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DETERMINANTS OF INTERNET BANKING ADOPTION IN THAILAND

By

Bussakorn JARUWACHIRATHANAKUL
BA (Accounting)
MBA (Finance)

A Thesis Submitted in the Fulfillment of the Requirements for the Award of Doctor of Business Administration (Information Systems)

At the Faculty of Business and Public Management
EDITH COWAN UNIVERSITY
WESTERN AUSTRALIA

Supervisor: Associate Professor Dieter FINK

Date of Submission: 26 September 2003

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

DECLARATION

I certify that this thesis does not incorporate, without acknowledgment, any material previously submitted for a degree or diploma in my institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text.

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Date: 26/9/03

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ABSTRACT

Increasingly competition in the financial services sector is forcing service providers to develop and utilise alternative delivery channels (Daniel, 1999). Within the sector, banking has always been a highly service intensive activity that relies heavily on technology to acquire, process, and deliver services and information to consumers (Tan & Teo, 2000). The emergence of the Internet has provided a way for banks to improve the efficiency of their service delivery and to gain a competitive advantage by reducing the number of brick-and-mortar branches.

The study investigated the adoption of Internet banking services in Thailand and is based on the premise that consumers' perspectives have a greater impact on adoption than those of banks who are the service providers. Data was therefore collected from potential Thai consumers of Internet banking services by using a questionnaire survey. The response rate was high (84%) which resulted in 506 valid questionnaires being collected. The study's key findings were presented to a group of Internet banks in Thailand to establish their concurrence and to develop and recommend appropriate strategies to them.

To gain insight into consumer behaviour, theories on the acceptance of innovation were examined. This study is based on the Decomposed Theory of Planned Behaviour by Taylor & Todd (1995) which was developed from Ajzen & Fishbein's (1980) Theory of Planned Behaviour. These theories provide a well-accepted intention model that has been shown to be successful in predicting and explaining human behaviour across three domains: attitude, perceived behavioural control and subjective norms. Also considered in this study is the Innovation Diffusion Theory by Rogers (1983). This theory explains that the rate of innovation adoption is affected by an individual's perception of relative advantage, compatibility, complexity, trialability and observability.

The study found that the intention to adopt Internet banking by Thai consumers is encouraged by attitudinal factors and impeded by a perceived behavioural control

factor, but not by subjective norms (i.e. the 'Culture' factor). The attitudinal factors that were found to encourage the adoption of Internet banking in Thailand most are 'Features of the Web Site' and 'Perceived Usefulness', while the most significant impediment to adoption is a perceived behavioural control, namely 'External Environment'. In relation to the Innovation Diffusion Theory, only relative advantages (identified as 'Perceived Usefulness') and complexity ('ease of use', an item of 'Features of the Web Site') were found to be significant to adopting Internet banking.

The significant moderating factors influencing the adoption of Internet banking by Thai consumers are gender, educational level, income, Internet experience and Internet banking experience, but not age. It was found, however, that the stand out moderators are income and Internet experience as they each affect the most significant encouragement and impediment factors.

As to what strategies Thai banks should adopt to facilitate Internet banking, both supplier 'push' and market 'pull' strategies need to be implemented. As encouragement factors are factors that banks can control, Internet banks should 'push' consumers' positive perceptions of Internet banking, thereby increasing the rate of service adoption. Potential impediments to Internet banking adoption should be reduced although they cannot be directly controlled by banks. Banks should attempt to influence the Internet banking market in order to enhance this service in Thailand through market 'pull' strategies.

Previous research has mainly focused on innovation adoption in the context of North America and Europe and to some extent other developed countries such as Singapore. This study extends the research on IT adoption to a developing country. The study is one of few that have applied adoption theories in an Internet environment. In addition, the study is useful in the specific research domain. It was successful in establishing key factors in the adoption of Internet banking in Thailand. Internet banks can use this knowledge in their quest to increase their online customers. Non-Internet banks can consider their abilities and readiness based on these findings before moving into the Internet banking arena.

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CHAPTER ONE

INTRODUCTION

1.1 Background

In contemporary economies, information technology (IT) plays a significant role in improving business performance and enabling organizations to develop a competitive advantage. Advances in IT are continually improving the effectiveness of organizations mainly through improved information for decision-making, faster response to customer needs, and increased efficiency. Information is the lifeblood of this new environment and it should be accurate and correct, easy to use, consistent and available when needed (Sivaraks et al., 2000).

The advent of the Internet is the latest development in the evolution of information and communication technologies since 1950s. The Internet has become a major medium for businesses to succeed in new electronic markets by providing innovative access to goods and services and networking people through the use of communication technologies. The Internet provides the convenience of access 7 days a week, 24 hours a day. The adoption of Internet technology by businesses is now a major strategy to attract customer attention from a wide audience at low cost (Hitt & Frei, 1999; Sathye, 1999) due to its convenience, speed, and accuracy and because it is not restricted by time zones or geographical limitations (Hennigan, 1998).

According to Netscape, UK: "It took the Internet five years to reach 50 million users, compared to 38 years for radio and 13 for television" (quoted in Bell & Tang, 1998). That is to say, the Internet is the fastest growing communications medium in history. There have been significant increases in Internet users over the past 10 years. While the rapid growth of the Internet has presented a new host of opportunities, it has also

brought about threats to business (Tan & Teo, 2000). For instance, the convenience of using the Internet empowers customers to search for the best value for their money rather than loyalty to the products, particularly in the financial services sector (Johne & Storey, 1998).

The increase in competition and change, co-operation, globalization and convergence, as well as changing consumer preferences mean that new strategies to attract and maintain customers are essential (Karjaluoto et al., 2002). The Internet is therefore being considered as a strategic weapon and will revolutionize the way businesses operate to seize opportunities and overcome threats.

The banking sector is no exception. The Internet is causing major delivery changes and is bringing about a transformation of this sector (Jayawardhena & Foley, 2000). This is because the financial sector is one of the most affected by technology (Prendergast & Marr, 1994; Mols, 2000). Banking has always been a highly information intensive activity that relies heavily on technology to acquire, process, and deliver the information to all relevant users (Tan & Teo, 2000). Increasingly competition in the financial services sector is forcing providers to develop and utilize alternative delivery channels (Daniel, 1999). IT and Internet technology is therefore a revolutionary approach for banks to provide convenient, reliable and expedient services to bank customers (Tan & Teo, 2000). The Internet provides a way for banks to differentiate their products and services to gain a larger share of the banking market by reducing the number of brick-and-mortar banks.

As a consequence, there has increasing interest from the banking industry to gain a better understanding of the development of Internet strategies (Angehrn & Meyer, 1997). The reason for this is that the banking sector plays a central role in any economy and indirectly affects the growth of other industries. As noted in Business Week (quoted in Financial Times, 1996, cited in Tan & Teo, 2000), "Banking is essential to a modern economy, banks are not". Likewise, the Booz Allen & Hamilton report (Warner, 1996, cited in Tan & Teo, 2000) stated that the Internet is a serious threat to the customer base of the traditional banking oligopoly and to its profits.

In 1994, the first Internet banking service was launched (Ezell, 2000) and one year later, there were more than 800 Internet banking facilities on the World Wide Web (Angehrn & Meyer, 1997). Banking over the Internet has therefore attracted the attention of the banking industry as well as from others such as regulators and lawmakers. For example, it has been estimated that 60 per cent of Australian retail banking transactions will be online in ten years' time (Sathye, 1999). Moreover, according to the Gartner Group's 1999 report (cited in Barto, 1999), there has been a rapid growth in online personal computer banking in the USA; from just over 10 million adults in 1999 to a forecasted 35 million by the year 2003. As mentioned, information technology plays a key role in the banking industry as it enables significant cost reduction, creates new business opportunities and contributes to competitive advantage. Additionally, the Internet "changes the way that banks interact with their customers and thus the way they initiate, develop and terminate relationships with them" (Mols, 2000, page 7). Internet banking can affect the patterns and processes of banking transactions both in the wholesale and retail markets in the long-term. It is believed that in the future, Internet banking will become a strategic application to stay competitive by most, if not all banks (Tan & Teo, 2000).

Internet banking makes it possible for banks to offer customers a variety of service 24-hours a day. These services include general and customer-specific information, the ability to conduct transactions, access a variety of interactive financial calculators and worksheets, as well as online banking advice via e-mail or video-based advisory services. The advantages to a bank can be explained as follows:

Cost-benefit is seen as the banking industry's rationale for using the Internet. The costs for banking transactions delivered by the Internet are lower than other modes of transactions (Sathye, 1999; Jayawardhena & Foley, 2000; Dasaneyavaja, 2001). With Internet facilities, banks will be able to control the traditional set-up and operational costs by transferring the transactions that have hitherto been performed by bank employees to the bank account holders themselves. According to a study in the United Kingdom (Jayawardhena & Foley, 2000), Internet banks utilize their virtual banking resources and operate more efficiently than physical banks where the cost of a simple transaction for a non-cash payment at a branch is as much 11 times more

than over the Internet. Another study in the USA (Ezell, 2000) found that the cost of a full-service teller transaction is $1.07 compared to 27 cents for each ATM transaction and one cent for an Internet-based transaction. Hence, by encouraging customers to use Internet banking facilities, bank can save considerable operational costs (Sathye, 1999). According to Thai banks' records, it is said that transactions performed over the counter cost Baht 30, compared to Baht 5-6 via ATMs and much lower when done through the Internet (Lertwiram & Pokechai, 2000).

Increasing the customer base is another benefit of providing of banking products online (Jayawardhena & Foley, 2000). Internet technology enables banks to reach a huge number of customers, both existing and new, at a low incremental cost. People with Internet accessibility are potential Internet banking customers. This advantages banks in acquiring new customers, as the number of Internet users has been increasing. Moreover, according to the several studies, such as Karjaluoto (2002) and NECTEC (2003) on Internet user demographics, they are predominantly young, well-educated, professional and affluent. Banks can reach this targeted segment by using an appropriate marketing tool and thus increase their customer base regardless of geography.

Mass customization becomes important for today's business (Jayawardhena & Foley, 2000). Internet delivery has the capability to customize information to customers' needs and uses (Dannesnberg & Kellner, 1998). With Internet banking services, banks can tailor their products and services to individual customers and compete in the current financial market.

Development of non-core business is another advantage of Internet banking (Jayawardhena & Foley, 2000). With Internet technology and banks' existing computing infrastructure, banks can expand their services to non-traditional banking areas. An example of this is Electronic Bill Presentment and Payment (EBPP). By providing non-financial information on banks' Web site, bank can also utilize their resources and create new opportunities to enhance their competitive advantages.

Internet banking offers more accuracy for customers (Dasaneyavaja, 2001). As transactions are performed automatically, non-intentional human errors in

transactions are likely to be reduced. Customers will also be better placed to control their transactions.

Furthermore, speed and the ability to save time are among the important aspects that customers are concerned with. The Internet is changing the delivery of financial services and people who are busy can perform their banking transaction from their own homes at their convenience (Jayawardhena & Foley, 2000). With a computer and an Internet gateway, users can perform any banking transaction 24 hours a day, 365 days a year (Sathye, 1999). This would be seen by most participants as one of the main advantages of Internet banking (Dasaneyavaja, 2001).

In the Thai banking sector, commercial banks are using the Internet as a new distribution channel, and they appear to regard that the future of new e-service lies in electronic banking. Moreover, with Thai government support in electronic commerce, endorsed as part of the Ninth National Economic and Social Development Plan (Boonruang, 2000), it is believed that the growth of electronic commerce will increase in the Thai economy. Internet banking in Thailand is used as a delivery channel to connect with customers, to gain commercial advantages and to survive in the highly competitive market in the aftermath of the Asian economic crisis. It is also seen as a way for banks to position themselves strategically for the future. Some analysts have argued that the participation of the commercial banks in Thailand in Internet banking has a defensive, rather than an offensive purpose (Kittikanya, 2001). If they did not adopt this strategy, they would likely loose customers to other types of financial institutions.

The acceptance of new technology has not been consistent in all parts of the world; Internet banking in Thailand is similar. In spite of government support of electronic commerce, the limitation of bank working hours and poor traffic infrastructure in Bangkok, Internet banking is still slow to develop. The question therefore exists as to whether this banking service will succeed in Thailand or not. It is accepted that the success of Internet banking is determined not only by banks or government support, but also by the customers' acceptance of it. The latter has a great influence on the adoption of Internet banking (Sathye, 1999; Mols et al. 1999).

In order to gain more insight into customer behaviour, theories about the acceptance of innovation should be examined. This study is based on the Decomposed Theory of Planned Behaviour by Taylor & Todd (1995) which was developed from Ajzen & Fishbein's (1980) Theory of Planned Behaviour. These theories provide a well-accepted intention model that has been shown to be successful in predicting and explaining human behaviour across three domains: attitude, perceived behavioural control and subjective norms. Also considered in this study is the Innovation Diffusion Theory by Rogers (1983). This theory explains that the rate of innovation adoption is affected by an individual's perception of relative advantage, compatibility, complexity, trialability and observability.

The next section explains the definition of Internet banking used in this study.

1.2 Definition

The term 'electronic banking' often refers to online banking or Internet banking. However, 'electronic banking' has a broader meaning including telephone banking WAP-banking and iNet-television banking (Karjaluoto et al., 2002). In this study 'Internet banking' was used interchangeably with the term 'online banking'. Internet banking is defined by Furst et al. (2000) as banking services provided using Internet technology as a remote delivery channel. Users with a computer and Internet gateway can access the bank and undertake banking transactions (Sathye, 1999). When first introduced, Internet banking was used mainly as an information presentation medium for banks to market their products and services on their Web sites. With the development of asynchronous technologies and secured electronic transaction technologies, banks promoted the use of Internet banking as a transactional addition to an information medium (Tan & Teo, 2000). Thus, Internet banking is a universal service facility to deliver bank services and information into the homes and offices of people.

Internet banking allows customers to perform a wide range of banking transactions electronically and remotely via the bank's Web site. At the low end, a registered customer has the ability to view information about accounts while the more advanced

level includes the ability to perform other types of transactions such as stock trades, receiving bills ("Bill Presentment"), or applying for financial products such as credit cards, insurance policies, or bank loans (Hitt & Frei, 1999).

According to Jayawardhena & Foley (2000), Internet banking services are classified into four levels, from the execution of the simplest transaction to the integration of customer services, sales and marketing transactions as shown in Figure 1.1:

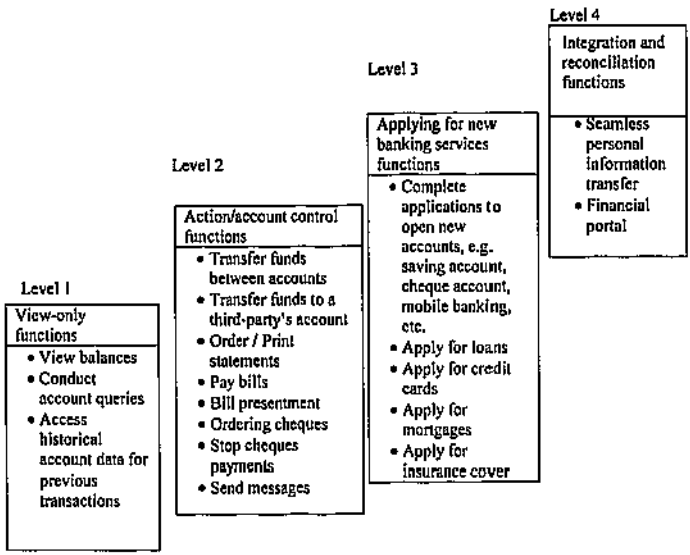


Figure 1.1: Levels of Internet Banking Services

1.2.1 Level 1: View-only functions

Customers can view their account summary and inquire about statements of their savings, cheques, ATM and credit card accounts. These are basic transactions offered through the Internet channel by all banks. The reason for this is an increased need for customers to be more financially active and reconcile their bank balances more frequently. The study of a bank support call center in the UK showed that more than 60 per cent of customer inquiries concern details about balances and the last few

transactions made by the customers (Gandy, 1998). These activities mirror those offered by ATMs, with the exception of cash disbursements, and thereby reduce the workload of bank staff as well as providing private, quick and efficient services for customers.

1.2.2 Level 2: Action/account control functions

This level provides customers with a broad range of access to and control over their accounts, which includes the facilities of funds transfer, bill payment, bill presentment, stop cheque payment and ordering a cheque book. This service level is beneficial for bank customers because the ability to view and pay bill online enables them to actively manage their cash flow.

1.2.3 Level 3: Applying for new banking services functions

To exploit the convenience of Internet banking services, banks are providing facilities to apply for a new account, loan, credit card, tele-banking and mobile banking to be performed online. If the application process cannot be completed over the Internet, the system should allow customers to feed in personal details via an online application and submit their supporting documents to the bank branch for further evaluation.

1.2.4 Level 4: Integration and reconciliation functions

Banks provide integration and reconciliation functions to customers to enable them to manage their finances. An example of this is personal cash management software. Bank customers can reconcile their bank accounts by freely downloading information from their bank accounts to their own financial management software. As yet, very few banks have developed services to this level. Examples that have are Citibank, First Direct and Natwest Bank in the UK.

Currently Internet banking services in Thailand offer only the first three levels of services for individuals. That is, customers are able to view their balance, transfer funds, pay bills and apply for new services online. Most banks offer similar services, however, the difference is the extent of the service offerings. For instance, banks vary in the number of third party accounts that are able to be registered as the recipient of funds transfers, suppliers of bill payments and bill presentments, fee charges for each transactions, etc.

1.3 Research Questions

As the success of Internet banking in Thailand is being examined and consumers' acceptance has a great influence on the adoption of this service, the study focuses on their attitudes towards the adoption of Internet banking services in Thailand. Therefore, the research seeks to obtain answers to the following questions.

1. What are the factors encouraging the adoption of Internet banking in Thailand?

2. What are the factors impeding the adoption of Internet banking in Thailand?

3. What are the factors moderating the adoption of Internet banking in Thailand?

4. What strategies should Thai banks adopt to facilitate Internet banking?

1.4 The Purposes of the Study

Internet banking was first launched in 1999 in Thailand and it is quite new for most Thai consumers. Although data on the number of customers are not officially available, the number of Internet banks in Thailand has been increasing in the past

three years. The rate of adoption will depend on consumers' acceptance of this new technology-based service. This is accepted by researchers such as Sathye (1999) and Mols et al. (1999). While research has been carried out on the feasibility and successful implementation of new technology, there has been little research into the consumer side. To understand Thai consumers' intention to adopt Internet banking services, the research will establish the factors affecting the adoption of Internet banking by Thai consumers, use the results of the study to suggest highlight key features of Internet banking, and formulate appropriate strategies to banks for moving customers to online banking.

1.5 The Significance of the Study

The emergence of Internet banking has prompted many banks to revise their IT strategies in order to survive and stay competitive (Sathye, 1999). IT has always shaped the production and delivery of banking services and has molded the structure of the industry. Information is the essence of banking and banks are increasing their reliance on technology (Prendergast & Marr, 1994). However, IT may well lead to a standardisation of services (Ricard et al., 2001) prior to the emergence of the Internet. While the number of commercial banks offering their customers the facility to conduct financial transactions on their Internet sites is increasing, customers are demanding new levels of convenience and flexibility from their banking providers (Tan & Teo, 2000). The Internet has the potential to play a significant role in the success of emerging banking service.

Compared to previous research which has mainly focused on innovation adoption in the context of North America and Europe and to some extent other developed countries such as Singapore, this study extends the research on information technology adoption to a developing country, i.e. Thailand. It applies two well-known theories in innovation adoption and consumer behaviours in this context and the results of this study will provide useful insights for other developing countries.

The results of this study, which show significant factors influencing and inhibiting the adoption of Internet banking in Thailand from the Thai consumers' perspectives,

will provide knowledge for improving the service. For example, it will enable existing Internet banks to increase the numbers of online bank customers and non-Internet banks to decide whether or not to jump into the Internet banking arena.

1.6 The Outline of the Thesis

Chapter 2 discusses the adoption of Internet banking and is divided into three parts. The first part provides an overview of Internet banking services by describing Internet adoption, the background of the Thai banking industry and current Internet banking services in Thailand. The second part discusses the literature on technology adoption based on the Theory of Diffusion Innovation (Rogers, 1983) and the behavioural theory, namely the Decomposed Theory of Planned Behaviour (Taylor & Todd, 1995). From this review, potential factors influencing the adoption of Internet banking in Thailand will be identified leading to the development of the theoretical framework presented in the final part.

The research methodology to survey Thai consumers is outlined in Chapter 3. Research hypotheses are described in the first section and linked to research method. Philosophical perspectives of the research are discussed as well as the research approach used in the study. A rationale for the combination of quantitative and qualitative methods is provided. The research design is described in detail and includes questionnaire design, the selection of the target population, the peer review and the conduct of the questionnaire survey.

The analysis of the survey data is presented in Chapter 4. The chapter starts with the demographic data of respondents, followed by the establishment of data validity and reliability. Hypotheses testing is conducted and the major factors found from the survey are presented in terms of their role in encouraging, inhibiting and moderating the adoption of Internet banking in Thailand.

Chapter 5 provides a discussion of the survey findings. The outcomes of this study are discussed and integrated with supporting literature and put into provide answer to

the context of Thailand. This chapter highlights the most significant factors to the research questions.

The survey's findings were discussed with three Thai Internet banks and are summarised in Chapter 6. The discussions were aimed to confirm whether the findings of the study are in accordance with the Internet banks' experiences. Recommendations for Thai banks are developed to help them improve Internet banking services relevant to the Thai environment.

The last chapter offers conclusions on the findings and presents the revised theoretical framework for the study. Limitations of the study and directions for future research are presented.

CHAPTER TWO

ADOPTION OF INTERNET BANKING

2.1 Background

The previous chapter introduced the emergence of Internet technology in the banking sector in terms of Internet banking services. The rationale of the study including research questions, purposes and significance of the study were explained. This chapter outlines the research issues that are relevant to Internet banking services at a global and country level, as well as the gaps in the research that need to be investigated.

Firstly, this chapter provides background information on the diffusion of the Internet in Thailand in order to give an understanding of Thai Internet circumstance. Thereafter, an overview of the banking industry in Thailand including the effects of the 1997 financial crisis in Thailand is explained. The development of electronic banking services including Internet banking services and the current offerings of the services are described.

The second section of this chapter identifies and describes the key factors that influence Internet banking adoption in Thailand. A literature review discusses factors that may influence a customer's intention to adopt an innovation and applying for Internet banking services in Thailand. The factors are primarily based on Taylor and Todd's (1995) Decomposed Theory of Planned Behaviour and Rogers' (1983) Theory of Innovation Diffusion.

The research variables are thereby categorised into two groups based on the ability of banks to facilitate the services: encouragement and impediment. Alternatively, encouragement factors can be classed as 'Bank' factors, and impediment factors are 'Personal' factors and 'Other' factors. Based on these factors, a theoretical

framework of the determinants of Internet banking adoption is introduced to support the research methodology presented in the next chapter.

2.2 Overview of Internet Banking in Thailand

2.2.1 The Internet in Thailand

The Internet was first adopted in Thailand in 1987 by academia and was introduced commercially in 1995 with the nation's first Internet Service Provider (ISP). Currently, there are 18 providers operating as commercial ISPs and four public service providers (NECTEC, 2002). All these commercial and non-commercial networks are linked to the global Internet through a bandwidth speed of over 500 Mbps in both the inbound and outbound direction and are also domestically interconnected through two public interchanges which are operated by the Communications Authority of Thailand (CAT) and the National Electronics and Computer Technology Center (NECTEC) of the Ministry of Science Technology and Environment (Tangkitvanich, 2002).

