck, 2005) and increasing online public service use. Results of citizen's adoption can be a guideline for Thai government to develop the services as well as improving the potential of e-government.

This study have been conducted based on several models including the Technology Acceptance Model (TAM), Using the DeLone and McLean model of information system success, self-efficacy, facilitating condition, social influence and personal innovativeness in IT as an external variable to identify the factors that affect citizen intention to use e-government services. This study is divided into two ways. Firstly, website attribute influence citizens elevated to willing use e-government site. Second is individual attribute which can help citizen's intention to use e-government online services.

The study is proceeds as follows. First is the introduction to the study. Second, presents review theoretical basis of our research model and previous studies of e-government. The methodology, research design, research model and hypotheses are presented in the third part. Four, data analysis and hypotheses testing are presents. Finally, presents discusses research findings from the survey and provides implications.

1.2 Objectives

The objectives of this study are as follows:

1. To study the influential factors that Thai citizens considered when they have to make decision to use a government-to-citizen (G2C) e-government services.

2. To explore the relationships among each factors that importance for citizen encouraging acceptance of e-government services.

3. To understanding the perceptions of difference demographic of citizen to examine the factors of e-government services acceptance.

4. To recommend an appropriate guideline for the government in order to plan and development of services delivery for their citizens.

1.3 Scope of Work

The scope of this study consists of:

The research collected data from Thai citizens who have experience with the e-government services. The study has focused on government-to-citizen (G2C) services via the website.

1.4 Expect Results

The expected outcomes of this study include:

1. Significant factors that could lead citizen to accept e-government services.

2. The relationships of each factor that importance for citizen encouraging acceptance of e-government services.

3. Understanding the perceptions of difference demographic of citizen to examine the factors that citizens' acceptance of e-government services.

4. The finding of this study will use as a guideline for government to develop the better service delivery to citizens.

CHAPTER II
LITERATURE REVIEW

In this chapter, overview of literature and research models and related to the research problem in the previous chapter are presented. Researcher will introduce e-government in Thailand, Technology acceptance model (TAM), prior research on e-government service acceptance, the DeLone and McLean model of information system success and the related studies.

2.1 E-government Definition

E-government is defined by the United Nations (UN) and the American Society for Public Administration (ASPA) "Utilizing Internet and the World Wide Web for delivering government information and service to citizens" (UN/ASPA, 2002). The Organization of Economic Cooperation and Development (OECD) defined e-government as "the use of information and communication technologies, and particular the Internet, as a tool to achieve the better government" (OECD, 2003). Torres et al. define e-government into two groups: 1) "e-government is defined as the Internet (online service delivery) and other Internet-based activity such as e-consultation, and in the other", 2) "e-government is defined as a capacity to transform public administration through the use of ICTs". (Torres et al., 2005)

In the mentions above there are various definitions of e-government. As a result, the particular objective of e-government is delivery government information and service to their citizens. In this study e-government service refer to the any services the government delivery to citizens via the Internet and World Wide Web.

2.2 E-government Development Stage

Layne and Lee (2001) separate evolution of e-government in four stages: (1) cataloguing, (2) transaction, (3) vertical integration, and (4) horizontal integration.

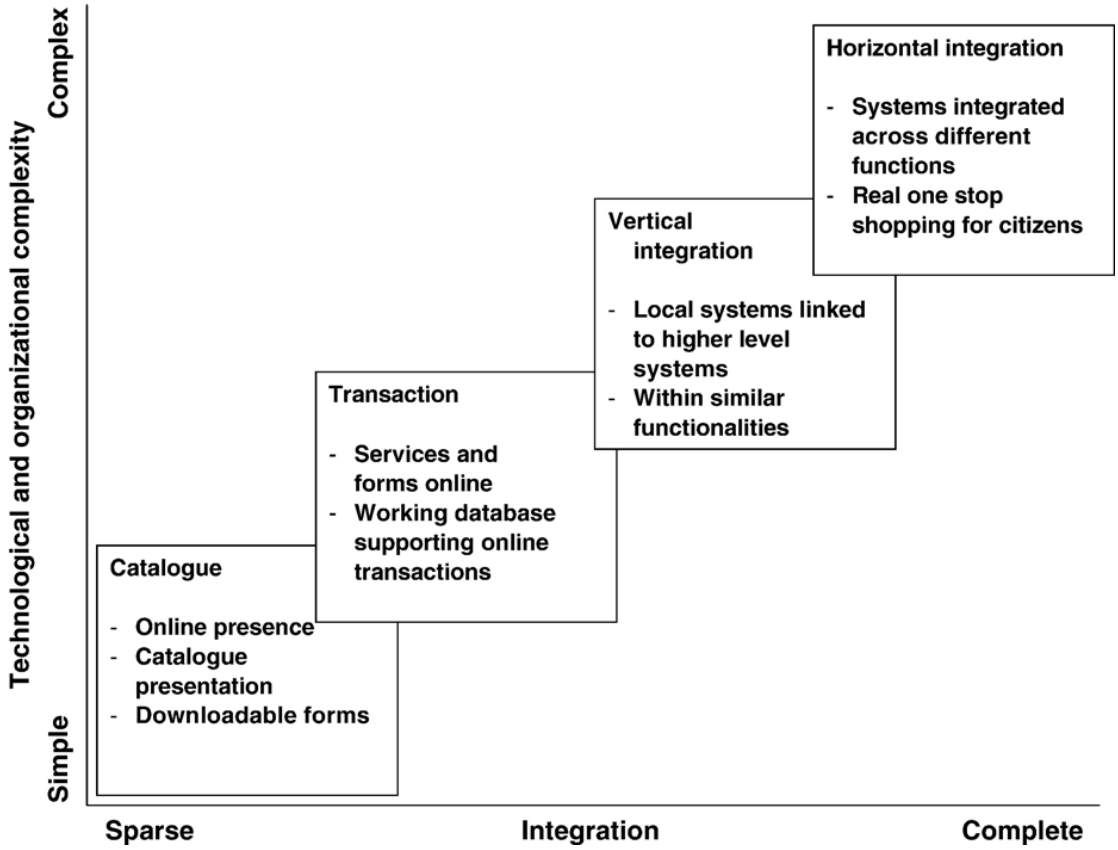


Figure 2.1 The Layne and Lee model: A four stage model of e-government
Source: Layne and Lee (2001)

2.2.1 Cataloguing

In this stage website is created by government to perform information that citizens can download essential forms online. The function of this stage is no information transaction, only search facility to serve user requirement such as description of the department and provide links to other website.

2.2.2 Transaction

Government provides online transactions by database connection in order to interact among their citizens (two ways communication). They can complete

interaction by form online. This stage calls transact-base e-government that includes renewal of licenses and filing taxes online etc.

2.2.3 Vertical integration

The system links between local and national databases that have objective to share information each other by similar functions. Integration has to redundancies and inconsistencies information from individual citizens.

2.2.4 Horizontal integration

The system integrates between one of government office and other government office. The horizontal integration means that one of government office can check data in other government office as call ‘one stop shopping’ for citizens.

2.3 E-governments in Thailand

The Thailand information technology policy has approved in February 1996. It had five years (1996 - 2000), called IT 2000. IT 2000 was developed by The National Information Technology Committee (NITC). The objective was focus on basic infrastructure and respected to information infrastructure, human resource development and good governance (NECTEC, 2003).

The initiatives projects of IT 2000 (Thuvasethakul and Koanantakool, 2002), as follow:

- National Internet Exchange Points
- SchoolNet Thailand
- Government Information Network (GINet)
- Development of legal infrastructure

After the first information technology policy then the second IT policy was approved in March 19, 2002 call IT 2010 which is a long-term policy has 10 years. It has been identified the goals, strategies and linkage between strategies and infrastructure development towards the knowledge-based society.

IT 2010 have three dimension that consist of building up human capital, promoting innovation and investing in infrastructure information in order to promote industrial information. The Information and Communication Technology (ICT) development are categorized by five dimensions such as e-government, e-commerce, e-industry, e-education, and e-society.

- E-government focus on public service with electronic service transference that perform employment and legal infrastructure.
- E-commerce includes e-service of finance, tourism and IT services, and other industries.
- E-industry includes e-manufacturing and IT-related industries, plus issue such as standardization.
- E-education focus on long-life learning, computer literacy, human resource development, virtual education etc.
- E-society contains issues of digital divide, quality-of-life, culture, health, public participation.

IT2010 is a long-term development plan then ICT Master Plan (2002-2006) was developed in September 2002 in term of medium plan which is consisted of vision, missions, objectives, strategies and activities for the first five years of the IT2010.

ICT Master Plan (2002-2006) is identified 7 strategies to approach as details below.

Strategy 1: The development of the ICT industry into a regional leader

Strategy 2: The utilization of ICT to enhance the quality of life and society

Strategy 3: The reform and enhancement of the capability on ICT research and development

Strategy 4: The reinforcement of social capacity for future competition

Strategy 5: The development of entrepreneur's capacity for the expansion of international markets

Strategy 6: The utilization of ICT in Small and Medium Enterprises (SMEs)

Strategy 7: The utilization of ICT in government administration and services

Major activities of ICT Master Plan are:

(1) Set up a National Operation Center that can be offered rapidly and accurate information to Cabinet meetings so that appropriate decision could be made.

(2) Set up a Ministerial Operation Center for all ministries to collect essential information from all departments. Furthermore, this procedure will support the e-initiative of country.

(3) Develop an e-government portal, providing people with convenience and rapid access to public services.

The project development of e-government in long-term is shown as details below

1. The multi-application smart ID card project
2. The e-procurement project
3. The development of central standards for IT application for the Government
4. The Government Data Exchange (GDX) project
5. The National Spatial Data Infrastructure project
6. The e-government Institute project

The Ministry of Information and Communication Technology (MICT) was establishing in October 2002 to responsible implementation plan and materialize vision (NECTEC, 2003). Thailand ICT Policy Framework (IT 2010) and ICT Master Plan (2002-2006) were developed to ICT usage include support for government or e-government. Many initiative programs have been implemented by various ministries and goaled to the success of e-government.

2.4 Current Situation of E-government in Thailand

Thailand have had IT policy since 1996, in the past Thailand had two IT policies they were IT 2000 and IT 2010. Thailand government led many million baht to invest in various projects for efficiency improvement. Government has approved 1,095 IT projects with the total budgets of 28,436.25 million baht in 2003. In 2004, the numbers of projects have dropped to 1,078, while in 2005 the total budgets have been increased to 60,408.62 million baht significantly (NECTEC, 2005).

Since 2005, E-Government Readiness Index in Thailand has been move down. United Nations e-government survey 2008, reported E-Government Readiness Index Thailand rank 64th from 192 countries moved down from the 46th rank in 2005 (UN, 2008). The survey weighted average composite index base on the web measure index, telecommunication infrastructure index, and human capital index.

Table 2.1 E-government readiness ranking of Thailand

Year	E-government readiness ranking
2003	56
2004	50
2005	46
2008	64

Source: United Nations (2008)

According to Global e-government annual report (West, 2008) was reviewed 1,667 government websites in 198 countries. The 138th rank in Thailand was reviewed with a score of 27.9, the index scale from 0 to 100. The report was analyzed 18 different features include: publications, databases, audio clips, video clips, foreign language access, not having advertisement, not having premium fees, not having user fees, disability access, having privacy policies, security policies, allowing digital signatures on transactions, an option to pay via credit cards, email contact information, areas to post comments, option for email updates, option for website personalization and PDA accessibility. The top five ranking country is South Korea, Taiwan, the United States, Singapore, Canada and Australia.

2.5 E-government Classification

E-government classified into 4 categories includes Government to Citizen (G2C), Government to Employee (G2E), Government to Government (G2G) and Government to Business (G2B).

2.5.1 Government to Citizen (G2C)

G2C involves the government's services provide to citizens, citizens can gather information and complete government transactions in government service (Carter and Belanger, 2003). Various G2C service include license renewals, ordering of birth, death, marriage certificates and taxes payment (Pascual, 2003).

2.5.2 Government to Employee (G2E)

G2E service is provided service to employees. Government service can be supported such as the provision of human resource training and development that improve the bureaucracy's day-to-day functions and dealings with citizens (Pascual, 2003).

2.5.3 Government to Government (G2G)

G2G government focus on the government use information and communication technology instrument exchange information among government agencies. G2G service is save time and enhances operation efficiency. G2G services were separated two levels: 1) transaction in the local or domestic level, 2) transaction in the international level (Pascual, 2003). The example of G2G service is many back office systems such as financial and accounting system, procurement and purchasing system etc.

2.5.4 Government to Business (G2B)

G2B government is the service for business to access government information and complete transactions with government agencies (Carter and Belanger, 2003). G2B have various services such as e-procurement, an online government supplier exchange for the purchase of goods and government services (Pascual, (2003).

2.6 Characteristics of Thailand E-government Service

The characteristic of Thailand e-government service perform in type of online services offered, as follow (Nation Statistical Office Thailand, 2008b).

2.6.1. Information Service Website

- Ministry of Education: www.moe.go.th

Ministry of Education website, this website is proposed for distance learning project by register service. It contains available information to download in order to participate to the project.

- Thailand board of Investment: www.boi.go.th

In this website, it contains investment information such as after sales services and some investment advice.

- Department of Employment: www.doe.go.th

Inside Department of Employment website has information services are provided for citizens such as description and process to work in oversea.

- The Revenue Department: www.rd.go.th

In Revenue Department website, it contains information and forms for user requests on website.

2.6.2. Interactive Service Website

1) Financial Transaction

- Ministry of Information and Communication Technology: www.mict.go.th

This website is a service for e-payment in case citizens pay telephone fee and can receive the receipt from website by print out document.

- Department of Land Transport: www.dlte-serv.in.th

Inside Department of Land Transport website user can renew license availability online.

- The Revenue Department: www.rd.go.th

The Revenue Department website has a tax filing form service and making transaction with Revenue Department online.

▪ Thailand board of Investment: www.boi.go.th

Thailand board of Investment website there are many sections, they provided easier and faster when citizens navigate through the website.

▪ The Custom Department: www.customs.go.th

In Custom Department website has a tax payment online for business owners. They can pay tax in their section or own products. They can use e-payment which connects to real database of bank.

2) Match Maker Service Website

▪ Department of Provincial Administration: www.dopa.go.th

Department of Provincial Administration website has options that can connect to Thai Embassy 80 countries. This connection has support for birth report and dead of citizen which live in oversea.

▪ Department of Employment: www.doe.go.th

In Department of Employment website there is a job matching details. Member can search job and company can search information from employee. This service is convenient improvement for both company and employee.

▪ Thailand board of Investment: www.boi.go.th

Thailand board of Investment website, this is a section that business owners and their customer can see or read information each other.

▪ The Custom Department: www.customs.go.th

Inside the Custom Department website, this has database that is connected to other government agencies such as Industrial Estate Authority of Thailand, Department of fisheries, Department of Foreign Trade, Thailand board of Investment. All connections must be checked license of business owners after they pay license fee on website.

3) Website Channel to Contact Government Agencies

▪ The Revenue Department: www.rd.go.th

Inside The Revenue Department website, User can request username and password to pay tax online.

▪ Department of Provincial Administration: www.dopa.go.th

Department of Provincial Administration website has self service online and link to www.khonthai.com. User can login to system on website.

- Ministry of commerce: www.moc.go.th

In Ministry of commerce website has a service for business to require a business license on website.

- The Government Pharmaceutical Organization: www.gpo.or.th (e -ordering)

The Government Pharmaceutical Organization website, this service provided to hospital for ordering drugs online (e-ordering). Hospital can use function on hand input and connect to The Government Pharmaceutical Organization on website. If products or drugs have low level then The Government Pharmaceutical Organization will offers hospital to purchase and fulfill drugs level suitably. This advice will be checked the quantity of drugs and medical supplies fit for hospital need.

2.7 Prior Research on E-government Service Acceptance

Many researchers have been investigating factors that citizen's acceptance toward e-government service. The Technology Acceptance Model (TAM), Theory of planned behavior (TPB), and Diffusion of Innovation (DOI) are the theoretical framework to predict user acceptance in various technology and also used to predict citizen's perception toward e-government context. Wang (2002) extended TAM to e-tax filing system by adding perceived credibility and computer self-efficacy to the research model. Their findings indicate that all factors support citizen's intention to use e-government service. Chang et al. (2005) also investigate factor that influence to citizen's intention toward e-tax filing. Their using information system quality, information quality, perceived credibility as the external variable of TAM. Their research indicates that all factors support citizen's intention. Carter and Belanger (2005) integrate TAM and DOI and web trust model to explore factors that lead citizen intention. Their finding indicate that perceived ease of use, compatibility and trustworthiness significantly affect citizens intention. Wu and Chen (2005) extended TAM with TPB and adding trust to online tax context. Their finding indicates that all factors have been supported citizen's intention, but the effect of perceived usefulness

on intention and the effect of subjective norms on intention are not significant. Fu et al. (2006) integrated TAM and TPB to study factors that affect e-tax filing intention. The research indicates that compatibility positive relate to perceived ease of use and perceived usefulness. In addition, perceived ease of use, perceived usefulness, subjective norm and self-efficacy have a positive influence to intention to use e-government. Hung et al. (2006) studied the using of online tax filing and payment system in Taiwan. The theory of planned behavior (TPB) has been used to investigate citizen intention to acceptance. They found perceived usefulness, perceived ease of use, perceived risk, trust, compatibility, external influences, interpersonal influence, self-efficacy, and facilitating condition significantly affect citizen intention to use. Lee and Rao (2009) studied the different levels of task complexity of e-government service, their results indicate that task complexity more importance to citizen behavior intention. Hung et al. (2009) studied the using the theory of planned behavior (TPB) to predict factors that influence user intention to use intergovernmental services context. Their finding indicate that perceived usefulness, perceived ease of use, training, compatibility, external influence, interpersonal influence, self-efficacy, and facilitating conditions direct effect intergovernmental intention. This study was added system trait and personal trait as an external variable on TAM to explore factors that lead citizen acceptance e-government services.

2.8 Technology Acceptance Model

Technology Acceptance Model (TAM) was proposed by Davis (1989) which concerned about adaptation of the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975). TAM is the model to explain and predict individual acceptance toward using the information technology (IT) is determined by intention to use. The TAM proposes two important determinants are perceived usefulness (PU) and perceived ease of use (PEOU). Perceived usefulness is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989), while perceived ease of use is defined as “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989).

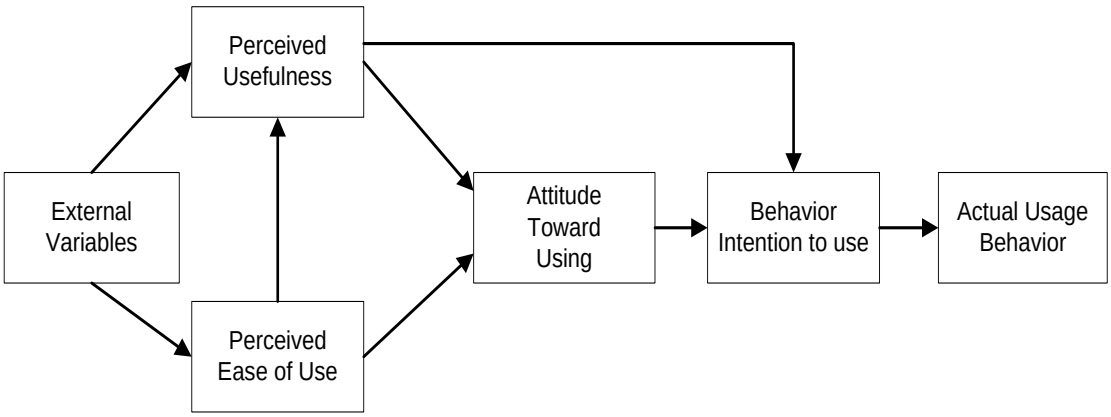


Figure 2.2 The Original Technology Acceptance Model

Perceive ease of use is factor to predict perceive usefulness, the easier of information technology is lead user to used it (Gu et al., 2009) and perceive usefulness is a directed influence on the behavioral intention to use the technology. Perceive ease of use affect attitude toward using and perceive usefulness. Between two beliefs individual attitude affectation towards using information technology, intention to use and in turn actual usage affectation technology.

In the past, TAM was applied to examine the acceptance in relation with various type of technologies including on-line tax (Wu and Chen, 2005), e-commerce (Lingyun and Dong, 2008), internet banking (Lee, 2009)**,** instant messaging (Lu et al., 2009), information systems (Dı´ez and McIntosh, 2008), health care application (Aggelidis and Chatzoglou, 2009) and so on. TAM has been also used to explain user acceptant of e-government (Carter and Belannger, 2005).

Venkatesh and Davis (2000) extended the Technology Acceptance Model (TAM), the extended model called as TAM2. TAM2 included social influence process and cognitive instrumental processes to explain perceived usefulness and intention to use the technology. Social influence process included subjective norm, voluntariness and image. Cognitive instrumental processes included job relevance, output quality and result demonstrability. The original TAM and TAM2 have different from to explain user acceptance of variety of technologies (Raaij and Schepers, 2008). In TAM2 attitude component excluded from model, many study excluded attitude from their research model (Venkatesh and Davis, 2000; Raaij and Schepers, 2008; Gu et al.,

2009), and two constructs (perceived usefulness and perceived ease of use) directly influenced users' intention.