The Internet has become a crucial part in the everyday life of many Thai people. There were approximately 928,000 computers in use in 16.1 million households, according to a household survey by the National Statistical Office (NSO) in the first quarter of 2001 (Tangkitvanich, 2002). This is equivalent to 5.75 computers for every 100 households or approximately 1.48 computers for every 100 people. The same survey also identified that the Internet population was 3.54 million of which 21.5 per cent accessed the Internet from their homes and the remaining 78.5 per cent accessed it from Internet cafés, schools, and the workplace. A penetration rate of Internet users in Thailand as of January 2001 is equivalent to 5.64 per cent. This penetration rate is, however, lower than the World average penetration rate which is 8 46 per cent (Tangkitvanich, 2002). Compared to those of neighbouring countries, the penetration rates of Singapore: 49.3 per cent (as of August 2001); Malaysia: 16.98 per cent (as of December 2000); Laos: 0.11 per cent (as of December 2000); and Cambodian: 0.05 per cent (as of December 2000) (Mulaiwong, 2002). According

to the survey of Internet users in Thailand (NECTEC, 2003), 52 per cent of Internet users in Thailand were located in Bangkok. This suggests the concentration of Internet users is in Bangkok, rather than the other provinces in Thailand. Table 2.1 shows the Internet diffusion in Thailand classified by region.

Table 2.1: The Internet Diffusion in Thailand in 2001

Regions	Percentage of Internet Diffusion
Bangkok	52.2
Suburb (provincial cities)	13.8
Central	10.7
North	9.7
Northeast	9.7
South	5.6
Total	100

Source: NECTEC, 2003

According to Rao (2002), many developing countries do not have a critical mass of Internet users to justify significant investment by new Internet service providers, advertisers or vendors. This is because Internet usage in these countries is in the first phase of Internet diffusion, that is, the Internet is dominated by academics and "techies". In the second phase, Internet users include more teenagers and young people, and in the third phase of Internet diffusion, there are more young workers. In Thailand, Internet adoption is currently between the second and third phase, since Thai Internet users are mostly young adults under the age of 39 years (NECTEC, 2003).

Although the number of Internet users in Thailand is dramatically increasing, Internet popularity is dominated by employed people and full-time students. Communication and searching are the main reasons for use, rather than other forms of electronic transactions (Kor-anantakool and Jantarapatin, 2001). Table 2.2 illustrates the activities of Internet users in Thailand from a survey of the Internet population in 2001.

Table 2.2: Types of Internet Usages in Thailand

Activities	Number	Percentage
Electronic mail	6,982	35.7
Information Search	6,302	32.2
Read news	1,861	9.5
Chat	1,366	7.0
Web-board	1,127	5.8
Software Download	806	4.1
Games	445	2.3
Shopping	350	1.8
Song Download	216	1.1
Game Download	101	0.5
Total	19,556	100.0

Source: NECTEC, 2003

Table 2.3 shows a comparison of average Internet prices for dial-up and leased-line services in seven Asian economies. It can be seen that the cost of dial-up Internet service in Thailand is comparable to that of other Asian countries, whereas, the cost of its leased-line Internet access is about 1.1 to 2.9 times higher (Tangkitvanich, 2002).

Table 2.3: Internet Access Prices in Asian Economies (As at September 2001)

Economy	64 Kbps Leased Line Average Price ($ US/month)	20-Hour Dial Up Service Average Price ($US)
Thailand	780.3	4.5
Hong Kong	267.3	15.3
India	627.5	3.3
Indonesia	419.3	8.1
Malaysia	524.5	3.2
The Philippines	705.2	10.7
Singapore	NA	6.8

Source: Tangkitvanich, 2002

The main reason for high leased-line prices in Thailand is the monopolization of the state-owned enterprise. Most of ISPs operate under a built-transfer-operate (BTO) concession. Under this scheme, an ISP must transfer about one-third of its shares to the concessionaire without any capital payment. As a result, an ISP has to adjust its price upward to achieve its financial profit which results in the high price (Tangkitvanich, 2002). Obviously, the growth of Internet use in Thailand needs a competitive and undistorted telecommunications market. One way to achieve this is to deregulate and liberalize the Thai telecommunication industry which would meet

its commitment to the World Trade Organization. Moreover, as Thailand is rapidly moving to develop its information economy, a new authority namely the Ministry of Information & Communication Technology (ICT) has been set up to develop a master plan for electronic commerce. In order to support the growth of information technology in the country, the Ministry of ICT has attempted to enact pending e-commerce laws, which are Electronic Commerce Law, Computer Crime/Computer-related Crime Law, Data Protection Law, Electronic Funds Transfer Law, and Universal Access Law. Their implementation should increase the public's confidence in participating in electronic commerce.

As electronic business can be a key driver in the growth of today's business and to increase the computer literacy of Thai people, the Ministry of ICT recently launched a special offer to the public of cheap personal computers (50% cheaper than market price), associated with low interest loan. Another project is a very competitively priced, Baht 1 per hour of Internet dial-up access. It is expected that these will create a knowledge society as well as promote Internet adoption in Thailand.

2.2.2 Background to the Thai banking industry

Before the early 1990s, Thai financial markets were strictly regulated and dominated by some of the country's most prominent business families and locally incorporated financial institutions which were strongly protected from local and foreign competition. Deregulation and new financial instruments and services were introduced in 1992 in order to facilitate future development, create competitive financial institutions and turn Thailand into a regional financial center in direct competition with Hong Kong and Singapore (PWC, 2001). However, since the recession in 1997 and the Thai Baht weakness increasing the foreign-debt burden, many businesses have been unable to service their debts to financial institutions, including banks. In mid 1997, the Bank of Thailand intervened by suspending a number of finance companies and further forcing several Thai banks to merge with either banks or finance companies. In addition, capital requirements were increased for non-performing loans in the financial system. Foreign ownership rules were relaxed resulting in the entry of major international banking groups into the market.

As a consequence, the number of commercial banks reduced from 15 to 13 for Thai-owned banks and state-owned banks; and increased from 1 to 4 for foreign incorporated banks from 1997 to May 2003 (BOT, 2003).

The majority of banking transactions in Thailand are performed over the counter through the extensive branch networks of most major banks (PWC, 2001). They aim to provide customer orientation by customizing banking products and services to specific needs thereby making their services different from the others. This is because Thai people prefer being served and having the privileges that result from the hierarchical structure of Thai society. Thai people maintain the characteristic of extended families where personal relationships built by older generations impact upon the next generation. Therefore, most Thai merchants support a particular bank because of their long relationships with it and would expect to continue business into the future. Relationships between bank staff and customers can be relatively strong.

The Thai financial system is undergoing a period of substantial change due to changes in the competitive situation of financial sector itself (see above) and the emergence of information technology. The significant impact of this is reflected in the transformation of financial services delivery. Automatic Teller Machines (ATMs) are a classic example of this change. They were the first visible form of electronic innovation in the Thai banking industry. Bank customers can access their accounts and process transactions through comprehensive network of ATMs. The first ATM was launched in Thailand in 1983 (Lertwiram & Pokechai, 2002) and released banks from the constraints of time and geographical location as well as reducing the work load of bank tellers. The growth of ATMs in Thailand is shown as Table 2.4.

Table 2.4: Number of ATM Cards and Machines from 1986 to 2002

Year	Number of Cards (Thousands)	Number of Machines
1986	2,916	552
1987	4,365	712
1988	5,845	838
1989	7,345	984
1990	7,660	1,119
1991	9,085	1,335
1992	10,854	1,540
1993	12,813	1,796
1994	15,253	2,358
1995	13,962	3,236
1996	15,557	4,284
1997	17,823	4,835
1998	15,698	5,188
1999	17,466	5,322
2000	20,682	5,901
2001	23,783	6,385
2002	26,802	7,885

Source: BOT, 2003

The increased capital and new technology introduced by foreign banks encouraged Thai-owned banks to focus on the automated processing of transactions to increase efficiency and reduce costs. This led to aggressive competition in the banking market. Hence, nearly every bank has implemented early retirement programs as well as branch closures or downsizing in an effort to refocus on profitability. This is reflected in statistics which show that there were 3,632 bank branches as of July 2002 compared to 3,837 at the end of the first quarter of 1999 (BOT, 2003).

Other electronic banking channels were recently made available to Thai bank consumers. Examples of these channels are: telephone banking, mobile banking, automatic passbook update machines and automatic deposit machines. Like other banks in the world, commercial banks in Thailand are now in a position to use their knowledge and experience in information technology to serve their customers more conveniently and efficiently than by traditional ways. Further advances in telecommunications and information technology have culminated in banks being able to offer their services through the Internet.

Telephone banking was introduced in Thailand by the Siam Commercial Bank Plc in 1984. This service became increasingly sophisticated to the extent that it uses Automated Voice Response (AVR) Technology to deliver banking services

(Lertwiram & Pokechai, 2002). Mobile banking was launched in 2000 by the Kasikorn Bank Plc. (former name – Thai Farmer Bank Plc).

Micro-branches relying on ATMs and automatic passbook update machines can be encountered increasingly in high-traffic locations such as shopping malls and universities. This off-hours banking service is another bank channel aimed to handle routine withdrawals and account services. It has increased convenience for bank customers and enabled them to become familiar with the electronic means of banking services. This channel is offered by most banks, for example, "K e-Banking Center" of the Kasikorn Bank Plc, "Express Banking" of the Bangkok Bank Plc and "SCB Easy Bank" of the Siam Commercial Bank Plc. In addition, most of banks in Thailand have established a 24-hour call center. Not only is this a new way to contact the bank, this channel also increases customers' confidence in the other emerging banking services, including Internet banking services.

2.2.3 Internet banking services in Thailand

As a result of high competition in the banking industry, banks are continuously looking to better use technology by forcing low-value transactions away from the branch counter to ATM networks and to the Internet, mobile banking and other electronic services (Chudasri, 2002). As a consequence, most commercial banks in Thailand have launched Web sites and offer online services to bank consumers in addition to other banking channels such as ATMs, telephone banking and mobile banking. It is hoped that the Internet will reduce customer reliance on personal attention provided to them at the branch.

Internet banking in Thailand was first introduced in 1999 by the Siam Commercial Bank Plc (SCB), the first commercial bank of Thailand. The service is named 'SCB Easy Net' and is currently provided to both individual and corporate bank customers. This was followed by the Bank of Asia Plc (BOA), a member of ABN AMRO bank, who offered their Internet banking service in late 1999 as 'Asia Cyber B@nking'. Next, the Kasikorn Bank Plc (TFB) launched its 'K e-Internet banking' service in 2000, followed by the Thai Military Bank Plc (TMB) with 'TMB Direct Internet

Banking', the Krung Thai Bank Plc (KTB) with 'KTB Sm@rt Banking', and the Bank of Ayudhaya Plc (BAY) with 'Krungsri Online;' in 2001, and the latest, the Bangkok Bank Plc (BBL) with 'Bualuang iBanking' in 2002 (Homkrajang, 2001). Table 2.5 summarises the current Internet banks in Thailand and the total assets held by these banks.

Table 2.5: Internet Banks in Thailand

Name of Banks		Total Assets as of 31 December 2002 (million Baht)	Service Names	Internet Site Address
Siam Commercial Bank	SCB	667,222	SCB Easy Net	www.scbeasy.com
Bank of Asia	BOA	161,116	Asia Cyber B@nking	www.bankasia4u.com
Kasikorn Bank	TFB	760,782	K e-Internet banking	www.kasikornbank.com
Thai Military Bank	TMB	391,296	TMB Direct Internet Banking	www.tmbdirect.com
Krung Thai Bank	KTB	1,058,388	KTB Sm@rt Banking	www.ktb.co.th
Bank of Ayudhya	BAY	463,584	Krungsri Online	www.krungsrionline.com
Bangkok Bank	BBL	1,245,098	Bualuang iBanking	www.bangkokbank.com

Source: Internet searches

There is no the public information on the number of Internet banking users presently available. According to the commercial banks themselves, it is claimed that as of September 2002, the SCB has 80,000 Internet banking customers, while the BOA and the TFB have 40,000 and 10,000 users respectively (Lertwiram & Pokechai, 2002).

As discussed in the previous chapter, Internet banking services offers diverse functions at four levels: view-only functions; action/ account control functions; new service functions; and integration/ reconciliation functions. Internet banking services in Thailand are currently offering functions up to the third level. These functions are provided across seven of the thirteen Thai banks as seen in Table 2.6.

Table 2.6: Current Internet banking services in Thailand

Banking Services	TFB	BBL	SCB	BAY	TMB	BOA	KTB
Balance checking	√	√	√	√	√	√	√
Fund transfer between account	√	√	√	√	√	√	√
Fund transfer to third party's account	√						
Previous balance inquiry	√	√	√	√	√	√	√
Current balance inquiry	√	√	√	√	√	√	√
Payment to loan account			√	√	√		√
Payment to credit card account	√	√	√	√	√	√	√
Payment for electricity		√	√	√		√	√
Payment for water utility				√			
Payment for mobile service	√	√	√	√	√	√	√
Payment for pagers	√		√	√	√	√	
Payment for international call services			√	√	√		√
Payment for Internet service		√	√	√	√	√	√
Payment for insurance expenses	√	√	√		√		√
Payment for cable TV	√		√	√	√	√	√
Payment for tuition fee of university	√	√	√	√		√	√
Payment for leasing		√	√	√			√
Stop cheque	√	√	√		√	√	
Inform lost passbook		√					
E-mail service		√		√			
Purchase a cheque book				√			√
Foreign exchange and interest inquiry					√		
Change ATM password					√		
Investment			√				
Fund transfer to an oversea account						√	
Apply for credit card account			√			√	

Source: Lertwiram & Pokechai, 2002 and Internet searches

The table shows how Internet banking services have been expanded by getting service providers to cooperate with the Internet banks. By extending their online services with various suppliers, banks are aiming to attract Thai customers and serve more activities. For instance, the bill payment service has been expanded to public and private organisations and universities. Non-financial services are also provided, for example, the Bank of Asia Plc collaborated with Grammy Entertainment Plc, one of the biggest entertainment companies in Thailand when it launched a marketing contest program to their customers.

The Bank of Thailand (BOT), as the central bank, plays an important regulatory role in the electronic banking sector. The BOT has provided the financial infrastructure to serve business and financial sectors such as with a new payment system. In recent times the BOT has become more supportive in facilitating the growth of the financial sector. With regard to Internet banking, the BOT has revised the notification

requirements for commercial banks on their use of the Internet for commercial banking business and has expanded the areas of permissible use of the Internet for undertaking banking business. Being aware of the importance of electronic transactions in the future economic development of the country, commercial banks in Thailand have been allowed, since November 9, 2000, to provide the same kinds of transactions that they do in branches (BOT, 2003).

2.3 Literature Review of Internet Banking Adoption

As indicated in earlier sections, the advantages of using the Internet to conduct banking transactions are clearly apparent. Essentially, Internet banking provides numerous opportunities for banks to increase their market share, and for customers to conduct bank transactions conveniently and effectively. However, although Internet banking was launched in 1999 in Thailand, this service is still in the early stage of development and it is, therefore, vital to understand the factors that facilitate and impede the adoption of this innovation.

As traditional banks have been moving to the Internet (Jun & Cai, 2001), they have been seeking to improve the quality of their banking services in order to shift their customers online. However, as mentioned before, it has been argued by several scholars (Sathye, 1999; Mols et al., 1999) that the diffusion of electronic banking is determined more by customer acceptance than by online bank offerings. That is to say, to be successful in providing Internet banking service, customer acceptance is a key determinant. Therefore, this study is aimed at exploring customers' perceptions about the adoption of Internet banking.

Factors influencing the use of Internet banking in this study are derived from Rogers' (1983) Innovation Diffusion Theory and Taylor and Todd's (1995) Decomposed Theory of Planned Behaviour. The following sections outline these theories.

2.3.1 Innovation Diffusion Theory

The adoption of new ideas is often very slow even when there are obvious advantages. This is due to a wide gap between what is known and what is actually happening. Therefore, many innovations require a lengthy period to be adopted after their initial availability.

Rogers (1983) explains Innovation Diffusion Theory (IDT) as an individual's perception which affects the rate of innovation adoption. The term "innovation" is defined as "an idea, practice, or object that is perceived as new by an individual or another unit of adoption" (p.11). Diffusion is defined as "the process by which an innovation is communicated through certain channels over time among the members of a social system, in that the messages are concerned with new ideas" (p.5). Adoption is the acceptance and continued use of a product or service or idea (Sathye, 1999).

Hence, understanding the characteristics of innovation as perceived by individuals can help to clarify diffusion problems and explain different rates of adoption as shown in Figure 2.1.

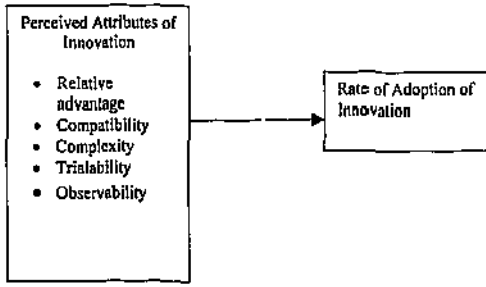


Figure 2.1: Innovation Diffusion Theory (Rogers, 1983)

The reviewed attributes of innovation are explained as follows:

- Relative advantage: the extent to which an innovation is perceived by individuals as better than the idea it supersedes. The greater the perceived relative advantage, the more rapid the rate of adoption.

- Compatibility: the extent to which an innovation is perceived as being consistent with the existing values, experiences, and needs of potential adopters. In general, an idea that is not compatible with the current values and norms of a social system will not be accepted as rapidly as an innovation that is compatible.
- Complexity: the extent to which an innovation is perceived as difficult to understand and use. Generally, new ideas that are simpler to understand will be adopted more rapidly than the ones that require new skills and understandings.
- Trialability: the extent to which an innovation may be experimented with. New innovations that cannot be tested, lead to the slow rate of adoption.
- Observability: the extent to which the results of an innovation are visible to others. The easier the results are to see, the more likely they are adopted.

In summary, innovations that are perceived by receivers as having greater relative advantages (e.g. convenience), compatibility (e.g. to life style), trialability (e.g. try before buy), observability (e.g. visibility) and less complexity (e.g. ease of use) will be adopted more rapidly than other innovations. These factors are included in this study except for observability since Internet banking is not generally visible to others.

2.3.2 Decomposed Theory of Planned Behaviour

The decomposed Theory of Planned Behaviour was developed by Taylor and Todd (1995). It is based on the traditional Theory of Planned Behaviour (TPB) of Ajzen & Fishbein (1980) which is a well-accepted intention model that has been successful in predicting and explaining human behaviour across various domains (e.g. attitude, individual ability) by decomposing it into a specific dimensions. Compared to the Technology Acceptance Model (TAM), introduced by Davis (1986) for predicting IT usage, and traditional TPB models, it was found to have better predictive power, as Taylor and Todd noted (1995):

> "In comparing the two versions of TPB, we believe that there is value added as a result of the decomposition, in terms of increased explanatory power and a better, more precise, understanding of the antecedents of behaviour. Thus, in our view, the decomposed TPB is preferable to the pure form of the model." (p.169)

Furthermore, Taylor and Todd (1995) compared their model to TAM, and claimed that, if

> "The sole goal is the prediction of usage, then TAM might be preferable. However, the decomposed TPB provides fuller understanding of usage behaviour and intention and may provide more effective guidance to IT managers and researchers interested in the study of system implementation." (p.170)

This decomposed TPB constructs the innovation literature (e.g. relative advantages, compatibility) as well as subjective norms and perceived behavioural control more completely as when derived from the traditional TPB. The fundamental concepts of this theory are also based on the assumption that human beings are usually rational and make systematic use of information available to them in their actions. Hence, identifying and measuring the factors determining an individual's behaviour leads to the understanding and prediction of such behaviour. Figure 2.2 shows the conceptual framework of the decomposed TPB.

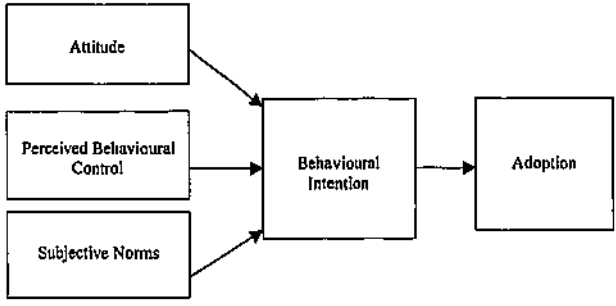


Figure 2.2: Decomposed Theory of Planned Behaviour (Taylor & Todd, 1995)

According to the decomposed TPB model, there are three main factors influencing human behaviour. These are: attitude, perceived behavioural control and subjective norms. Firstly, attitude describes an individual's positive or negative perception of behaviour. Attitudes are functions of beliefs. That is, a person who believes that

performing a given behaviour will lead to mostly positive outcomes will hold a favorable attitude toward performing the behaviour, while a person who believes that performing a given behaviour will lead to mostly negative outcomes will hold an unfavorable attitude.

The second factor, perceived behavioural control, describes beliefs about having necessary resources and opportunities for an individual's intention to perform. According to Tan & Teo (2000), this definition consists of two components. The first one is self-efficacy which is defined by Bandura (1977) as an individual's self-confidence in his or her ability to perform a behaviour. The second one is facilitating conditions which refers to the availability of resources, i.e. the technological resources and infrastructure needed to engage in the behaviour (Triandis, 1979).

The last factor, subjective norms, describes the social pressure that may affect an individual's intention to perform. Subjective norms are also a function of beliefs, but are of a different type. That is to say, it is the person's beliefs that specific individuals or groups think he/she should or should not perform such behaviour. Therefore, the intention toward a target behaviour can be explained by factors affecting the target behaviour.

2.4 Factors influencing Internet Banking

Factors having the potential to influence the adoption of Internet banking were developed from previous studies, Innovation Diffusion Theory and the Decomposed Theory of Planned Behaviour. According to the Innovation Diffusion Theory, perceived attributes to the rate of Internet banking adoption can be identified as relative advantage, compatibility, complexity and trialability of the service. That is, the more relative advantages, compatibility and trialability, and the less the complexity of the Internet banking; the higher rate of Internet banking is.

In terms of the Decomposed Theory of Planned Behaviour, Internet banking can be determined by adopter's attitude and perceived behavioural control as well as

subjective norms he/she holds. The positive of these three main factors could promote his/her adoption of Internet banking services.

Therefore, based on the above Innovation Diffusion Theory (perceived usefulness, trialability, ease of use and integration with life style), the Decomposed Theory of Planned Behaviour (attitude, perceived behavioural control and subjective norms) and other factors related to the circumstances in Thailand, potential influencing factors – seven factors and four sub-factors of each, could be identified as show in Figure 2.3.

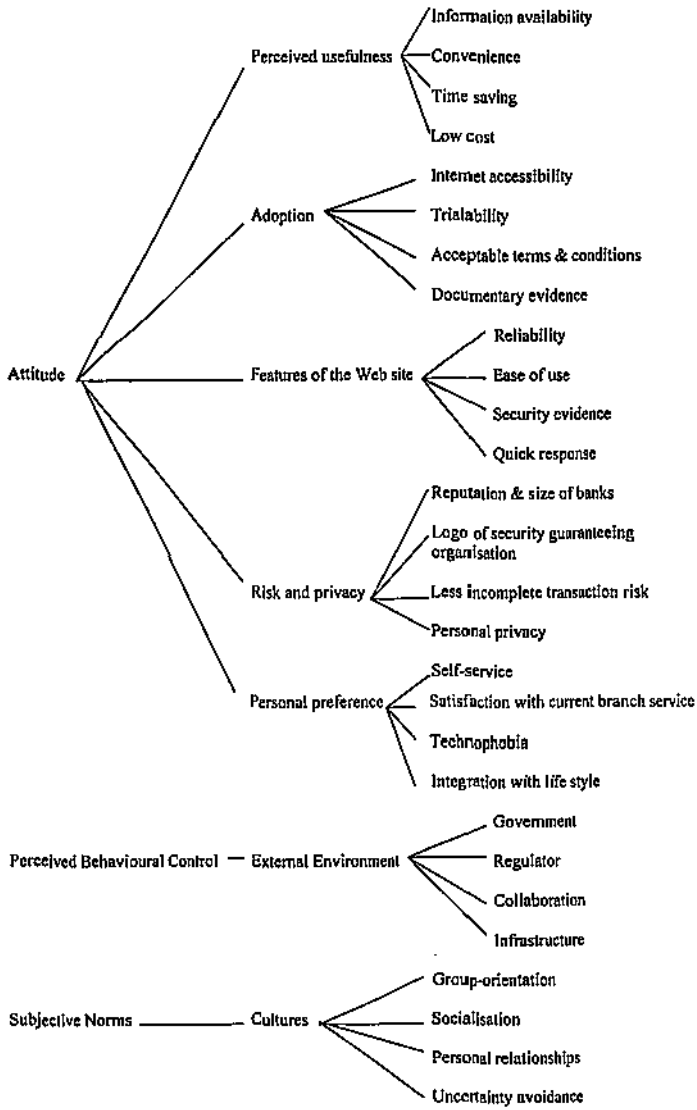


Figure 2.3: Tree Diagram of Factors Influencing the Adoption of Internet Banking

2.4.1 Attitude

As noted, attitudes are functions of beliefs. Different dimensions of attitudinal beliefs towards Internet banking can be identified as follows:

- Perceived usefulness
- Adoption
- Features of the Web site
- Risk and privacy
- Personal preference

Each of these factors, and the sub-factors of each, will be described below.

2.4.1.1 Perceived usefulness

Perceived usefulness of Internet banking is a significant factor in its adoption (Sathye, 1999; Tan & Teo, 2000). According to Rogers' (1983) Theory of Innovation Diffusion, the perceived relative advantage of an innovation is generally positively related to its rate of adoption. Therefore, it is necessary that Internet banks make consumers aware of the availability of such services and their value. The expectation is that consumers who perceive Internet banking as advantageous would also be likely to adopt the service. There are several advantages of social and economic value arising from Internet banking adoption. These advantages are thus sub-factors of perceived usefulness.

The sub-factors are as follows:

- Information availability
- Convenience
- Time saving
- Low cost

These sub-factors will now be discussed in turn.

2.4.1.1.1 Information availability

Customers' interest in Internet banking is created by providing a wide range of financial and non-financial information at just one click. Customers can select the information they want by searching the bank's Web site. The banks themselves now view the Internet and related technologies as strategic tools for enhancing the value of customer relationships through cross-selling and tailoring their products (Hitt & Frei, 1999). This increases customers' satisfaction as banks are offering non-core products and services, like non-financial information, to a greater extent than traditional banks. In Thailand, most banks provide a wide range of information on their Web page including entertainment, games and property for sale.

2.4.1.1.2 Convenience

Rather than access the physical bank, Internet banking services allow customers to carry out their banking from any location, at any time of a day, 365 days of the year, leading to greater convenience for customers (Tan & Teo, 2000; Suganthi & Suganthi, 2001). The Internet is changing the delivery of financial services and people who are busy can perform their banking transactions from their own places at their convenience without the limitation of bank working hours. Because of the poor transportation infrastructure of Thailand and limited bank opening hours, the convenience of Internet banking would be an attractive determinant for this service.

2.4.1.1.3 Time saving

As customers are busier and more time-poor than ever before, they can manage their time effectively by doing banking transactions 24 hours/ 7 days. This enables them to save time and to avoid the need to wait in service queues (Polatoglu, 2001). Hence customers who join Internet banking services now can spend their time doing other functions that need to be done more effectively. The advantage of time saving would be an attractive influence to adopt Internet banking.

2.4.1.1.4 Low cost

Generally, there are two types of costs involved with Internet banking: the costs associated with Internet access and connection, and bank charges. As online banking reduces the cost of bank operations, banking fees are likely to be cheaper than banking over the counter. Thus, cost saving is cited as another advantage of using Internet banking (Polatoglu, 2001), especially when there is no Internet access cost. In Thailand, Internet banking service is new and most banks render this service without extra cost in order to persuade their customers, particularly in the promotion period of this service. However, if customers had to pay more for their switching costs from existing banking channels, the acceptance of this new service may not be as attractive from the standpoint of customers (Mazursky et al., 1987; Suganthi & Suganthi, 2001).

2.4.1.2 Adoption

Internet banking itself is affected by a number of factors associated with its adoption. If these conditions are unacceptable or unsuitable, potential customers will likely ignore the service. These conditions are therefore sub-factors of adoption which include:

- Internet accessibility
- Trialability
- Acceptable terms and conditions
- Documentary evidence

These sub-factors will now be discussed in turn.

2.4.1.2.1 Internet accessibility

The primary factor determining the level of demand for Internet banking services is the number of people connected to the Internet (Suganthi & Suganthi, 2001). As Internet banking refers to the banking services provided through Internet technology, a low number of Internet users is seen as an inhibitor to the growth of electronic

commerce (Kor-anantakool & Jantarapatin, 2001; Rao, 2002). Valdez (2001) argues that people will not access the Internet because they want to use Internet banking only; they will participate in Internet banking because they are currently Internet users. Thus, adopting Internet banking requires the ability to access the Internet.

2.4.1.2.2 Trialability

Trialing before commencing this new banking service can increase customer's confidence (Tan & Teo, 2000). When a customer can trial doing a transaction and has a satisfying experience, the decision to apply for the service may be strengthened. Rogers' (1983) Theory of Innovation Diffusion states that trialability is a factor in the adoption of new technology as potential adopters will feel more comfortable with the innovation. Consequently, fears of the unknown in using the new service may be minimized (Tan & Teo, 2000). In the context of Thai Internet banking, most Internet banks provide a demonstration application of services on their Web sites.

2.4.1.2.3 Acceptable terms and conditions

Terms and conditions of use established by Internet banks have to be acceptable to users. Unreasonable or unclear conditions of use can obstruct the willingness of potential adopters to use this service. For example, they may not highlight solutions to problems should they occur and therefore cause customers to hesitate or even refrain from adopting the service.

2.4.1.2.4 Documentary evidence

Compared to traditional banking, where all transactions have documentary evidence such as bank receipts, and customers are assured that their transactions have been performed, the Internet does not necessarily provide hard evidence of transactions. As a consequence, not providing automatic printable evidence of transactions performed can be an inhibitor in adopting Internet banking. It is therefore essential for banks to consider customers' desire for documentary evidence of transactions completed if this is their preference.

2.4.1.3 Features of the Web site

Traditional banks deliver their services to customers in a physical environment where banks staff and customers interact, and tangible facilities support performance or communication of the services. Garnet (1996) suggests that the physical environment plays an important role in the customer's assessment of quality and service levels. The expansion of the branch network and the size of the branch are therefore effective strategies to increase perceptions of good service. They provide assurance that the bank has substantial resources and offers security of their savings. In the case of online banking, features of bank's Web site become the determinant for customers' satisfaction with the service. These features are as follows:

- Reliability
- Ease of use
- Security evidence
- Quick response

These sub-factors will now be discussed in turn.

2.4.1.3.1 Reliability

Reliability of transactions performed using Internet banking is significantly in building a customer's confidence and trust (Polatoglu, 2001). As Hosmer (1995) concludes, trust is difficult to enforce and once it is broken, the loss will be much greater than the gain when trust is maintained. Internet banking is significantly different in the way that customers deal with banks which requires greater attention being given to having adequate levels of reliability (Fink, 2000). Reliability is obscured in the avoidance of breakdowns in Internet transaction processing (Suganthi & Suganthi, 2001) and avoidance of errors.

2.4.1.3.2 Ease of use

Web pages which are complex and hard to follow can reduce customers' attraction to online services (Tan & Teo, 2000; Suganthi & Suganthi, 2001). Therefore, ease of use or user friendliness in respect of accessing and navigating Web pages is an important determinant of the use of online transactions. An example of a feature that promotes ease of use is the site index which makes it easy and fast to arrive at the desired location. This will encourage new users to continue their connection to the bank's Web site (Jayawardhena & Foley, 2000). Consideration should also be given to product information content, the amount of product information, product information format, language and layout features (Suganthi & Suganthi, 2001).

2.4.1.3.3 Security evidence

Security concerns can cause considerable apprehension and has attracted much attention (Hennigan, 1998; Sathye, 1999; Tan & Teo, 2000; Polatoglu, 2001; Suganthi & Suganthi, 2001; Valdez, 2001). This is because it is difficult to convince people that online banking is really safe (Valdez, 2001). Accordingly, security is perhaps the most important factor influencing the perception of customers who are considering to conduct financial transactions over the Internet (Sathye, 1999; Jayawardhena & Foley, 2000). Good security requires a number of approaches, including: identification and authentication; authorization; maintenance of confidentiality; integrity; non-repudiation; availability; privacy; and auditability (Labuschagne, 2000; Hutchinson & Warren, 2003). Recent technological developments such as Secure Sockets Layer (SSL), firewalls, encryption, digital signatures, however appear to have improved the perception of security (Fink, 2000). Internet banks can choose from a multitude of security features but most stay alert because they continue to evolve. Security evidence presented on the bank's Web site would ease customer concerns and build a customer's confidence to become involved in online banking.

2.4.1.3.4 Quick response

Responses from bank Web sites may affect customers' decisions to adopt online service (Polatoglu, 2001). Since customers expect quality of service and speed from electronic banking (Jun & Cai, 2001) when compared to traditional banking

processes. Banks need to balance their endeavour to make their sites attractive through high-resolution graphics which can slow download times with their desire to provide quick responses to customers' requests. It must however be acknowledged that download speed also depends on the user's own computer hardware and method of connection (Suganthi & Suganthi, 2001).

2.4.1.4 Risk and privacy

Cooper (1997) identified 'the level of risk' as an important issue from a consumer's perspective for the adoption of an innovation. This is in line with Hutchinson & Warren (2003), Labuschagne (2000) and Sathye (1999) who argue that risk and privacy can be identified as an Internet banking requirement. The level of risk and privacy concern is thus sub-factors of risk & privacy factor which are:

- Reputation and size of banks
- Logo of security guaranteeing organisation
- Less incomplete transaction risk
- Personal privacy

These sub-factors will now be discussed in turn.

2.4.1.4.1 Reputation and size of banks

Reputation and the size of the banks are important sources providing trust assurance in the online market (Hennigan, 1998). The reason is that traditional reputable banks have developed longstanding relationships with their customers. Particularly in Thailand, after the financial crisis, the reputation and size of banks was one of the major concerns for customers considering with which bank they should deal with. Several Thai commercial banks were forced to discontinue their operations, causing increased levels of uncertainty among bank customers about banks' assets. Since Internet banking is performed electronically, customers' awareness about the safety of their investments is linked to the reputation and size of banks.

2.4.1.4.2 Logo of security guaranteeing organisation

The presence of a security logo advising customers of the site's security is another important factor in deciding to use Internet banking services. The third-party guaranteeing organizations, e.g. Verisign, Web Trust, etc. provide assurance that the interests and rights of the parties doing business on the Web are being protected (Fink, 2000). It is argued by Hutchinson & Warren (2003) that a security guaranteeing logo can increase customers' confidence because there is no other tangible way for an everyday users to gain this information. For example, the Bangkok Bank Plc and the Bank of Ayudhya Plc in Thailand use Verisign to provide external evidence of their online security to customers.

2.4.1.4.3 Less incomplete transaction risk

Internet banking relies on Internet technology which may fail during transaction processing. Furthermore, it is not unknown in Thailand that bank staff may manipulate transactions in their positions in traditional bank branches. Thus, the failure of sophisticated Internet technology and the fraudulent behaviour of staff may corrupt transactions. This risk should be minimized and effectively ameliorated by banks. Customers should be able to expect that they are dealing with a reliable banking system and mechanism to avoid risks have to be provided for customers (Hutchinson & Warren, 2003).

2.4.1.4.4 Personal privacy

As identified by Hutchinson & Warren (2003), privacy refers to the ability to prevent the unlawful or unethical use of information or data. The presence of a privacy statement on the bank's Web page is essential because it will overcome the trend that consumers are becoming increasingly concerned about how personally identifiable information is being used. The lack of customer privacy has been shown to be an impediment to the widespread acceptance of electronic commerce (OCC, 1998).

2.4.1.5 Personal preference

Compatibility with customers' personal characteristics has been found to be important in the adoption of Internet banking services (Tan & Teo, 2000; Suganthi & Suganthi, 2001). Customers are comforted if the characteristics of Internet banking are consistent with their existing values, past experiences and needs (Rogers, 1983). Compatibility with personal characteristics can be seen in various areas as its sub-factors which are:

- Self-service
- Satisfaction with current branch service
- Technophobia
- Integration with life styles

These sub-factors will now be discussed in turn.

2.4.1.5.1 Self-service

In banking, customers can now choose between being served or servicing themselves. As Internet banking is self-service, people who prefer being served may not consider shifting to this type of service. However, according to Ricard et al. (2001), self-service technology has achieved considerable popularity among customers. Largely due to the independence it provides, compared to the traditional banking processes, bank customers may prefer this approach.

2.4.1.5.2 Satisfaction with current branch service

Strong satisfaction with current bank services could stand in the way of customers adopting internet banking. That is to say, customers will be reluctant to change their habits if their needs are adequately fulfilled by the current service (Suganthi & Suganthi, 2001). By way of contrast, dissatisfaction with a current bank branch can persuade a traditional bank customer to shift to online services as an alternative mode of conducting banking business. Dissatisfaction can be caused by a range of factors such as queuing and poor customer service received within bank branch.

2.4.1.5.3 Technophobia

Technophobia or being afraid of new technology is seen as a factor discouraging some consumers from opting for Internet banking (Suganthi & Suganthi, 2001) because technology can create particular problems and consequently lead to a negative impact on the customers (Jayawardhena & Foley, 2000; Ricard et al., 2001). That is, some may not have the necessary knowledge or confidence to interact with computers and therefore rely on human beings more than on computers. Internet banking has been seen as a delivery channel that is compatible with the profile of the modern banking customer who is likely to be computer-literate and familiar with the Internet (The Straits Times, 14 September 1997, cited in Tan & Teo, 2000).

2.4.1.5.4 Integration with life styles

The modern life style includes a comfortable daily-life, a supportive working environment and a preference for technological devices such as Internet technology and mobile phones. This environment tends to encourage people to adopt Internet banking services (Suganthi & Suganthi, 2001). For those used to a traditional lifestyle such as manual work, the absence of technology use and conservatism, Internet banking would not be as desirable to adopt.

2.4.2 Perceived behavioural control

As discussed earlier, perceived behavioural control has two components: self-efficacy and facilitating conditions. In this study, perceived behavioural controls reflected in conditions that potentially facilitate Internet banking exist in the external environment and ignored individual's self-efficacy. This is because a low number of computer literacy in Thailand may dominate Thai people to ignore Internet banking services. In the context of Internet diffusion readiness, the Thai Internet population is still low, compared to the neighbouring countries such as Malaysia and Singapore (Malaiwong, 2002).

2.4.2.1 External environment

External support can be seen as a potentially powerful inhibitor if there is a lack of outside support by the following sub-factors:

- Government
- Regulator
- Collaboration
- Infrastructure

These sub-factors will now be discussed in turn.

2.4.2.1.1 Government

The legal approach of a country is an important factor affecting the growth of Internet banking services. Properly constituted laws will enable people to conduct an Internet transaction with confidence, and likewise, the absence of Internet banking laws can be a barrier to its adoption. Consumers need to know the government's role in ensuring they are legally protected in this form of business-to-consumer electronic commerce (Hennigan, 1998).

2.4.2.1.2 Regulator

Industry regulators are responsible for monitoring the transparency and security pertaining to technologically related risks to bank customers (Hennigan, 1998). Their involvement covers consumer rights and responsibilities (Treasury, 1996), and if absent, the resultant uncertainty will be an obstacle to the adoption of Internet banking services. In Thailand, the key regulator is the Bank of Thailand (BOT). Being a regulator, the BOT has issued Internet banking regulation for protecting participants who have done electronic transactions by implementing security technology, risk management and emergency plan for Thai financial market.

2.4.2.1.3 Collaboration

Alliance between companies is an important phenomenon in today's business world. Whatever the duration and purpose of business alliances, being a good partner has become a key corporate asset or provide a collaborative advantage (Kanter, 1994). Success in collaboration is based on the creation of new value for both partners, rather than the exchange itself (getting something back for what having put in) (Kanter, 1994). Similarly, collaboration among banks can play a significant role in increasing online banking because of the resultant expansion of financial services. The synergy of financial and non-financial services can motivate customers to participate in Internet banking due to the 'one-stop' service they would receive.

2.4.2.1.4 Infrastructure

An efficient Internet-based system requires the availability of adequate Internet bandwidth and network reliability, speed and access. Deficiencies in the current infrastructure such as low speed of Internet access, slow execution of transactions, can inhibit consumers from shifting from traditional banking to Internet banking (Hennigan, 1998). Low speed in particular causes dissatisfaction to customers and uncertainty that transactions are being completed.

2.4.3 Subjective norms

Subject norms refer to "the person's perception that most people who are important to him think he should or should not perform the behaviour in question" (Fishbein & Ajzen, 1975, p.302). Previous studies (Taylor & Todd, 1985; Hartwick & Barki, 1994) have found that subjective norms are more important prior to, or in the early stages of, innovation implementation when users have limited direct experience from which to develop attitudes. Subjective norms applicable to Thai people include:

- Culture

2.4.3.1 Culture

Culture has found to have an impact on the adoption and transfer of technologies (Straub et al., 1997). It is reflected in the following sub-factors:

- Group-orientation
- Socialisation
- Personal relationships
- Uncertainty avoidance

These sub-factors will now be discussed in turn.

2.4.3.1.1 Group-orientation

As stated by Rogers (1983) the nature of diffusion demands some degree of homophily, the degree to which pairs of individuals who interact are similar in certain attributes such as beliefs, education, social status, etc. That is, the transfer of ideas develops most frequently between individuals who are alike or similar. This is because, when they share common meanings, a mutual sub-cultural language, and are alike in personal and social characteristics, the communication of ideas is likely to have greater effect in terms of knowledge gain, attitude formation and change. Therefore, an innovation will be adopted if it is consistent with individual's and group's values or beliefs in order to encourage participation (Polatoglu, 2001).

According to Hofstede (1991), an important aspect of Thai culture is collectivism in that the interest of the group prevails over the interest of the individual. In other words, group-orientation is important in decision making (Pornpitakpan, 2000). The popularity of commercial products, including financial services such as Internet banking, is therefore affected by the perception of groups in the Thai society.

2.4.3.1.2 Socialisation

Socialization, including face-to-face conversation, is important for a collectivist society (Pornpitakpan, 2000). The vast majority of bank customers in Malaysia, for example, would still like to have personal interaction when doing their bank transactions (Suganthi & Suganthi, 2001). Traditional banking is performed by the

interaction between customers and bank tellers, while Internet banking involves non-human interactions between customers and the online bank information system (Jun & Cai, 2001). Thus, the lack of social interaction in electronic commerce activities may be an obstacle in the adoption of Internet banking for Thai people.

2.4.3.1.3 Personal relationships

Suganthi & Suganthi (2001) assert that a vast majority of bank customers prefer the personal touch of officers and managers because they perceive that this adds value to each transaction. As Ricard et al. (2001) state "In the relationship context, personal exchanges are critical (Wynant & Hatch, 1991; Shani & Chalasani, 1992) and more importantly, during such exchanges it is the reinforcement of the relationship per se that is more valuable than the exchange" (p.300). Internet banking can have a negative impact on existing relationships between customers and banks because it diminishes personal relationships by using self-service technology and it tends to standardize the products and services. Internet banking is provided by bank machines instead of bank staff, making some customers feel uncomfortable with this environment and prefer to interact with the bank staff rather than save a few minutes (Ricard et al., 2001).

2.4.3.1.4 Uncertainty avoidance

Hofstede (1991) identified uncertainty avoidance as the extent to which people feel threatened by dubious situations. This may also explain resistance to change. For customers to change their present ways of operating and to take up new technology, the technology must 'fulfill a special need', unless, such a need is fulfilled by the present ways of operating (Suganthi & Suganthi, 2001). It is argued by Quinn & Mueller (1982) that humans "tend to be resistance to change" (p.62). Thus, uncertainty avoidance in terms of reluctance to change is a potential inhibitor to adopting innovation. The adoption of Internet banking has suffered from resistance to change from the present way of contacting and doing business with banks.

Table 2.7 summarises the operationalisation of the above variables (seven factors – 28 sub-factors (items)).

Table 2.7: Operationalisation of Internet Banking Adoption Variables

Variables	Description	References
Encouragement		
Perceived Usefulness	Availability of a wide range of information is only "one click" away. Convenient access to banking services through the computer at any time. Increasing the effective use of time, for example, by not having to wait in line. Reducing banking costs, such as reduced bank charges and transportation costs.	Rogers (1983) Mazursky et al (1987) Hitt and Frei (1999) Sathye (1999) Tan and Teo (2000) Suganthi and Suganthi (2001) Polatoglu (2001)
Adoption	Ability to access the Internet at any time at work and at home. Being able to trial doing banking transaction online before registering for the service. The banks providing acceptable conditions and terms of service. Documentary evidence is provided for all transactions performed online.	Rogers (1983) Tan and Teo (2000) Suganthi and Suganthi (2001) Valdez (2001) Kor-anantakool & Jantarapatip (2001) Rao (2002)
Features of the Web Site	The bank's Web site can be accessed when needed - 24hours/day, 7 days/week. The bank's Web design and navigation makes it comfortable to conduct a transaction. There is evidence that current security provided by bank's Web site is sufficient. The bank's Web site executes transactions quickly and efficiently.	Rogers (1983) Hosmer (1995) Garnet (1996) Hennigan (1998) Sathye (1999) Fink (2000) Jayawardhena and Foley (2000) Lubaschagne (2000) Tan and Teo (2000) Jun and Cai (2001) Polatoglu (2001) Suganthi and Suganthi (2001) Valdez (2001) Hutchinson & Warren (2003)
Risk and Privacy	The reputation and size of bank provides assurance of Internet banking integrity. The bank's Web site displays the logo of an independent security guaranteeing party. There is an absence of problems during performing an online banking transaction. A privacy statement on bank's Web page guarantees privacy of personal data.	Cooper (1997) Hennigan (1998) OCC (1998) Sathye (1999) Fink (2000) Lubaschagne (2000) Hutchinson & Warren (2003)
Impediments		
Personal Preference	Being required to perform self-service Internet banking independent from a bank teller. Being satisfied by the quality of current bank branch service. Being required to try out and use a new technology-based product. Being required to integrate Internet banking into lifestyle and working environment.	Rogers (1983) Jayawardhena and Foley (2000) Tan and Teo (2000) Ricard et.al. (2001) Suganthi and Suganthi (2001)
External Environment	Absence of clear government support for conducting online business transactions. Absence of an industry regulator such as the Bank of Thailand for Internet banking. Lack of collaborators or alliances in Internet banking to cooperate and expand services. Deficiency in Internet infrastructure and facilities such as bandwidth.	Kanter (1994) Treasury (1996) Hennigan (1998)
Cultures	Having few friends or colleagues that conduct Internet banking. Lessening of face-to-face contact with banks. Giving up personal relationships when dealing with banks. Changing the way to establish contact with banks.	Fishbein and Ajzan (1975) Rogers (1983), Hofstede (1991) Shani & Chalasani (1991) Wynant & Hatch (1992) Hartwick and Barki (1994) Taylor and Todd (1995) Straub et.al. (1997) Pornpitakpan (2000) Jun and Cai (2001) Polatoglu (2001) Ricard et.al. (2001) Suganthi and Suganthi (2001) Karjaluoto et.al. (2002)

2.5 Development of a Theoretical Framework

The above research variables can be categorised into three groups based on the ability or inability of banks to facilitate Internet banking services. These groups are:

- Bank factors: These influence the perceptions of customers towards Internet banking and include items under the control of the bank, namely perceived usefulness, adoption, features of the Web site, and risk and privacy.