In this study, researcher applies TAM2 as the basis for research model by excluded attitude and system quality, information quality, service quality, self-efficacy, facilitating condition, social influence and personal innovativeness in IT as an external variable.

2.9 Extending TAM

Davis (1989) proposed the future research of technology acceptance need to add external variables that could be affected perceived ease of use and perceived usefulness of TAM and also suggested by Moon and Kim (2001), TAM necessary to increase external variable to suit of nature and context of technology. Several researches integrated external variables to TAM such as playfulness (Moon and Kim, 2001), perceived quality (Liao and Tsou, 2009) self-efficacy (Hsu et al., 2009; Luarn and Lin, 2005; Hernandez et al., 2009; Wang, 2002), perceived credibility (Chang et al., 2005; Wang, 2002), perceived financial resource (Wang et al., 2006), enjoyment, (Ha and Stoel, 2008), descriptions as show in Table 2.2. Determinants were increased to TAM for predictive behavior intention to use information technology. In this study researcher adds system quality, information quality, service quality, self-efficacy, facilitating condition, social influence and personal innovativeness in IT in the TAM in order to explore the determinants that user intend to use and result of actual e-government service usage.

Table 2.2 Research of extended TAM

Studies	Technologies	Sample	TAM	Antecedents
Moon and Kim (2001)	WWW	152 Graduate students	Perceived usefulness, Perceived ease of use, Attitude, Behavioral intention, Actual usage	Perceived playfulness

Liao and Tsou (2009)	Computer mediated communication	211 users	Perceived usefulness, Perceived ease of use, Attitude, Usage	Perceived playfulness, Perceived quality
Hsu et al. (2009)	Statistical software	207 online MBA students	Perceived usefulness, Perceived ease of use, Behavioral intention	Statistical software self- efficacy, Computer attitude, Statistical anxiety
Luarn and Lin (2005)	Mobile banking	180 respondents	Perceived usefulness, Perceived ease of use, Behavioral intention	Perceived credibility, Perceived self-efficacy, Perceived financial cost
Hernandez et al. (2009)	E-purchasing behavior	225 experienced e-shoppers	Perceived usefulness, Perceived ease of use, Attitude	Acceptance of the internet, Frequency of internet use, Satisfaction with the internet, Perceived self-efficacy, Present behavior, Future repurchasing behavior
Wang (2002)	E-tax filing systems	260 users	Perceived usefulness, Perceived ease of use, Behavioral intention	Perceived credibility, Computer self-efficacy
Chang et al. (2005)	E-tax filing systems	141 experienced taxpayers	Perceived usefulness, Perceived ease of use, Attitude, Behavioral intention	Information system quality, Information quality, Perceived credibility

Wang et al. (2006)	Mobile service	258 users	Perceived usefulness, Perceived ease of use, Behavioral intention	Self-efficacy, Perceived Financial resource, Perceived credibility
Ha and Stoel (2008)	E - shopping	298 College students	Perceived usefulness, Perceived ease of use, Attitude, Behavioral intention	E-shopping quality, Enjoyment, Trust

2.10 DeLone and McLean's IS Success Model

DeLone and McLean's (1992) proposed the Information System Success model. This model composes of six IS success dimensions: (1) system quality, (2) information quality, (3) IS use, (4) User satisfaction, (5) individual impact, and (6) organization impact. This model uses system quality and information quality separately and jointly affects to use and user satisfaction. Both use and user satisfaction are determined to affect individual when using the information technology. As a result, organization impact for user that use an information system. DeLone and McLean's (1992) suggest the model has interrelated among six dimensions.

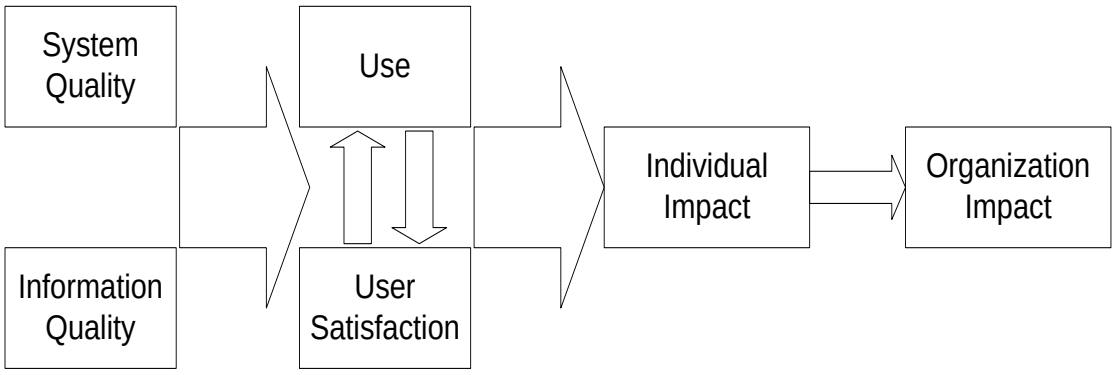


Figure 2.3 DeLone and McLean's IS success model

Pitt et al. (1995) adapted DeLone and McLean model by adding service quality to measure information system effectiveness. DeLone and McLean (2003) proposed updated IS success model later. A new dimension service quality including for IS success measurement, employing intention to use have affectation from user satisfaction and reexamine causal relationships among 6 dimensions. The system quality, information quality and service quality are affecting user satisfaction, intention to use and use, as final result net benefits when using the system. The updated model contained six dimensions: (1) system quality, (2) information quality, (3) service quality, (4) use / intention to use, (5) user satisfaction, and (6) net benefits.

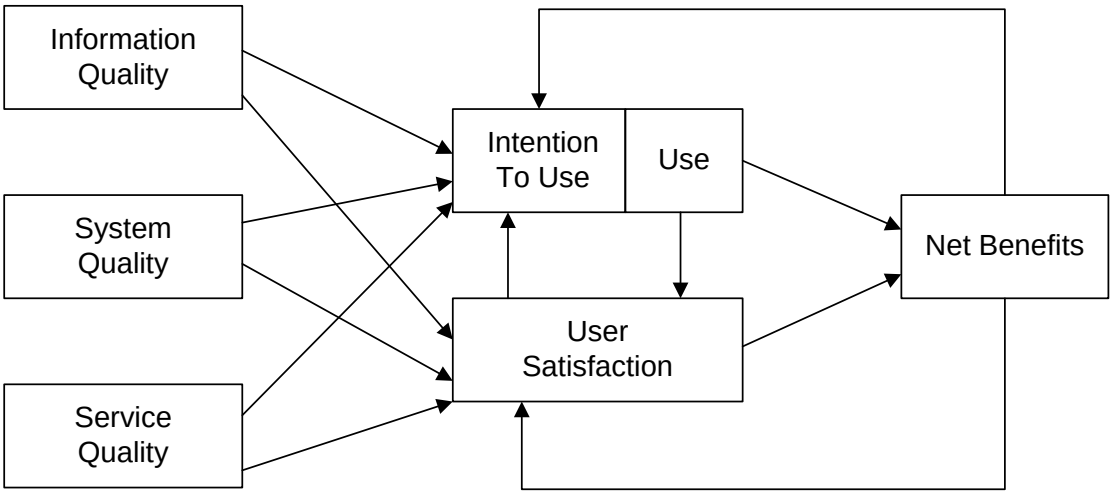


Figure 2.4 DeLone and McLean's (2003) updated IS success model

The purpose of study was to examine the impact of system characteristic dimensions, set of system quality, information quality, and service quality were adapted to the system measurement in the G2C e-government services to investigate the perceptions of citizens toward technology acceptance.

2.11 Related Studies

There have been various studies that have examined acceptance model in e-government and other technology.

Lin and Lu (2000) explored the perception factors that influence user acceptance of website. This study was added information website quality, response time and system accessibility to Technology acceptance model (TAM) as external variable. Their reports perceived usefulness were found to have an effect on intention to reuse the website stronger than perceived ease of use. They suggested the company should provide the usefulness of website more than ease of use. They suggested having other factor that affect the user attitude of a website such as subjective norms, peer influence, computer experience and innovative characteristics.

Moon and Kim (2001) apply Technology acceptance model (TAM) to explore the acceptance of the World Wide Web (WWW) context and add playfulness factor to their research model. Their study used undergraduate students who were taking the course of Basic Computer Concept is the sample. Moon and Kim found that perceived ease of use, perceived usefulness and perceived playfulness are affected significantly individual attitude toward the use World Wide Web.

Wang (2002) extended TAM to e-tax filing system by adding perceived credibility and computer self-efficacy to the research model. Their findings indicate that all factors support citizen's intention to use e-government service.

Carter and Belanger (2005) examined government must understand the factor that influence citizen e-government adoption. In their work, Carter and Belanger integrate Technology acceptance model (TAM), Diffusion of Innovation Theory (DOI) and web trust models to predict citizen behavior. This study collected data from a diverse citizen, have large ranges of age, ethnicity, computer experience and use of website for exploring the perception in e-government service. Their study found that perceived ease of use, compatibility and trustworthiness to be increased significantly intention to use e-government.

Luarn and Lin (2005) they extends the applicability of the TAM in mobile service context by adding perceived credibility, perceived self-efficacy and perceived financial resource to the model. The results of this study were found perceived credibility and perceived financial resource to be significant antecedents on perceived usefulness. Self-efficacy was significant factors on perceived ease of use. Their study found that higher levels of perceived credibility and perceived financial resource were affected on behavior intentions.

Chang et al. (2005) used Technology acceptance model (TAM) and DeLone and McLean's IS success model to examine internet tax-filing system adoption in Taiwan. Their study found that information system quality, information quality and perceived credibility were significant factors to predict perceived usefulness. Information quality was significant impact on perceived ease of use. They propose that TAM is suitable to predict the user acceptance in the G2C context.

Wu and Chen (2005) extended TAM with TPB and adding Trust to online tax context. Their finding indicates that all factors have been supported citizen's intention, but the effect of perceived usefulness on intention and the effect of subjective norms on intention are not significant.

Wang et al. (2006) study behavior of mobile service intention by individual in Taiwan. This model base on the theory of planed behavior (TPB) and extended Technology acceptance model (TAM).

Fu et al. (2006) integrated TAM and TPB to study factors that affect e-tax filing intention. The research indicates that compatibility positive relate to perceived ease of use and perceived usefulness. In addition, perceived ease of use, perceived usefulness, subjective norm and self-efficacy have a positive influence to intention to use e-government.

Hung et al. (2006) studied the using of online tax filing and payment system in Taiwan. The theory of planned behavior (TPB) has been used to investigate citizen intention to acceptance. They found perceived usefulness, perceived ease of use, perceived risk, trust, compatibility, external influences, interpersonal influence, self-efficacy, and facilitating condition significantly affect citizen intention to use.

Hsu et al. (2009) predict acceptance behavior to use statistical software by business student. The empirical study use Technology acceptance model (TAM) to evaluate use of statistical software. The results found that self-efficacy and computer attitude have significant on perceived usefulness. Both perceived usefulness and perceived ease of use are affected intention to use statistical software.

Wang and Liao (2008) apply DeLone and McLean's IS success model to explore e-government system success in Taiwan. This study collected data from 119 users of G2C e-government system. The report was searched with information quality strongly relate to predict on use, user satisfaction and perceived net benefit. Perceived

net benefit is importance factor of e-government system success more than the other five factors. Government should develop information quality with encourage citizen's intention to use e-government.

Lee and Rao (2009) study the difficult tasks of e-government service by investigate the characteristic of systems. They posit the difficult level of online service will lead citizens to decision in acceptant e-government service. Two types of service include information and transaction domains. The reported finding relate usefulness of website and Internet competence of e-government service were significant factors in predicting intention to use two types of e-government service domain (information and transactions).

From the Technology acceptance model (TAM) research, there has been widely used to examine attitude acceptance in e-government and various technology. There are many studies have integration other theories to investigate the adoption such as Theory of Planed Behavior (TPB), Diffusion of Innovation Theory (DOI), DeLone and McLean's IS success model.

CHAPTER III
RESEARCH METHODOLOGY

This chapter presents an overview of methodology used in this study. There are ten main steps to be done in order to achieve the objectives. The methodology is shown as the followings.

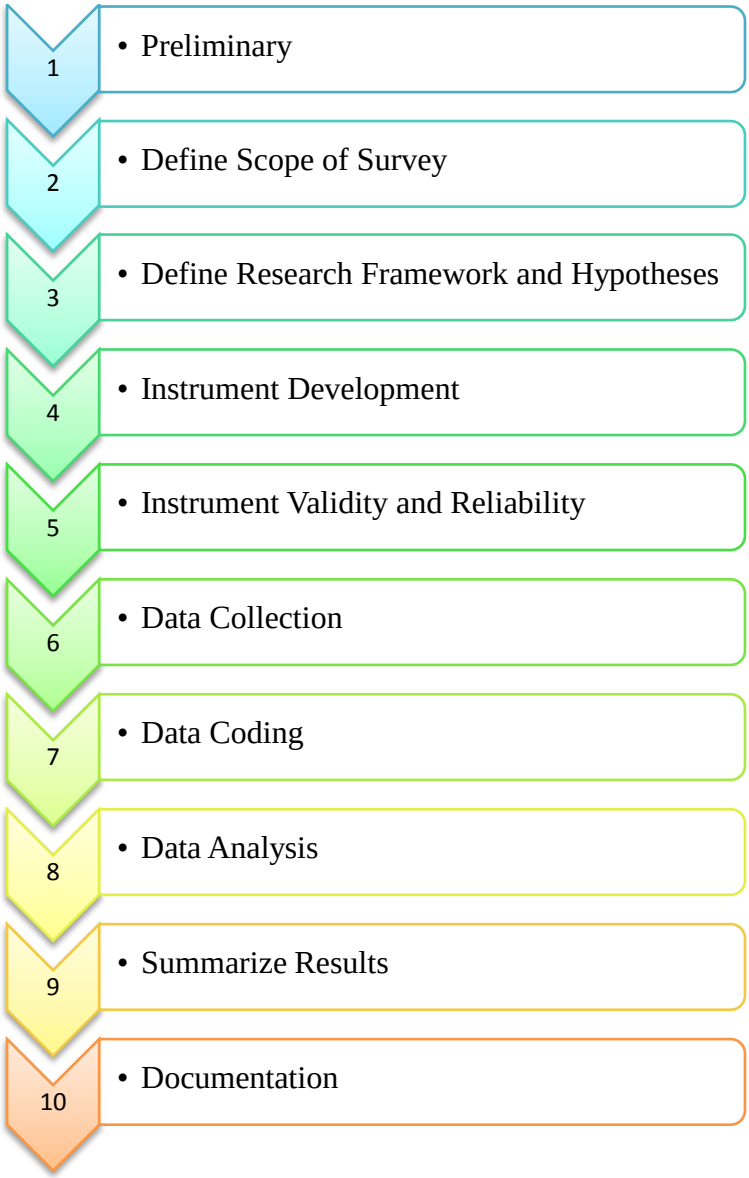


Figure 3.1 Overview of research methodology

3.1 Preliminary Study

E-government services in Thailand and worldwide in the context of G2C government has been reviewed to understand online e-government delivery problems, and to design the research area. Secondary data will be gathered by searching related literatures, thesis, statistics reports, survey reports, seminar papers, and statics theories to identify the research model, sampling, and statics tool for hypothesis test. For the purpose of the research, researcher was use the preliminary study to develop the research methodology. The topics cover as follow:

- The importance of Internet and E-government.
- Current situation and statistic of E-government in Thailand and other countries.
- The factors which influence of information technology adoption.

3.2 Scope of Survey

1. Target Group

The target population for this study included population in Bangkok, Thailand. There were individuals who are internet users and have experience using e-government services.

2. Sample

A stratified random sampling was employed to avoid biases during data collection process. A stratified and disproportional set of subgroup were selected based on Internet users who live in Bangkok in Thailand. The questionnaires were distributed to people working in private and public sectors. A total of 400 samples were chosen. All participants were internet users selected randomly from universities, companies, department store, and government offices.

Researcher selected Bangkok in Thailand for the sampling in this study because the survey of internet user in Thailand reported that Thailand internet users mostly are from Bangkok. People who use internet have more opportunity to access e-government than people who do not. Next step, the sampling method to select samples from all of population was conducted. There are 2,323,439 internet users in Bangkok

(National Statistical Office Thailand, 2008a). Taro Yamane theoretical statistics were used to calculate the size of sampling group. The size of 400 samples conforms to Yamane's finite population sampling formula, along with a 95% confident level and a 5% precision level (Sinjaru, 2007).

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

Where n = Sample size
N = Population size
e = Level of precision

The sample random of this study has three methods as follows.

Stage 1: The first method used purposive sampling method for selecting a specific sample that live in Bangkok.

Stage 2: Quota sampling method was used in the second stage. There are 400 samples.

Stage 3: Accidental sampling method was applied in this stage. The questionnaires were distributed to internet users selected randomly from universities, companies, department store, and government offices.

3.3 Research Model and Hypotheses

The research model of this study was developed based on the technology acceptance model (TAM) investigating the factors that affect citizen's attitudes towards e-government services by extending the TAM. Several important external variables were added to predict citizen's intention to use e-government including three quality measures (system quality, information quality, and service quality), facilitating condition, self-efficacy, social influence, and personal innovativeness in IT.

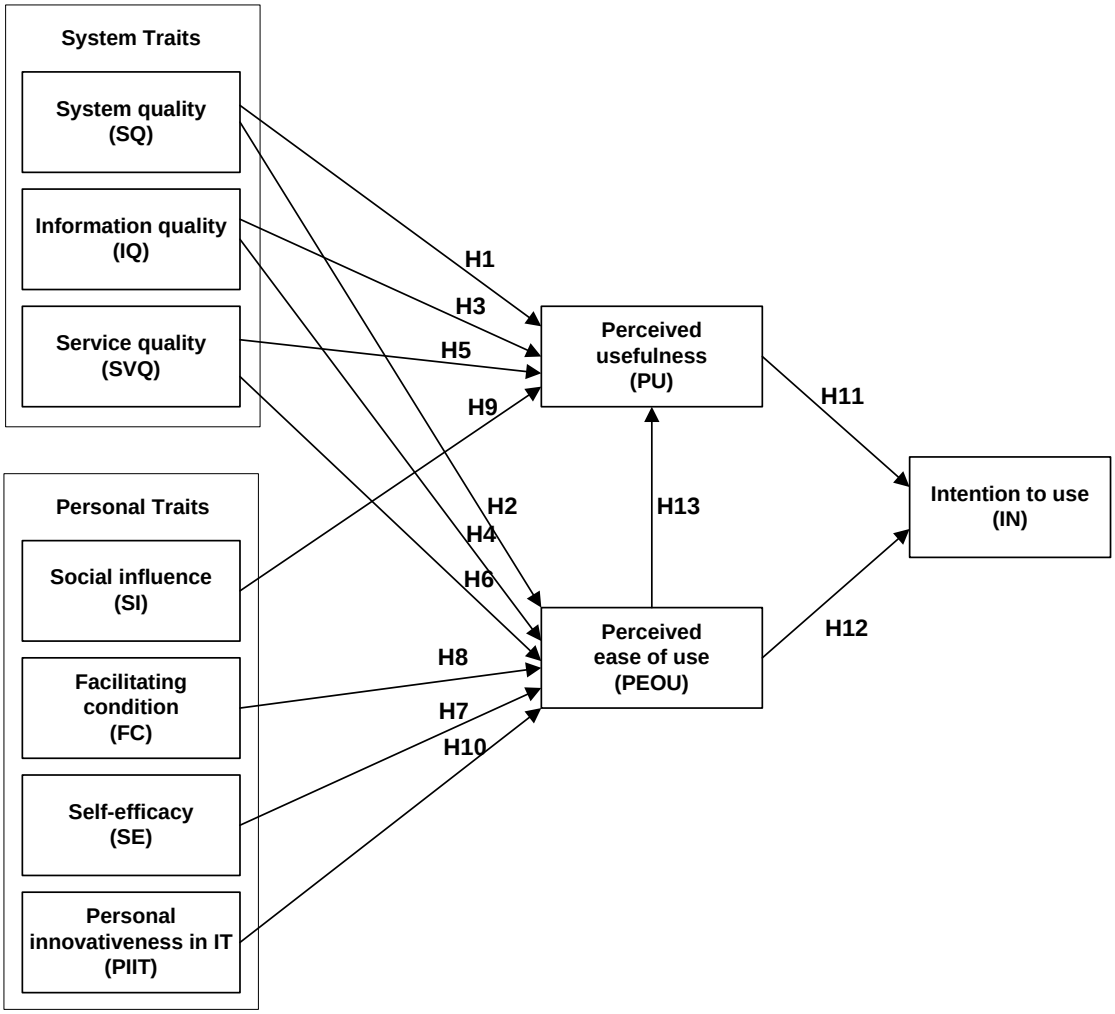


Figure 3.2 Research model

There are ten constructs in this model which include information quality, system quality, service quality, self-efficacy, facilitating condition, social influence, personal innovativeness in IT, perceived ease of use, perceived usefulness, and intention to use as the dependent variables.