- Personal factor: These reflect compatibility with customer's personal preference which is not under the control of the bank.

- Other factors: These are not under the control of banks and reflect the external environment and Thai culture.

This study perceives that only bank factors are able to be controlled by banks when they attempt to gain more online customers. The other factors are dependent on the customers themselves and the Thai environment. For this reason, bank factors are potential facilitators of Internet banking adoption from the perspective of the bank and the bank is able to influence the perceptions of customer towards online banking benefits and services by offering attractive Web site features. Conversely, personal and other factors, not under the control of banks, are viewed as potential barriers to Internet banking adoption. The identification of facilitators will enable banks to develop strategies that would directly influence the adoption of Internet banking, while knowledge about potential barriers will provide banks with a way to influence Internet banking in an indirect way such as persuading government to improve the current Internet infrastructure.

This study also investigates the impact of moderating factors on adoption factors. These moderating factors are age, gender, educational levels, income, Internet experience and Internet banking experience. These factors have been prominent in

previous research on Internet banking (Daniel, 1999; Sathye, 1999; Jayawardhena & Foley, 2000; Karjaluoto et al., 2002). For example, a survey of Internet banking users in the United States has found that Internet banking was likely to be used by males (55%), with an average aged of 37 years who had completed a college degree (NUA, 2001). Although it is found that males have dominated in the Internet business (Burstein & Kline, 1995), recent research has discovered that the numbers of females are increasing (Karjaluoto et al., 2002; NECTEC, 2003). Previous literature (e.g. Gattiker, 1992; Harrison & Rainer, 1992) suggest a strong relationship between age and the acceptance of innovation. That is, older consumers were found to have negative attitudes with new technologies. Prior experience with technologies also has an impact upon consumer beliefs and attitudes which increases the likelihood to adopt new technologies (Hirschman, 1980; Karjaluoto et al., 2002). Examination of these factors will enable banks to focus on their market groups more effectively.

A theoretical framework, therefore, was developed as shown in Figure 2.4.

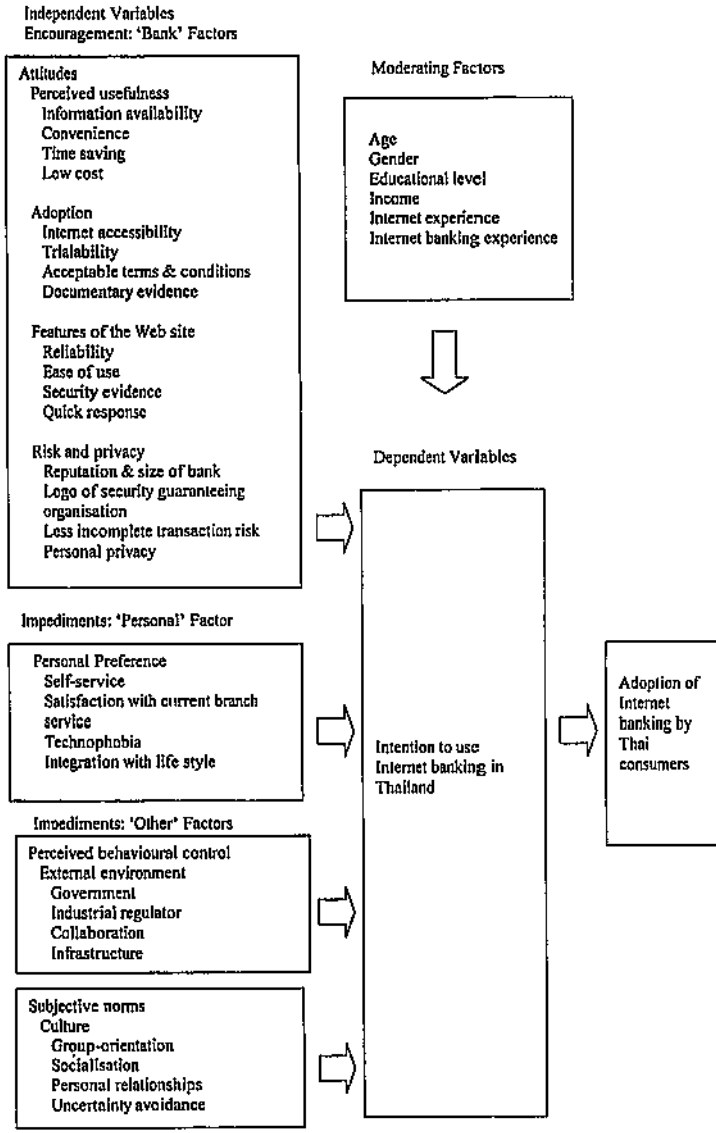


Figure 2.4: The Theoretical Framework for the Adoption of Internet Banking in Thailand

2.6 Summary

This chapter has provided an overview of Internet technology in Thailand. Internet technology was first introduced in Thailand in 1987 by academics and is now mainly used by employed people and full-time students. According to the National Electronics and Computer Technology Center (NECTEC) (2003), Thai Internet users are mostly young adults under the age of 39 years. The main Internet uses are communications and searching, rather than for electronic transactions. Although there have been several projects to improve computer literacy for Thai people, the Internet population and penetration rate of the country are still low, compared to neighbouring countries such as Singapore and Malaysia.

The situation in the banking industry was examined in relation to traditional and current electronic channels in Thailand. In order to survive and stay competitive in the market after the financial crisis, most Thai banks have reduced the number of their branches and now offer various electronic banking services including Internet banking services to attract customers. The domination of banks' over-the-counter services and long relationships between customers and bank branches provides a challenge for banks to shift their customers online.

Internet banking was first launched in Thailand in 1999 by the Siam Commercial Bank Plc. Currently, seven of the 13 Thai commercial banks are offering Internet banking. The functions of services provided are view-only functions, action/account control functions and applying for new service functions. The most advanced of the services, integration and reconciliation, is not being provided in Thailand.

Previous studies suggest that customers' perspectives have a greater impact on Internet banking services than banks. Literature on innovation diffusion (Innovation Diffusion Theory) and an individual's behaviour towards innovation adoption (Decomposed Planned Behaviour Theory) was applied in this study to determine potential factors influencing Internet banking adoption by Thai consumers. The theoretical framework was therefore based on customers' perceptions of the services consisting of attitude, perceived behavioural control and subjective norms.

These three factors were considered in terms of the ability of banks to facilitate them. Factors under banks' control are known as encouragement factors, otherwise they are called impediment factors. Specifically, the encouragement factors are termed 'Bank' factors, and impediment factors consist of 'Personal' factors and 'Other' factors. In other words, to encourage Internet banking services, Internet banks have to facilitate 'Bank' factors and indirectly influence the potential 'Personal' and 'Other' factors.

User characteristics were identified as moderating factors impacting on the adoption of Internet banking services. The predominant characteristics are age, gender, educational level, income level, Internet experience and Internet banking experience. Relationships between moderating factors and encouragement and impediment factors will be examined. The results will enable banks to develop effective strategies to directly influence Thai consumers to adopt Internet banking services and indirectly affect the other factors.

The next chapter will establish research hypotheses for the adoption of Internet banking in Thailand. Philosophical perspective of the research will be discussed to formulate an appropriate research methodology. Research will be carried out to examine the significance of those encouragement factors, impediment factors and moderators in order to answer the research questions.

CHAPTER THREE

SURVEY OF THAI CONSUMERS

3.1 Background

As mentioned in earlier chapters, the growth of Internet technology has had a significant effect on several industries including banking. This study aims to explore significant determinants that facilitate and impede the adoption of Internet banking in Thailand. The reasons for restricting this study to Thailand are as follows. First, it is impractical to undertake a worldwide survey even though the pool of Internet users is worldwide. Second, if the survey is done worldwide, the study would be too complex because there are several issues to consider, for example, differences in the steges of existing Internet banking in each country, and the various level of infrastructure that may make access to the Internet difficult. Third, the researcher is from Thailand and thus there was a particular interest in what was happening in Thailand and to provide guidelines for commercial banks to improve the adoption of this service. Finally, the approach of focusing solely on Thailand leads to greater insight for researchers and practitioners.

In this chapter, research hypotheses are developed based on potential adoption factors identified from the literature and applied in the context of Thailand. These potential factors are alternatively categorised into two main groups based on banks' ability to directly control them. That is, a factor that can be controlled directly by banks is identified as an encouragement factor, whereas one that cannot be controlled directly by banks is identified as an impediment factor. Philosophical perspectives of business research are discussed to provide the basis for the research methodology used in the study. The next section covers the development of the research instrument for the survey which includes the design of the questionnaire and survey conduct.

3.2 Development of Hypotheses

The factors influencing the adoption of Internet banking were identified in the previous chapter and were derived from three domains: attitude, perceived behavioural control, and subjective norms. They are described from the customers' perspectives which, according to a number of research studies, have a greater impact on banking service adoption than those of banks who are service providers. Seven factors were identified; four facilitators and three impediments. A brief explanation of those factors is in the following section together with the research hypotheses that were tested in the study.

3.2.1 Facilitators

As previously identified, facilitators are able to be directly controlled by banks. In the Thai banking sector, these factors include 'Perceived Usefulness', 'Adoption', 'Features of the Web Site' and 'Risk and Privacy', which are all derived from examining attitudinal domains. Fishbein & Ajzen (1975) define attitude as an individual's positive or negative feelings about performing a target behaviour. This attitude is related to behavioural intention because people intend to carry out behaviour when they have positive attitude (Tan & Teo, 2000). Therefore, if banks can create a positive attitude towards Internet banking for their customers, it is likely that customers will intend to migrate their bank account to an online account.

Tornatzky & Klien (1982) suggest that relative advantage is an important factor in determining adoption of innovations. This is supported by Rogers' (1983) Innovation Diffusion Theory, which found that the perceived usefulness of an innovation is positively related to its rate of adoption. As Internet banking services allow users to control their accounts from anywhere at their own convenient time at a lower cost, it provides numerous advantages to the user in terms of price and convenience (Polatoglu, 2001). As a consequence, the greater the perceived usefulness of using Internet banking services, the more likely that Internet banking will be adopted.

Before engaging with a new service, several issues related to the adoption need to be considered by bank customers. An example of this is the bank's terms and conditions applied to the service. Only reasonable bank terms and conditions would be accepted. Ability to try is another one of the issues preceding adoption. To be even more assured, a provision of documentary evidence would be essential for all banking transaction in Thailand as it will lessen uncertainty for the adopter (Rogers, 1983). Accessibility to the Internet itself is a fundamental requirement to an adopter because the lack of Internet accessibility will cause a potential adopter to ignore Internet banking services and maintain his/her attachment to the traditional branch bank or other channels. Therefore, the lesser the uncertainty of adoption, the more likely that Internet banking will be adopted.

Features of a bank's Web site are important in determining the intention to adopt Internet banking since they define the media of service delivery. There are several features of a Web site that can be considered. Reliability of accessibility to the Web site regardless of banking hours is essential so that users can perform their bank transactions at their own convenience. Perceived ease of use of the Internet banking service is also positively related to the rate of adoption (Rogers, 1983). It would be essential for banks to provide user friendly features to assure the user's adoption (Suganthi & Suganthi, 2001). Effective response time from the bank's Web site is another determinant to facilitate the adoption. Similarly, security evidence presented on a bank's Web site can help ease customer concerns and increase confidence to make use of the service.

Risk and privacy are potential major factors influencing the adoption of Internet banking. The introduction of Internet banking services is facilitated by the bank's reputation in terms of size, awareness and trust (Polatoglu, 2001). Associated with the perception of good security is the presence on the Web site of a third party guaranteeing security and the appearance of a privacy statement that promise the minimisation of risk and personal privacy breaches to potential Internet banking users.

The aforementioned facilitators impact adopters differently since adoption is dependent on attitude towards the Internet banking services. Consequently, one

would expect that one or more factors facilitate the adoption of Internet banking in Thailand to a greater extend than others. This leads to the first hypothesis.

$H_0 1$: There will be no significant differences between the factors that encourage Internet banking adoption in Thailand.

$H_A 1$: There will be significant differences between the factors that encourage Internet banking adoption in Thailand.

3.2.2. Impediments

There are three barriers derived from prior studies that apply to the Thai context. They are from all three domains: attitude, namely 'Personal Preference'; perceived behavioural control, namely 'External Environment'; and subjective norms, namely 'Culture'. Compatibility of the new service with personal characteristics is positively related to innovation adoption since this lessens uncertainty to the potential adopter (Rogers, 1983; Tan & Teo, 2000). Compatibility, based on attitude, includes the preference of self-service, technology, lifestyle as well as current bank branch services. According to the study by Tan & Teo (2000), Internet users who feel that using Internet banking is compatible with their values about living and working are more inclined to adopt such services. The degree of fear of new technology, from general to a phobia, becomes a factor causing the consumer's reluctance to opt for Internet banking. Preference of being served at the current branch is a possible discouragement for adopting Internet banking services.

With regards to the external environment, as a perceived behavioural control, government and industry regulator support seems to be major driving forces in the adoption of Internet banking (Tan & Teo, 2000). They can give potential participants assurances that Internet banking takes place in an orderly and well managed environment. This can take the form of government support for conducting online business as reflected in the Thai government's intention to encourage electronic commerce. Other environmental factors include a suitable technological infrastructure and adequate Internet bandwidth without which Internet banking could

not function. Once in place, banks are likely to form alliances and enter into co-operative arrangement such as being able to transfer funds electronically between banks. The absence of these developments is likely to impede the adoption of Internet banking.

Thai culture, as a subjective norm, can be a barrier to the adoption of innovation. Personal relationships when conducting banking transactions can add value to a customer dealing with banks, particularly in Thailand. Reference groups also impact on consumer behaviour because people try to surround themselves with people and things that are consistent with their own identities (Tan & Teo, 2000; Karjaluoto et al., 2002). This is a collectivism characteristic of Thai culture (Pornpitakpan, 2000). Face-to-face conversation is important in the Thai context; since Internet banking tends to reduce face-to-face conversation, it is therefore seen as one of the barriers to the adoption of Internet banking in Thailand. In Thai culture, personal relationships, collectivism and socialisation are important; uncertainty avoidance is moderately high (Hofstede, 1991), but nevertheless can discourage the move towards the digital era.

One would expect therefore that the aforementioned impediments impact the Internet adoption in banking sector differently in the Thai environment. It depends upon the user's attitude and perceived behavioural control and the subjective norms of the society. Therefore, the second hypothesis is proposed as follows:

H_02: There will be no significant differences between the factors that impede Internet banking adoption in Thailand.

H_A2: There will be significant differences between the factors that impede Internet banking adoption in Thailand.

3.2.3 Moderators

With regards to individual customer' characteristics, it has been found that a typical online banking user can be described as a male, highly educated, relatively young

and wealthy, and a person with computer literacy, especially Internet technology (Polatoglu, 2001; Suganthi & Suganthi, 2001; Karjaluoto et al., 2002). Thus, one would expect that demographic factors have a significant great impact on consumer attitudes and behaviour regarding online banking. The third hypothesis is therefore proposed:

H_O3: There will be no significant differences between the factors that moderate Internet banking adoption in Thailand.

H_A3: There will be significant differences between the factors that moderate Internet banking adoption in Thailand.

Table 3.1 shows a summary of the hypotheses developed for the study and variables involved in each hypothesis.

Table 3.1: Summary of Hypotheses, Variables and Measurements

Hypotheses	Variables	Measurements
One	Encouragement factors	
	Perceive usefulness	Information availability
		Convenience
		Time saving
		Low cost
	Adoption	Internet Accessibility
		Trialability
		Terms and conditions
		Documentary evidence
	Features of the Web site	Reliability to access
		Ease of use
		Security evidence
		Quick response
	Risk and privacy	Reputation and size of banks
		Logo of security guaranteeing organisation
		Less incomplete transaction risk
		Privacy statement
Two	Impediment factors	
	Personal preference	Self-service
		Satisfaction with current branch service
		Technophobia
		Integration with lifestyle
	External environment	Government
		Industry regulator
		Collaboration
		Infrastructure
	Culture	Group-orientation
		Socialisation
		Personal relationships
		Uncertainty avoidance
Three	Moderating factors	
	Gender	
	Age	
	Education	
	Income	
	Internet experience	
	Internet banking experience	

In order to test these three hypotheses, the following research paradigms and approaches were evaluated.

3.3 Perspectives of Research

Philosophical perspectives can be seen in different schools of thoughts or paradigms. The term 'paradigm', which has been credited to Kuhn (1962), is widely used among business and social researchers in recent years. Tichurst & Veal (1999) stated that:

> "A paradigm reflects a basic set of philosophical beliefs about the nature of the world. It provides guidelines and principles concerning the way research is conducted within the paradigm. The methods and techniques used in the research should be in sympathy with these guidelines and principals" (p.25, cited in Cavana et al., 2001).

There are three paradigms in business research which are positivist, interpretivist and critical research (Cavana et al., 2001).

3.3.1 Positivist research

Positivists generally assume that there is a set of reality in both physical and social worlds, waiting to be discovered (Myers, 1997; Williamson, 2000; Cavana et al., 2001). This reality can be explained by precise and objective measures which are independent of the researcher and research instruments (Myers, 1997). Mostly, positivist research is associated with quantitative methods[1]. According to Cavana et al. (2001), positivist researchers try to test theories by using a "linear strategy of formulating a hypothesis (a statement of the relationships between the observed phenomena)" (p.8). This aims to increase the "predictive understanding of phenomena from the sample to a stated population" (Myers, 1997, p.4). That is to say, positivist research is based mainly on deductive reasoning beginning with a theory and models, and eventually, generalisations are from empirical evidence analysed by statistical methods (Williamson, 2000; Cavana et al., 2001). Cavana et al. (2001) state that, "the hallmark of good positivist research is replicability, that is, another researcher should be able to conduct the same research in the same way and come up with the comparable results" (p.8). However, some researchers argue that it is superficial to quantify all aspects of human endeavour. Furthermore, statistical samples are not able to express all specific social groups or able to allow to generalise or comprehend individual cases. Further criticism is made on the failure of interpreting the meaning of people and the way they think and feel as well as the researcher's involvement (Cavana et al., 2001).

[1] Although the survey is, almost by definition, positivistic, interview would be at least somewhat interpretivistic research, still a survey.

3.3.2 Interpretivist research

While positivist research views reality in both physical and social worlds as governed by causal laws, interpretivist research is based on the assumption that reality is socially constructed (Myers, 1997; Cavana et al., 2001). Williamson (2000) states that, "the social world is interpreted or constructed by people and is therefore different from the world of nature" (p.30). As a consequence, "the interpretivist researcher is interested in understanding the lived experiences of human beings and identify what is meaningful to individuals" (Cavana et al., 2001, p.9). They focus on human beings' beliefs, feelings and interpretations and recording these perspectives as accurately as possible (Williamson, 2000). Dependent and independent variables are not predefined, but the full complexity of human sense under certain specific situations is concentrated (Kaplan & Maxwell, 1994, referenced in Myers, 1997). Although this allows the understanding of the subjects being investigated, some criticisms against interpretivist research are it is too subjective and focuses mainly on specific events and does not create change (Cavana et al., 2001).

3.3.3 Critical research

Critical research starts with the assumption that people have a great deal of unrealised potential and have an ability to adapt and transform themselves against various conditions such as social, culture and political domination (Myers, 1997; Cavana et al., 2001). As Myers (1997) states "social reality is historically constituted and that it is produced and reproduced by people" (p.4-5). Critical research is therefore aimed at empowering people to better change their world by uncovering myths and hidden meanings (Cavana et al., 2001). On the other hand, criticisms of critical research are firstly, it may force people to change before they are ready. Secondly, it concentrates on eliminating current social circumstance without providing processes for creating a new reality (Cavana et al., 2001).

While these three paradigms are philosophically distinct, in practice, they are not clearly separated (Myers, 1997). There is considerable disagreement as to whether

these paradigms are opposed or can be accommodated within one study. Comparison of these three paradigms is summarised in Table 3.2.

Table 3.2: Comparison of the three Research Paradigms

	Positivist	Interpretivist	Critical
Assumptions	Objective world which science can measure and 'mirror' with privileged knowledge	Intersubjective world which science can represent with concepts; social construction of reality	Material world of structured contradictions and/or exploitation which can be objectively known only by removing tacit ideological biases
Aim	To discover universal laws that can be used to predict human activity	To uncover the socially constructed meaning of reality as understood by an individual or group	To uncover surface illusions so that people will be empowered to change their world
Stance of researcher	Stands aloof and apart from research subjects so that decisions can be made objectively	Becomes fully involved with research subjects to achieve a full understanding of subjects' world	Involved with research subjects so that surface illusions can be identified, but urges subjects to change their world
Values	Values free; their influence is denied	Values included and made explicit	Values included and made explicit
Types of reasoning	Deductive	Inductive	Deductive and inductive
Research plan	Rigorous, linear and rigid, based on research hypothesis	Flexible, and follows the information provided by the research subject	The imperative for change guides the actions of the researcher
Research methods and type(s) of analysis	Experiments; questionnaires; secondary data analysis; quantitatively coded; documents statistical analysis	Ethnography; participant observation; interviews; focus groups; conversation analysis; case studies	Field research, historical analysis/ dialectical analysis
Goodness or quality of criteria	Conventional benchmarks of 'rigour'; internal and external validity; reliability and objectivity	Trustworthiness and authenticity	Historical situatedness; erosion of ignorance and misapprehensions; action stimulus

Source: Lincoln & Guba (2000), Gephart (1999)

3.4 Research Approach

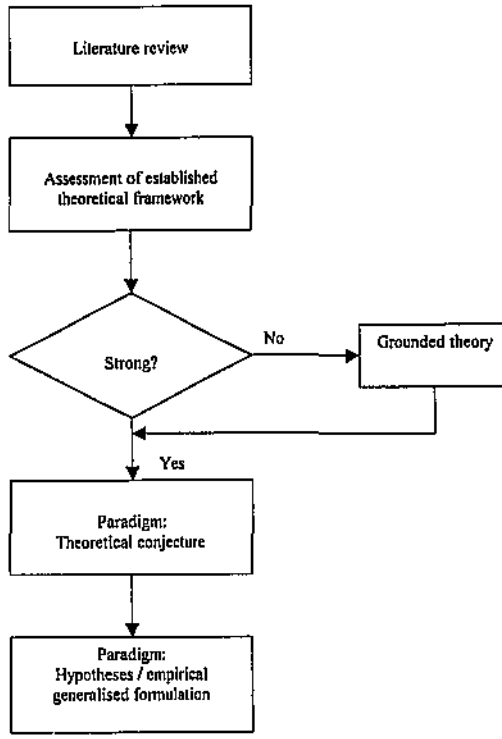
The present study adopts "positivist" thoughts which includes empiricism, epistemology, and quantitative methodology. The reasons why this approaches were adopted are

- Relevant prior studies used empirical approach to gathering data.

- Research constructs and variables used in this study are objectivity measured and quantified.
- Factors influencing the adoption of Internet banking in Thailand are established by deductive reasoning.
- The aim of the research is to develop strategies for Thai banks based on the knowledge gained.

According to Jarvinen (2000), a research approach is defined as "a set of research methods that can be applied to similar research objects and research questions" (p.124). The selection of an appropriate research method is fundamental to any research design to achieve the research objectives defined in the theoretical framework (Falconer & Mackay, 1999; Cavana et al., 2001). Although as a general rule, a method used previously should be followed, a new methodological approach can sometimes be more suitable (Brewer & Hunter, 1989). Previous research in this area has tended to use survey methods. For instance, a study of Malaysian Internet banking by Tan & Teo (2000) used an online survey to capture Malaysian users' attitudes. Another example is the survey of Australian banking customers by Sathye (1999). Another study of Internet banking in the UK and Republic of Ireland involved a mail survey to managers in electronic banking departments and IT departments of companies. On the other hand, a study of Turkish consumers' acceptance of Internet banking services by Polatoglu (2001) started with an in-depth interview with a bank executive to identify the key elements of online banking usage from the bank's perspective and then conducted a survey with the bank's customers.