As mentioned above, this model hypothesizes that information quality, system quality, service quality, self-efficacy, facilitating condition, social influence and personal innovativeness in IT are directly affected perceived ease of use and perceived usefulness. Perceived usefulness is affected by perceived ease of use. Perceived usefulness and perceived ease of use influence user's intention to use e-government services. User's intention will be used to predict actual use of information technology. All components and several hypotheses were constructed for testing.

Hypotheses about System Quality

System quality refers to performance of the system. Many studies have develop measure of system quality such as ease of use, functionality, reliability, flexibility, data quality, portability, integration, and importance (DeLone and McLean, 2003); interactive and access (Negash et al., 2003); flexibility, interoperability, functionality (Bernroider, 2008). In this study system quality was aspects to quality from e-government services in the context of Websites. Researcher has identified system quality in four dimensions; ease of navigation, availability, response time, and security. High level system quality will improve the convenience for users to access e-government services. Many studies have supported that system quality has positive effects on perceived ease of use, and perceived usefulness (Ahn et al., 2007). Accordingly, this research proposes the following hypotheses:

Hypothesis 1: System quality will have a positive effect on the perceived usefulness of e-government services.

Hypothesis 2: System quality will have a positive effect on the perceived ease of use of e-government services.

Table 3.1 Measurement items of System quality

Measures	**References**
Ease of navigation	Delone and Mclean (1992),
Availability	Aladwani and Palvia (2002),
Response time	Liao et al. (2006)
Security	
Ease of access	

Hypotheses about Information Quality

Information quality is results from information system providing to user. Various different types of measurement have been developed to determine information quality including accuracy, timeliness, completeness, relevance, and consistency

(DeLone and McLean, 2003). Users access to websites to find information they need. If the required information cannot be provided by the information system, the users will probably not enter the websites again. Four factors were identified including contents, accuracy, timeliness, and information reliability in order to measure information quality. Various studies have shown that information quality has a positive effect on perceived ease of use and perceived usefulness (Ahn et al., 2007). High level of information quality was enhancing users' intention to use e-government services. Accordingly, this research proposes the following hypotheses:

Hypothesis 3: Information quality will have a positive effect on the perceived usefulness of using e-government services.

Hypothesis 4: Information quality will have a positive effect on the perceived ease of use of e-government services.

Table 3.2 Measurement items of Information quality

Measures	**References**
Contents	Doll and Torkzadeh (1988),
Accuracy	Delone and Mclean (1992),
Timeliness	Aladwani and Palvia (2002),
Information reliability	Wangpipatwong et al. (2005)

Hypotheses about Service Quality

Researcher considered service quality to be quality of service these systems provides to support user. SERVQUAL is the instrument to measure service quality developed by Parasuraman et al. (1988), for measuring quality of service by users' perceptions. SERVQUAL consists of 22 items which can be classified into five measures that are tangible, empathy, reliability, responsiveness, and assurance. Zeithaml et al. (2002) used e-SERVQUAL as the instrument for measuring electronic service quality. Parasuraman et al. (2005) developed E-S-QUAL for measuring service

quality of website which is identified four dimensions which include 22 items scale. They focused on customers' perception in the online store. Service quality in this study focuses on quality of service that e-government provides to citizens. Service quality is crucial for online e-government services since it can enhance the perceived usefulness, and the perceived ease of use of citizens. This study focuses on service quality delivered by e-government websites. Accordingly, this research proposes the following hypotheses:

Hypothesis 5: Service quality will have a positive effect on the perceived usefulness of e-government services.

Hypothesis 6: Service quality will have a positive effect on the perceived ease of use of e-government services.

Table 3.3 Measurement items of Service quality

Measures	**References**
Responsiveness	Parasuraman et al. (2005)
Contact	Akinci et al. (2009)
empathy	Aladwani and Palvia (2002)
assurance	Barnes and Vidgen (2006)

Hypotheses about Self-Efficacy

Self-efficacy was defined as the "belief of the individual in his or her own capacity to affect a specific behavior" (Bandura, 1982). An individual with more self-efficacy have confidence to use a system that is difficult or complicated than an individual with lower self-efficacy. Individuals should feel that they have ability to handle processes in websites without any supports. Self-efficacy is an external variable included in TAM to predict individuals' behavior (Taylor and Todd, 1995; Hernandez et al., 2009). This study considers self-efficacy in context of e-government services. In this context, self-efficacy is defined as individuals have ability to access e-government services and complete their work on the internet by them. From a previous research,

self-efficacy has a direct effect on the perceived ease of use such as mobile banking (Gu et al., 2009), e-store (Venkatesh, 2000), and e-purchasing (Hernandez et al., 2009). Accordingly, this research proposes the following hypotheses:

Hypothesis 7: Self-efficacy will have a positive effect on the perceived ease of use of e-government services.

Hypotheses about Facilitating Conditions

Facilitating conditions or resources are the factors that help people to easily perform and accomplish their tasks (Thatcher et al, 2007). Facilitating conditions in this study are defined that individuals have existing resources to support them to use the e-government service. Taylor and Todd (1995) studied facilitating conditions in two contexts; resource facilitating conditions, and technological facilitating conditions. This study will examine resource facilitating conditions. Users cannot adopt e-government services if they do not have available resources to access and use it. There are many barriers for adoption of e-government such as time, money, financial, security, trust, and information quality (Gilbert et al., 2004). Previous research exhibited facilitating conditions that directly affected the perceived ease of use (GU et al, 2009; Taylor and Todd, 1995). Accordingly, this research proposes the following hypotheses:

Hypothesis 8: Facilitating conditions will have a positive effect on the perceived ease of use of e-government services.

Hypotheses about Social Influence

Social influence is defined as "a person's perception that most people who are important to him think he should or should not perform the behaviour in question" (Fishbein and Ajzen, 1975). Social influence in this study is defined as an individual's perceive that important people for he or she believe that they should use the e-government services. Users will decide to use e-government services when their family, friends or their peer recommend them to use it. In several previous researches,

social influence has a positive effect on perceived usefulness (Taylor and Todd, 1995). Accordingly, this research proposes the following hypotheses:

Hypothesis 9: Social influence will have a positive effect on the perceived usefulness of e-government services.

Hypotheses about Personal Innovativeness in IT (PIIT)

Agarwal and Prasad (1998) presented personal innovativeness in IT (PIIT) to relate the perceptions to acceptance information technology of user. Personal innovativeness refers to user who is innovative person willingness to used new information technology (IT). High level of personal innovativeness leads to a more positive effect on intention to use information technology. Previous research found that personal innovativeness has significantly positive effects perceived ease of use in wireless Internet services via mobile technology (Lu et al., 2005) and 3G mobile value-added services (Kuo and Yen, 2009). More perceived of personal innovativeness in IT will enhance positive perceptions about ease of use. Accordingly, this research proposes the following hypotheses:

Hypothesis 10: Personal innovativeness in IT will have a positive effect on perceived ease of use of e-government services.

Hypotheses about Perceived Usefulness

Perceived usefulness is defined as “the degree to which a person believed that using a particular system would enhance his or her job performance” (Davis, 1989). A useful system to improve efficiency of the e-government in order to support citizens when their use the service. When users perceive a very useful technology, they believe that it offers performance for them (Hernandez et al., 2009). Perceived usefulness has more positive effects on behavioral intention (Taylor and Todd, 1995; Moon and Kim, 2001). The perceived usefulness will increase when citizens notice that it improves their work efficiency such as more conveniently searching information and conducting transaction. Thus, the following hypotheses are proposed:

Hypothesis 11: Perceived usefulness will have a positive effect on intention to use e-government services.

Hypotheses about Perceived Ease of Use

Perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). Several studies have supported that perceived ease of use has the effect on perceived usefulness (Lu et al., 2009; Lee and Kim, 2009) and behavioral intention (Moon and Kim, 2001; Jung et al., 2009; Lu et al., 2009). This study focuses on perceived ease of use on e-government services context. The perceived ease of use will increase when citizens feel that e-government services is easy to use, after that they will become accustomed and use it. Accordingly, this research proposes the following hypotheses:

Hypothesis 12: Perceived ease of use will have a positive effect on citizen's intention to use e-government services.

Hypothesis 13: Perceived ease of use will have a positive effect on perceived usefulness of e-government services.

The demographic differences of respondents (e.g. age, gender, education level) have to examine the difference perceptions of user in various studied (Lu et al., 2009; Chou, 2003). Users may have different characteristics**,** the difference of education, internet experience and frequencies of using e-government service are demographic variable use to study to investigate the different perceived attributes of citizens in e-government context.

Education

The respondents rated their demographic of education in three identified groups: high school or below, associate's or bachelor's degree and master's degree or higher. Accordingly, this research proposes the following hypotheses:

Hypothesis 14: The high school or below, associates or bachelor's degree and master's degree or higher will show differences in their perceptions of:

Hypothesis 14a: System quality,
Hypothesis 14b: Information quality,
Hypothesis 14c: Service quality,
Hypothesis 14d: Self-efficacy,
Hypothesis 14e: Facilitating conditions,
Hypothesis 14f: Social Influence,
Hypothesis 14g: Perceived usefulness
Hypothesis 14h: Perceived ease of use, and
Hypothesis 14i: Intention to use

Internet Experience

The respondents rated their demographic of internet experience in four identified groups: below 1 year, 1-3 years, 3-5 years and over 5 years. Accordingly, this research proposes the following hypotheses:

Hypothesis 15: The below 1 year, 1-3 years, 3-5 years and over 5 years will show differences in their perceptions of:

Hypothesis 15a: System quality,
Hypothesis 15b: Information quality,
Hypothesis 15c: Service quality,
Hypothesis 15d: Self-efficacy,
Hypothesis 15e: Facilitating conditions,
Hypothesis 15f: Social Influence,
Hypothesis 15g: Perceived usefulness
Hypothesis 15h: Perceived ease of use, and
Hypothesis 15i: Intention to use

Frequency of Use E-government Services

The respondents rated their demographic of frequency of use e-government services in four identified groups: one time every day at least, one time every week at least, one time every month at least and one time every year at least. Thus, the following hypotheses are proposed:

Hypothesis 16: The one time every day at least, one time every week at least, one time every month at least and one time every year at least will show differences in their perceptions of:

Hypothesis 16a: System quality,
Hypothesis 16b: Information quality,
Hypothesis 16c: Service quality,
Hypothesis 16d: Self-efficacy,
Hypothesis 16e: Facilitating conditions,
Hypothesis 16f: Social Influence,
Hypothesis 16g: Perceived usefulness
Hypothesis 16h: Perceived ease of use, and
Hypothesis 16i: Intention to use

Table 3.4 Construct and definition

Construct	Operation definition	Source
System quality	The quality which user's perception on performance of information system	Lee et al. (2007)
Information quality	An individual's perception on the information that the system produces	Lee et al. (2007)
Service quality	Users' perception on the performance of service provider	Lee et al. (2007)
Self-efficacy	Users' belief his/her own capacity to affect a specific behavior	Bandura (1982)
Facilitating	Facilitating conditions or resources are the	Thatcher et al.

conditions	factors that help people easy to perform and accomplish their tasks	(2007)
Social Influence	An individual's perception that people who are important think he or she should perform the behaviour	Fishbein and Ajzen (1975)
Personal innovativeness in IT	The willingness of an individual to try out any new information technology (IT)	Agarwal and Prasad (1998)
Perceived usefulness	Users' perception e-government easy to use when using it.	Davis (1989)
Perceived ease of use	Users' perception when they using e-government service it improve efficiency of their work	Davis (1989)
Intention to use e-government	An individual's behavioral intention to use e-government	Moon and Kim (2001)

3.4 Instrument Development

The questionnaires were translated into Thai and modified to suit the context of e-government based on the hypothesis. The instrument was designed to include two parts. The questionnaire explained the purpose of the study and an introduction of the e-government services.

The first part consists of a request for demographic information about respondents' characteristics including gender, age, education, occupation, experience using internet, average weekly hours spent on surfing the internet and internet access location. There were 7 items in this part.

The second part there was 5 items in this part, focuses on the usage of e-government services include e-government website ever used, frequencies using e-government service and purpose of e-government use for experienced users.

The third part including 38 items has questions measuring the constructs in the research model. All constructs were measured using multiple items consisting of the nine constructs: (1) Information quality, (2) System quality, (3) Service quality, (4) Facilitating conditions, (5) Social Influence, (6) Self-efficacy, (7) Personal

innovativeness in IT (8) Perceived usefulness, (9) Perceived ease of use and (10) intention to use. All of the constructs included in the questionnaire were adapted from previous studies to ensure their reliability and validity. The measures for two determinants of TAM (perceived usefulness and perceived ease of use) were adapted from the measurement defined by Davis (1989), while behavioral intention was adapted from Moon and Kim (2001). As to the seven external variables, these were:

- System quality (SQ); measured by Doll & Torkzadeh (1988), Delone and Mclean (1992), Aladwani and Palvia (2002), Wangpipatwong et al. (2005). System quality was measured in terms of five composite items: ease of navigation, availability, response time, security and ease of access.
- Information quality (IQ); measured by from Delone and Mclean (1992), Aladwani and Palvia (2002), Liao et al., (2006). Information quality was measured in terms of four composite items: contents, accuracy, timeliness and information reliability.
- Service quality (SVQ); construct were adapted from previous studies Parasuraman et al., (2005), Akinci et al., (2009), Aladwani and Palvia (2002), Barnes and Vidgen (2006). Service quality was measured in terms of four composite items: responsiveness, contact, empathy, and assurance.
- Social influence (SOC); adapted from Taylor and Todd (1995), Hung et al. (2006), Gu et al. (2009).
- Self-efficacy (SEL); adapted from Taylor and Todd (1995).
- Facilitating conditions (FAC); adapted from Taylor and Todd (1995), Mathieson et al., (2001), Hung et al. (2006), Gu et al., (2009)
- Personal innovativeness in IT (PIIT); adapted from Agarwal and Prasad 1998, Thatcher et al. (2007).

Table 3.5 Measure Items for System quality

Construct	Measurement Items	Variable names
System quality	E-Government system provides the useful functions as I need when I access to the website.	SQ1
	When I access to the website the operation of e-Government	SQ2

	system is reliable.	
	When I using e-Government system, the response of website is quick.	SQ3
	When I using e-Government system I can navigate the system to finish my transaction easily.	SQ4

Table 3.6 Measure Items for Information quality

Construct	Measurement Items	Variable names
Information quality	E-government system provides the adequate information when I access to the website.	IQ1
	E-government system provides the information which is easy to understand.	IQ2
	E-government system provides the relevant information as I need.	IQ3
	E-government system provides up-to-date information.	IQ4

Table 3.7 Measure Items for Service quality

Construct	Measurement Items	Variable names
Service quality	E-government system has user support service features (e-mail or web board) to solve my problem when I need help.	SVQ1
	E-government system presents a useful alternative to solve my problem.	SVQ2
	When I have problem, the government staff gives me prompt service.	SVQ3
	The government staff gives me individual attention, when I send request via email or web board to government.	SVQ4

Table 3.8 Measure Items for Facilitating conditions

Construct	Measurement Items	Variable names
Facilitating conditions	Resources required to use e-government services were available to me.	FC1
	I had access to the hardware and software and services needed to use e-government service.	FC2
	Financial resource (e.g. to pay for hardware, software and internet services) is not a barrier for me in using e-government service.	FC3

Table 3.9 Measure Items for Self-efficacy

Construct	Measurement Items	Variable names
Self-efficacy	I would feel comfortable using e-government services on my own.	SE1
	If I wanted to, I could easily operate any of the equipment to use e-government services on my own.	SE2
	I would be able to use the e-government services even if there was no one around to show me how to use it.	SE3

Table 3.10 Measure Items for Social influence

Construct	Measurement Items	Variable names
Social influence	My peers/colleagues/friends thing that I should use e-government services.	SI1

	I use e-government services because it is very famous.	SI2
	I use e-government services because many people use it.	SI3

Table 3.11 Measure Items for Personal innovativeness in IT

Construct	Measurement Items	Variable names
Personal innovativeness in IT	If I heard about a new information technology I would look for ways to experiment with it.	PIIT1
	Among my peers I am usually the first to try out new information technologies.	PIIT2
	I like to experiment with new information technologies.	PIIT3

Table 3.12 Measure Items for Perceived ease of use

Construct	Measurement Items	Variable names
Perceived ease of use	It is easy for me to leaning to use e-government system.	PEOU1
	I believe that it is easy to get the e-government system is clear and understandable.	PEOU2
	I find it is easy to get the e-government system to do what I want it to do.	PEOU3
	Overall, I believe that e-government service is easy to use.	PEOU4

Table 3.13 Measure Items for Perceived usefulness

Construct	Measurement Items	Variable names
Perceived usefulness	Using e-government system would enhance my efficiency to gathering information from government.	PU1
	Using e-government system improves me to gathering information from government more quickly.	PU2
	Using e-government system would make me more easily to gathering information from government.	PU3

Table 3.14 Measure Items for Intention to use

Construct	Measurement Items	Variable names
Intention to use	I will use e-government system in the future.	IN1
	I will frequently use e-government system.	IN2
	I will recommend others to use e-government system.	IN3

3.5 Pilot Testing

The pilot test was conducted before the main survey to determine the problem of the instrument. The pilot test of the questionnaire involved 30 graduate students who had experienced with e-government services. The purpose was to focus on the problems of the instrument. Respondents were asked the understanding about the meaning, comment on the length of the questionnaire, list items of the constructs, time to complete and format of questionnaire. After their comments and suggestions had been given, the questionnaire was revised which the wording of the items will be clear and easy for respondents to understand. The final questionnaires included 38 items for conducting the actual survey.

3.6 Instrument Validity and Reliability

All the constructs in the questionnaire drafted were based on the literature review. The questionnaires used Cronbach's alpha to assess reliability and internal consistency of all constructs. The questionnaire constructs were revised based on the results of the pretest. As show in table 3.15, the reliability of facilitating conditions has lowest was 0.721. Nunnaly (1978) suggested that the reliability analysis obtained Alpha Coefficients of all constructs exceeding the value of 0.7 which indicates adequate reliability.

Table 3.15 Reliability analysis results for constructs

Construct	Items	Cronbach's Alpha
System quality	5	0.919
Information quality	4	0.927
Service quality	4	0.903
Facilitating conditions	4	0.721
Self-efficacy	3	0.871
Social influence	3	0.815
Personal innovativeness in IT	3	0.794
Perceived ease of use	4	0.948
Perceived usefulness	4	0.963
Intentions to use	3	0.955

Factor analysis was used to confirm the validity of all question items. Construct validity was examined principal factor analysis by using the varimax rotation. As show in table 3.15 factor loading of all question items have greater load exceeding 0.5, factor loading value of this study range from 0.661 to 0.939. From the results indicate that factor loading of every question items exceeding the value of 0.5 was acceptable for good construct validity (Hair et al., 1995).

Table 3.16 Factor loading for measures of constructs

Construct/indicator	Item	Factor loading
System quality	SQ1	0.788
	SQ2	0.739
	SQ3	0.788
	SQ4	0.661
	SQ5	0.810
Information quality	IQ1	0.732
	IQ2	0.830
	IQ3	0.794
	IQ4	0.819
Service quality	SVQ1	0.738
	SVQ2	0.800
	SVQ3	0.832
	SVQ4	0.821
Facilitating condition	FC1	0.846
	FC2	0.871
	FC3	0.754
	FC4	0.728
Self-efficacy	SE1	0.854
	SE2	0.911
	SE3	0.852
Social influence	SI1	0.777
	SI2	0.813
	SI3	0.769
	SI4	0.780
Personal innovativeness in IT	PIIT1	0.850
	PIIT2	0.844
	PIIT3	0.843
Perceived ease of use	PEOU1	0.854

	PEOU2	0.897
	PEOU3	0.867
	PEOU4	0.885
Perceived usefulness	PU1	0.903
	PU2	0.901
	PU3	0.891
	PU4	0.817
Intentions to use	IN1	0.915
	IN2	0.939
	IN3	0.917

3.7 Data Collection Procedures

To test the hypotheses, data was gathered using a self-administered questionnaire. The first respondents were asked to participate in the study whether they had any personal experiences using the e-government services. They selected one of the e-government websites which they had frequently used. Consequently, their answers were based on their experiences with e-government service. In this study, researcher added five G2C systems for the survey including Thailand internet tax payment (http://www.rd.go.th), electronic motor vehicle and driver (https://www.dlte-serv.in.th), e-government portal (www.ecitizens.com), government e-service citizens (http://www.khonthai.com) and job matching (www.doe.go.th). If they had not accessed the listed websites, they were requested to write the name of other websites that they had visited. E-government services in the questionnaires refer to overall services, not a specific service. A cover letter explained the objectives and importance of the study, and e-government definition to promote participation in the survey. Participation in the study was voluntarily done by respondents who are willing to fill out the questionnaire and they were guaranteed that their responses would be treated as confidentiality.

The questionnaire included three parts and had the following information in the survey:

1. The first part is the demographic profile of the participants (gender, age, education, occupation, year of using the internet, average weekly hours spent on surfing the internet, place of using internet service);

2. The second part asked the respondents what the government website they had used, frequencies using e-government service and purpose of e-government use;

3. The third part is factors associated with e-government services adoption base on the factors of system quality, information quality, service quality, facilitating condition, self-efficacy, social influence, personal innovativeness in IT, perceived usefulness, perceived ease of use and intention to use.

3.8 Data Coding

After the questionnaires had been returned, data were screened and uncompleted answers were eliminated. Respondents who had never experienced with e-government services were also excluded from this study. The data was put in Microsoft Excel and converted to SPSS (Statistical Package for the Social Science for Windows) for analysis.

Figure 3.3 Methodology of data transfer from Microsoft Excel to SPSS

3.9 Data Analysis

Data was analyzed by using SPSS (Statistical Package for the Social Science for Windows) version 17.0 for window and LISREL 8.8 (student version). There are two steps for data analysis: 1) descriptive statistics to describe a qualitative data. 2) Inference statistical tests to test hypothesis.

3.9.1 Descriptive statistics

Descriptive statistics were used to describe the overview of data. Each variable is studied separately as follows;

The first part**,** The first part includes nominal scale. This part was used to collect demographics information about respondents including gender, age, education, occupation, experience using internet, average weekly hours spent on surfing the internet and place of using internet service. This part consists of 7 items. All items of this part are checklist. Frequency method and percentage were used, the results were shown in table and graph formats.

The second part**,** The second part focuses on the usage of government consisting of 5 items which are checklist. Researcher use frequency and percentage approaches which are demonstrated results in table and graph styles.

The final part**,** This part consist of the constructs of system quality, information quality, service quality, facilitating conditions, self-efficacy, social influence, perceived usefulness, perceived ease of use and intention to use. The characteristic of this part is rating scale, have 38 items. The researcher use mean value ($\overline{X}$) and standard deviation (SD) analyzed the data, the result that show in table and graph styles.

Each item was measured using a five-point Likert-type scale, with answer choices ranging from strongly disagree (1) to strongly agree (5). The perceptions were also interpreted for the five levels in Likert's scale (Silpjaru, 2007), the mean score as follows;

4.50 - 5.00 was interpreted as highest level

3.50 - 4.49 was interpreted as high level

2.50 - 3.49 was interpreted as medium level

1.50 - 2.49 was interpreted as low level

1.00 - 1.49 was interpreted as lowest level

3.9.2 Inference Statistics

The first part, the One-Way Analysis of Variance (ANOVA) was used to compare the means of all 38 items among the constructs for test hypotheses. The data were analyzed by dimensions level of education, occupation, internet experience and Tukey statistic were performed which means different. The level of significance was set at 5% among the demographic controls. The results of hypotheses testing were show in table.

Secondly, structural equation modeling (SEM) was use to analyzed the relationships between independent variables to test the hypotheses. The proposed research model includes; perceived usefulness and perceived ease of use against intention to use, perceive ease of use, system quality, information quality, service quality and social influence against perceive usefulness and the last one information quality, system quality, service quality, self-efficacy, facilitating condition and personal innovativeness in IT against perceived ease of use.

3.10 Summarize Results

The findings of this study are discussion and concluding. The final result, research limitations and recommendations for the future research were presented to help government agencies and system developers to improve e-government service to improve users' intention.

3.11 Documentation

Finally, following the methodology researcher collected most of results mentioned above. Research documentation is made and check for the complete research.

3.12 Research Tools

Hardware

CPU	:	Intel Centrino Duo T5550
Hard Disk	:	160 GB
RAM	:	2 GB
Monitor	:	14” WXGA CrystalBrite LCD
Peripheral Devices	:	Mouse, Printer

Software

Operating System	:	Microsoft Windows XP
Statistical Program	:	SPSS V.17 (Statistical Analysis System)
		LISREL 8.8 (student version)
PDF View Tool	:	Adobe Reader
Document Generator	:	Microsoft Word 2007

3.13 Research Schedule

Activities	Time (Months)											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1. Preliminary Study	→	→										
2. Define scope of study			→									
3. Define Research Framework and Hypotheses				→								
4. Design Research Instruments				→								
5. Pilot Testing					→							
6. Data Gathering						→	→	→	→			
7. Data Coding									→	→		
8. Data analysis & Interpretation										→	→	
9. Summarize Results												→
10. Documentation	→	→	→	→	→	→	→	→	→	→	→	→

CHAPTER IV
RESULTS AND DISCUSSION

In this chapter, the results from the survey are presented. Researcher will analyze the data from the collected. This chapter is divided into two main parts.

Firstly, present the results data from the survey. There are three parts of questionnaire which include (i) profile of the respondents, (ii) the usage of e-government services, (iii) the factors are influence that affect citizens to acceptance of e-government service.

The second part presents the results of hypotheses testing that investigate the influences of factors on e-government services adoption. The hypotheses testing can be divided into two parts. Firstly, researcher used One-Way Analysis of Variance (ANOVA) to study possible interaction effects of (i) level of education on all factors, (ii) internet experience on all factors, and (iii) frequencies using e-government services of respondents on all factors (iv). Secondly, researcher used structural model analysis to investigate relationships among all factors on research model.

4.1 The Survey Results

The population in this study is 400 who are internet users in Bangkok. The main survey had 450 responses. Among them, researcher deleted questionnaires are incomplete and obviously unconcerned. (E.g. giving the same rating for all items, missing fill out in some items). Questionnaires from respondents who had not experience with e-government services were also eliminated. Finally, an overall 400 questionnaires were used for analysis, response rate of 100%. Table 4.1 illustrates the summary of all respondents.

Descriptive statistics of respondents were shown in Table 4.1 These show that, 55% of the respondents were female and 45% were male. In terms of age of

respondents, it was found that the majority of respondents were between 21-30 years old (58%). The majority of respondents were between 21-30 years old (58%). The education level of respondents were 73.8% associates or bachelor's degree, work in government employee or government enterprises employee 45.2%, experience using internet (70.2%) over 5 years. Most of respondents were surfing the internet over 7 hours per week (47%). About 79.5% of respondents access the internet at school/ at university/ at work. Twenty-six percent have experiences using www.ecitizen.go.th. Majority of the respondents were using e-government services one time every day at least 30%. 69.8% of respondent use e-government services for search or download forms.

Table 4.1 Summaries of respondents

Measure	Item	Frequency	Percentage (%)
Total		400	100
Gender	Male	180	45.0
	Female	220	55.0
Age	Under 20 years old	15	3.8
	21 - 30 years old	232	58.0
	31 - 40 years old	95	23.8
	41 - 50 years old	46	11.5
	Over 50	12	3.0
Education	High school or below	46	11.5
	Associate's or Bachelor's degree	295	73.8
	Master's degree or higher	59	14.8
Occupation	Self employments or proprietors	11	2.8
	Government officials or government enterprises officials	181	45.2
	Students	68	17.0
	Private sector employees	76	19.0
	Unemployment / Retire	8	2.0
	Others	56	14.0
Years of internet experiences	Less than 1 year	14	3.5

	1 to below 3 years	36	9.0
	3 to below 5 years	69	17.3
	More than 5 years	281	70.3
Average weekly hours spent on surfing the internet	Less than 1 hours	23	5.8
	1 to below 3 hours	59	14.8
	3 to below 5 hours	78	19.5
	5 to below 7 hours	52	13.0
	More than 7 hours	188	47.0
Internet access location	At school/ at university/ at work	278	69.5
	At home	110	27.5
	In Internet cafe'	12	3.0
e-government website ever used (Multiple choices)	www.rd.go.th	108	24.0
	www.dlte-serv.in.th	8	2.0
	www.ecitizen.go.th	116	26.0
	www.khonthai.com	59	13.0
	www.doe.go.th	64	14.0
	www.totservice.com	10	2.0
	Other	82	19.0
Frequencies using e-government service	One time every day at least	120	30.0
	One time every week at least	108	27.0
	One time every month at least	108	27.0
	One time every year at least	64	16.0
Purpose of e-government use	Search/ download forms	279	69.8
	Performing transactions	45	11.2
	Both	76	19.0

*Respondents' profile (n = 400)

The sample size of respondents which usable can be confirmed by use the Yamane table to calculate the target sampling as 400 sample with significance level = 0.05.

4.2 Demographic Characteristics of the Sample

1. Profile of Respondents

• Gender

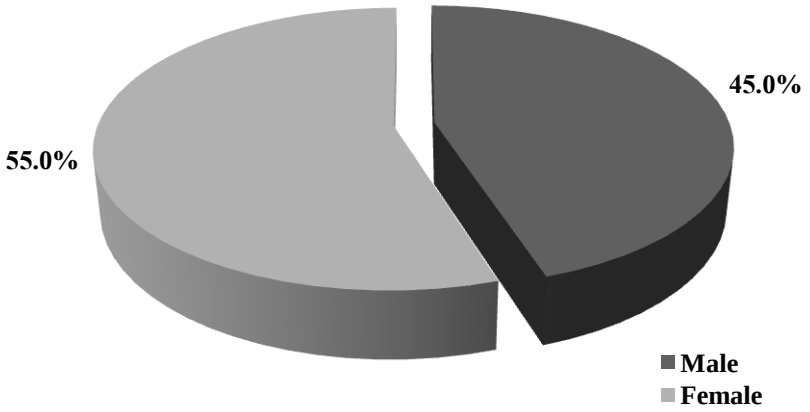


Figure 4.1 The gender of respondents

As figure 4.1 shows a percentage of gender of the respondents, the total of respondents was 400. Among 400 the respondents more than 55.0% of respondent are female. 180 respondents (45.0%) are male, there show that no difference of response rate between male and female.

• Age

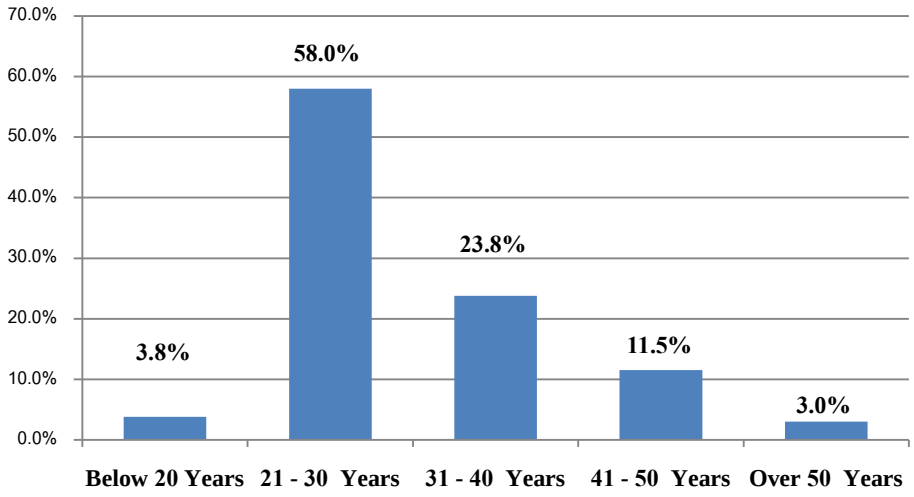


Figure 4.2 The age of respondents

The following chart shows that a wide age of respondents, the majority of the respondents fifty six percent (58.0%) have age between 21-30 years old. This would indicate that the internet users are relatively young age group. Whereas, there is respondents have age over 50 years old is the smallest 3.0%. The 23.8% of respondents have age between 31-40 years old. While respondent have age between 41-50 years old and below 20 years old are 11.5% and 3.8%, respectively.

- Education

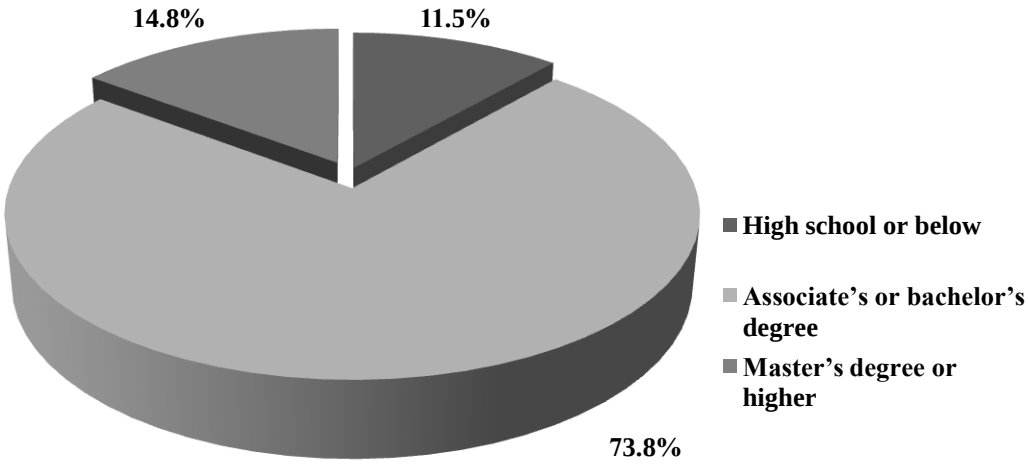


Figure 4.3 The education of respondents

The chart represents the educational of respondents. There are 400 of respondents, the results show that the large parts of respondents (73.8%) of respondents have associates or bachelor's degree. Almost 57 respondents (14.8%) are master's degree or higher. whereas the number of undergraduates is 11.5%. The demographic profile showed that the largest groups of respondents are well educated.

• Occupation

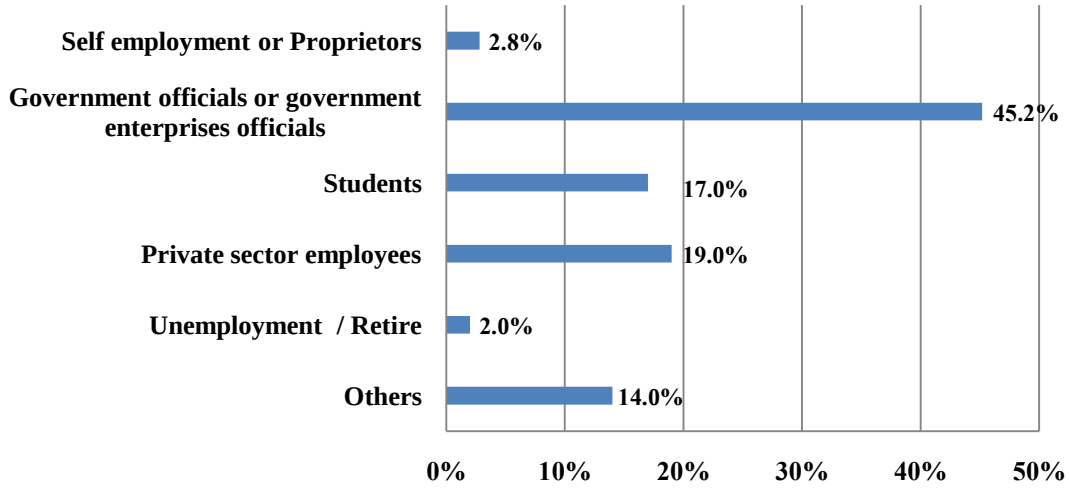


Figure 4.4 The occupation of respondents

The above chart shows occupation of respondent, the largest number of respondents were from government officials or government enterprises officials (45.2%). Follow by, private sector employee and students are nearly values of 19.0% and 17.0% respectively. The smallest respondents are self employment or proprietors 2.8% and unemployment/retire (2.0%).

• Years of Internet Experiences

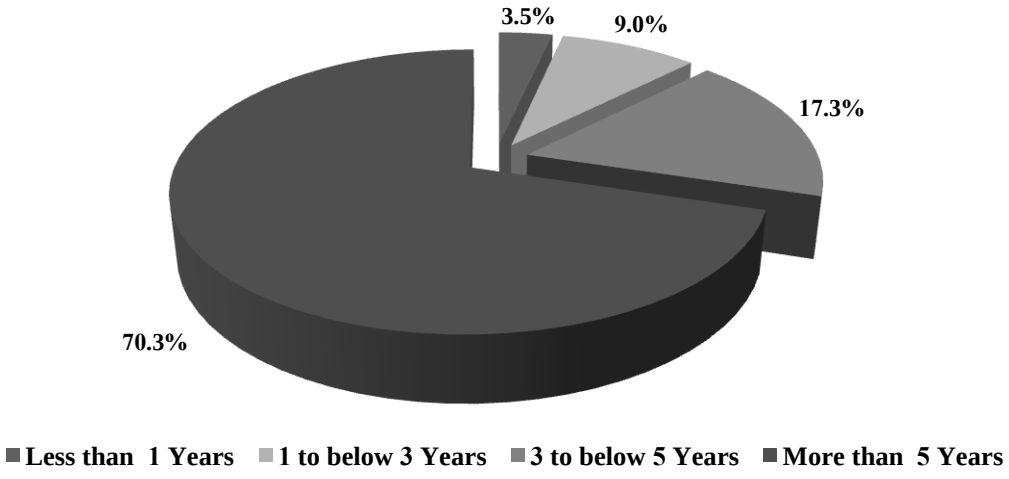


Figure 4.5 Percentage of internet experience of respondents

The following chart present internet experiences of respondents, the percentage of 400 respondents by internet experience which can be divided into four main categories; (i) less than 1 year, (ii) 1 to below 2 years, (iii) 3 to below 5 years, and (vi) more than 5 years. The majority of respondent have experiences more than 5 years with internet 70.3%. Follow by, between 3 to below 5 years 17.3%, between 1 to below 3 years 9.0%. The smallest responses have internet experience less than 1 year 3.5%.

- Average Weekly Hours Spent on Surfing the Internet

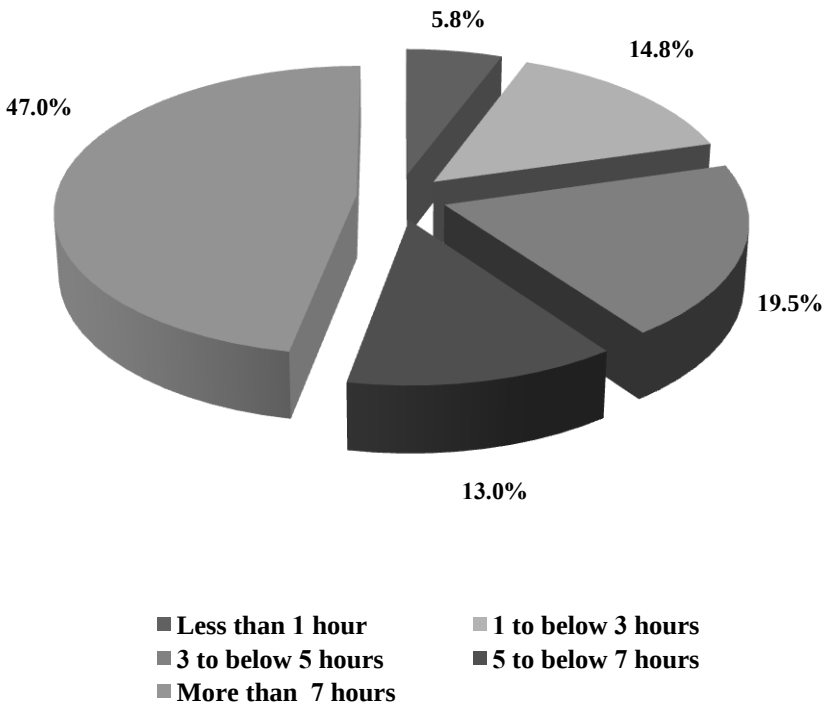


Figure 4.6 Percentage of average weekly hours spent on surfing the internet of respondents

The chart represents the average weekly hours spent on surfing the internet of respondents. From the chart a majority of respondents are surfing the internet more than 7 hours per week 47.0%. There are 78 (19.5%) of respondents that surfing the internet between 3 to below 5 hours. Follow by, 1 to below 3 hours 14.8% and 5 to

below 7 hours 13.0%. There is the smallest of respondents who surfing the internet less than 1 hour (5.8%).

- Internet Access Location

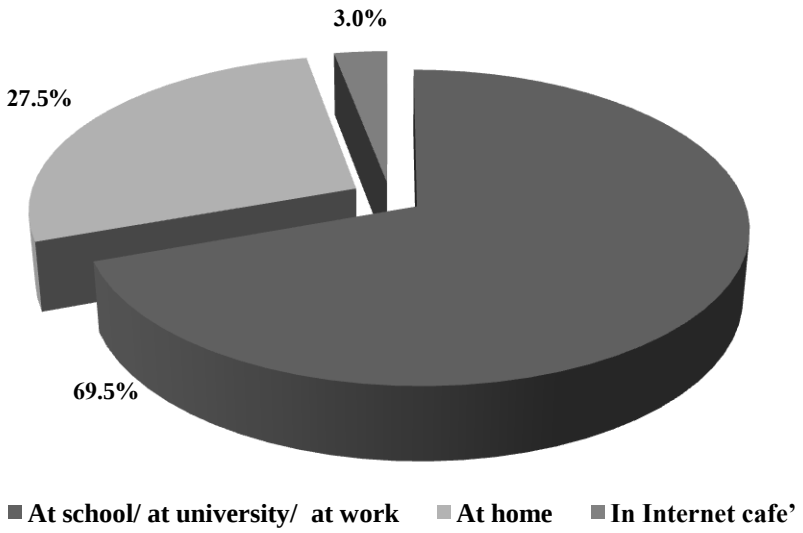


Figure 4.7 Percentage of the internet access location of respondents

The chart represents the internet access location of respondents. The majority of the respondents 69.5% had the internet at school/ at university/ at work. Twenty-seven percent of respondents were also able to connect to the internet at their home. Other point of access respondents had internet at Internet cafés.