Falconer & Mackay (1999) state "quantitative research design is based on an objective view of the world and follows the positivist model of controlling variables and testing pre-specified hypotheses" (p.288). Generally, the quantitative research method starts with reviewing the literature in this context. Assessment of established theoretical frameworks are then carried out and justified if they are strong. Paradigm or theoretical conjecture is drawn up and hypotheses are thereby formulated. Figure 3.1 shows the steps required in quantitative research.



Source: Remenyi et al. (1998)

Figure 3.1: Steps required in Quantitative Research

Generally, it is obvious what evidence is required in quantitative research and this evidence is likely to collect within a tight structure of research (Remenyi et al., 1998). In particular, information system research as one of the social sciences, often involves evidence collection by using a questionnaire. The approach is part of a group of methods which concentrate on quantitative analysis by using statistical techniques, where data for a large number of organisations is collected as a representative sample (Gable, 1994). The evidence collected by the survey is used to test data reliability and validity and to make generalisation across organisations, thereby underpinning the theoretical conjecture arrived from the findings.

According to Gable (1994), the survey method is relatively superior in deductibility to other field methods. Supported by Jick (1983), survey research also contributes to greater confidence in the generalisability of the results. However, this method may not include all variables of interest. Moreover, it is inflexible to change during the data collection. That is to say, once the survey is conducted, there is little one can do upon realising that some mistakes have occurred or some crucial item was omitted. To conclude, Attewell & Rule (1991) suggest that, "Traditional survey work is strong in ...areas where field methods are weak" (p.313). Table 3.3 summarises the strength of survey methods.

Table 3.3: Strengths of the Survey Method

Controllability	Medium
Deductibility	Medium
Repeatability	Medium
Generalisability	High
Discoverability (explorability)	Medium
Representability (potential model complexity)	Medium

Source: Gable (1994)

Qualitative research, on the other hand, investigates things in their natural settings and attempts to interpret phenomena in terms of the meanings that people bring to them. Since the social world is constructed by people, the access to their experience is the conversation process which is controlled to a certain degree. The interview process is applied to this approach. According to Cavana et al. (2001), interviews can be categorised as highly structured and highly unstructured being at the poles of a continuum. In an unstructured interview, the interviewer starts with a general, open primary question and relies entirely on his or her interview skills to manage the process and direction of the interview. The advantage of this is that there is less interviewer's bias and so more truly reveals the interviewee's experience. However, the unstructured interview is time-consuming and may transgress from the objectives of the research. In other words, no two interviews are the same. On the other hand, a structured interview is conducted with a list of predetermined and standardised questions in the same order, which ensure the specific areas of questions. However, the interview direction is heavily biased by the predetermined questions and also limits the opportunity for the interviewee to provide further information.

Taking the above considerations into account, a combination of quantitative and qualitative methods can be viewed as complements rather than as competitors (Gable, 1994). Further, Jick (1983) suggests that the mixing of methods overrides the strengths and weakness found in single method design. Further rationale for a combined approach is discussed in the next section.

3.5 Combination of Research Approaches

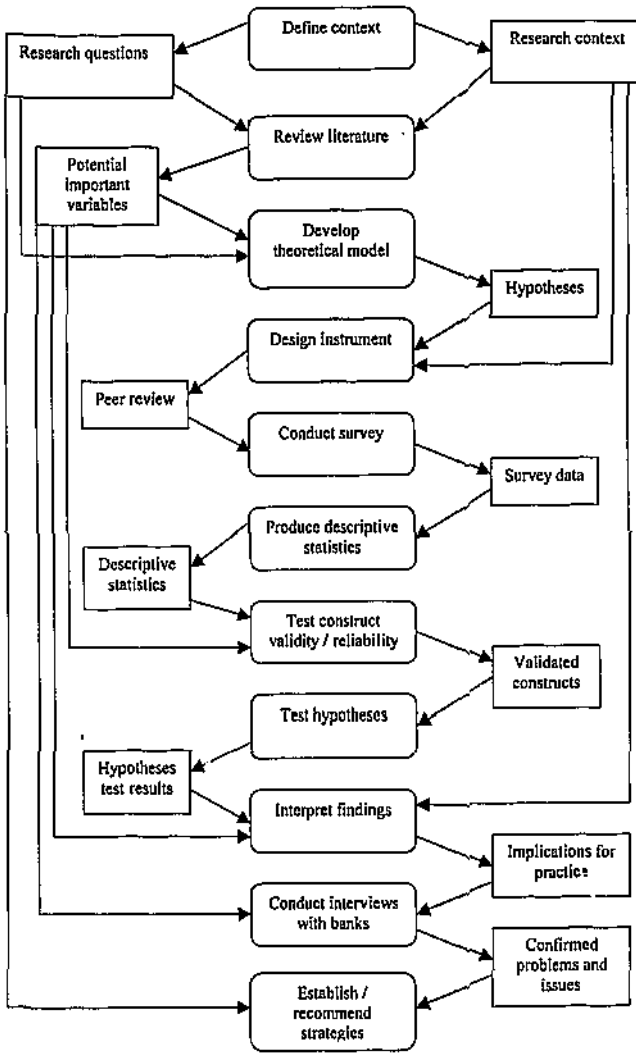
In this study, a triangulation of research methods was used. Triangulation is defined as a combination of methodologies in a study of the same phenomenon (Jick, 1979) and is classified into two major types: methods and sources (Williamson, 2000). Methods triangulation is the use of different data-collection methods to confirm the consistency of findings while sources triangulation is the cross-checking for consistency of the information at different times and from different people.

The advantage of triangulation is that the data is likely to be more reliable because it is collected by more than one method and from more than one source, which ensures that any bias inherent in the data source and the investigator is neutralised (Williamson, 2000). As Babbie (1979) advises "In the best of all possible worlds, your own research design should bring more than one research method to bear on the topic" (cited in Brewer & Hunter, 1989, p.28). Visala (1991) agrees that combining methods within a positivist paradigm is a valid approach to research design. Likewise, Green et al. (1989) assert that the combination of methods in a single study expands the scope and breadth of that study.

Because of the newness of Internet banking in Thailand and the lack of current research, this research was conducted using a triangulation in both methods and sources. A structured questionnaire survey was conducted as a quantitative research method to investigate bank consumers' attitudes towards the adoption of Internet banking. A structured interview method, applied to three commercial banks in Thailand was used after analysis of the quantitative data. The study followed the advice of Brannen (1992) who states that "If the purpose of the qualitative fieldwork is to clarify or extend a survey finding, then it must be conducted after the survey"

(p.23). In-depth insight on Internet banking services in Thailand from the banks' perspectives was gained as well as allowing the researcher to explore their plan to achieve a greater conversion of customers to online banking.

The integration of research methods is summarised in Figure 3.2. In the flow diagram, rounded boxes represent processes or stages of the study, whereas, information flows are represented by square boxes. The figure shows that the positivist paradigm and quantitative method were applied in this study after identification of the research context and research questions. A review of literature provided potential important variables to ascertain the factors affecting the adoption of Internet banking in Thailand. A theoretical model was developed and hypotheses were thereby established. The research instrument was designed and a peer review was conducted before a survey was undertaken. Data was gathered and used to test the research hypotheses. Interviews were conducted to gain a better understanding of consumers' perspectives on Internet banking services in Thailand. The results of qualitative and quantitative research will enable commercial banks to refine their efforts to increase the number of customers changing to online banking.



Source: Adapted from Gable (1994)

Figure 3.2: Integrating Survey and Interview Methods: A Flow Diagram

Secondary data from other research was also used to establish the impact of Internet growth and consumer attitudes towards Internet banking services. The findings from this study were compared to the results of previous research and interpreted.

3.6 Survey Design

A combination of quantitative and qualitative research approaches was used in this study and research instruments were developed in two phases. The first stage was aimed at capturing Thai consumers' attitudes towards Internet banking through a questionnaire survey. In the second phase, findings were presented to Thai Internet banks, to verify whether the data from the survey agreed with their perceptions. The following sections detail the development of the survey instrument, whereas the interview process will be presented in Chapter 6. Below is a discussion of how the survey was designed.

3.6.1 Questionnaire design

The quantitative research consisted of a questionnaire survey. As argued by Seaman (1987),

> "A major advantage of the survey is that data are gathered from a more natural setting. The variables are examined as they are found in the existing social milieu. A large amount of data can also be gathered at a fairly reasonable price. Surveys using the questionnaires are likely to cover a wider geographical area, reach many people, ensure respondents' anonymity, and require less skill to administer" (p.125).

The questionnaire can also used to generalise current public opinion (Creswell, 1994; Remenyi et al., 1998). It is the fastest and most feasible way to get opinions on a new service (Cavana et al., 2001) and it is suitable for probing relationships among the research variables.

A funnel approach, which starts with general and easy to answer questions and moves to more specific and difficult questions was adopted in this study. General

questions included demographic and socio-economic information. Demographic questions do not usually offend a respondent but lead them well into the questionnaire. This approach facilitates an easy and smooth progress in answering the questionnaire, making it more difficult to withdraw from the questionnaire (Burns, 1997; Cavana et al., 2001). This is also supported by Remenyi et al. (1998) who state that, "It is generally agreed that the best way in which to order the questions is to place general questions first, followed by specific questions and then attitudinal questions." (p.156). Therefore, the questions in this study began with the respondent's personal background, such as age, gender, education background, working sector, and income range. Warm-up questions about the respondent's length of Internet experience and Internet banking experiences then followed.

Subsequent questions were attitudinal questions asking respondents about their perceptions on the adoption of Internet banking, which was the main objective of the study. Seven key factors consisting of 4 facilitators and 3 inhibitors were included. To maintain symmetry, and to not make questions too lengthy, each factor consisted of 4 items. Altogether, respondents were asked the extent to which 28 items covering 7 factors facilitated or inhibited the adoption of Internet banking services.

A Likert scale was used to examine how strongly each item encouraged or discouraged the respondent in becoming an Internet banking customer. In this study, a seven-point response scale was preferred to a five or three-point scale since it is more sensitive. Sensitivity refers to the ability of instrument to accurately measure variables in responses. As Zikmund (1988) asserts the sensitivity of a scale is more important when attitude constructs are under investigation.

On the seven-point scale, 1 indicated that the item would offer 'no encouragement / discouragement' at all, while 7 indicated that the item would be of 'maximum encouragement / discouragement' in adoption the Internet banking. In addition, it was aimed to make questions highly structured, predominantly closed-ended, clearly stated, unambiguous and easily understood. Examples for answering two different types of questions (encouragement and discouragement) were also given in the questionnaire. Once these were incorporated, the questionnaire was peer reviewed.

3.6.2 Sample design

Sample design consists of three key aspects: sampling frame, sample size and sample selection criteria (Fowler, 1993). These three are interrelated in that a decision in one affects decision in the others.

3.6.2.1 Sampling frame

This study concentrated on Internet users who were office workers in large companies who had a greater potential to adopt Internet banking service than other groups, such as workers in small and medium sized businesses, students and self-employed people. This is because most office workers have computer literacy and Internet accessibility which are the basic requirements for Internet banking adoption. Furthermore, free-of-charge Internet access is provided by large organizations as a normal practice in Thailand making the Internet banking service easy to adopt for those working in large organisations. Students, on the other hand, have fewer banking service requirements and other electronic banking means such as Automatic Teller Machines (ATMs) can fulfill their banking requirements. Self-employed people are perceived to have fewer time constraints than office workers; so they would therefore continue to access local bank branches.

The decision to restrict the survey to Bangkok, the capital of Thailand was made for four reasons. First, the greatest pool of Internet users is located in Bangkok. According to the survey of Internet use in Thailand in 2001, 52% of Internet users were located in Bangkok (NECTEC, 2002). Secondly, Bangkok offers the most reliable Internet technology in Thailand, and is therefore also likely to have more sophisticated and active Internet users than provincial cities. Thirdly, traditional banking services are more accessible to people in provincial cities because there are fewer traffic problems, and fourthly, the lifestyle of provincial cities is less hurried than in Bangkok.

3.6.2.2 Sample size

Alreck & Settle (1985) suggested that in research that has a population of 10,000 or more, experienced researchers would consider a sample size of between 200 and 1,000 respondents. Furthermore, in other research in the Internet banking area, the number of questionnaires sent out was usually between 300 and 1,686 with useable responses of 114 to 589 (as shown in Table 3.4). For example, an empirical investigation of Internet banking in Malaysia was conducted online with two groups of 300 respondents: Internet bank users and non-Internet bank users. This study explored the various psychological and behavioural issues which appear to impede the growth of Internet banking in Malaysia. An online survey was also conducted in Singapore by Tan & Teo (2000) which received 454 responses from 1,686. In Turkey, customers' acceptance of Internet banking services was investigated by sending out 724 requests and analyzing 114 replies. Another example is a survey of Australian consumers in which 1,000 questionnaires were sent to individual and business firms (500 each) by mail survey. Some 589 questionnaires were returned providing opinions on the adoption of Internet banking.

Table 3.4: Sample of Studies in Consumers' Perceptions on Internet Banking

Research Title	No of Mails sent	No of Responses
Internet Banking Patronage: An Empirical Investigation of Malaysia (Suganthi & Suganthi, 2001)	300	300
Factors Influencing the Adoption of Internet Banking (Tan & Teo, 2000)	1,686	454
An Empirical Investigation of the Turkish Consumers' Acceptance of Internet Banking Services (Polatoglu, 2001)	724	114
Adoption of Internet Banking by Australian Consumers: An Empirical Investigation (Sathye, 1999)	1,000	589

Taking the above into account, sample size in this study was determined at 600 which was achieved by sending questionnaires to 15 people in each of 40 large companies.

3.6.2.3 Sample selection criteria

The selection of large companies was based on the provision of Internet accessibility to their employees. Large companies in Thailand are defined as companies that have total fixed assets of more than Baht 200 million and have over 200 employees, according to the Small and Medium Enterprise Promotion of Thailand (SME, 2002). In this study, companies were selected on the basis of number of employees (i.e. over 200) because of the need to have Internet accessibility for their employees.

At the time of the study, there were about 225,700 businesses incorporated in Bangkok (BBD, 2002). Stratified sampling was used to determine the number of organisations for each business category as shown in Table 3.5. Of the 40 large firms selected, 5 were from manufacturing, 4 from construction, 19 from retail, wholesale, restaurant and hotel, 2 from transportation, storage and telecommunications, 8 from finance, insurance and real estate, and 2 from service organisations. Fifteen people for each of the firms that make up the number of firms for each business category who indicated that they had access to the Internet formed the sample population. The conduct of the survey itself is discussed in a later section.

Table 3.5: The Range of Business Activities in Bangkok as at December 31, 2001

Business Category no.	Types of Business	No of Businesses established	Percentage of Business established	No of Businesses selected	No of Respondent selected	Percentage of Participation
1	Agriculture, forestry, hunting and fishing	1,982	0.88%	0	0	0.00%
2	Mining and quarrying	975	0.43%	0	0	0.00%
3	Manufacturing	27,505	12.19%	5	75	12.50%
4	Electricity, Gas & Water	104	0.05%	0	0	0.00%
5	Construction	21,600	9.57%	4	60	10.00%
6	Retail, Wholesale, Restaurant & Hotel	105,367	46.69%	19	285	47.50%
7	Transportation, Storage & Communications	11,095	4.92%	2	30	5.00%
8	Finance, Insurance & Real Estates	44,290	5.66%	8	120	20.00%
9	Services	12,782	0.00%	2	30	5.00%
0	Other activities, no adequately described	0	0.00%	0	0	0.00%
	Total	225,700	100.00%	40	600	100.00%

Source: The Section of Data Analysis and Statistics, Bureau of Business Development, Ministry of Commerce, Thailand (BBD, 2002)

A summary of the questionnaire sample design is provided in Figure 3.3

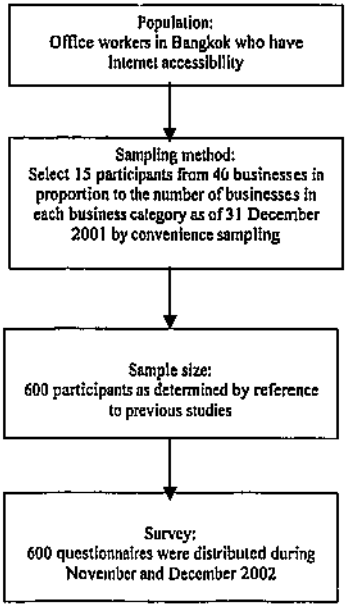


Figure 3.3: The Questionnaire Survey Design Flow Chart

3.6.3 Peer review

The main purpose in conducting the peer review is to strengthen the content validity of the instrument (Cavana et al., 2001). Another purpose is to eliminate confusing or problematic questions in the questionnaire. Therefore, a peer review was used to check for poor or inappropriate questions, twofold questions, vague words, instruction clarity, time use and format.

A group of 10 individuals considered similar to the target population was selected from different offices to pre-test and comment on the questionnaire before the fieldwork began. The feedback from the peer review recommended translation into Thai in order to attract the respondents' interests and ensure accuracy of results. It was reasoned by the peer review group that unfamiliarity with English may discourage participation in the questionnaire survey, as well as cause

misunderstanding. The researcher therefore decided to translate the questionnaire to Thai in order to make the respondents feel comfortable, thereby enhancing their participation. As agreed by Berry et al. (1992), in cross-cultural research the problem is that every culture should be studied in its own context.

However Sekaran (2000) warns that:

> "Certain special issues need to be addressed while designing instruments for collecting data from different countries. Since different languages are spoken in different countries, it is important to ensure that the translation of the instrument to the local language is equivalent to the original language in which the instrument was developed" (p.242).

Therefore, the questionnaires were translated to Thai using the back-translation technique. This technique is part of what Brislin (1973) defines as etic-emic analysis and as decentering. The etic and emic distinction is from linguistic terminology. While etic is meant to be a general system which can describe all sounds in all languages, emic is meant to describe sounds that are meaningful in a given culture. In terms of decentering, Brislin (1973) asserted that:

> "Decentering refers to a translation process in which the source and the target language versions are equally important and open to modification during the transaction procedure. One language does not contain content that must be translated without change into the other. That is, the researcher does not center on one of the languages. For instance, a standardised personality test might be modified after translation to and back from another language. Such modification might be based on knowledge of what terms will not translate well. Colloquial terms (such as "take advantage of" and "playing sick") might have to be changed. In decentering, both the source and the target versions contribute to the final set of questions, both being open to revision. Back-translation is the basis of decentering" (p.37-38).

In this study, the translation and the two versions of the questionnaire (i.e. English and Thai) were carried out by the researcher and a PhD student majoring in English. Both are native Thai and fluent in the use of English. An example of the effectiveness of this process is where questions on discouragement factors originally

led to the confusion which was overcome when the questions were translated into Thai[2].

3.6.4 Ethics permission

According to Edith Cowan University guidelines, student and staff engaged in a research work should obtain ethical clearance before commencement of their research. In this study, the survey involved in human subjects, and hence practices acceptable to Edith Cowan University were followed. In this context, respondents were informed of the aims and nature of the study in the covering letter which accompanied the survey, a copy of which is shown in Appendix 1 (The Questionnaire). Subjects were informed that they had the right to choose whether or not to participate in the research. Anonymity of the respondents was ensured with the exception of the option a respondent's name being supplied to receive a copy of the result. In this case, the name was immediately separated from the questionnaire. Participants were advised of their right to privacy and it was confirmed that this right would be maintained at all times. Confidentiality of the data obtained was maintained and only aggregated data was to be published.

3.7 Conduct of Survey

As the study focused on people who have Internet access, it considered the use of an e-mail based survey since this would have ensured that the respondent has Internet access. An e-mail survey is both very economical and fast and several thousands of responses can be gathered within a few days. However, an e-mail survey requires a list of e-mail addresses to mail to and cannot eliminate multiple responses from the same respondent. Furthermore, many people dislike unsolicited e-mail even more than unsolicited regular mail. Most importantly, in the context of Thailand, an e-mail survey would have been less suitable since personal relationship is essential for dealing with Thai people.

[2] See further tests in the next chapter.

A mail survey is inexpensive and in spite of taking longer than other kinds of survey, it allows the respondent to answer at their leisure, rather than at the often inconvenient moment they are contacted for a phone or personal interview.

To comply with the Thai context, the questionnaire was distributed through coordinators who lead connections with office workers in the selected organisations. Since the target population were groups of individuals, group administration was seen as appropriate to capture data in this study (Dane, 1990). A high response rate tends to result from this approach (Cavana et al., 2001).

A coordinator in each organisation was contacted by the researcher based on the researcher's network of business contacts which had been established over time in her capacity as a Professional Service Provider. Briefing was carried out to explain the nature of the study and clarify some possible questions that may be asked by respondents. Questionnaires were then distributed to the target population during November and December 2002 through the coordinator in the selected organisations. The questionnaires were left with respondents for a week. The self-completion method was used to allow respondents to complete questionnaires privately at his or her own leisure. This ensured that the responses were free from possible interviewer influence and researcher's self-presentation. Anonymity of the respondents was also assured by returning questionnaires in unmarked envelopes attached to the questionnaire to the coordinator in their company.

In order to persuade potential participants to complete the survey, the covering letter attached to the questionnaire explained the aims and nature of the study. This may lead to a considerable inducement to reply. Seaman (1987) suggested that highlighting the good the study may accomplish and the contribution participants would make seem to be an appeal to the respondents' altruistic nature. Free copies of results of this research were also offered to respondents who were interested in the research. This section was separated from the questionnaire immediately upon return to maintain anonymity of the respondents.

Minor problems were encountered during the conduct of the survey. One was the specific characteristic of the target population to be selected that employed a number of Internet workers. For example, it was quite difficult to find a number of construction companies that employed the 15 Internet workers required. A possible reason for this is the majority of employees in the construction company are engineers and foremen who do not need to be online. Another case was retail, wholesale, restaurant and hotel businesses which normally employ less than 200 and do not provide Internet access to employees. A problem did occur with the question regarding what type of business the respondents were involved with. Some respondents answered with the functions of their jobs instead of the type of business. Therefore, this question was answered differently by people who came from the same organisation. The researcher had to edit the answers and correct the types of businesses they worked for.

The 528 from 600 responses received represented a response rate of 88 per cent. This high level of response was expected because of a continuous follow-up of questionnaire return by the coordinators in the selected organisations. The questionnaires return was completely by December 2002. Among the returns received, 22 responses were discarded as they either answered the demographic questions only or were blank in all questions or significant questions. The remaining 506 questionnaires that were used for data analysis represented a response rate of 84 per cent. The returns shown as a percentage of participation are shown in Table 3.6.

Table 3.6: Percentage of participation

Business No.	Types of Business	No of respondents		Percentage of respondents	
		approached	participated	approached	participated
1	Agriculture, forestry, hunting and fishing	-	-	-	-
2	Mining and quarrying	-	-	-	-
3	Manufacturing	75	73	12.50%	14.43%
4	Electric, Gas & Water	-	-		-
5	Construction	60	48	10.00%	9.49%
6	Retail, Wholesale, Restaurant and Hotel	285	229	47.50%	45.26%
7	Transportation, Storage & Communication	30	27	5.00%	5.34%
8	Finance, Insurance and Real estates	120	101	20.00%	19.96%
9	Services: community, social & individual	30	28	5.00%	5.53%
0	Other activities, no adequately described	-	-	-	-
	Total	600	506	100.00%	100.00%

These responses were from the targeted types of business as follows: 73 answers from manufacturing which represented 14.43%; 48 from construction or 9.49%; 229 from retail, wholesale, restaurant and hotel or 45.26%; 27 from transportation, storage & communications or 5.34%; 101 from finance, insurance and real estates or 19.96%; and 28 from service organisations or 5.53%.

3.8 Data Analysis

A statistical analysis of the data captured on the completed questionnaires was conducted using SPSS (Statistical Package for the Social Science) software. The data analysis included frequency analysis, mean score, t-test, Pearson correlation and ANOVA test, in addition to basic tests for data validity and reliability. The data analysis is presented in the following chapter.

3.9 Summary

This chapter discussed the research philosophy, methodology and design of this study. By formulating three related hypotheses, the study aimed to answer the first three research questions stated in Chapter 1. The hypotheses of the study were

H1: There will be significant differences between the factors that encourage Internet banking adoption in Thailand.

H2: There will be significant differences between the factors that impede Internet banking adoption in Thailand.

H3: There will be significant differences between the factors that moderate Internet banking adoption in Thailand.

The study adopted the "positivist" thoughts which include empiricism, epistemology and the quantitative methodology. R asons are provided on why this approach was applied.

The chapter then provided information on how the research approach was developed, how the peer review was conducted and how the questionnaire survey was carried out. Since the survey was conducted in Thailand, the questionnaire was translated to Thai to encourage respondents to participate. The back-translation technique was used to assure the quality of the translation, and the smooth and natural sounding of the questions.

Data were collected from 600 office workers in 40 large organisations representing various types of businesses established in Bangkok. The selection of organisations and individual respondents was based on convenience access. A total of 506 from 600 questionnaires were returned which represented a response rate of 84%. The next chapter will present the data analysis. The 506 sets of data collected will be tested for validity and reliability, and then analysed for significance of the differences and correlations by statistical analysis.

CHAPTER FOUR

DATA ANALYSIS

4.1 Background

The previous chapter described the methodology used in this study. This chapter examines the 506 sets of data collected in the questionnaire survey and uses statistics to analyse the data and to test the hypotheses established in the prior chapter.

The chapter begins with descriptive statistics to assess the demographic profiles of respondents. Secondly, the validity and reliability of the data are examined to ensure the accuracy of the measurement instruments. The distribution of data is investigated to see how much it varies from a normal distribution, prior to further statistical tests. Thirdly, an analysis of encouragement factors and impediment factors is presented. Items within key encouragement and impediment factors are also analysed as well as associations between them. Finally, the moderating factors are analysed to establish their impact on the determinants of Internet banking in Thailand.

4.2 Demographic Profile

The survey questionnaire captured background data for study participants. The following table provides details of the 506 respondents in respect of their gender, age, education level, range of income, Internet experience and Internet banking experience.

Table 4.1: Demographic Profile of Respondents

		N	Percent	
Gender	Male	181	35.8	
	Female	325	64.2	100.0
Age	Under 20	1	0.2	
	20 – 29	231	45.7	
	30 – 39	236	46.6	
	40 – 49	34	6.7	
	Over 49	4	0.8	100.0
Highest education attained	Vocation or lower	43	8.5	
	Bachelor's Degree	340	67.2	
	Master's Degree	122	24.1	
	Doctorate Degree	1	0.2	100.0
Income	Baht 15,000 or less	125	24.7	
	Baht 15,001 – 30,000	190	37.5	
	Baht 30,001 – 50,000	112	22.1	
	Baht 50,001 – 70,000	53	10.5	
	Baht 70,001 – 90,000	12	2.4	
	More than Baht 90,000	14	2.8	100.0
Internet experience	Less than 1 year	59	11.7	
	1 – 2 years	106	20.9	
	2 – 3 years	92	18.2	
	More than 3 years	249	49.2	100.0
Internet banking experience	Not use	336	66.4	
	Less than 1 year	89	17.6	
	1 – 2 years	57	11.3	
	More than 2 years	24	4.7	100.0

As shown in above table, 325 from 506 or 64% of respondents are female. Although it had been found in other research (for example, Tan & Teo, 2000) that most of Internet users are male, the percentage of female Internet users has increased over time. For example, in a survey of the Internet population of Thailand in 2001 by NECTEC, the ratios of male to female Internet users in Thailand were 35:65, 49:51 and 51:49 in 1999, 2000 and 2001 respectively. The respondents in this study were young adults, with 45.7% between 20 – 29 years old and 46.6% between 30 – 39 years old. This is consistent with the survey by NECTEC (2001) that the majority of Internet users in Thailand (80.1%) are young adults (under 39 years old).

In terms of education, about 8.5% of respondents had attained a vocation or lower education, 67.2% had attained a bachelor's degree, 24.1% had attained a master's degree, and 0.2% had attained doctorate's degree. This is also consistent with previous research (Karjaluoto, 2002; Polatoglu, 2001), which found that Internet users are highly educated because it required computer awareness and Internet skill.

For monthly income, 24.7% of respondents earned less than Baht 15,000, 37.5% earned between Baht 15,001 and Baht 30,000, 22.1% earned between Baht 30,001 and 50,000, 10.5% earned Baht 50,001 and 70,000, 2.4% earned between Baht 70,001 and 90,000 and 2.8% earned more than Baht 90,000. By comparison the average monthly income in Bangkok is Baht 15,000.

Regarding Internet experience, 249 respondents or 49.2% had more than 3 years of Internet experience, 92 respondents or 18.2% had 2 – 3 years, 106 respondents or 20.9% had 1 – 2 years and only 59 respondents or 11.7% had less than 1 year of experience in the Internet arena. Thus the group can be regarded as key Internet literate.

When asked about their Internet banking experience, 336 respondents or about two-third indicated that they had no experience of Internet banking, while 17.6% had experience of less than one year, 11.3% had experience of 1 – 2 years and only 4.7% had experience of more than 2 years. Table 4.2 shows the types of Internet banking services used by these respondents who had Internet banking service experience.

Table 4.2: Experience and Type of Internet Banking Services Used

Length of Internet Banking Experience (Number)	Not Used	Types of Internet Banking View Only	Action / account Control	Apply for new services
Less than 1 year (89)	8	56	38	21
1 – 2 years (57)	1	40	32	13
More than 3 years (24)	0	19	19	4

The above table indicates multiple responses in that more than one type of service are being used. The view only service was the most popular among users who had less than two years experience. The more experienced users used the view only facility and the action/ account control facility. Interestingly some indicated that although they had registered for Internet banking services, they had not used this service.

4.3 Validity and Reliability of Data

It is important to make sure that the instrument developed to measure a particular concept is indeed accurately and actually measuring the variables. Therefore, assessing the effectiveness of measured variables in terms of the validity and reliability of data is necessary in research. According to Graziano and Raulin (1997) "The reliability of a measure is an index of how consistent the measure is while the validity of the measure is its effectiveness in tapping the characteristic measured" (p.91, cited in Shoeib, 2000, p.75). Also Sekaran (2003) states that "Validity is concerned with whether we measure the right concept, and reliability with stability and consistency of measurement" (p.203). The reliability and validity of this study are described in the following section.

4.3.1 Validity

As validity is concerned with whether the research measures the right concept, it can be established in terms of content and construct. Content validity is "a function of how well the dimensions and elements of a concept have been delineated" (Sekaran, 2003, p.206). Establishing content validity in a study ensures that the measures include an adequate and representative set of items that relate to the conceptual variable of interest. To do so, Cavana et al. (2001) suggest identifying specific points from the literature that describe the concept. An alternative way to achieve content validity is to be evaluated by a group of judges (i.e. professional speech therapists) (Sekaran, 2003). In this study, the content validity of the questionnaire was established by reviewing existing literature. This ensured that the major aspects of the topic were adequately covered by the items in the survey. The details of the literature reviewed to operationalise the research variables have been included in Chapter 3.

Construct validity refers to "the extent to which a measured variable actually measures the conceptual variable (that is, the construct) that it is designed to assess" (Stangor, 1998, p.87). Put it differently, "construct validity involves determining the extent to which a measure represents concepts it should represent and does not represent concepts it should not represent" (Dane, 1990, p.259). According to Cavana et al. (2001), a questionnaire should be pre-tested with respondents who

closely resemble the target population and then modified as necessary. This is supported by Dane (1990) who claims that "no survey data can be trusted unless you can be sure the respondents understood the instrument and provided appropriate responses" (p.127). In this study, a pre-test of the English version was undertaken by a group of 10 office-workers in Bangkok who have Internet accessibility. On their recommendation, the questionnaire was translated to the Thai language (refer to Chapter 3 for a discussion of the translation process).

4.3.2 Reliability

Although validity is a necessary condition for quality measurement, it is not sufficient alone (Dane, 1990). Reliability concerns the degree to which the questionnaire supplies consistent results and requires examination of the consistency of respondents' answers to all the items in a measure. Cronbach Alpha values were computed to establish the internal reliability of the questionnaire responses, that is, to examine the degree to which independent measures of the same concept correlated with one another (Cavana et al., 2001). The internal consistency reliability found in this study is shown in Table 4.3

Table 4.3: Validity of Independent Variables

Factors	Mean	Alpha
Encouragement factors		
Perceived Usefulness	5.25	.82
Adoption	4.85	.77
Features of the Web Site	5.29	.88
Risk & Privacy	4.96	.87
Impediment factors		
Personal Preference	3.85	.79
External Environment	4.52	.90
Culture	3.14	.86

Results from the above table indicate that the Alpha coefficients for the 7 factors influencing the adoption of Internet banking in this study ranged from .77 - .90. This is acceptable because, in general, reliability less than .60 is considered to be poor, those in the .70 range acceptable, and those over .80 good (Sekaran, 2003).

4.3.3 Distribution of data

Before further statistics tests were conducted, a measure of distribution was necessary to investigate how much the data distribution varied from a normal distribution. This is because many statistical tests assume that the data are normally distributed. Therefore, it is useful to ensure that data collected achieve such basic characteristic of distribution which would suggest that the errors are also normally distributed (Remenyi et al., 1998). Histograms were produced and are contained in the Appendix 2. Furthermore, a skewness measure of distribution was compiled (Table 4.4) which indicated that with the exception of one item (time saving), skewness values fell within the acceptable range of distribution, namely 0-1 (Cavana et al., 2001). For this reason, it was decided to apply parametric statistical tests to the data as overall the data was reasonably distributed. As Burns (1997) argues "For a parametric test, data should be normally distributed or closely so. Extremely asymmetrical distributions should not be the basis to parametric testing" (p.132). Since parametric tests are more powerful than the "distribution-free non-parametric tests" (Burns, 1997), it was preferable to use the former.

Table 4.4: Skewness of Independent Variables

Factors		Mean	Skewness
Encouragement factors			
Perceived Usefulness		5.25	-.840
Information	Availability of a wide range of information is only "one click" away.	4.71	-.401
Convenience	Convenient access to banking services through the computer at any time.	5.23	-.792
Time saving	Increasing the effective use of time, for example, by not having to wait in line.	5.68	-1.209
Low cost	Reducing banking costs, such as reduced bank charges and transportation cost.	5.40	-.896
Adoption		4.85	-.477
Accessibility	An ability to access the Internet at any time at work and at home.	5.34	-.898
Trialability	Being able to trial doing banking transaction online before registering for the service	4.47	-.280
Condition	The banks providing acceptable conditions and terms of service.	4.54	-.165
Documentary	Documentary evidence is provided for all transactions performed online.	5.05	-.688
Features of the Web Site		5.29	-.803
Reliability	The bank's Web site can be accessed when needed – 24 hours/ day,7 days/week	5.50	-.987
Ease of use	The bank's Web design and navigation makes it conduct a comfortable to transaction.	5.32	-.855
Security evidence	There is evidence that current security provided by bank's Web site is sufficient.	5.12	-.651
Quick response	The bank's Web site executes transactions quickly and efficiently.	5.24	-.712
Risk and Privacy		4.96	-.488
Reputation	The reputation and size of bank provides assurance of Internet banking integrity.	5.11	-.722
Security logo	The bank's Web site displays the logo of an independent security guaranteeing party.	4.74	-.346
Problems	There is an absence of problems during performing an online banking transaction.	5.05	-.579
Privacy	A privacy statement on bank's Web page guarantees privacy of personal data.	4.94	-.379
Impediment factors			
Personal Preference		3.85	.157
Self-service	Being required to perform self-service Internet banking independent from a bank teller.	3.78	.182
Branch	Being able to be satisfied by the quality of current bank branch service.	4.19	-.035
Technophobia	Being required to try out and use a new technology- based product.	3.80	.124
Life style	Being required to integrate Internet banking with lifestyle and working environment.	3.65	.214
External Environment		4.52	-.177
Government	Absence of clear government support for conducting online business transactions.	4.40	-.135
Regulator	Absence of an industry regulator such as the Bank of Thailand for Internet banking.	4.40	-.148
Collaboration	Lack of collaborators or alliances in Internet banking to cooperate and expand service.	4.67	-.284
Infrastructure	Deficiency in Internet infrastructure and facilities such as bandwidth.	4.59	-.241
Culture		3.14	.473
Group-orientation	Having few friends or colleagues that conduct Internet banking.	3.06	.484
Socialisation	Lessening of face-to-face contact with banks.	3.17	.607
Personal	Giving up personal relationships when dealing with banks.	3.02	.569
Uncertainty	Changing the way to establish contact with banks.	3.29	.473

4.4 Significance Level

There is no precise rule for selecting the significance level; however, the most frequently used values in business and social research are the 1 per cent, 5 per cent and 10 per cent levels (Cavana et al., 2001). A significance level indicates the percentage of sample means that would be outside the critical value based on chance alone. The higher the significance level is, the lower the confidence level becomes. Therefore, a significance level of 5 per cent which is conventionally accepted (Cavana et al., 2001) or the usual level (Huck et al., 1974), was applied in this study. As Dane (1990) argues "In the behavioural sciences, the accepted rule of thumb for concluding that something occurred at a rate or degree beyond what would be expected by chance alone is a probability less than .05" (p.207).

The three hypotheses outlined in the previous chapter are tested in this section.

4.5 Hypothesis One: Encouragement Factors

$H_0 1$: There will be no difference between the factors that encourage Internet banking adoption in Thailand.

$H_A 1$: There will be difference between the factors that encourage Internet banking adoption in Thailand

4.5.1 Ranking of factors

This section provides descriptive statistics of the data for encouragement factors influencing the adoption of Internet banking in Thailand. A measure of central tendencies, the mean, was used to describe the data collected during the questionnaire survey. The scale used to record responses was 1 to 7 where 1 indicated 'no encouragement' and 7 indicated 'maximum encouragement'. Table 4.5 shows the mean scores of encouragement factors ranked in descending order.

Table 4.5: Encouragement Factors ranked by Mean Scores

Encouragement Factors		Mean	Std. Dev.
Features of the Web Site		5.29	1.30
Reliability	The bank's Web site can be accessed when needed - 24hours/ day, 7 days/week.	5.50	1.64
Ease of use	The bank's Web design and navigation makes it comfortable to conduct a transaction.	5.32	1.58
Quick response	The bank's Web site executes transactions quickly and efficiently.	5.24	1.68
Security evidence	There is evidence that current security provided by bank's Web site is sufficient.	5.12	1.86
Perceived Usefulness		5.25	1.33
Time saving	Increasing the effective use of time, for example, by not having to wait in line.	5.68	1.54
Low cost	Reducing banking costs, such as reduced bank charges and transportation cost.	5.40	1.60
Convenience	Convenient access to banking services through the computer at any time.	5.23	1.67
Information	Availability of a wide range of information is only "one click" away.	4.71	1.75
Risk and Privacy		4.96	1.44
Reputation	The reputation and size of bank provides assurance of Internet banking integrity.	5.11	1.61
Problems	There is an absence of problems during performing an online banking transaction.	5.05	1.77
Privacy	A privacy statement on bank's Web page guarantees privacy of personal data.	4.94	1.70
Security logo	The bank's Web site displays the logo of an independent security guaranteeing party.	4.74	1.71
Adoption		4.85	1.30
Accessibility	An ability to access the Internet at any time at work and at home.	5.34	1.65
Documentary	Documentary evidence is provided for all transactions performed online.	5.05	1.85
Conditions	The banks providing acceptable conditions and terms of service.	4.54	1.59
Trialability	Being able to trial doing banking transaction online before registering for the service.	4.47	1.65

Table 4.5 shows the ranking of encouragement factors as follows: 'Features of the Web Site' (5.29), 'Perceived Usefulness' (5.25), 'Risk and Privacy' (4.96) and 'Adoption' (4.85). Within 'Features of the Web Site', 'reliability' in accessing the bank's Web site when needed had the highest mean (5.50). 'Time saving' had the highest mean (5.68) in 'Perceived Usefulness'. In relations to 'Risk and Privacy', 'reputation' had the highest mean (5.11). 'Accessibility' was determined as the highest encouragement item (5.34) in 'Adoption'.

Standard deviations for encouragement factor, i.e. a distance of each of the mean scores, ranged between 1.30 and 1.45 for the factors, and between 1.54 and 1.86 for the items within factors.

4.5.2 Differences between encouragement factors

A t-test was conducted to assess whether the means of any two encouragement factors that influenced the adoption of Internet banking were statistically different from each other. Results are shown as Table 4.6.

Table 4.6: Differences between Encouragement Factors

	Features of the Web Site (Mean 5.29)	Perceived Usefulness (Mean 5.25)	Risk and Privacy (Mean 4.96)	Adoption (Mean4.85)
Features of the Web Site	-			
Perceived Usefulness	-.739 (.461)	-		
Risk and Privacy	7.367* (.000)	5.177* (.000)	-	
Adoption	-9.858* (.000)	8.506* (.000)	-2.220* (.027)	-

* $p < .05$ ()Significance

The above table shows that there was no statistically significant difference between the two factors rated the highest, 'Features of the Web Site' and 'Perceived Usefulness'. A statistically significant difference did occur between the two factors above and the third factor, 'Risk and Privacy' and also between the third, 'Risk and Privacy' and the fourth factor, 'Adoption'. Therefore, the null hypothesis has to be rejected. In other words, there are differences between factors that facilitate Internet banking adoption in Thailand. The following can be regarded as the most significant encouragement factors:

- Features of the Web Site, and
- Perceived Usefulness

4.5.3 Differences between items in key factors: 'Features of the Web Site' & 'Perceived Usefulness'

Two factors were found to be the key factors encouraging the adoption of Internet banking. It was therefore necessary to focus on these factors further by comparing items within them. Table 4.7 shows the mean scores and differences of mean scores between items in 'Features of the Web Site'.

Table 4.7: Differences between items within 'Features of the Web Site'

	Reliability (Mean 5.50)	Ease of use (Mean 5.32)	Quick response (Mean 5.24)	Security evidence (Mean 5.12)
Reliability	-			
Ease of use	3.055* (.002)	-		
Quick response	3.879* (.000)	1.530 (.127)	-	
Security evidence	4.653* (.000)	3.175* (.002)	-2.421* (.016)	-

*p < .05 () Significance

The above table shows that 'reliability' in accessing a bank's Web site when needed (5.50) is rated the highest, followed by 'ease of use' (5.32), 'quick response' (5.24) and 'security evidence' (5.12) respectively. There is a statistically difference between 'Reliability' and the other items. While there is no statistically difference between the second and the third ('ease of use' and 'quick response'), there is significant difference between these two items and the fourth ('security evidence'). This means that the following item can be regarded as the most significant item in 'Features of the Web Site' factor:

- Reliability

The following table provides mean scores and differences of mean scores between items within 'Perceived Usefulness'.

Table 4.8: Differences between Items within 'Perceived Usefulness'

	Time saving (Mean 5.68)	Low cost (Mean 5.40)	Convenience (Mean 5.23)	Information (Mean 4.71)
Time saving	-			
Low Cost	4.552* (.000)	-		
Convenience	-7.918* (.000)	-2.237* (.026)	-	
Information	-13.286* (.000)	-8.320* (.000)	-7.581* (.000)	-

* p < .05 () Significance

Within 'Perceived Usefulness', the table indicates that 'time saving' (5.68) provides the highest encouragement, followed by 'low Cost' (5.40), 'convenience' (5.23) and 'information' (4.71) respectively. The table also shows that all means of items are statistically different from each other. This means that the following item can be regarded as the most significant item in 'Perceived Usefulness':

- Time saving

4.5.4 Correlations between encouragement factors

Further analysis was conducted to determine the statistically significant relationships between encouragement factors of Internet banking adoption. To test the strength of these associations, Pearson correlation coefficients were computed. These are shown together with their significance in Table 4.9.

Table 4.9: Correlations between Encouragement Factors

	Features of the Web Site (Mean 5.29)	Perceived Usefulness (Mean 5.25)	Risk and Privacy (Mean 4.96)	Adoption (Mean4.85)
Features of the Web Site	-			
Perceived Usefulness	.646* (.000)	-		
Risk and Privacy	.748* (.000)	.565* (.000)	-	
Adoption	.735* (.000)	.668* (.000)	.689* (.000)	-

* p < .05 () Significance

Table 4.9 indicates that all encouragement factors, i.e. 'Perceived Usefulness', 'Adoption', 'Features of the Web Site' and 'Risk and Privacy', are associated with each other to a significant extent. Moreover, all these correlations are in a positive direction. That is to say, as responses for one factor increase, so does the response for the others.

4.6 Hypothesis Two: Impediment Factors

H_O2: There will be no difference between the factors that impede Internet banking adoption in Thailand.

H_A2: There will be difference between the factors that impede Internet banking adoption in Thailand

4.6.1 Ranking of factors

Similar to encouragement factors, the mean was calculated to measure central tendencies of the data. The scale used to record responses was 1 to 7, where 1 indicated 'no discouragement' and 7 indicated 'maximum discouragement' to Internet banking adoption. Table 4.10 shows the discouragement factors that influence the adoption of Internet banking in Thailand ranked by their means.

Table 4.10: Impediment Factors ranked by Means

Impediment factors		Mean	Std. Dev.
External Environment		4.52	1.41
Collaboration	Lack of collaborators or alliances in Internet banking to cooperate and expand service.	4.67	1.63
Infrastructure	Deficiency in Internet infrastructure and facilities such as bandwidth.	4.59	1.60
Government	Absence of clear government support for conducting online business transactions.	4.40	1.63
Regulator	Absence of an industry regulator such as the Bank of Thailand for Internet banking.	4.40	1.59
Personal Preference		3.85	1.39
Branch	Being able to be satisfied by the quality of current bank branch service.	4.19	1.67
Trialability	Being required to try out and use a new technology-based product.	3.80	1.78
Self-service	Being required to perform self-service Internet banking independent from a bank teller.	3.78	1.89
Life style	Being required to integrate Internet banking with lifestyle and working environment.	3.65	1.74
Culture		3.14	1.40
Uncertainty	Changing the way to establish contact with banks	3.29	1.80
Socialisation	Lessening of face-to-face contact with banks.	3.17	1.62
Group-orientation	Having few friends or colleagues that conduct Internet banking.	3.06	1.63
Personal	Giving up personal relationships when dealing with banks.	3.02	1.61

According to Table 4.10, impediment factors are ranked as followed: 'External Environment' (4.52), 'Personal Preference' (3.85) and 'Culture' (3.14). Within 'External Environment', 'collaboration' (4.67) is the highest impediment while 'branch' (4.19) and 'uncertainty' (3.29) were the highest discouragement in 'Personal Preference' and 'Culture' respectively.

The standard deviations for each of the impediment factors were approximately 1.40 and ranged between 1.59 and 1.89 for the items. The deviations of items were highest within the 'Personal Preference' factor.

4.6.2 Differences between impediment factors

The t-test shown in Table 4.11 was conducted to examine the significant differences between any two discouragement factors.