2. Usages of E-government

- E-government Service Ever Used

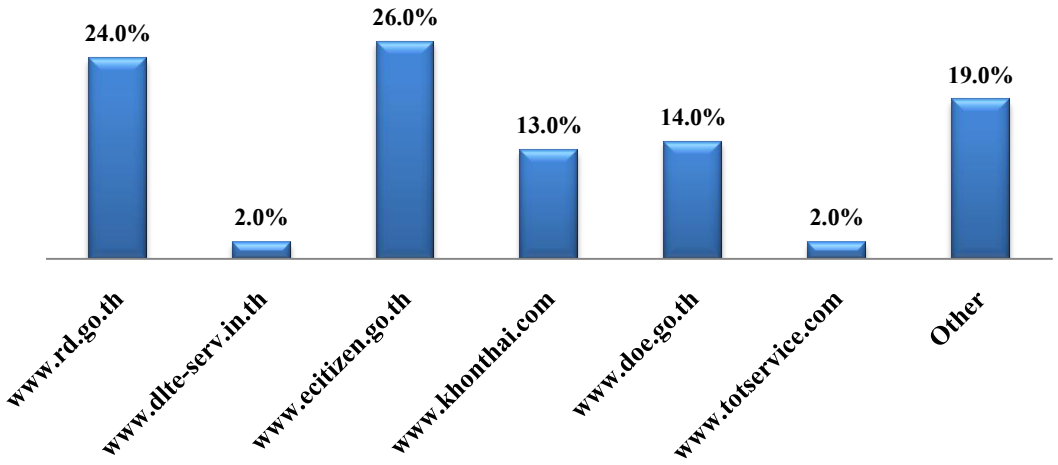


Figure 4.8 Percentage of e-government service ever used of respondents

From figure 4.8 the study show that the respondents answered many relies of e-government services that they ever used. The above chart shows www.ecitizen.go.th (26.0%) and www.rd.go.th (24.0%) were two of the most often used e-government services of respondents. There are more than 85 respondents answer used other e-government services 19.0%, www.khonthai.com 13.0%, www.doe.go.th 14.0%. The smallest used are www.dlte-serv.in.th and www.totservice.com.

- Frequencies Using E-government Service for Experienced Users

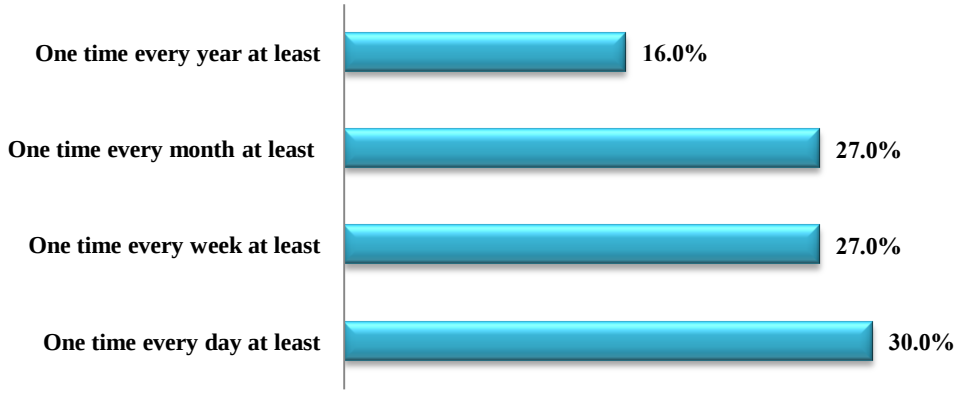


Figure 4.9 Percentage of frequencies using e-government services

The Figure 4.9 shows a range of frequencies using e-government services for experienced users. The majority of the respondents 30.0% had used e-government services one time every day at least. The percent of respondents who used e-government services for one time every month and one time every week is equal to 27.0%. Other percent of respondents used e-government services one time every year at least is 16.0%.

- Purpose of E-government Use for Experienced Users

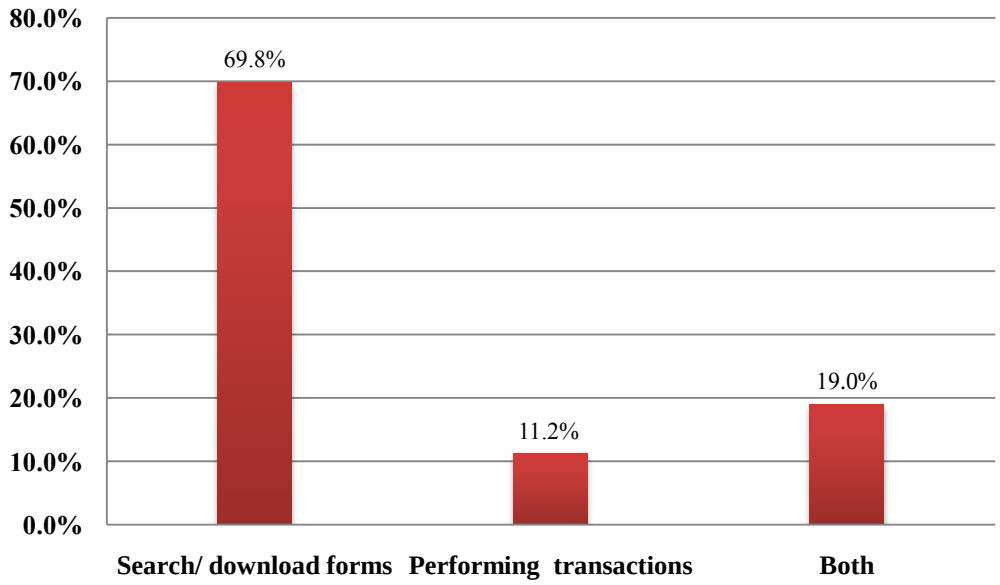


Figure 4.10 Percentage of purpose of e-government use for experienced users

Figure 4.10 show that the purpose of citizens when they used e-government services. The respondents used e-government services as following; search/download forms, performing transactions and both search/download forms and performing transactions. The most of purpose is search for information and download forms from e-government websites (69.8%). Both search/download forms and performing transactions are 19.0%. The smallest percent of used are performing transactions (11.2%).

4.3 Descriptive Analysis

4.3.1 System Quality

The table 4.2 present respondents' perception toward system quality of e-government services. The result of system quality show that all of the item means are over 3, the respondents have perception on SQ1 (ease of navigation) in medium, mean scores were 3.42 (SD = 0.949), follow by SQ5 (ease of access) 3.29 (SD = 0.950), SQ4 (security) 3.24 (SD = 0.895), and the mean scores 3.09 (SD = 0.902) for SQ3 (response time). The highest perception is on SQ2 (availability) mean scores were 3.51 (SD = 1.006). The results indicate that the respondents have perception of system quality of e-government services in medium level and highest score on SQ2 (availability). This suggested that respondents feel e-government always offer services to them.

Table 4.2 System quality perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. SQ1: E-government services provides with navigation to find information what I need. (ease of navigation)	3.42	0.949	1	5	Medium
2. SQ2: E-government services are always up and available when I want to use. (availability)	3.51	1.006	1	5	High
3. SQ3: When I access e-government services, the response of website is fast. (response time)	3.09	0.902	1	5	Medium
4. SQ4: E-government services look secured for carry out	3.24	0.895	1	5	Medium

transaction. (security)					
5. SQ5: E-government services provide ease of access the site. (ease of access)	3.29	0.950	1	5	Medium

4.3.2 Information Quality

From the result in table 4.3, the highest perception is on IQ4 (information reliability) mean scores were 3.65 (SD= 0.842), follow by IQ2 (accuracy) 3.52 (SD= 0.791). Thereby, the medium perception is on IQ1 (contents) 3.21 (SD= 0.940) and IQ3 (timeliness) the mean scores were 3.07 (SD= 0.943). In this study information accuracy and information reliability is the most importance perceptions for respondents to perceived information quality.

Table 4.3 Information quality perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. IQ1: E-government services provide sufficient content where I want to find information. (contents)	3.21	0.940	1	5	Medium
2. IQ2: The information of e-government services is accurate. (accuracy)	3.52	0.791	1	5	High
3. IQ3: E-government services provide up to date information. (timeliness)	3.07	0.943	1	5	Medium
4. IQ4: E-government services provide reliable information as I need. (information reliability)	3.65	0.842	1	5	High

4.3.3 Service Quality

The table 4.4 present respondents' perceptions toward service quality of e-government services. Below, the results show that the most perception toward service quality of e-government services has a medium level. Except for SVQ3 (empathy) which is perception has a high level, the mean scores were 3.52 (SD= 0.939). From the result indicate that the most service quality of e-government services is medium level in their respondent's perceptions.

Table 4.4 Service quality perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. SVQ1: When I have problems, E-government services take care of problems promptly. (responsiveness)	2.93	0.930	1	5	Medium
2. SVQ2: E-government services tell me what to do if my transaction have problem. (contact)	3.39	0.964	1	5	Medium
3. SVQ3: E-government services provide a telephone number to reach the government agencies. (empathy)	3.52	0.939	1	5	High
4. SVQ4: E-government services have customer service representatives available online. (e.g. e-mail, web board) (assurance)	3.24	0.908	1	5	Medium

4.3.4 Facilitating Condition

Table 4.5 illustrates facilitating condition that influences the perceptions of citizens. This perceptions occurs in high level overall items include FC1 **(**resources required to use), FC2 **(**hardware and software), FC3 **(**financial resource) and FC4 (knowledge). It would appear that respondents tend to agree with all items of questionnaire. Thus, facilitating condition is not barrier for citizen's to use e-government services.

Table 4.5 Facilitating condition perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. FC1: Resources required to use e-government services were available for them.	3.69	0.986	1	5	High
2. FC2: They can access to the hardware and software and services needed to use e-government services.	3.61	0.941	1	5	High
3. FC3: Financial resource is not a barrier for them to using e-government services.	3.51	1.060	1	5	High
4. FC4: They have knowledge necessary to use e-government services.	3.58	0.914	1	5	High

4.3.5 Self-Efficacy

Self-efficacy perception was illustrated in table 4.6. The results show that perceptions about self-efficacy from respondents have a high level on overall of items. The mean scores indicate that the respondents have confident to complete their task on e-government services.

Table 4.6 Self-efficacy perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. SE1: They feel comfortable using e-government services.	3.60	0.887	1	5	High
2. SE2: They could easily operate any of the equipment to use e-government services.	3.68	0.854	1	5	High
3. SE3: They able to use the e-government services even if there was no one around to show how to use.	3.59	0.932	1	5	High

4.3.6 Social Influence

The perceptions about social influence toward e-government services are illustrated in figure 4.7. In overall items respondents have perception on medium level. The results show that social pressure is lead respondents to using e-government services in medium level.

Table 4.7 Social influence perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. SI1: They peers/ colleagues/ friends thing that they should use e-government services.	3.20	0.915	1	5	Medium
2. SI2: People they knew influence to try out e-government services.	2.94	0.999	1	5	Medium

3. SI3: They use e-government services because it is very famous.	3.35	0.938	1	5	Medium
4. SI4: They use e-government services because many people use it.	2.96	0.998	1	5	Medium

4.3.7 Personal Innovativeness in IT

The results, as show in table 4.8 most of personal innovativeness in IT include PIIT1 (look for ways to experiment with new information technology) and PIIT3 (like to experiment with new information technologies), the perception are high level. Except for PIIT2 (they usually the first to try out new information technologies) which is perception has medium level, the mean scores were 3.19 (SD= 1.004). The results show that respondents willing to using e-government services when they are a personal innovativeness.

Table 4.8 Personal innovativeness in IT perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. PIIT1: If they heard about a new information technology they would look for ways to experiment with it.	3.72	0.976	1	5	High
2. PIIT2: Among they peers they usually the first to try out new information technologies.	3.19	1.004	1	5	Medium
3. PIIT3: They like to experiment with new information technologies.	3.60	0.958	1	5	High

4.3.8 Perceived Ease of Use

The perceptions of perceived ease of use were illustrated in table 4.9. The scores for each item are equal among high and medium level. The data were show respondents think learning to use e-government services is easy (PEOU1), the mean scores were 3.55 (SD= 0.851) and interaction with e-government services is clear and understandable (PEOU2) mean scores were 3.47 (SD= 0.825), the result relatively high level of perception. From the results indicate that respondents perceived the importance to get easy to use and clear and they can understand when using e-government services.

Table 4.9 Perceived ease of use perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. PEOU1: Learning to use e-government services is easy.	3.55	0.851	1	5	High
2. PEOU2: Interaction with e-government services is clear and understandable.	3.47	0.825	1	5	Medium
3. PEOU3: They thing it easy to get e-government services to do what they want to do.	3.47	0.858	1	5	Medium
4. PEOU4: It is easy for them to become skilful at using e-government services.	3.42	0.854	1	5	Medium

4.3.9 Perceived Usefulness

From the results in table 4.10, the most perceptions about perceived usefulness reveal that, using e-government services make it easier to do citizens tasks (PU2) mean scores were 3.52 (SD= 0.915), using e-government services enhances the efficiency of citizens task (PU3) 3.51 (SD= 0.864) and citizens find e-government

services useful in their task (PU4) mean scores were 3.69 (SD= 0.861) have a high perceptions. The results also suggest that most respondents were thinking using e-government services is useful for them.

Table 4.10 Perceived usefulness perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. PU1: Using e-government services would enhance them to accomplish task more quickly.	3.48	0.898	1	5	Medium
2. PU2: Using e-government services make it easier to do their tasks.	3.52	0.915	1	5	High
3. PU3: Using e-government services enhances the efficiency of their task.	3.51	0.861	1	5	High
4. PU4: They find e-government services useful in their task.	3.69	0.895	1	5	High

4.3.10 Intention to Use

The perceptions about intention to use toward e-government services are illustrated in figure 4.11. The mean value overall of item include; (IN1) respondents will use e-government services in the future, (IN2) respondents will frequently use e-government services and (IN3) respondents will recommend others to use e-government services the perceptions are high level and IN1 items a mean score very near 4 (3.80). Thus, the results also suggest that most users tend to agree with the questions that posed about intention to use.

Table 4.11 Intention to use perception of e-government services

Measurement items	Mean (n = 400)	Standard deviation (n = 400)	Min	Max	Interpretation
1. IN1: They will use e-government services in the future.	3.80	0.881	1	5	High
2. IN2: They will frequently use e-government services in the future.	3.60	0.914	1	5	High
3. IN3: They will recommend others to use e-government services.	3.59	0.905	1	5	High

4.3.11 Overall Perception of All Constructs

The table 4.12 shows the mean, standard deviation for all of perceptions. Following tables 4.12, most perception about behavior or personality traits the score were high level of agreement. The highest value of perception was self-efficacy follow by facilitating condition, perceived usefulness and personal innovativeness in IT, respectively. But the mean value of system traits has a medium level of agreement include system quality, information quality and service quality. This suggested that citizens feel confident, interest in innovative technology and they have resources support to using e-government services and they feel e-government offered useful services to them.

Table 4.12 Perception of all constructs

Item	Mean (n = 400)	Standard deviation (n = 400)	Interpretation
System quality	3.31	0.717	Medium
Information quality	3.36	0.695	Medium
Service quality	3.27	0.743	Medium
Facilitating condition	3.60	0.780	High
Self-efficacy	3.62	0.774	High
Social influence	3.11	0.752	Medium
Personal innovativeness in IT	3.51	0.832	High
Perceived ease of use	3.48	0.742	Medium
Perceived usefulness	3.55	0.784	High
Intention to use	3.67	0.831	High

4.4 Hypotheses Testing

In this study, researcher has conducted the following statistical analysis to test our hypotheses. Firstly, researcher used one-way analysis of variance (ANOVA) technique to test the possible effects of level of education, internet experience, frequencies using e-government services on overall constructs. Secondly, researcher uses multiple regression analysis for investigated factor that influence e-government services from citizens' acceptance.

4.4.1 One-Way Analysis of Variance (ANOVA)

In order to use one-way analysis of variance (ANOVA) that was divided in three parts. Firstly, researcher conducted one-way analysis of variance (ANOVA) to

compare the means of all constructs in the dimension of education. Secondly, researcher tests the possible effect of internet experience on overall constructs. Finally, researcher compares the means of all constructs in the dimension of frequencies using e-government services.

• Education

From the table 4.13 data were also analyzed to examine the influence of level of education on all factors. When being compare the mean of education level toward the overall perceptions. The level of education include high school or below, associate's or bachelor's degree and master's degree or higher. The tables 4.13 that suggest citizens who have difference level of education are significant difference perception on facilitating condition and self-efficacy. Additionally, the significant difference were found facilitating condition p value = 0.037 and self-efficacy p value = 0.048.

For system quality, information quality, service quality, social influence, personal innovativeness in IT, perceived ease of use, perceived usefulness and intention to use, no significant differences were found among the three groups.

From the results levels of education have influence citizens perception on facilitation condition and self-efficacy than other factors. Post-hoc range tests by the Tukey statistic were performed pair-wise comparison tests. Significant difference for the dimension of education levels show that: (i) different of facilitation condition were significant between high school or below and master's degree or higher; (ii) different of self-efficacy were significant between high school or below and associate's or bachelor's degree; and between high school or below and master's degree or higher.

The results revealed that the citizens had different level of education, and those who had master's degree or higher perceived a higher perception of facilitating condition and self-efficacy than other groups.

These difference might be explained by aspirations for higher levels of education driving citizen have comfortable and available resource when them using e-government.

Table 4.13 One way ANOVA analysis for difference in overall constructs

Scale items	Mean value of High school or below (n = 46)	Mean value of Associate's or bachelor's degree (n = 295)	Mean value of Master's degree or higher (n= 59)	*p*-value
System quality	3.31	3.30	3.35	0.892
Information quality	3.41	3.37	3.31	0.720
Service quality	3.36	3.25	3.27	0.635
Facilitating condition	3.37	3.60	3.76	0.037*
Self-efficacy	3.37	3.65	3.72	0.048*
Social influence	3.14	3.12	3.07	0.870
Personal innovativeness in IT	3.43	3.51	3.53	0.789
Perceived ease of use	3.32	3.48	3.60	0.166
Perceived usefulness	3.41	3.57	3.56	0.445
Intention to use	3.46	3.68	3.74	0.172
Remark: *= *p*-value significance at the 0.05				

- **Internet Experience**

From the table 4.14 data also analyzed to examine the difference of internet experience toward overall construct. When being compare the mean of the same construct among year of internet experience into the four groups include below 1 year, 1-3 years, 3-5 years and over 5 years. The significant difference were found on facilitating condition (p = 0.000), self-efficacy (p = 0.001) and personal innovativeness in IT (p = 0.003). These results can be described as citizens who have the difference of internet experience are significant difference perception on facilitating condition, self-efficacy and personal innovativeness in IT toward e-government services.

For system quality, information quality, service quality, social influence, perceived ease of use, perceived usefulness and intention to use, no significant differences were found among the four groups.

From the results reveal that experience of internet relate citizen's perceptions on facilitating condition, self-efficacy and personal innovativeness in IT. Post-hoc range tests by the Tukey statistic were performed pair-wise comparison tests. Significant difference for the dimension of internet experience show that: (i) different of facilitating condition were significant between below 1 years and over 5 years; between 1-3 years and over 5 years; and between 3-5 years and over 5 years; (ii) different of self-efficacy were significant between below 1 years and over 5 years; and between 3-5 years and over 5 years; (iii) different of personal innovativeness in IT were significant between 3-5 years and over 5 years.

The results revealed that the citizens had different experience of internet, and those who had experience over 5 years perceived a higher perception of facilitating condition, self-efficacy and personal innovativeness in IT than other groups.

Table 4.14 One way ANOVA Analysis for difference in overall constructs

Scale items	**Mean value of below 1 years (n = 14)**	**Mean value of 1-3 years (n = 36)**	**Mean value of 3-5 years (n = 69)**	**Mean value of over 5 years (n = 281)**	***p*-value**
System quality	3.13	3.29	3.31	3.32	0.811
Information quality	3.16	3.48	3.37	3.36	0.533
Service quality	3.16	3.40	3.24	3.26	0.690
Facilitating condition	3.09	3.37	3.31	3.72	0.000*
Self-efficacy	3.17	3.39	3.41	3.73	0.000*
Social influence	3.12	3.12	3.03	3.13	0.801
Personal innovativeness in IT	3.12	3.40	3.25	3.60	0.003*
Perceived ease of	3.20	3.52	3.37	3.51	0.227

use					
Perceived usefulness	3.32	3.62	3.44	3.58	0.341
Intention to use	3.31	3.55	3.56	3.73	0.111
Remark: *= *p*-value significance at the 0.05					

• Frequency of Use E-government Services

The table 4.15 present, when being compare the mean of the same construct among year of internet experience include one time every day at least, one time every week at least, one time every month at least and one time every year at least. The significant difference were found on system quality (p = 0.010), service quality (p = 0.031), social influence (p = 0.022) and intention to use (p = 0.000). These results can be described as citizens who have the difference of frequency of use e-government services are significant difference perception on intention to use, system quality, service quality and social influence toward e-government services.