Table 4.11: Differences between Impediment Factors

	External Environment (Mean 4.52)	Personal Preference (Mean 3.85)	Culture (Mean 3.14)
External Environment	-		
Personal Preference	-8.968* (.000)	-	
Culture	18.038* (.000)	12.037* (.000)	-

* p < .05 () Significance

The above table shows that all factors are statistically significantly different from each other. Therefore, alternative hypothesis two should be accepted. This means the factor that was regarded as providing the most significant discouragement is:

- External Environment

4.6.3 Differences between items in the key factor: 'External Environment'

Further analysis to establish significant differences among items for the 'External Environment' factor was carried out. Differences are shown in Table 4.12.

Table 4.12: Differences Between Items within 'External Environment'

	Collaboration (Mean 4.67)	Infrastructure (Mean 4.59)	Government (Mean 4.40)	Regulator (Mean 4.40)
Collaboration	-			
Infrastructure	1.393 (.164)	-		
Government	-4.674* (.000)	-3.106* (.002)	-	
Regulator	-4.975* (.000)	-3.199* (.001)	.046 (.963)	-

* p < .05 () Significance

The above table indicates that within 'External Environment', 'collaboration' (4.67) is the highest factor that impedes the adoption of Internet banking, followed by the 'infrastructure' which had mean score of 4.59, and 'government' and 'regulator' which had the same mean score of 4.40. There was no statistically significant difference between the two items rated highest, 'collaboration' and 'infrastructure'.

A statistically significant difference did occur between these two items and the third item, 'government' and the fourth item, 'regulator'. This means that the following items can be regarded as the most significant impediment factors:

- Collaboration
- Infrastructure

4.6.4 Correlations between impediment factors

To test the strength of the association between impediment factors, Pearson correlation coefficients were calculated and are shown in Table 4.13.

Table 4.13: Correlations between Impediment Factors

	External Environment (Mean 4.52)	Personal Preference (Mean 3.85)	Culture (Mean 3.14)
External Environment	-		
Personal Preference	.294* (.000)	-	
Culture	.250* (.000)	.537* (.000)	-

* p < .05 ()Significance

It can be seen from the above table that all impediment factors, i.e. 'Personal Preference', 'External Environment' and 'Culture' are significantly related and the correlations are in a positive direction.

4.6.5 Correlations between impediment and encouragement factors

Pearson correlation coefficients were computed to examine the association among all factors. Table 4.14 shows the correlations.

Table 4.14: Correlations between Encouragement and Impediment Factors

	Encouragement				Impediments		
	Features of the Web Site	Perceived Usefulness	Risk and Privacy	Adoption	External Environment	Personal Preference	Culture
Features of the Web site (Mean 5.29)	-						
Perceived Usefulness (Mean 5.25)	.646* (.000)	-					
Risk and Privacy (Mean 4.96)	.748* (.000)	.565* (.000)	-				
Adoption (Mean 4.85)	.735* (.000)	.668* (.000)	.689* (.000)	-			
External Environment (Mean 4.52)	.223* (.000)	.136* (.002)	.209* (.000)	.139* (.002)	-		
Personal Preference (Mean 3.85)	.048 (.281)	.044 (.321)	.054 (.148)	.054 (.223)	.294* (.000)	-	
Culture (Mean 3.14)	-.117* (.008)	-.105* (.018)	-.038 (.390)	-.098* (.027)	.250* (.000)	.537* (.000)	-

* $p < .05$ ()Significance

It can be seen from Table 4.14 that all encouragement factors correlated significantly with the impediment factor of 'External Environment', but there was no significant correlation with 'Personal Preference'. For 'Culture', the table shows that, with the exception of one encouragement factor, 'Risk and Privacy', the correlations between 'Culture' and the remaining factors were significant at $p < .05$. Interestingly, Table 4.14 also indicates that there is a significant negative relationship between the impediment factor, 'Culture' and the encouragement factors, 'Features of the Web Site', 'Perceived Usefulness' and 'Adoption', while there is an insignificant negative relationship between 'Culture' and 'Risk and Privacy'.

4.7 Hypothesis Three: Moderating Factors

H_O3: There will be no difference between the factors that moderate Internet banking adoption in Thailand.

H_A3: There will be difference between the factors that moderate Internet banking adoption in Thailand

To examine the impact of moderating factors, respondents were classified into various groups based on gender, age, education, income, Internet experience and

Internet banking experience. The significance of differences due to moderating factors was examined by the Analysis of Variance (ANOVA) test.

4.7.1 Gender

The ANOVA test was conducted to investigate mean differences between males and females. The result is shown in Table 4.15.

Table 4.15: ANOVA: Differences in Mean Scores by Gender

		Sum of Squares	df	Mean Square	F	Sig.
Encouragement factors						
Perceived Usefulness	Between Groups	.543	1	.543	.308	.579
	Within Groups	888.010	504	1.762		
	Total	888.552	505			
Adoption	Between Groups	2.615	1	2.615	1.550	.214
	Within Groups	850.345	504	1.687		
	Total	852.960	505			
Features of the Web Site	Between Groups	5.151	1	5.151	2.454	.118
	Within Groups	1057.977	504	2.099		
	Total	1063.128	505			
Risk and Privacy	Between Groups	8.416	1	8.416	4.107	.043*
	Within Groups	1032.961	504	2.050		
	Total	1041.378	505			
Impediment factors						
Personal Preference	Between Groups	11.385	1	11.385	5.993	.015*
	Within Groups	957.428	504	1.900		
	Total	968.813	505			
External Environment	Between Groups	6.260	1	6.260	3.183	.075
	Within Groups	991.183	504	1.967		
	Total	997.444	505			
Culture	Between Groups	1.563	1	1.563	.795	.373
	Within Groups	990.897	504	1.966		
	Total	992.460	505			

* $p < .05$

The above table indicates that the only statistically significant differences between males and females were with 'Risk and privacy' and 'Personal Preference'. Mean scores of these two encouragement and impediment factors as rated by males and females are shown in Table 4.16 (A table showing means for all factors is provided in Appendix 3).

Table 4.16: Mean Scores by Gender

Factors	Male (N=181)	Female (N=325)
Encouragement - Risk and Privacy	5.13	4.86
Impediment - Personal Preference	4.06	3.74

It can be seen from the above table that the mean scores of 'Risk and Privacy' and 'Personal Preference' were higher for males than for females. Following encouragement and impediment factors are influenced differently by the two genders. These differences will be discussed in Chapter 5.

- Risk and Privacy
- Personal Preference

4.7.2 Age

The three different age groups (less than 30 years old, 30 – 39 years old and more than 40 years old) were used to investigate significant differences. An ANOVA test was conducted to investigate the differences in mean scores as shown in Table 4.17.

Table 4.17: ANOVA: Differences in Mean Scores by Age

		Sum of Squares	df	Mean Square	F	Sig.
Encouragement factors						
Perceived Usefulness	Between Groups	3.472	2	1.736	.987	.374
	Within Groups	885.080	503	1.760		
	Total	888.552	505			
Adoption	Between Groups	.991	2	.495	.292	.747
	Within Groups	851.969	503	1.694		
	Total	852.960	505			
Features of the Web Site	Between Groups	5.602	2	2.801	1.332	.265
	Within Groups	1057.526	503	2.102		
	Total	1063.128	505			
Risk and Privacy	Between Groups	3.015	2	1.507	.730	.482
	Within Groups	1038.363	503	2.064		
	Total	1041.378	505			
Impediment factors						
Personal Preference	Between Groups	5.363	2	2.681	1.400	.248
	Within Groups	963.450	503	1.915		
	Total	968.813	505			
External Environment	Between Groups	.307	2	.154	.078	.925
	Within Groups	997.137	503	1.982		
	Total	997.444	505			
Culture	Between Groups	3.569	2	1.785	.908	.404
	Within Groups	988.891	503	1.966		
	Total	992.460	505			

* $p < .05$

The results from Table 4.17 indicate that there were no statistically significant differences between the three groups. However, for the purposed completeness, the following provides the mean score of age group.

Table 4.18: Mean Scores by Age

Factors	Age (years old)		
	Less than 30 (N=232)	30 – 39 (N=236)	More than 40 (N=38)
Encouragement factors			
Perceived Usefulness	5.20	5.33	5.07
Adoption	4.80	4.89	4.89
Features of the Web Site	5.26	5.38	4.98
Risk and Privacy	4.92	5.02	4.74
Impediment factors			
Preference	3.89	3.88	3.49
External Environment	4.51	4.53	4.43
Culture	3.16	3.16	2.84

Table 4.18 shows that respondents in the 30 – 39 age group rated the highest mean score for all factors with the exception of one discouragement factor, 'Personal Preference', which was rated highest by those in the under 30 group.

4.7.3 Education

Levels of education were categorised into three groups: vocational or lower; bachelor; and master & doctoral. Significant differences in mean scores for the various levels of education were established by the ANOVA test as shown in Table 4.19.

Table 4.19: ANOVA: Differences in Mean Scores by Level of Education

		Sum of Squares	df	Mean Square	F	Sig.
Encouragement factors						
Perceived Usefulness	Between Groups	4.102	2	2.051	1.166	.312
	Within Groups	884.450	503	1.758		
	Total	888.552	505			
Adoption	Between Groups	3.843	2	1.922	1.138	.321
	Within Groups	849.117	503	1.688		
	Total	852.960	505			
Features of the Web Site	Between Groups	13.182	2	6.591	3.157	.043*
	Within Groups	1049.946	503	2.087		
	Total	1063.128	505			
Risk and Privacy	Between Groups	17.503	2	8.751	4.299	.014*
	Within Groups	1023.875	503	2.036		
	Total	1041.378	505			
Impediment factors						
Personal Preference	Between Groups	20.743	2	10.371	5.503	.004*
	Within Groups	948.071	503	1.885		
	Total	968.813	505			
External Environment	Between Groups	2.861	2	1.431	.723	.486
	Within Groups	994.583	503	1.977		
	Total	997.444	505			
Culture	Between Groups	6.880	2	3.440	1.756	.174
	Within Groups	985.580	503	1.959		
	Total	992.460	505			

* p <.05

The above table shows that there were significant differences between education levels for the factors 'Features of the Web site', 'Risk and Privacy' and 'Personal Preference'. The mean scores of these are as shown in Table 4.20 (A table showing means for all factors is provided in Appendix 3).

Table 4.20: Mean Scores by Level of Education

Factors	Level of Education		
	Vocation/ Lower (N=43)	Bachelor (N=340)	Master & Doctoral (N=123)
Encouragement factors			
Features of the Web Site	4.89	5.26	5.51
Risk and Privacy	4.53	4.91	5.23
Impediment factors			
Personal Preference	4.40	3.88	3.60

Table 4.20 indicates that respondents who had attained a master or doctoral degree rated the encouragement factors, 'Features of the Web Site' and 'Risk and Privacy'. Whilst the discouragement factor, 'Personal Preference' were rated the highest by those who had attained a vocational/ lower degree. Therefore, the following factors are seen to be influenced differently by educational level. They will be discussed in Chapter 5.

- Features of the Web Site
- Risk and Privacy
- Personal Preference

4.7.4 Income

Income levels were classified into four groups as followed: less than Baht 15,000; Baht 15,000 – 30,000; Baht 30,001 –50,000; and more than Baht 50,001. Table 4.21 shows the differences between income groups using an ANOVA test.

Table 4.21: ANOVA: Differences in Mean Scores by Income

		Sum of Squares	df	Mean Square	F	Sig.
Encouragement factors						
Perceived Usefulness	Between Groups	22.212	3	7.404	4.290	.005*
	Within Groups	866.341	502	1.726		
	Total	888.552	505			
Adoption	Between Groups	27.426	3	9.142	5.559	.001*
	Within Groups	825.534	502	1.644		
	Total	852.960	505			
Features of the Web Site	Between Groups	34.249	3	11.416	5.570	.001*
	Within Groups	1028.878	502	2.050		
	Total	1063.128	505			
Risk and Privacy	Between Groups	23.170	3	7.723	3.808	.010*
	Within Groups	1018.208	502	2.028		
	Total	1041.378	505			
Impediment factors						
Personal Preference	Between Groups	6.192	3	2.064	1.076	.359
	Within Groups	962.622	502	1.918		
	Total	968.813	505			
External Environment	Between Groups	19.660	3	6.553	3.364	.019*
	Within Groups	977.784	502	1.948		
	Total	997.444	505			
Culture	Between Groups	17.571	3	5.857	3.016	.030*
	Within Groups	974.889	502	1.942		
	Total	992.460	505			

* $p < .05$

It can be seen from Table 4.21 that, with the exception of the impediment factor, 'Personal Preference', there were statistically significant differences between income groups in all encouragement and impediment factors, that is, 'Perceived Usefulness', 'Adoption', 'Features of the Web Site', 'Risk and Privacy', 'External Environment' and 'Culture'. Table 4.22 shows the mean score of the aforementioned significantly different factors by different levels of income (A table showing means for all factors is provided in Appendix 3).

Table 4.22: Mean Scores by Income

Factors	Level of Income (Baht)			
	< 15,000 (N=125)	15,001 – 30,000 (N=190)	30,001 – 50,000 (N=112)	> 50,001 (N=79)
Encouragement factors				
Perceived Usefulness	5.00	5.18	5.39	5.63
Adoption	4.57	4.74	5.12	5.16
Features of the Web Site	4.92	5.24	5.54	5.64
Risk and Privacy	4.74	4.83	5.23	5.22
Impediments factors				
External Environment	4.23	4.49	4.67	4.81
Culture	3.45	2.98	3.11	3.06

According to Table 4.22, with the exception of 'Culture', the higher the level of income, the higher the rating. Interestingly, 'Culture' did not vary consistently with levels of income. Thus, the following factors were rated statistically different by different levels of income.

- Perceived Usefulness
- Adoption
- Features of the Web Site
- Risk and Privacy
- External Environment
- Culture

4.7.5 Internet experience

Internet experience was classified into four groups: less than 1 year; 1-2 years; 2-3 years; and more than 3 years. An ANOVA test of differences between groups with varying Internet experiences is shown in Table 4.23.

Table 4.23: ANOVA: Differences in Mean Scores by Internet Experience

		Sum of Squares	df	Mean Square	F	Sig.
Encouragement factors						
Perceived Usefulness	Between Groups	30.416	3	10.139	5.931	.001*
	Within Groups	858.137	502	1.709		
	Total	888.552	505			
Adoption	Between Groups	27.018	3	9.006	5.474	.001*
	Within Groups	825.942	502	1.645		
	Total	852.960	505			
Features of the Web Site	Between Groups	27.802	3	9.267	4.494	.004*
	Within Groups	1035.325	502	2.062		
	Total	1063.128	505			
Risk and Privacy	Between Groups	34.802	3	11.601	5.785	.001*
	Within Groups	1006.576	502	2.005		
	Total	1041.378	505			
Impediment factors						
Personal Preference	Between Groups	5.905	3	1.968	1.026	.381
	Within Groups	962.909	502	1.918		
	Total	968.813	505			
External Environment	Between Groups	17.436	3	5.812	2.977	.031*
	Within Groups	980.008	502	1.952		
	Total	997.444	505			
Culture	Between Groups	9.042	3	3.014	1.538	.204
	Within Groups	983.419	502	1.959		
	Total	992.460	505			

* $p < .05$

As shown in Table 4.23, with the exception of 'Personal Preference' and 'Culture', mean scores were significantly different among groups of various Internet experience. Table 4.24 shows the mean scores for these factors for the different groups of Internet experiences (A table showing means for all factors is provided in Appendix 3).

Table 4.24: Mean Scores by Internet Experience

Factors	Internet Experience			
	< 1 yr. (N=59)	1 – 2 yrs. (N=106)	2 – 3 yrs. (N=92)	> 3 yrs. (N=249)
Encouragement factors				
Perceived Usefulness	4.58	5.36	5.28	5.36
Adoption	4.26	4.97	4.75	4.97
Features of the Web Site	4.71	5.19	5.39	5.44
Risk and Privacy	4.32	4.88	4.91	5.16
Impediment factor				
External Environment	4.39	4.28	4.36	4.70

It can be seen that the greater the respondents' Internet experience, the higher 'Features of the Web Site' and 'Risk and Privacy' were rated, whilst 'Perceived

Usefulness', 'Adoption', and 'External Environment' were not consistently affected by levels of Internet experience. This means that the following encouragement and impediment factors are influenced by levels of Internet experience; they will be discussed in the next chapter.

- Perceived Usefulness
- Adoption
- Features of the Web Site
- Risk and Privacy
- External Environment

4.7.6 Internet banking experience

The length of Internet banking experience that respondents possessed was classified into four categories: not used Internet banking at all; Less than 1 year experience; 1-2 years experience; and more than 2 years experience. The different mean scores by levels of Internet banking experience were examined for significance using the ANOVA test, as seen in Table 4.25.

Table 4.25: ANOVA: Differences in Mean Scores by Internet Banking Experience

		Sum of Squares	df	Mean Square	F	Sig.
Encouragement factors						
Perceived Usefulness	Between Groups	8.775	3	2.925	1.669	.173
	Within Groups	879.778	502	1.753		
	Total	888.552	505			
Adoption	Between Groups	2.356	3	.785	.463	.708
	Within Groups	850.604	502	1.694		
	Total	852.960	505			
Features of the Web Site	Between Groups	.805	3	.268	.127	.944
	Within Groups	1062.322	502	2.116		
	Total	1063.128	505			
Risk and Privacy	Between Groups	8.260	3	2.753	1.338	.261
	Within Groups	1033.118	502	2.058		
	Total	1041.378	505			
Impediment factors						
Personal Preference	Between Groups	24.952	3	8.317	4.424	.004*
	Within Groups	943.862	502	1.880		
	Total	968.813	505			
External Environment	Between Groups	36.574	3	12.191	6.369	.000*
	Within Groups	960.870	502	1.914		
	Total	997.444	505			
Culture	Between Groups	15.242	3	5.081	2.610	.051
	Within Groups	977.219	502	1.947		
	Total	992.460	505			

* $p < .05$

As shown in Table 4.25, there were no significant differences among the groups of Internet banking experience, with the exception of the discouragement factors, 'Personal Preference' and 'External Environment'. Table 4.26 shows mean scores of the above factors for the various levels of Internet banking experience (A table showing means for all factors is provided in Appendix 3).

Table 4.26: Mean Scores by Internet Banking Experience

Factors	Internet Banking Experience			
	Not used (N=336)	< 1 yr. (N=89)	1 – 2 yrs. (N=57)	> 2 yrs. (N=24)
Impediment factors				
Personal Preference	3.98	3.68	3.70	3.05
External Environment	4.66	4.50	3.99	3.77

The above table indicates that the highest mean scores were for those who had no Internet banking experience. In addition, within these two factors, the greater the Internet banking experience, the lower the mean score, with the exception of the rating for 'Personal Preference' by those who had 1 – 2 years experience. Therefore,

the following impediment factors are influenced differently by different levels of Internet banking experience:

- Personal Preference
- External Environment

The above analysis indicates that the null hypothesis three cannot be accepted. This means that the alternative hypothesis should be accepted. With the exception of the age factor, there are significant differences between encouragement and impediment factors brought about by moderating factors. Table 4.27 summarises the impact of moderating factors.

Table 4.27: Factors Significantly Influenced by Moderating Factors

Moderating Factors	Encouragement Factors				Impediment Factors		
	Features of the Web Site	Perceived Usefulness	Risk and Privacy	Adoption	External Environment	Personal Preference	Culture
Gender			√			√	
Education	√		√			√	
Income	√	√	√	√	√		√
Internet experience	√	√	√	√	√		
Internet banking experience					√	√	

4.8 Summary

In this chapter, the backgrounds of participants were described and the data was verified for reliability and validity. Tests indicated satisfactory levels which allowed the research hypotheses to be tested by statistical analysis. This enabled the identification of significant facilitators and impediments influencing the adoption of Internet banking in Thailand. The results of hypothesis testing are summarised in

Table 4.28. It revealed that there were significant differences between the factors that facilitate and impede Internet banking adoption in Thailand.

Table 4.28: Results of Hypothesis Testing

	Hypotheses	Results
$H_0$1:	There will be no difference between the factors that encourage Internet banking adoption in Thailand.	The null hypothesis is rejected.
H_A1:	There will be difference between the factors that encourage Internet banking adoption in Thailand.	
$H_0$2:	There will be no difference between the factors that impede Internet banking adoption in Thailand.	The null hypothesis is rejected.
H_A2:	There will be difference between the factors that impede Internet banking adoption in Thailand.	
$H_0$3:	There will be no difference between the factors that moderate Internet banking adoption in Thailand.	The null hypothesis is rejected.
H_A3:	There will be difference between the factors that moderate Internet banking adoption in Thailand.	

It was found that 'Features of the Web Site' and 'Perceived Usefulness' were regarded as the most significant encouragement factors, while 'External Environment' was the most significant impediment factor. Within the encouragement factors, 'reliability' and 'time saving' were regarded as the most significant items in 'Features of the Web Site' and 'Perceived Usefulness' respectively. With regard to the impediment factor, 'collaboration' and 'infrastructure' were regarded as the most significant items.

The most significant moderating factor is income. That is to say, with the exception of one impediment factor, 'Personal Preference', levels of income significantly affect all factors influencing the adoption of Internet banking. Also important was the level of Internet experience that influenced all the encouragement factors and impediment factor with the exception of 'Personal Preference' and 'Culture'. Regarding educational level differences, this moderating factor impacts two encouragement factors, 'Features of the Web Site' and 'Risk and Privacy', and one impediment factor, 'Personal Preference'. Gender affects one of encouragement factor, 'Risk and Privacy' and one of impediment factors, 'Personal Preference'. Levels of Internet

banking experience have an effect only on impediment factors, namely 'External Environment' and 'Personal Preference'.

CHAPTER FIVE

DISCUSSION OF SURVEY FINDINGS

5.1 Background

The data analysis in the previous chapter provided assurance for the measured variables in terms of validity and reliability. The chapter also showed how the data was analysed. It was apparent that some encouragement and impediment factors stood out from others. This chapter discusses these survey findings in the context of the Thai environment.

The first section explains the characteristics of respondents that provided the data for this study. This will lead to a better understanding of respondents' intended behaviour towards the adoption of Internet banking. Secondly, the Theory of Innovation Diffusion by Rogers (1983) and the Decomposed Planned Behaviour Theory by Taylor & Todd (1995) are applied to explain the findings. Third, discussions are provided on the key encouragement factors, namely 'Features of the Web Site' and 'Perceived Usefulness', and the key impediment factor, the 'External Environment', that most influence Thai consumers' Internet banking adoption.

Next, moderating factors are discussed together with their relationships to independent variables (encouragement and impediment factors). This will provide a greater understanding on how moderating factors impact on those factors and enable Thai banks to strategize their services effectively.

5.2 Characteristics of Participants

The participants in this study were office workers in large organizations in Bangkok. The majority, namely 92%, were aged between 20 and 39 years which indicates a

group of youngish to middle-aged workers. It should be noted that in Thailand, most people start working at the age of 18 and retire at 60. The reason why only 8% was under 20 or over 39 may be due to the fact that office workers who are under 18 are mostly employed in positions that have no Internet access and those who are over 40 tend to be in management position and may have been too busy to be involved in the survey.

There were more female respondents (64%) than male respondents (36%). One possible reason for this is that the selection of participants was based on convenience sampling. Anyone who was in the office at the time the questionnaires were distributed could be part of the sample group. Since work duties of female workers are likely to be in the office rather than outside, may have caused more females being involved in this study than males. Moreover, the nature of Thai females is that they are unlikely to refuse a request, therefore they may have been more willing to be involved in the survey. Although it has been found in previous research (Tan & Teo, 2000; Polatoglu, 2001; Karjaluoto et al., 2002) that the majority of Internet users are males, the percentage of female Internet users has increased over time.