For information quality, facilitating condition, self-efficacy, personal innovativeness in IT, perceived ease of use and perceived usefulness no significant differences were found among the four groups.

From the results the difference frequencies using e-government services have influence citizens' perceptions on system quality, service quality and social influence. Post-hoc range tests by the Tukey statistic were performed pair-wise comparison tests. Significant difference for the dimension of frequency of use e-government services show that: (i) different of system quality were significant between one time every day at least and one time every month at least; and between one time every day at least and one time every year at least; (ii) different of service quality were significant between one time every day at least and one time every year at least; (iii) different of social influence were significant between one time every day at least and one time every month at least.

The results revealed that the citizens had different frequency of use of e-government services, and those who used e-government services at least one time

every day perceived a higher perception of system quality, service quality, social influence and intention to use the services than other groups.

Table 4.15 One way ANOVA analysis for difference in overall constructs

Scale items	**Mean value of one time every day at least (n= 120)**	**Mean value of one time every week at least (n = 108)**	**Mean value of one time every month at least (n = 108)**	**Mean value of one time every year at least (n = 64)**	***p*-value**
System quality	3.46	3.34	3.21	3.15	0.010*
Information quality	3.47	3.37	3.31	3.25	0.186
Service quality	3.36	3.32	3.25	3.03	0.031*
Facilitating condition	3.51	3.58	3.65	3.70	0.358
Self-efficacy	3.65	3.63	3.64	3.55	0.850
Social influence	3.27	3.12	2.98	3.03	0.022*
Personal innovativeness in IT	3.51	3.47	3.51	3.54	0.944
Perceived ease of use	3.54	3.50	3.46	3.34	0.381
Perceived usefulness	3.67	3.55	3.47	3.48	0.215
Intention to use	3.90	3.71	3.49	3.45	0.000*
Remark: *= *p*-value significance at the 0.05					

4.4.2 Structural Model Test

Structural equation modeling (SEM) was used to predict the relationship between factors in the research model (Path Analysis). The propose hypotheses were

analyzed, LISREL 8.8 (student) software was tool that used to analysis the data in this study.

A preliminary test to check multi-collinearity problem of data was analyzed by employs the correlations. This analyzed found, all factors the correlation value below 0.8 and supported at the 0.01 level, no multi-collinearity problem in our variables as shown in Table 4.16.

Table 4.16 The result of Correlation Analysis of variables

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
SQ	1.000									
IQ	0.654**	1.000								
SVQ	0.651**	0.695**	1.000							
FC	0.238**	0.282**	0.349**	1.000						
SE	0.449**	0.480**	0.534**	0.573**	1.000					
SI	0.474**	0.448**	0.559**	0.308**	0.465**	1.000				
PIIT	0.317**	0.356**	0.404**	0.393**	0.520**	0.381**	1.000			
PEOU	0.540**	0.502**	0.587**	0.367**	0.643**	0.486**	0.557**	1.000		
PU	0.584**	0.570**	0.636**	0.368**	0.607**	0.531**	0.399**	0.686**	1.000	
IN	0.471**	0.447**	0.500**	0.359**	0.599**	0.502**	0.404**	0.577**	0.638**	1.000
** Correlation is significant at the 0.01 level (2-tailed).										

The overall index values were assessed to measurement model for a good model fit (see Table 4.17), the chi-square value at 8.73 and degrees of freedom at 7. The results indicate that the ratio of chi-square to degrees of freedom (χ^2/df) at 1.24, GFI at 1.00, AGFI at 0.97, NFI at 1.00, CFI at 1.00, RMR at 0.00, RMSEA at 0.03 and *p*-value at 0.27 all values were acceptance and indicate a good model fit. Moreover, researcher evaluates the instrument in terms of reliability and convergent validity that show in previous chapter. Reliability of all factors was assessed by Cronbach's alpha and convergent validity was assessed by factor loading, all factors in the research model show that adequate reliability and convergent validity. The explained variance

of perceived ease of use, 69%; perceived usefulness, 59%; intention to use, 59%, respectively.

Table 4.17 Fit indices for measurement

Goodness-of-fit measure	Recommended value*	Model value
Fit measures		
χ^2/degree of freedom	≤ 3.00	1.24
Goodness-of-fit (GFI)	≥ 0.90	1.00
Adjusted goodness-of-fit (AGFI)	≥ 0.80	0.97
Normalized fit index (NFI)	≥ 0.90	1.00
Non-normalized fit index (NNFI)	≥ 0.90	1.00
Comparative fit index (CFI)	≥ 0.90	1.00
Root mean square residual (RMR)	≤ 0.05	0.00
Root mean square error of approximation (RMSEA)	≤0.10	0.03

*Recommended values have been adapted since Hair et al. (1998)

- **Explaining Perceived Usefulness**

The effect of user's perception about system quality, information quality, service quality, social influence and perceived ease of use positively affects perceived usefulness toward the intention of citizen to accept e-government services respectively. Perceived usefulness was entered as dependent variable, and perceived ease of use, service quality, system quality, social influence, and information quality were entered as independent variables. The five factors can explain 59% of the variance in perceived usefulness of e-government services. System quality (β = 0.13, p < 0.05), information quality (β = 0.12, p < 0.05), service quality (β = 0.18, p < 0.01), social influence (β = 0.15, p < 0.001) and perceived ease of use (β = 0.42, p < 0.001) were found significantly positively to affect perceived usefulness of e-government services. Perceived ease of use was the stronger predictor of perceived usefulness, followed by service quality, social influence, system quality, and information quality. Therefore, hypotheses H1, H3, H5, H9 and H13 were supported respectively.

• Explaining Perceived Ease of Use

Hypotheses H2, H4, H6, H7, H8 and H10 examine the effect of user's perception about information quality, system quality, service quality, self-efficacy, facilitating condition, and personal innovativeness in IT were the factors that significantly positively to affect perceived ease of use of e-government services. To perform the hypotheses testing, perceived ease of use was entered as dependent variable, and information quality, system quality, service quality, self-efficiency, facilitating condition, and personal innovativeness in IT were entered as independent variables. The R^2 value for this analysis explains 69% of the variance in perceived ease of use of e-government services. Self-efficacy (β= 0.58, p < 0.001) had the strongest impact perceived ease of use, follow by personal innovativeness in IT (β= 0.15, p < 0.001), system quality (β= 0.17, p < 0.001) and service quality (β= 0.13, p < 0.01). As a result, hypotheses H4, H6, H8 and H10 were supported. Other determinants did not have any significant effect on e-government services' perceived ease of use.

• Explaining Intention to Use E-government Services

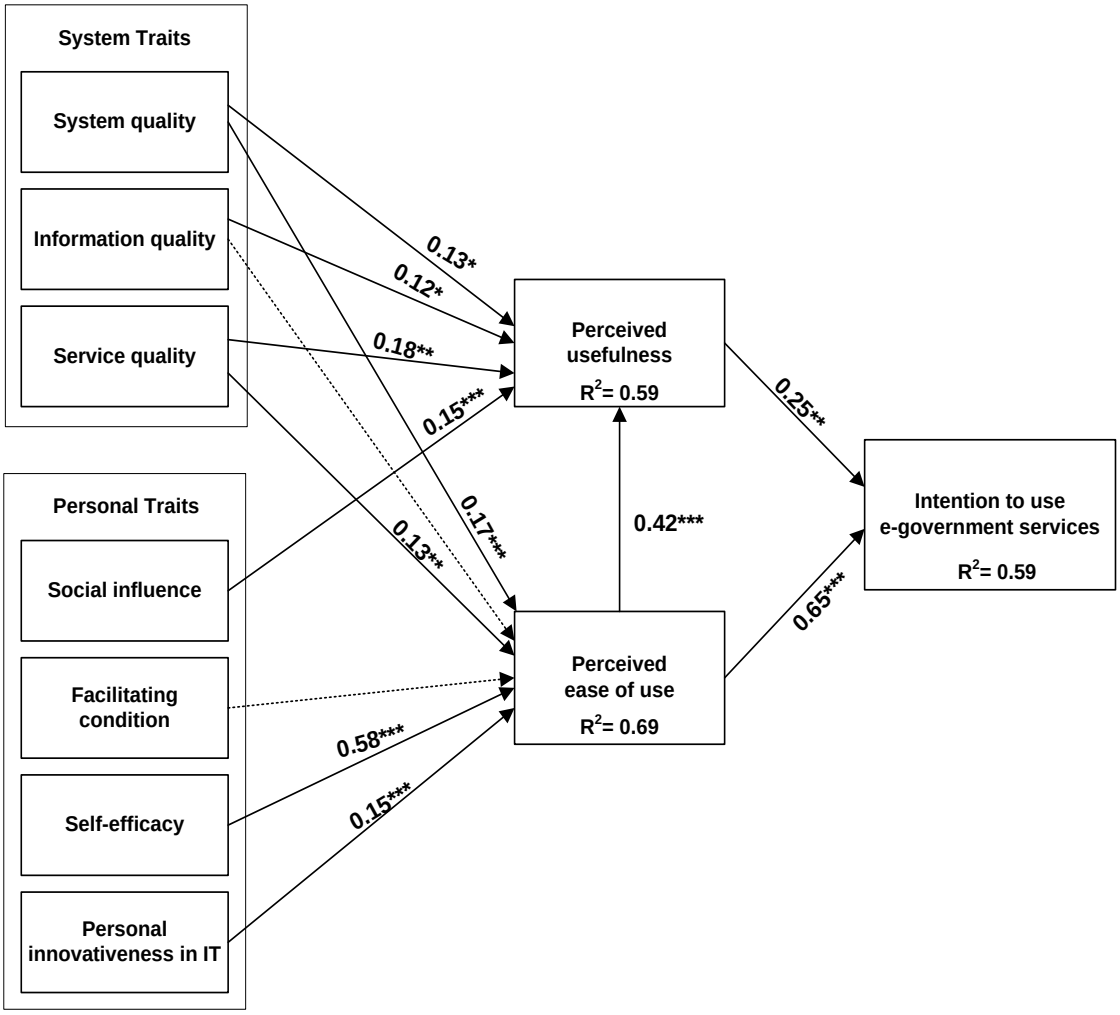
Perceived usefulness H11 and perceived ease of use H12 were positively affects the intention of citizen to accept e-government services respectively. Therefore, hypotheses H11 and H12 were support. Intention to use was entered as dependent variable, and perceived usefulness and perceived ease of use were entered as independent variable. The R^2 value for this analysis was 0.59, which can explain 59% of the variance in citizen intention to use e-government services. From the result it was also found that impact of perceived ease of use (β= 0.65, p < 0.001) was much stronger predictor of intention to use than perceived usefulness (β= 0.25, p < 0.01). This result was supported perceived usefulness and perceived ease of use had significant effects on intention to use e-government services. Total result 11 hypotheses supported and 2 hypotheses were not supported. The results of hypotheses testing were presented in Table 4.19.

Table 4.18 Results of test of e-government services acceptance model

	Beta	**R^2**
(1) Perceived usefulness (PU)		0.59
PU = SQ+IQ+SVQ+SI+PEOU		
SQ	0.13*	
IQ	0.12*	
SVQ	0.18**	
SI	0.15***	
PEOU	0.42***	
(2) Perceived ease of use (PEOU)		0.69
PEOU = SQ+IQ+SVQ+FC+SE+PIIT		
SQ	0.17***	
IQ	-0.02	
SVQ	0.13***	
FC	-0.09	
SE	0.58***	
PIIT	0.15***	
(3) Intention to use (IN)		0.59
IN = PU+PEOU		
PEOU	0.65***	
PU	0.25**	

* 0.05 significance level.
** 0.01 significance level.
*** 0.001 significance level.

From the results of hypotheses tests, researcher can show the statistical significant on research model as follow. Eleven hypotheses were supported and two hypotheses were rejected.



* 0.05 significance level.
** 0.01 significance level.
*** 0.001 significance level.

Note: Dotted line indicates that the path relationship is not significant

Figure 4.11 Statistical significant of an extended TAM

Table 4.19 Summary of hypotheses testing

Hypotheses	Description	Result
Hypothesis 1	System quality will have a positive effect on the perceived usefulness of e-government services.	Supported
Hypothesis 2	System quality will have a positive effect on perceived ease of use of e-government services.	Supported
Hypothesis 3	Information quality will have a positive effect on perceived usefulness of e-government services.	Supported
Hypothesis 4	Information quality will have a positive effect on perceived ease of use of e-government services.	Not supported
Hypothesis 5	Service quality will have a positive effect on perceived usefulness of e-government services.	Supported
Hypothesis 6	Service quality will have a positive effect on perceived ease of use of e-government services.	Supported
Hypothesis 7	Self-efficacy will have a positive effect on perceived ease of use of e-government services.	Supported
Hypothesis 8	Facilitating conditions will have a positive effect on perceived ease of use of e-government services.	Not supported
Hypothesis 9	Social influence will have a positive effect on perceived usefulness of e-government services.	Supported
Hypothesis 10	Personal innovativeness in IT will have a positive effect on perceived ease of use of e-government services.	Supported
Hypothesis 11	Perceived usefulness will have a positive effect on intention to use of e-government services.	Supported
Hypothesis 12	Perceived ease of use will have a positive effect on intention to use of e-government services.	Supported
Hypothesis 13	Perceived ease of use will have a positive effect on perceived usefulness of e-government services.	Supported

4.5 Discussion of Findings

The research discussions are shown as follows:

This study explained factors influence citizen's toward acceptance of e-government services context in Thailand. The result showed that personality trait (self-efficacy, social influence and personal innovativeness in IT) and system trait (system quality, information quality and service quality) lead citizens' acceptance and use e-government services. The extended the Technology Acceptance Model (TAM) was tested the impact of this concept for analyzing citizens' perception toward e-government services intention from G2C context.

Hypothesis 1: System quality will have a positive effect on perceived usefulness of e-government services.

Hypothesis 2: System quality will have a positive effect on perceived ease of use of e-government services.

The research reveals that system quality significantly affected perceived usefulness and perceived ease of use (H1 and H2). This is again consistent with the results of previous studies (Kim et al., 2008; Ahn et al., 2007). When citizens perceive a high system quality in using e-government services, they should sense that it is useful and simple which will lead to use the services. Thus, system quality should be improved by government IT staff to enhance the perception of useful and easy to use. Online e-government services should also provide ease of navigation, availability, response time, security, and ease of access on government internet services. These results have implication to government need to consider on the operating e-government service. If citizens find an e-government services difficult to navigate or delays of interact, they will not visit the websites again.

Hypothesis 3: Information quality will have a positive effect on perceived usefulness of e-government services.

Hypothesis 4: Information quality will have a positive effect on perceived ease of use of e-government services.

Information quality significantly affected perceived usefulness (H3), as information quality of website can enhance citizens' perception of perceived usefulness in e-government services context. This result is consistent with the finding of Ahn et al. (2007) and Kim et al. (2008). Government websites should concentrate on development of high information quality. If the websites are not capable of providing good contents, accuracy of information, update information, and information reliability which are important for citizens, it is likely that they will not consider using the websites. Thus, the government should improve information quality of their websites to achieve citizens' satisfaction. However, it is surprising that information quality of website is not important to citizen's perception of ease of use (H4). The result is consistent with the results of previous studies (Chang et al., 2005; Kim et al., 2008). Perceiving more information quality does not lead to less complication in using e-government services. In sum, information quality has significant affect citizens' intention to acceptance e-government services due to its perceived usefulness, not its perceived ease of use in this field.

Hypothesis 5: Service quality will have a positive effect on perceived usefulness of e-government services.

Hypothesis 6: Service quality will have a positive effect on perceived ease of use of e-government services.

The influence of service quality on perceived usefulness and perceived ease of use to acceptance e-government service is significant (H5 and H6). The result is consistent with the findings of other studies (Ahn et al., 2007). The citizens who receive greater service quality the more likely that lead them think e-government useful and less difficult to use. It appeared that when citizens using e-government websites, they want to feel care from government services. This study suggests that if e-government websites need to improve service quality, government should offer a

high level of service by provide with responsiveness, empathy, assurance and the ways to contact government when citizens have problem (e.g., telephone, mail).

Hypothesis 7: Self-efficacy will have a positive effect on perceived ease of use of e-government services.

This study reveals that self-efficacy has a positive influence on perceived ease of use (H7) and found to have the most significant than other factors. The result is consistent with the results of previous studies (Venkatesh, 2000; Gu et al., 2009; Hernandez et al., 2009). Thus, self-efficacy was a key factor for predicted citizens' intention toward e-government services acceptance. This implies that self-efficacy made citizens feel no effort throughout the use of e-government services. Therefore, self-efficacy considerably improved the perception on simplicity of e-government services.

Hypothesis 8: Facilitating conditions will have a positive effect on perceived ease of use of e-government services.

Facilitating condition non-significant affected perceive ease of use (H8). This is again consistent with the results of previous studies (Hung et al., 2003; Lu et al., 2008). It can be seen that resources support such as personal computers, internet service for citizens, knowledge are directly impact to citizens feel using e-government services not barriers for them. Our respondents rate 3.60 of mean value probably because they are internet users they have much resources support to use e-government services. Thus, facilitating condition not the factor that leads citizens' acceptance e-government services in this study.

Hypothesis 9: Social influence will have a positive effect on perceived usefulness of e-government services.

Social influence affected usefulness of e-government services (H9). This is again consistent with the results of previous studies (Taylor and Todd, 1995). This

suggested that as social influence increase this leads to more intention to use to acceptance e-government services. This implies that citizens would find e-government services more useful when they receive more influence from their peers, parents or friends. Thus, more social pressure was important to citizens' decision to use government online services.

Hypothesis 10: Personal innovativeness in IT will have a positive effect on perceived ease of use of e-government services.

Personal innovativeness in IT significantly affected perceived ease of use (H10). The result is consistent with the results of previous studies (Lu et al., 2005; Lu et al., 2008; Raaij and Schepers, 2008; Kuo and Yen, 2009). This implied that the more personal innovativeness in IT of citizens, help the easier they use e-government services. Citizens who have more personal innovativeness they consider the ease of use of e-government services. It was suggested that government should support necessary technical infrastructure to overcome barriers of accessing and to facilitate the intention to acceptance use e-government services.

Hypothesis 11: Perceived usefulness will have a positive effect on intention to use of e-government services.

Hypothesis 12: Perceived ease of use will have a positive effect on intention to use of e-government services.

Hypothesis 13: Perceived ease of use will have a positive effect on perceived usefulness of e-government services.

The finding showed that perceived usefulness was significant affected by system quality, information quality, service quality, social influence, and perceived ease of use. The higher level of perceived usefulness, the high level of intention to use e-government services it will be. This result found that perceived usefulness was the important factor that influences the acceptant of e-government services, which was

consistent with previous studies in TAM (Davis et al., 1989; Taylor and Todd, 1995; Moon and Kim, 2001). Citizen's intention to use e-government services when they find it useful for them to increase efficiency. These result similar findings from the studies within the context of e-government (Fu et al., 2006).

Personal innovativeness in IT, self-efficacy, service quality and system quality have influence on perceived ease of use, which were predicting the intention to use e-government services. The results indicate that perceived ease of use is the most important factor in predicting perceived usefulness. This is again consistent with the results of previous studies (Davis et al., 1989; Taylor and Todd, 1995; Moon and Kim, 2001). Government agencies should pay attention how e-government services provide less difficult. E-government websites should provide easy way for citizens to find information and services they need.

As for intention, both usefulness and ease of use have a direct effect on intention to acceptance e-government services (H11 and H12). This is again consistent with the results of many TAM studies (Taylor and Todd, 1995; Moon and Kim, 2001; Jung et al., 2009; Lu et al., 2009). The finding reveals that perceived ease of use is the most importance factors which influence on citizens' behavior intention toward e-government services. This result is consistent with the finding of Kwon and Wen, 2010 and Wang, 2002. Moreover, perceived usefulness has a positive effect by perceived ease of use of e-government services (H13). This is again consistent with the results of other studies (Davis et al, 1989; Taylor and Todd, 1995; Moon and Kim, 2001; Lee et al., 2009; Lu et al., 2009; Gu et al., 2009). From the result, it can be implied that perceived usefulness was encouraging citizen's intention because of the belief that e-government services was useful. Confidence of citizens in using e-government services was an important factor of citizens' intention. Citizens perceive e-government services useful because the services are easy to use. For e-government services, not only usefulness and ease of use are important, but other factors also have influences on willingness of citizens to use it such as personality trait and system trait of information system.

CHAPTER V
CONCLUSION AND RECOMMENDATIONS

According to the results in the previous chapter, the study conclusions and limitation and recommendations for future research are presented as follows;

5.1 Conclusions

Many governments have developed their services on websites. These services aim to provide citizens with great benefits. However, various services are not accepted by citizens. The main purpose of this research was to study citizens' behavior when they make decision to use e-government services. The results showed that the research model is able to predict citizens' acceptance on e-government services. This research extended TAM by using Delone and Mclean IS success model (system quality, information quality, service quality) and personality traits (social influence, self-efficacy, facilitating condition and personal innovativeness in IT) which affect perceived usefulness and perceived ease of use for research model of e-government context. The survey was conducted by collecting data from 400 respondents who internet users are living in Bangkok, Thailand. According to this research, the researcher found two factors of TAM (perceive usefulness and perceived ease of use) and_external factors (system quality, information quality, service quality, social influence, self-efficacy, personal innovativeness in IT) which extend TAM are also important factors for e-government users to accept this service. The key factors of intention in e-government service are perceived usefulness and perceived ease of use.

Respondents of this study are young and well-educated. The results showed that most of respondents have experiences in internet use over 5 years and spend time to surf the internet over 7 hours per week. Respondents use internet in their school, university or their work place more than others place.

The following websites; www.ecitizen.go.th (government portal website) and www.rd.go.th (online tax filing website) which is online catalogue and online transaction website are widely used by citizens. Most respondents use e-government services to search information or download forms and use e-government services at least one time every day. Moreover, the result showed type of e-government in G2C context. The perception of citizens in each factor on e-government services acceptance, according to descriptive statistics could be described as follows; firstly the perception of system quality was medium with the mean of 3.31. The perception of information quality was medium with the mean of 3.36. Mean of the perception of service quality was 3.27. Mean of the perception of facilitating condition was 3.60 and mean of the perception of self-efficacy was 3.62. The perception of social influence was medium with the mean of 3.11 while perception of personal innovativeness in IT was high with the mean of 3.51. The perception of perceived ease of use was medium with the mean of 3.48. Respondents have perceptions of perceived usefulness on e-government services in the high level with the mean of 3.55. Finally, the perception of intention to use was in the highest level with the mean of 3.67. The findings revealed that facilitating condition, self-efficacy, personal innovativeness in IT, perceived usefulness and intention to use influence citizens' perception in the high level. The results indicated that citizens perceive personal traits rather than system traits.

This research considered other individual differences in various dimensions. In addition, the results of One-Way Analysis of Variance (ANOVA) test related with education level showed that: (i) Citizens with education level between high school or below and master degree or over have different perception of facilitation condition**.** (ii) Citizens with education level between high school or below and bachelor degree and citizens with education level between high school or below and master's degree or higher have different perception of self-efficacy. Education level influences citizens' perception of facilitation condition and self-efficacy rather than other factors.

The results of One-Way Analysis of Variance (ANOVA) test related with internet experience showed that: Citizens having internet experience between below 1

year and over 5 years; between 1-3 years and over 5 years; and between 3-5 years and over 5 years have different perception of facilitating condition. (ii) Citizens having internet experience between below 1 year and over 5 years; and between 3-5 years and over 5 years have different perception of self-efficacy. (iii) Citizens having internet experience between 3-5 years and over 5 years have different perception of personal innovativeness in IT. The results revealed that experience of internet correlates with citizen's perceptions of facilitating condition, self-efficacy and personal innovativeness in IT.

In addition, the results of One-Way Analysis of Variance (ANOVA) test related with frequencies of using e-government services showed that: (i) Citizens having frequencies of using e-government services between at least one time every day and at least one time every month; and between at least one time every day and at least one time every year have different perception of system quality. (ii) Citizens having frequencies of using e-government services between at least one time every day and at least one time every year have different perception of service quality. (iii) Citizens having frequencies of using e-government services between at least one time every day and at least one time every month have different perception of social influence. According to the results, different frequencies of using e-government services influence citizens' perceptions of system quality, service quality and social influence.

The study results revealed that perceive ease of use of citizen is affected by self-efficacy, personal innovativeness in IT, service quality and system quality. The higher level of system quality, information quality, service quality, social influence, and perceived ease of use influence the higher level of perceived usefulness of e-government services. Finally, perceived usefulness and perceived ease of use influence intention to use e-government services. Perceive ease of use most affects intention to use. In addition, facilitating condition is not important to citizens when they make decision to use e-government services.

The results showed that eleven hypotheses are supported and two hypotheses are rejected. This study found that self-efficacy most affects behavior

intention through perceived ease of use. Therefore, it is important for government agencies to improve self-efficacy of citizens. According to the results, the researcher can present important factors path to lead to citizens' intention to use e-government service: self-efficacy → perceive ease of use → perceive usefulness → behavior intention. Citizens with high self-efficacy will make them feel that e-government services are easily used, making them want to use e-government services. Perceived ease of use should be supported from self-efficacy of citizens. Influence of self-efficacy makes citizens comfortable when using e-government services by themselves.

In the research model, perceived ease of use has more impact on usefulness toward intention to use e-government services. The results implied that citizens make decision to use e-government services because they can easily use e-government services. Usefulness makes citizens decide to use e-government services if the services are easily used.

The model variables have only explained 59% of the variance in citizens' intention to use e-government services. Therefore, further study is required to find other significant factors for the remaining 41% of the variance to find more intention to use.

5.2 Limitations and Recommendations for Future Research

This study has some limitations.

Firstly, the data gathered were focused on a specific group of citizens in Bangkok. It is not difficult to collect the sample groups but this study does not represent the whole populations, being limitation of this study. The sample size in future studies should include citizens in other area to compare difference.

Secondly, as there are a lot of different types of e-government services, the results might not be applied to some services. Future research needs to investigate specific type of e-government to evaluate factors which may influence citizens' acceptance.

Thirdly, future research may define system traits (system quality, information quality, service quality) as other dimensions. (i) System quality have: comprises system reliability, design, functionality, error-free transaction, flexibility, integration, accessibility; (ii) Information quality have: comprises format, completeness, detail, currency; (iii) Service quality have: comprises reliability, follow-up service, and competence.

Finally, only limited factors were focused in this study. For further research, a number of new factors must be considered as determinants of e-government services to effectively investigate users' intention such as web experience, perceived value of information system, computer anxiety, culture and awareness of service.

5.3 Recommendations

The research provides the government with some guidelines to improve its services provided to citizens. The researcher gave recommendations to government agencies and system developers as follows;

5.3.1 Recommendations for Government Agencies

To persuade people to use e-government services, the government should pay attention to eight factors which influence citizens' perception, found from this study. According to the above finding, the researcher provides strategies important to government agencies to create citizens' acceptance.

There are eight factors that support citizens' acceptance of e-government services in this study. Important factors of perceive usefulness towards intention to use e-government services are system quality, information quality, service quality, social influence and perceived ease of use. Perceived ease of use is the most important factor on perceived usefulness. The system quality, information quality, service quality, social influence have little effect on perceive usefulness. Benefits increase when citizens use e-government more easily. E-government services will achieve success if the government promotes benefits of e-government services. To improve perceived

usefulness, the government should try to make public relations to help make citizens understand the easy use of e-government service when using website such as brochures, media advertising and social network to improve usefulness of service.

Self-efficacy is the most important factor which stimulates citizen's perceived ease of use of e-government services. The Thai government should increase self-efficacy to e-government services usage. E-government websites should provide citizens with easily used system. Individuals have different self-efficacy which is the important factor which government needs to consider offering appropriate feature to help users efficiently do their work in website. To increase level of citizen's intention, citizens have to feel more confident when using e-government services.

5.3.2 Recommendations for System Developers

According to this study, personality factors more influence intention to use than system factors especially self-efficacy factor. Easy use is the main reason that makes citizens decides to use e-government services. Focus on self-efficacy leads more perceived ease to use, which will support their acceptance of e-government services. To meet citizens' need, system developers should consider opportunities that improve citizen's self-efficacy by making citizens have much confidence in using e-government services. There are various ways to improve self-efficacy, Gu et al. (2009) suggested that, to increase self-efficacy, user-friendly interface, guidance and specialized instruction are needed to develop for user perceived easy to use. The government agencies should design applications to provide user-friendly interface of e-government website, well features of website, offer clear navigation or tool to support user, offer more information to improve users' understanding of work processes in each e-government websites. This study suggested that users' self-learning mechanisms are essential for system developers to provide easy use of e-government service for all levels of users. Training programs should be provided to help citizens improve ability in utilizing e-government service.

REFERENCES

Agarwal, R., & Prasad, P. (1998). A conceptual and operational definition of personal innovativeness in the domain of information technology. *Information Systems Research*, 9(2), 204 - 215.

Aggelidis, V.P., & Chatzoglou, P. D. (2009). Using a modified technology acceptance model in hospitals. *International journal of medical informatics*, 78(2), 115 - 126.

Ahn, T., Ryu, S., & Han, I. (2007). The impact of web quality and playfulness on user acceptance of online retailing. *Information & Management*, 44(3), 263 - 275.

Akinci, S., Eda, A-I., & Aksoy, S. (2010). Re-assessment of E-S-Qual and E-RecS-Qual in a pure service setting. *Journal of Business Research,* 63(3), 232 - 240.

Akman, I., Yazicib, A., Mishra, A., & Arifoglu, A. (2005). E-Government: A global view and an empirical evaluation of some attributes of citizens. *Government Information Quarterly*, 22(2), 239 - 257.

Aladwania, A. M., & Palvia, P. C. (2002). Developing and validating an instrument for measuring user-perceived web quality. *Information & Management*, 39(6), 467 - 476.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *Amarican Psychologist*, 37(2), 122 - 147.

Barnes, S. J., & Vidgen, R. T. (2006). Data triangulation and web quality metrics: A case study in e-government. *Information & Management* 43(6), 767 - 777.

Bernroider, E.W.N. (2008). IT governance for enterprise resource planning supported by the DeLone-McLean model of information system success. *Information & Management*, 45(5), 257 - 269.

Carter,L., & Belanger, F. (2003). The Influence of Perceived Characteristics of Innovating on e-Government Adoption. *Electronic Journal of e-Government*, 2 (1), 11 - 20.

Carter, L., & Belanger, F. (2005). The utilization of e-government services: citizen trust, innovation and acceptance factors. *Information Systems Journal*, 15(1), 5 - 25.

Chang, I.-C., Li, Y.-C., Hung, W.-F., & Hwang, H.-G. (2005). An empirical study on the impact of quality antecedents on tax payers' acceptance of Internet tax-filing systems. *Government Information Quarterly*, 22(3), 389 - 410.

Chou, C. (2003). Incidences and correlates of Internet anxiety among high school teachers in Taiwan. *Computers in Human Behavior*, 19(6), 731 - 749.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use and user acceptance of information technology. *MIS Quarterly*, 13 (3), 319 - 339.

Davis, F. D., Bagozz, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35(8), 982 - 1003.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research*, 3(1), 60 - 95.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems*, 19(4), 9 - 30.

Dı´ez, E., & McIntosh, B.S. (2009). A review of the factors which influence the use and usefulness of information systems. *Environmental Modeling & Software*, 24(5), 588 - 602.

Doll, W.J., & Torkzadeh, G. (1988). The measurement of End-User Computing Satiafaction. *MIS Quarterly*, 12(2), 259 - 274.

Fishbein, M., & Ajzen, I. (1975). Belief, intention and behavior: an introduction to theory and research. Addison Wesley.

Fu, J.-R., Farn, C.-K., & Chao, W.-P. (2006) Acceptance of electronic tax filing: A study of taxpayer intentions. *Information & Management*, 43(1), 109 - 126.

Gilbert, D., Balestrini, P., & Littleboy, D. (2004). Barrier and benefits in the adoption of e-government. *The International Journal of Public Sector Management*, 17(4), 286 - 301.

Gu, J.-C., Lee, S.-C., & Suh Y.-H. (2009). Determinants of behavioral intention to mobile banking. *Expert Systems with Applications*, 36(9), 11605 - 11616.

Ha, S., & Stoel, L. (2008). Consumer e-shopping acceptance: Antecedents in a technology acceptance model. *Journal of Business Research*, 62(5), 565 - 571.

Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. (1998). Multivariate Data Analysis with Readings. Englewood Cliffs, NJ: Prentice-Hall.

Hernandez, B., Jimenez, J., & Martin, M.J. (2009). The impact of self-efficacy, ease of use and usefulness on e-purchasing: An analysis of experienced e-shoppers. *Interacting with Computers*, 21(1-2), 146 - 156.

Hsu, M. K., Wang, S. W., & Chiu, K. K. (2009). Computer attitude, statistics anxiety and self-efficacy on statistical software adoption behavior: An empirical study of online MBA learners. *Computers in Human Behavior*, 25(2), 412 - 420.

Hung, S.-Y., Ku, C.-Y., Chang, C.-M. (2003). Critical factors of WAP services adoption: an empirical study. *Electronic Commerce Research and Applications*, 2(1), 42 - 60.

Hung, S.-Y., Chang C. M., & Yu, T. J. (2006). Determinants of user acceptance of the e-Government service: The case of online tax filling and payment system. *Government Information Quarterly*, 23(1), 97 - 122.

Hung, S.-Y., Tang, K.-Z., Chang, C.-M. & Ke, C.-D. (2009) User acceptance of intergovernmental service: an example of electronic document manage system. *Government Information Quarterly*, 26(2), 387 - 397.

Jung, Y., Perez-Mira, B., & Wiley-Patton, S. (2009). Consumer adoption of mobile TV: among psychological flow and media content. *Computer in Human Behavior*, 25(1), 123 - 129.

Kim, T.G., Lee, J.H., & Law R. (2008). An empirical examination of the acceptance behavior of hotel front office systems: An extended technology acceptance model. *Tourism Management*, 29(3), 500 - 513.

Kwon, O., Wen, Y. (2010). An empirical study of the factors affecting social network service use. *Computer in Human Behavior*, 26(2), 254 - 263.

Kuo, Y.-F., & Yen, S.-N. (2009). Towards an understanding of the behavioral intention to use 3G mobile value-added services. *Computers in Human Behavior*, 25(1), 103 - 110.

Layne, K., & Lee, J. (2001). Developing fully functional E-government: A four stage model. *Government Information Quarterly*, 18(2), 122 - 136.

Lee, H., Kim, J., & Kim, J. (2007). Determinants of success for application service provider: An empirical test in small businesses. *International Journal of Human-Computer Studies*, 65(9), 769 - 815.

Lee, J., & Rao, H. R. (2009). Task complexity and different decision criteria for online service acceptance: A comparison of two e-government compliance service domains. *Decision Support System*, 47(4), 424 - 435.

Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130 - 141.

Lee, S., & Kim, B.G. (2009). Factors affecting the usage of intranet: A confirmatory study. *Computers in Human Behavior*, 25(1), 191 - 201.

Lee, S.-Y.T., Kim, H.-W., & Guptab, S. (2009). Measuring open source software success. *Omega*, 37(2), 426 - 438.

Liao, C., Palvia, P., & Lin, H.-N. (2006). The roles of habit and web site quality in e-commerce. *International Journal of Information Management*, 26(6), 469 - 483.

Liao, C.-H., & Tsou C.-W. (2009). User acceptance of computer-mediated communication: The Skype Out case. *Expert Systems with Applications*, 36(3), 4595 - 4603.

Lin, J. C.-C., & Lu, H. (2000). Toward an understanding of the behavioral intention to use a web site. *International Journal of Information Management*, 20(3), 197 - 2008.

Lingyun, Q., & Dong, L. (2008). Applying TAM in B2C E-Commerce Research: An Extended Model. *TSINGHUA SCIENCE AND TECHNOLOGY*, 13(3), 265 - 272.

Lu, J.,Yao, J.E., & Yu, C.-S. (2005). Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology. *Journal of Strategic Information Systems*, 14(3), 245 - 268.

Lu, J., Liu, C., Yu, C.-S., & Wang, K. (2008). Determinants of accepting wireless mobile data services in China. *Information & Management*, 45(1), 52 - 64.

Lu, Y., Zhou, T., & Wang, B. (2009). Exploring Chinese users' acceptance of instant messaging using the theory of planned behavior, the technology acceptance model, and the flow theory. *Computers in Human Behavior*. 25(1), 29 - 39.

Luarn, P., & Lin, H.-H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computer in Human Behavior*. 21(6), 873 - 891.

Mathison, K., Peacock, E., & Chin, W.W. (2001). Extending the Technology Acceptance Model: The Influence of Perceived User Resources. *The DATA BASE for Advances in Information Systems.* 32 (3), 86 - 112.

Moon, J.-W., & Kim, Y.-G. (2001). Extending the TAM for a World-Wide-Web context. *Information & Management*, 38(4), 217 - 230.

National Statistical Office Thailand. (2008a). ICT Household 2008. Retrieved June 16, 2009, from http://service.nso.go.th/nso/nsopublish/download/docdown.html.

National Statistical Office Thailand. (2008b). E-government and E-commerce survey 2008. Retrieved June 16, 2009, from http://service.nso.go.th/nso/nsopublish/pubs/pub_ict.html.

NECTEC. (2003).Thailand Information and Communication Technology (ICT) Master Plan (2002-2006): National Electronic and Computer Technology Center.

NECTEC. (2005). Thailand ICT Indicators 2005: Thailand in the Information Age: National Electronics and Computer Technology Center.

Negash, S., Ryan, T., & Igbaria, M. (2003). Quality and effectiveness in Web-base customer support systems. *Information & Management*, 40(8), 757 - 768.

Nunnaly, J.C. (1978). Psychometric Theory. 2 nd ed., McGraw Hill, New York.

Organisation for Economic Cooperation and Development (OECD). (2003). The e-government imperative (Electronic), Retrieved June 16, 2009, from http://www1.oecd.org/publications/e-book/4203071E.pdf

Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1988). SERVQUAL: a multiple item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12 - 40.

Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (2005), E-S-VQUAL: a multiple item scale for assessing electronic service quality. *Journal of service Research*, 7(3), 213 - 233.

Pascual, P.J. (2003). e-Government, UNDP-APDIP, e-ASEAN Task Force, Retrieved June 16, 2009, from http://www.apdip.net/publications/iespprimers/eprimer-egov.pdf

Pitt, L. F., Watson, R. T., & Kavan, C.B. (1995). Service quality: a measure of information system effectiveness. *MIS Quarterly*, 19(2), 173 - 187.

Raaij, van E.M., & Schepers, J.J.L. (2008). The acceptance and use of a virtual learning environment in China. *Computers & Education*, 50(3), 838 - 852.

Reddick, C.G., & Frank, H.A. (2007). The perceived impacts of e-government on U.S. cities: A survey of Florida and Texas City managers. *Government Information Quarterly*, 24(3), 576 - 594.

Silpjaru, T. (2007). *Research and Analysis data from SPSS*. Bangkok: SE-EDUCATION PUBLIC COMPANY LIMITED.

Taylor, S., & Todd, P. (1995). Understanding information technology usage: A test of competing models. *Information System Research*, 6(4), 144 - 176.

Thatcher, J. B., Loughry, M. L., Lim, J. & McKnight, D. H. (2007). Internet anxiety: An empirical study of the effects of personality, beliefs, and social support. *Information & Management*, 44(4), 353 - 363.

Thuvasethakul, C., & Koanantakool, T. (2002, March 25-29). National ICT Policy in Thailand. NECTEC (Nation Electronic and Computer Technology Center). Paper presented at Africa-Asia Workshop Promoting Co-operation in Information and Communications Technologies Development, Kuala Lumpur and Penang, Malaysia.

Torres, L., Pina, V., & Acerete, B. (2005). E-Government developments on delivering public service among EU cities. *Government Information Quarterly*, 22(2), 217 - 238.

http://turehits.net. Thailand Web Directory and Advance Web Statistics.

Tung, L.L., & Rieck, O. (2005). Adoption of electronic government services among business organizations in Singapore. *Journal of Strategic Information Systems* 14(4), 417 - 440.

United Nations and American Society for Public Administration (UN/ASPA). (2002). Benchmarking e-government: A global perspective. UN/ASPA: New York.

United Nation. (2008). UN E-government survey 2008 - From E-government to connected Governance. Retrieved June 16, 2009, from http://unpan1.un.org/intradoc/groups/public/documentsun//UNPAN028607.pdf

Venkatesh,V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information System Research*, 11(4), 342 - 365.

Wang, Y.-S. (2002). The adoption of electronic tax filing systems: an empirical study. *Government Information Quarterly*, 20(4), 333 - 352.

Wang, Y.-S., Lin, H.-H., & Luarn, P. (2006). Predicting consumer intention to use mobile service. *Information System Journal*, 16(2), 157 - 179.

Wang, Y.-S., & Liao, Y.-W. (2008). Assessing eGovernment system success: Avalidation of the DeLone and McLean model of information system success. *Government Information Quarterly*, 25(4), 717 - 733.

Wangpipatwong, S., Wichian, S., Chutimaskul, W., & Papasratorn B. (2005, November 19-20). *Factors Influencing the Adoption of Thai eGovernment Websites: Information Quality and System Quality Approach*. Paper presented at the Proceedings of the Fourth International Conference on eBusiness, Bangkok, Thailand.

West, D. M. (2008). Improving Technology Utilization in Electronic Government around the World. The Brookings Institution. Retrieved

April 18, 2009, from http://www.brookings.edu/reports/2008/0817_egovernment_west.aspx.

Wu, I.-L., & Chen J.-L. (2005). An extension of Trust and TAM model with TPB in the initial adoption of on-line tax: An empirical study. *International Journal Human-Computer Studies*, 62(6), 784 - 808.

Zeithaml, V.A., Parasuraman, A., & Malhotra, A. (2002). Service quality delivery through web sites: a critical review of extant knowledge. *Journal of the academy of marketing science*, 30(4), 362 - 375.

APPENDIX

Questionnaire

<u>ตอนที่ 1</u> ข้อมูลสภาพทั่วไปของผู้ตอบแบบสอบถาม

<u>คำชี้แจง</u> โปรดทำเครื่องหมาย ✓ลงในช่อง ☐ หน้าคำตอบที่ตรงตามความเป็นจริงเพียง 1 ข้อ ถ้าไม่มีการระบุไว้เป็นอย่างอื่น และหากท่านเลือกคำตอบที่ระบุว่า **อื่นๆ** กรุณาระบุรายละเอียดเพิ่มเติมในช่องว่าง

---

1. เพศ

☐ 1) ชาย

☐ 2) หญิง

2. อายุ

☐ 1) ต่ำกว่าหรือเท่ากับ 20 ปี

☐ 2) 21-30 ปี

☐ 3) 31-40 ปี

☐ 4) 41-50 ปี

☐ 5) 51-60 ปี

☐ 6) มากกว่า 60 ปี

3. ระดับการศึกษา

☐ 1) ต่ำกว่าปริญญาตรี

☐ 2) ปริญญาตรี

☐ 3) สูงกว่าปริญญาตรี

4. อาชีพ

☐ 1) เจ้าของ / ผู้บริหารกิจการ

☐ 2) ข้าราชการ / พนักงานรัฐวิสาหกิจ

☐ 3) นักเรียน / นิสิต / นักศึกษา

☐ 4) พนักงานบริษัท

☐ 5) ว่างงาน / เกษียณอายุ

☐ 6) อื่นๆ (โปรดระบุ) .....

5. คุณมีประสบการณ์ในการใช้อินเตอร์เน็ตมานานเท่าไร (ปี)

☐ 1) น้อยกว่า 1 ปี

☐ 2) 1 – 3 ปี

☐ 3) 3 – 5 ปี

☐ 4) มากกว่า 5 ปี

6. ใน 1 สัปดาห์คุณใช้งานอินเตอร์เน็ตนานเท่าไร (ชั่วโมง)

☐ 1) น้อยกว่า 1 ชั่วโมง

☐ 2) 1 – 3 ชั่วโมง

☐ 3) 3 – 5 ชั่วโมง

☐ 4) 5 – 7 ชั่วโมง

☐ 5) มากกว่า 7 ชั่วโมง

7. ส่วนใหญ่คุณใช้งานอินเตอร์เน็ตจากที่ใด

☐ 1) โรงเรียน / มหาวิทยาลัย / ที่ทำงาน

☐ 2) บ้าน / หอพัก

☐ 3) ร้านอินเตอร์เน็ต (Net Cafe')

☐ 4) อื่นๆ (โปรดระบุ) .....

<u>ตอนที่ 2</u> แบบสอบถามเกี่ยวกับการใช้งานเว็บไซต์ของรัฐ

<u>คำชี้แจง</u> โปรดทำเครื่องหมาย ✓ลงในช่อง ○ หน้าคำตอบที่ตรงตามความเป็นจริงเพียง 1 ข้อ ถ้าไม่มีการระบุไว้เป็นอย่างอื่น และหากท่านเลือกคำตอบที่ระบุว่า **อื่นๆ** กรุณาระบุรายละเอียดเพิ่มเติมในช่องว่าง

---

1. คุณเคยเข้าไปใช้บริการเว็บไซต์ของรัฐหรือไม่

☐ 1) เคย

☐ 2) ไม่เคย (ข้ามไปตอบ**ข้อ 5**)

2. เว็บไซต์ของหน่วยงานราชการใดที่คุณเคยเข้าไปใช้บริการบ่อยที่สุด

☐ 1) www.rd.go.th (บริการเสียภาษีผ่านระบบออนไลน์)

☐ 2) www.dlte-serv.in.th (บริการชำระภาษีรถยนต์ผ่านระบบออนไลน์)

☐ 3) www.ecitizen.go.th (ศูนย์กลางการให้บริการของภาครัฐ เช่น ข้อมูลข่าวสารของ

ราชการ การค้นหาบริการ ต่างๆของภาครัฐ การดาวน์โหลดแบบฟอร์มผ่านทางเว็บไซต์)

☐ 4) www.khonthai.com (บริการแก่ประชาชนในการตรวจสอบข้อมูลทะเบียนราษฎร บัตรประจำตัวประชาชน ทะเบียนทหาร หนังสือเดินทาง ประกันสังคม ฯลฯ)

☐ 5) www.doe.go.th (บริการสมัครงานออนไลน์)

☐ 6) www.toteservice.com (ชำระค่าใช้บริการโทรศัพท์ออนไลน์)

☐ 7) อื่นๆ (โปรดระบุ) .....

(หากจำชื่อเว็บไซต์ไม่ได้สามารถกรอกเป็นชื่อหน่วยงานได้ค่ะ)

3. คุณเข้าไปใช้บริการเว็บไซต์ของรัฐบ่อยเพียงใด

☐ 1) อย่างน้อย**วัน**ละ 1 ครั้ง

☐ 2) อย่างน้อย**สัปดาห์**ละ 1 ครั้ง

☐ 3) อย่างน้อย**เดือน**ละ 1 ครั้ง

☐ 4) อย่างน้อย**ปี**ละ 1 ครั้ง

4. คุณเข้าไปใช้บริการเว็บไซต์ของรัฐเพื่อวัตถุประสงค์ใด (หากตอบข้อนี้แล้วให้ข้ามไปตอบ**ตอนที่ 3**)

☐ 1) ค้นหาข้อมูลหรือดาวน์โหลดแบบฟอร์ม

☐ 2) ทำธุรกรรม เช่น ชำระภาษี ต่อทะเบียนรถยนต์ เป็นต้น

☐ 3) อื่นๆ (โปรดระบุ) .....

ตอนที่ 3 ข้อมูลเกี่ยวกับปัจจัยที่มีผลต่อการตัดสินใจใช้บริการเว็บไซต์ของรัฐ (e-government)

คำชี้แจง โปรดเลือกตัวเลขที่ตรงกับความคิดเห็นของคุณมากที่สุด เรียงลำดับดังนี้

ข้อ 1 = เห็นด้วยน้อยที่สุด ข้อ 2 = เห็นด้วยน้อย

ข้อ 3 = เห็นด้วยปานกลาง ข้อ 4 = เห็นด้วยมาก

ข้อ 5 = เห็นด้วยมากที่สุด

โดยทำเครื่องหมาย ○ ล้อมรอบตัวเลขในช่องตัวเลือกเพียงข้อละ 1 ตำแหน่งเท่านั้น

ปัจจัยที่มีผลต่อการตัดสินใจใช้บริการเว็บไซต์ของรัฐ (e-government)	ระดับความคิดเห็น				
	เห็นด้วยน้อยที่สุด	เห็นด้วยน้อย	เห็นด้วยปานกลาง	เห็นด้วยมาก	เห็นด้วยมากที่สุด
คำถามเกี่ยวกับคุณภาพของเว็บไซต์					
1. เว็บไซต์ของรัฐมีระบบที่ช่วยนำทางให้คุณสามารถค้นหาข้อมูลหรือบริการที่คุณต้องการ (ease of navigation)	1	2	3	4	5
2. คุณสามารถเข้าไปใช้บริการเว็บไซต์ของรัฐได้ตลอดเวลาเมื่อคุณต้องการที่จะใช้งาน (availability)	1	2	3	4	5
3. เว็บไซต์ของรัฐมีระดับการแสดงผลหน้าเว็บไซต์ที่รวดเร็ว (response Time)	1	2	3	4	5
4. เว็บไซต์ของรัฐมีความปลอดภัยสำหรับการทำธุรกรรมต่างๆ เช่น การชำระภาษี การต่อทะเบียนรถ การชำระค่าบริการต่างๆ เป็นต้น (security)	1	2	3	4	5
5. เว็บไซต์ของรัฐมีช่องทางที่จะอำนวยความสะดวกให้คุณสามารถเข้าไปใช้งานได้ง่าย (ease of access)	1	2	3	4	5
คำถามเกี่ยวกับคุณภาพของข้อมูลในเว็บไซต์					
6. เว็บไซต์ของรัฐมีเนื้อหาที่เพียงพอ เมื่อคุณต้องการค้นหาข้อมูลและบริการจากหน่วยงานของรัฐ (contents)	1	2	3	4	5

ปัจจัยที่มีผลต่อการตัดสินใจใช้บริการเว็บไซต์ของรัฐ (e-government)	ระดับความคิดเห็น				
	เห็นด้วยน้อยที่สุด	เห็นด้วยน้อย	เห็นด้วยปานกลาง	เห็นด้วย	เห็นด้วยมากที่สุด
คำถามเกี่ยวกับคุณภาพของข้อมูลในเว็บไซต์					
7. ข้อมูลในเว็บไซต์ของรัฐมีความถูกต้อง (accuracy)	1	2	3	4	5
8. เว็บไซต์ของรัฐมีข้อมูลที่ทันสมัยอยู่เสมอ (timeliness)	1	2	3	4	5
9. เว็บไซต์ของรัฐมีข้อมูลที่คุณสามารถเชื่อถือได้ (information reliability)	1	2	3	4	5
คำถามเกี่ยวกับคุณภาพการให้บริการของเว็บไซต์					
10. เว็บไซต์ของรัฐสามารถตอบสนองต่อความต้องการของคุณทันทีเมื่อคุณขอความช่วยเหลือหรือส่งคำถามผ่านอีเมล์หรือช่องทางอื่นๆ (responsiveness)	1	2	3	4	5
11. ในเว็บไซต์ของรัฐ คุณสามารถที่จะค้นหาข้อมูลเพื่อที่จะติดต่อกับหน่วยงานของรัฐได้ เช่น อีเมล์, เบอร์โทรศัพท์ เป็นต้น (contact)	1	2	3	4	5
12. การมีเว็บไซต์ของรัฐทำให้การติดต่อสื่อสารระหว่างคุณกับหน่วยงานของรัฐง่ายขึ้น (empathy)	1	2	3	4	5
13. คุณรู้สึกมั่นใจว่าคุณจะได้รับบริการจากภาครัฐตามที่ได้รับรองไว้ (assurance)	1	2	3	4	5
คำถามเกี่ยวกับสิ่งอำนวยความสะดวกในการใช้งานเว็บไซต์ของรัฐ					
14. คุณมีอุปกรณ์คอมพิวเตอร์หรืออินเตอร์เน็ต ที่เพียงพอสำหรับเข้าไปค้นหาข้อมูลและใช้บริการเว็บไซต์ของรัฐได้	1	2	3	4	5
15. คุณสามารถเข้าถึงอุปกรณ์คอมพิวเตอร์หรือบริการอินเตอร์เน็ตที่จำเป็นในการใช้บริการเว็บไซต์ของรัฐ	1	2	3	4	5

ปัจจัยที่มีผลต่อการตัดสินใจใช้บริการเว็บไซต์ของรัฐ (e-government)	ระดับความคิดเห็น				
	เห็นด้วยน้อยที่สุด	เห็นด้วยน้อย	เห็นด้วยปานกลาง	เห็นด้วยมาก	เห็นด้วยมากที่สุด
คำถามเกี่ยวกับสิ่งอำนวยความสะดวกในการใช้งานเว็บไซต์ของรัฐ					
16. เงิน (สำหรับค่าใช้จ่ายเกี่ยวกับอุปกรณ์คอมพิวเตอร์และค่าบริการอินเตอร์เน็ต)ไม่ใช่อุปสรรคในการใช้บริการเว็บไซต์ของรัฐสำหรับคุณ	1	2	3	4	5
17. คุณมีความรู้ความเข้าใจอย่างเพียงพอที่จะใช้บริการเว็บไซต์ของรัฐได้	1	2	3	4	5
คำถามเกี่ยวกับความมั่นใจในการใช้เว็บไซต์ของรัฐ					
18. คุณรู้สึกสบายใจเมื่อได้ใช้บริการเว็บไซต์ของรัฐด้วยตัวคุณเอง	1	2	3	4	5
19. เมื่อคุณต้องการที่จะใช้บริการเว็บไซต์ของรัฐ คุณสามารถเข้าไปใช้งานได้ง่ายด้วยตัวคุณเอง	1	2	3	4	5
20. คุณสามารถที่จะใช้บริการเว็บไซต์ของรัฐได้ แม้ไม่มีคนแนะนำว่าจะต้องทำอย่างไรบ้าง	1	2	3	4	5
คำถามเกี่ยวกับอิทธิพลทางสังคมที่มีต่อการตัดสินใจใช้เว็บไซต์					
21. คนรอบข้างหรือเพื่อนของคุณคิดว่าคุณควรใช้บริการเว็บไซต์ของรัฐ	1	2	3	4	5
22. คนที่คุณรู้จักมีอิทธิพลต่อคุณ ในการตัดสินใจใช้บริการเว็บไซต์ของรัฐ	1	2	3	4	5
23. คุณตัดสินใจที่จะใช้บริการเว็บไซต์ของรัฐ เพราะเป็นระบบที่เป็นที่รู้จักอย่างแพร่หลาย	1	2	3	4	5
24. คุณตัดสินใจที่จะใช้บริการเว็บไซต์ของรัฐเพราะคนอื่นๆก็ใช้	1	2	3	4	5
คำถามเกี่ยวกับความสนใจเทคโนโลยีใหม่ๆ ส่วนบุคคล					

ปัจจัยที่มีผลต่อการตัดสินใจใช้บริการเว็บไซต์ของรัฐ (e-government)	ระดับความคิดเห็น				
	เห็นด้วยน้อยที่สุด	เห็นด้วยน้อย	เห็นด้วยปานกลาง	เห็นด้วยมาก	เห็นด้วยมากที่สุด
คำถามเกี่ยวกับความสนใจเทคโนโลยีใหม่ๆ ส่วนบุคคล					
25. เมื่อได้คุณยินข่าวสารเกี่ยวกับเทคโนโลยีใหม่ๆ คุณจะหาโอกาสเรียนรู้และทดลองใช้	1	2	3	4	5
26. ในกลุ่มบุคคลที่ใกล้ชิดกับคุณ คุณมักจะเป็นคนแรกที่ได้ทดลองใช้เทคโนโลยีใหม่ๆเสมอ	1	2	3	4	5
27. คุณเป็นคนที่ชอบศึกษาหาความรู้เกี่ยวกับเทคโนโลยีใหม่ๆ	1	2	3	4	5
คำถามเกี่ยวกับการรับรู้ถึงความง่ายในการใช้งานเว็บไซต์ของรัฐ					
28. คุณคิดว่าการใช้บริการเว็บไซต์ของรัฐนั้น เป็นเรื่องง่ายที่จะสามารถเรียนรู้การใช้งานได้	1	2	3	4	5
29. คุณคิดว่าการใช้บริการเว็บไซต์ของรัฐนั้น มีความชัดเจนและคุณสามารถที่จะทำความเข้าใจได้	1	2	3	4	5
30. คุณคิดว่าเป็นเรื่องง่ายที่คุณจะใช้เว็บไซต์ของรัฐ ค้นหาข้อมูลหรือบริการที่คุณต้องการ	1	2	3	4	5
31. คุณคิดว่าการใช้บริการเว็บไซต์ของรัฐเป็นเรื่องง่ายที่จะสามารถใช้งานได้อย่างชำนาญ	1	2	3	4	5
คำถามเกี่ยวกับการรับรู้ถึงประโยชน์ที่ได้รับจากการใช้งานเว็บไซต์ของรัฐ					
32. คุณคิดว่าการใช้บริการเว็บไซต์ของรัฐช่วยทำให้คุณสามารถค้นหาข้อมูลและได้รับบริการที่รวดเร็วขึ้น	1	2	3	4	5
33. คุณคิดว่าการใช้บริการเว็บไซต์ของรัฐทำให้คุณค้นหาข้อมูลหรือบริการได้ง่ายขึ้น	1	2	3	4	5

ปัจจัยที่มีผลต่อการตัดสินใจใช้บริการเว็บไซต์ของรัฐ (e-government)	ระดับความคิดเห็น				
	เห็นด้วยน้อยที่สุด	เห็นด้วยน้อย	เห็นด้วยปานกลาง	เห็นด้วยมาก	เห็นด้วยมากที่สุด
คำถามเกี่ยวกับการรับรู้ถึงประโยชน์ที่ได้รับจากการใช้งานเว็บไซต์ของรัฐ					
34. คุณคิดว่าการใช้บริการเว็บไซต์ของรัฐทำให้การค้นหาข้อมูลหรือบริการมีประสิทธิภาพมากขึ้น	1	2	3	4	5
35. คุณคิดว่าการใช้บริการเว็บไซต์ของรัฐนั้น มีประโยชน์ในการค้นหาข้อมูลหรือบริการต่างๆของรัฐ	1	2	3	4	5
คำถามเกี่ยวกับเจตนาที่จะใช้งานเว็บไซต์ของรัฐ					
36. คุณมีความตั้งใจว่าในอนาคตจะใช้บริการเว็บไซต์ของรัฐ	1	2	3	4	5
37. คุณมีความตั้งใจว่าในอนาคตคุณจะใช้บริการเว็บไซต์ของรัฐเป็นประจำ	1	2	3	4	5
38. คุณมีความตั้งใจว่าจะแนะนำให้คนอื่นมาใช้บริการเว็บไซต์ของรัฐ	1	2	3	4	5

ข้อเสนอแนะ

……

……

……

……

……

……

System quality (SQ)

SYQ1 E-government services provides with navigation to find information what I need.
SYQ2 E-government services are always up and available when I want to use.
SYQ3 When I access e-government services, the response of website is fast.
SYQ4 E-government services look secured for carry out transaction.
SYQ5 E-government services provide ease of access the site.

Information quality (IQ)
INQ1 E-government services provide sufficient content where I want to find information.
INQ2 The information of e-government services is accurate.
INQ3 E-government services provide up to date information.
INQ4 E-government services provide reliable information as I need.

Service quality (SVQ)
SVQ1 When I have problems, e-government services take care of problems promptly.
SVQ2 E-government services tell me what to do if my transaction have problem.
SVQ3 E-government services provide a telephone number to reach the government agencies.
SVQ4 E-government services have customer service representatives available online (e.g. e-mail, web board).

Facilitating conditions (FC)
FAC1 Resources required to use e-government services were available to me.
FAC2 I had access to the hardware and software and services needed to use e-government services.
FAC3 Financial resource (e.g. to pay for hardware, software and internet services) is not a barrier for me in using e-government services.
FAC4 I have the knowledge necessary to use e-government services.

Self-efficacy (SE)
SEL1 I would feel comfortable using e-government services on my own.
SEL2 If I wanted to, I could easily operate any of the equipment to use e-government services on my own.
SEL3 I would be able to use the e-government services even if there was no one around to show me how to use it.

Social influence (SI)

SOC1 My peers/colleagues/friends thing that I should use e-government services.
SOC2 People I knew influence me to try out e-government services.
SOC3 I use e-government services because it is very famous.
SOC4 I use e-government services because many people use it.

Personal innovativeness in IT (PIIT)

PIIT1 If I heard about a new information technology I would look for ways to experiment with it.
PIIT2 Among my peers I am usually the first to try out new information technologies.
PIIT3 I like to experiment with new information technologies.

Perceived ease of use (PEOU)

PEOU1 Learning to use e-government services is easy for me.
PEOU2 My interaction with e-government services is clear and understandable.
PEOU3 I find it easy to get e-government services to do what I want to do.
PEOU4 It is easy for me to become skilful at using e-government services.

Perceived usefulness (PU)

PU1 Using e-government services would enhance me to accomplish task more quickly.
PU2 Using e-government services make it easier to do my tasks.
PU3 Using e-government services enhance the efficiency of my task.
PU4 I find e-government services useful in my task.

Behavioral intentions to use (IN)

IN1 I will use e-government services in the future.
IN2 I will frequently use e-government services in the future.
IN3 I will recommend others to use e-government services.

BIOGRAPHY

NAME	Miss Supaporn Chomchalao
DATE OF BIRTH	6 April 1984
PLACE OF BIRTH	Sakonnakhon, Thailand
INSTITUTIONS ATTENDED	Mahasarakham University, 2003-2006: Bachelor of Business Administrator (Business Computer) Mahidol University, 2007-2009: Master of Science (Technology of Information System Management)
HOME ADDRESS	241 Moo 1 Thatphanom, Nakhonphanom 48110
E-MAIL ADDRESS	jamy_tl@hotmail.com
PUBLICATIONS	**Chomchalao S**, Naenna T. Different characteristics of citizens relate perception toward e-government use. 1st International Conference on Computation for Science and Technology (ICCST-I), Chiang Mai, Thailand, 4-6 August 2010.
	Chomchalao S, Naenna T. Frequency of use by citizens of government website influencing perception of factors determining users' intention to use e-government services. The 36th Congress on Science and Technology of Thailand, Bangkok International Trade & Exhibition Centre (BITEC) 26-28 October 2010.