Most of the respondents had attained at least a bachelor's degree and it is assumed that such people possess the Internet or computer literacy necessary for using Internet banking services. Although office workers who have attained vocational or lower qualifications are also employed in large offices, they may be employed in work positions that have no Internet access and therefore did not participate in this study. Thus, most respondents were people who had attained a bachelor's degree or higher. This is in line with previous research that Internet banking users are university graduates (Polatoglu, 2001).

Generally, one's income level is dependent on educational background, professional status, past experience, nature of the business and location of the work place. As respondents of this study were people who had attained at least a bachelor's degree, one could expect that an approximate income for this group would be over Baht 15,000. In Bangkok, the monthly income of Baht 15,000 is the average wage for office workers who have a working experience of less than one year. This is sufficient to live in Bangkok. Most of the respondents (37.5%) in this study earned

between Baht 15,001 and 30,000, giving them moderately strong financial status and providing the potential for being Internet banking customers. Previous research has found that the Internet banking users are "upscale" people (Polatoglu, 2001; Karjaluoto et al., 2002), and therefore, the higher the income they earn, the greater the potential of being Internet banking users.

About half of the participants (49.2%) had Internet experience of more than 3 years and only 12 per cent had less than one year of this experience. This means that most of the respondents had sufficient Internet literacy. Although the main uses of the Internet in Thailand are communication and searching, the greater one's experience with the Internet, the more likely that he/she would adopt Internet banking services.

Approximately one-third of the office workers in this study had experience in Internet banking. However, this experience was low, less than 2 years. The remaining two-thirds of respondents had no experience in Internet banking services even though Internet banking in Thailand has been available since 1999. Hence, the findings of this study can be used by banks to develop appropriate strategies to enhance the balance between the existing branch customers and new online customers. That is to say, the potential for Internet banking services in Thailand is high, particularly for office workers who have limited access to bank branches during working hours.

5.3 Factors influencing the Adoption of Internet Banking

This study classified factors influencing the adoption of Internet banking in Thailand into two groups: encouragement and impediments. Encouragement factors consisted of 'Perceived Usefulness', 'Adoption', 'Features of Web Site' and 'Risk and Privacy', whereas impediment factors included 'Personal Preference', 'External Environment' and 'Culture'. As shown in the previous chapter, the survey revealed that encouragement and impediment factors influenced Thai consumers differently when they were considering the adoption of Internet banking as shown in Figure 5.1.

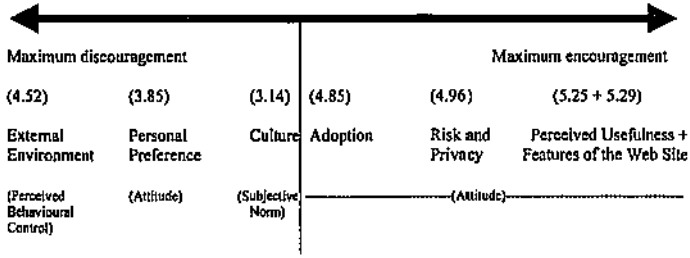


Figure 5.1: Factors influencing the Adoption of Internet Banking in Thailand

Figure 5.1 shows the seven factors ranked by their mean scores with the maximum positions on the scale showing the highest discouragement or encouragement factors respectively. All encouragement factors were rated higher than the scale mid-point, which was 4. Of the impediment factors, the 'External Environment' was rated the highest impediment to Internet banking adoption, followed by 'Personal Preference', and 'Culture' respectively. Only the 'External Environment' was rated over the mid-point of 4 for impediment factors.

The findings reflected in Figure 5.1 therefore highlighted attitudinal factors (i.e. 'Features of the Web Site' and 'Perceived Usefulness') as significant facilitators; and the perceived behavioural control factor (i.e. 'External Environment') as the most significant impediment, but not subjective norms (i.e. 'Culture') (see theoretical framework in Chapter 2 for a discussion of these factors). This is consistent with the study of factors influencing Internet banking in Singapore by Tan & Teo (2000) where only attitudinal factors and perceived behavioural control factors were found to have an impact on the adoption of Internet banking.

As indicated in the literature review in Chapter 2, attitudes are a function of beliefs which affect individual behaviour. Krech et al (1962, cited in Ajzen & Fishbein, 1980) argue that "Man's social actions – whether the actions involve religious behaviour, ways of earning a living, political activity, or buying and selling goods – are directed by his attitudes" (p.139). Thus, it is not surprising that attitudinal factors have a significant influence on the adoption of Internet banking. More specifically, bank customers who hold a positive attitude towards the 'Features of the Web Site'

and 'Perceived Usefulness' of Internet banking are likely to adopt the services. On the other hand, those who do not hold these values are unlikely to shift to Internet banking services but remain attached to their existing banking channels.

Perceived behavioural control, which describes beliefs about having the necessary resources and opportunities for the intention to perform, was seen as an impediment to perform the target behaviour, i.e. Internet banking adoption. This is because it can enhance an individual's ability and comfort to perform the behaviour. If the 'External Environment', such as supporting technological infrastructure, is readily supportive to adoption, electronic commerce will become more feasible (Tan & Teo, 2000). As a consequence, Internet users would be likely to adopt Internet banking services. In this context, since Internet banking is a new product for Thai banking consumers, the provision of the 'External Environment' is essential to encourage bank consumers to adopt Internet banking services. The absence of an adequate environment in Thailand, therefore, impedes the adoption of Internet banking services.

Subjective norms are defined by Fishbein & Ajzen (1975) as "the person's perception that most people who are important to him think he should or should not perform the behaviour in question" (p.302). In this study, the subjective norms of the Thai culture were found to be an insignificant factor for the adoption of Internet banking by Thai consumers. It is argued by Hartwick & Barki (1994) and Taylor & Todd (1995) that subjective norms are more important in the early stages of innovation implementation when users have less direct experience from which to develop attitudes towards such innovation. Furthermore, for a consumer-oriented service, it is likely that consumer-relevant groups such as family members, friends, colleagues or peers will influence the adoption.

However, Tan & Teo (2000) have shown the insignificance of subjective norms in the adoption of Internet banking. A possible reason is that information about the Internet is readily available from the banks or bank Web sites. For example, it is easy for potential adopters to acquire information via "Frequently Asked Questions" (FAQ). This makes the potential adopters less reliant on the information provided by their relevant peers or family groups. In addition, people who are time-poor look for activities that they can adopt to use their time more effectively. This would include

potential Internet banking adopters and especially Bangkok people. Hence, subjective norms have less significant effects on the adoption of Internet banking services particularly in Thailand.

This study showed that the 'Features of the Web Site', an attitudinal factor, is the primary factor that potential online bank customers take into account when they consider this service. Features such as good interactivity, navigational possibilities, security provision and speed would encourage respondents to take on this service. On the other hand, problems with poor interactivity, poor navigational possibilities, insufficient security provision and slowness within the service would lead respondents to give up on this service and develop a negative response. The significance of this factor can be explained by the characteristics of the study participants. They were relatively young, familiar with the Internet and had obtained a bachelor's degree. Hence, one can assume that they had some level of computer literacy and would have recognised the importance of the Web site features. Being one of the most important encouragement factors, a comprehensive discussion on the items of this factor is presented in the next section further on this chapter.

The study also revealed the significance of another attitudinal factor, namely 'Perceived Usefulness'. Users will participate in innovations when they are aware of the advantages, according to Rogers' (1983) Innovation Diffusion Theory and other research on innovation adoption (Tornatzky & Klien, 1982; Holak & Lehmann, 1990). The current results are in keeping with previous research on Internet banking which found that 'Perceived Usefulness' has a significant and positive influence on its adoption (Tan & Teo, 2000). As Guiltinan & Donnelly (1983, cited in Sathye 1999, p.325) claim "information about the benefits of using a product/service (is regarded) as an essential product/service promotion strategy" (parenthesis added). The participants in this study were office workers in Bangkok who were relatively young, educated, and had Internet experience of more than 3 years. It would be expected that they were aware of advantages of using the Internet, and would therefore have rated 'Perceived Usefulness' as an important encouragement factor for the adoption of Internet banking. Discussion on the items of this factor is provided in the next section of this chapter.

Perceptions on 'Risk and Privacy' made this factor the second most important encouragement factor for Thai consumers. This issue is generally seen as a great concern to participants in electronic activities. The level of risk is an important issue from a consumer's perspective in the adoption of an innovation (Cooper, 1997), as the innovation will not be adopted unless it is safe, particularly in regard to financial products and services. 'Risk and Privacy' in this study included the reputation and size of banks, the use of a security guaranteeing logo, incomplete transaction risk and the presence of a privacy statement. After the Asian financial crisis, Thai consumers became more conservative in their financial matters and placed greater emphasis on a bank's reputation. Particular to e-commerce are the importance of a security-guaranteeing logo and privacy statement because these can help ease customers' concerns and increase their confidence to participate in the service. At present, all Internet banks in Thailand have a security seal and a privacy statement presented on their Webs. Fewer incomplete transaction risks can also increase customers' confidence and encourage them to adopt Internet banking services.

The study supports the findings of Tan & Teo (2000) and Polatoglu (2001) that the perceived 'Risk and Privacy' associated with Internet banking is a major potential concern for the adoption of Internet banking. For participants in this study, who were educated and had attained a high level of Internet experience, 'Risk and Privacy' was of relatively high concern. It appears that the more users are aware of the Internet, the higher are their perceptions of risks. This was confirmed by Fink (1999) in a survey of final year university students, that is future business leaders, on the perceptions of e-commerce and perceived concerns and risks. Fink's findings indicated that business students believed that the capabilities of e-commerce were currently not fully achieved, mainly because of the high levels of concern about the potential risks.

Issues in relation to 'Adoption' were found to be the least important among the facilitators in the Thai environment. In this study, adoption refers to Internet accessibility, trialability, acceptable terms and conditions and documentary evidence. It should be noted that, with the exception of Internet accessibility, these items were common for all users. For instance, terms and conditions are standard for all banking applications, while ability to try and obtaining documentary evidence are provided

for all specific transactions and are available to all. Differences occur in the area of Internet accessibility because this also depends on the capability of the user's computer and that of the Internet Service Provider. 'Adoption' therefore appeared to be relatively insignificant for potential service adopters. This means that issues such as terms and conditions which should be considered before engaging in any service, are not highly considered by Thai consumers possibly not until they become a problem.

A perceived behavioural control factor, namely 'External Environment', was recognized as the most significant impediment factor in the adoption of Internet banking in Thailand by the participants of this study. The lack of 'External Environment' support, such as Internet infrastructure, can discourage adoption since it will make Internet banking services impractical and useless, thereby, causing the discontinuation of the intention to adopt. Being the most important impediment, a more comprehensive discussion on this factor is provided in a following section of this chapter.

'Personal Preference' which is also an attitudinal factor, was found to be the second most important factor that discouraged the adoption of Internet banking in Thailand. It refers to the preference of individuals in terms of self-service or being served, satisfaction with current bank services, technophobia, and congruence with life style. Participants in this study were working people in Bangkok who were busy, time poor, well-educated, with Internet experience but not much Internet banking experience. It can be assumed that they would have a relatively modern life style and be familiar with new technological devices. New technologies, like the Internet, e-mail communication, mobile phones and pagers, have increased in popularity within the Thai community due to their convenience and speed. Hence, personal preference was found to be quite neutral in affecting the adoption of Internet banking services in Thailand.

It is interesting that 'Culture' as a subjective norm had little effect on the adoption of Internet banking services in Thailand. National cultures in this study included collectivism, socialization, personal relationships, and uncertainty avoidance, which generally influence most business activities. Thai people tend to maintain the

characteristic of extended families and personal relationships brought about by the older generation's impact upon the next generation. This can be seen by long-term relationships between families and banks. Traditionally, most Thai merchants go to a bank because of their long relationships and with the expectation of future business transactions, and not just for current services. This also has an impact on the personal banking behaviour of the younger generation.

One possible reason for the reduced importance of the Thai culture effects on Internet banking adoption is that the participants who were working people in Bangkok were already influenced by Western culture. This would make them consider how Internet banking services work and see what the benefits are, rather than following what the previous generation may have thought. Furthermore, as the participants were well-educated, had gained moderate to strong financial status and were experienced in using the Internet, their confidence in the interacting with computers would have been relatively high.

5.4 Key influences on Adoption: 'Features of the Web Site', 'Perceived Usefulness' and 'External Environment'

As indicated earlier, the key encouragement factors influencing the adoption of Internet banking by Thai consumers were 'Features of the Web Site' and 'Perceived Usefulness'. These two factors were both significant and not statistically significantly different from each other. Thus these two factors affected the adoption of Internet banking by Thai consumers to the same extent. 'External Environment' was found to be the key impediment factor. Figure 5.2 illustrates the key items in each of these factors ranked by mean score. It shows how certain items within 'Features of the Web Site' and 'External Environment' are grouped together because there was no statistically significant difference between them.

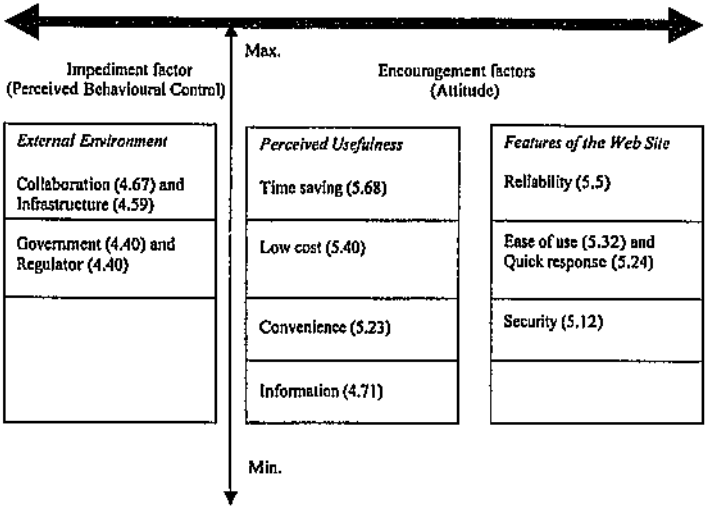


Figure 5.2: Key Items in the Most Significant Encouragement and Impediment Factors

5.4.1 Features of the Web site

It seems logical that the factor 'Features of the Web Site' was the most important in the adoption of Internet banking since the Web is the media that the service is delivered through. This finding was consistent with Jayawardhena and Foley (2000) who found that user satisfaction was dependent on Web site features such as speed of download, content and design, interactivity, navigation and security. In the current study, among the 'Features of the Web Site' items, 'reliability' of access was seen as the most important item, followed by 'ease of use', 'quick response' and sufficient 'security evidence' respectively.

Good accessibility enhances the reliability of Internet banking and encourages potential and existing bank customers to participate in the service. This is supported by the research of Suganthi & Suganthi (2001) where the failure of Internet transactions is frequently attributed to a lack of reliability in electronic transactions, resulting in a reduction in its usefulness. Reliability can also make the service superior to traditional banking channels. That is to say, "the door is never closed",

enabling customers to perform banking transactions in their own time and place, regardless of banks' working hours. Reliability is linked to the ability of customers' Internet Service Provider (ISP) but this was not explored in this study.

The second most important item found in this factor was 'ease of use'. Generally, the complexity of an innovation discourages the willingness to adopt it (Rogers, 1983; Tan & Teo, 2000; Suganthi & Suganthi, 2001). This appeared relevant to Thai people who like convenience. A well designed site, together with excellent navigation and a site index, influences user satisfaction since these features make it easy and fast for the user to arrive at the desired location on the Web (Jayawardhena & Foley, 2000). Thus, ease of use or user friendliness in respect to accessing Web pages is essential to the adoption of this new service. According to the complexity issue in Rogers' (1983) Innovation Diffusion Theory, new ideas that are simpler to understand will be adopted more rapidly than the ones that require the adopter to develop new skills and understanding. Internet banking is no exception.

'Quick response' was the next most important item because it is what a bank customer expects when comparing this new service with traditional banking channels. Quick response of bank's Web site is regarded as a virtual queue when performing banking transactions. A short virtual queue emphasises the value of Internet banking services and encourages adoption. This is consistent with Jayawardhena (2000, cited in Broderick & Vachirapornpuk 2002) who found that user satisfaction was dependent on Web site features especially download speed and interactivity. Therefore, problems with poor interactivity, poor navigational possibilities and slowness would most likely lead customers to give up and express negative sentiments.

'Security evidence' was seen as the least important item within the 'Features of the Web Site' factor. As the Wallis Report (1997, cited in Sathye 1999, p.326) stated that "if security is improved, households will conduct their financial transactions over the Internet". Indeed, Internet banking will not be adopted unless it is considered safe and secure by customers. Although there have been advances in preventing the interception of information by encrypting sensitive information, potential fraud is still a dilemma. This is reflected in the study of Australian's Internet banking

attitudes by Sathye (1999). The study revealed that security concerns were the important reason for the slow growth of Internet banking in Australia. Similarly, in Thailand, it would also affect the uptake of Internet banking services but to a lesser degree than the item discussed above.

5.4.2 Perceived usefulness

'Perceived Usefulness' for Internet banking adoption included the following items: 'information availability', 'convenience', 'time saving' and 'low cost'. It is obvious that users will adopt an innovation when they are aware of its advantages (Tornatzky & Klien, 1982; Rogers, 1983; Holak & Lehmann, 1990). Within the 'Perceived Usefulness' factor, 'time saving' was found to be the most significant item, followed by 'low cost', 'convenience', and 'information' availability respectively.

People today are busier and more time-poor than ever before. Time is becoming more important for Thai people, especially in Bangkok, because of their hurried lifestyle which is partly attributable to the poor traffic infrastructure. This can be seen from the increase in the adoption of new technology such as mobile phones and the Internet generally within the Bangkok community due to their convenience and speed. Similarly, effective banking products and services, delivered 24 hours per day, 7 days per week, will attract people who are time-poor and seeking to overcome the limitations of time and place. That is to say, instead of using their time visiting a bank branch and waiting in a service queue, customers who use Internet banking services can arrange their time more effectively.

'Low cost' was the next most important item in this factor. In the context of Internet banking, there are two types of costs involved: Internet cost and bank charges (Sathye, 1999). Internet costs tends to play a less important role compared to bank charges since Internet banking participants do not get the Internet just because they want to do online banking (Valdez, 2001). On the other hand, bank charges are considered by customers because they directly affect the customer's decision on how to do banking transactions. Since Internet technology can significantly reduce operating costs, bank charges from transactions performed through Internet banking

tend to be cheaper than those performed by other means. Furthermore, to attract customers, Internet bank charges may be deliberately cheap. For example, there is currently no joining fee or annual fee for Internet banking in Thailand. Another cost that customers can reduce is transport cost incurred when traveling to a bank. The findings of this study therefore support the Singapore survey by Tan & Teo (2000) which found that Internet banking services are most likely adopted if they are free of charge.

'Convenience' was another important item in the 'Perceived Usefulness' factor. Rather than going to a bank branch, customers can conduct their banking transactions at their own place and in their own time. Because a wide range of banking services is provided on the Internet, customers are able to perform their banking activities as they would at the bank branch. With advances in technology, customers can now conduct advanced functions such as ordering cheque books online, stopping payment and even arrange their payments in advance by weeks or months in the 'schedule payment mode' of online services. The online funds transfer function across banks is another convenience. As these services cannot be performed over the bank counter, Internet banking services make banking transactions more convenient than before, and should result in a greater adoption of Internet banking in Thailand.

'Information availability' was the least significant item for Thai consumers for the 'Perceived Usefulness' factor. The wide range of information, both financial and non-financial, provided on the Web is an attractive feature because customers can access the information quickly at any time and place, rather than by visiting a bank branch. Accurate and diverse information can be acquired at just 'one click' via the Internet. In addition, the bank can enhance the value of customer relationships through cross-selling and tailoring their products to increase their customers' satisfaction. Electronic mail from the bank to customers is also to customers' benefit as they receive customised and confidential information quickly and directly. Although a variety of information is available on Web, Thai consumers however viewed this usefulness as the least influence for their Internet banking adoption. One possible reason is that they prefer obtaining information through asking rather than by having to do online searching by themselves.

5.4.3 External environment

The study revealed the 'External Environment' as the most important impediment to Internet banking adoption in Thailand. It appears that the current 'External Environment' does not encourage Thai consumers to adopt online banking services. The 'External Environment' in this study included the absence of clear 'government' support, absence of industry 'regulator' support, lack of 'collaboration', and deficiency in 'infrastructure'. Within the 'External Environment', it was found that the lack of 'collaboration' and deficiency in 'infrastructure' discouraged Thai consumers more than the other two items.

'Collaboration' between Internet banks or with other service providers such as merchants adds value to Internet banking services as it can create diversity in products and services which is a key feature of e-commerce. Bank customers can gain extra benefits from services offered by other service providers when joining Internet banking services. The lack of collaborators therefore discourages adoption because the users will be limited to their own bank's services. An example of collaboration between Internet banks is funds transfer across banks which is currently only offered by one bank in Thailand, namely the Kasikorn Bank Plc. Moreover, as this function cannot currently be performed over the bank counter, the success of Internet bank collaboration will attract Thai consumers to Internet banking services. In addition, banks can also form strategic alliances with other banks to overcome current product or service deficiencies or to seek new market opportunities.

An example of the collaboration between Internet banks and non-bank service providers is Electronic Bill Presentment and Payments (EBPP). Although bill payment can be done by other channels, such as ATMs and telephone banking, EBPP allows Internet banking customers to pay bills on time and to schedule their payments. This cannot be done with traditional branch banking services. In addition, collaboration with Internet Service Providers supports marketing promotion (e.g. free Internet dial-up access for newly registered Internet bank customers). Free Internet access is an attractive way to increase a bank's customer base and it allows the bank to cooperate with the ISP if customers have problems with access. The lack of

collaboration between banks and other providers therefore deters customers from changing their current banking behaviours and adopting Internet banking services.

Deficiency in 'infrastructure' was another important item discouraging the adoption of Internet banking services for Thai consumers. A perceived deficiency makes it difficult for potential users to access banks and will discourage them from adopting this innovation. Availability of Internet access is a prerequisite for Internet banking adoption (Sathye, 1999). In the context of Thai Internet banking, the necessary technological support required for conducting banking transactions on the Internet is currently lacking. This therefore has become a key impediment when considering the adoption of the services. As mentioned earlier in the thesis, there has been an attempt by the Thai government via the Ministry of Information & Communication Technology to promote computer and Internet literacy and to deregulate the telecommunication industry. This, however, has not yet been effectively achieved.

The study revealed that the absence of clear 'government' support and absence of industry 'regulator' support also discouraged Internet banking adoption but to a lesser degree. One possible explanation is that the importance of the government sector is not realised by the Thai consumers. This is despite the government trying hard to assure the legal protection, rights and responsibilities of the participants. Furthermore, Thai consumers may not currently expect direct support from government, particularly as the country is in the early stages of service adoption. This is because, according to the Asian Develop Bank (ADB) (2001), the private sector, rather than government, plays a lead role in business activities of developing countries like Thailand. However, this may vary depending on the "e-readiness" of the country at a particular time. For example, in Singapore, government support was found to be important in the adoption of Internet banking. Since the technology for providing Internet banking services was already in place, government support was recognised by Singaporeans, and this in turn encouraged the adoption of Internet banking (Tan & Teo, 2000). In Thailand, however, the dispersion of computer hardware and the deregulation of the telecommunication industry are still at an early stage.

Similarly, support from the banking industry regulator has been lacking in Thailand. As noted previously, the deregulation strategy followed by the Bank of Thailand (BOT) is an important issue in developing the banking industry including Internet banking services. However, due to the slow rate of improvement in the Thai bureaucracy, especially with regard to technology, there is an absence of support from BOT. Although BOT has supported the growth of electronic commerce by being a payment service provider, by monitoring the electronic commerce system and by governing electronic commerce (Jaruwattanachai, 2000), it has not focused much on its retail electronic banking activities. No published information on Internet banking services is provided by BOT for bank consumers to make them confident about adopting this service.

5.5 Moderating Factors

Moderating factors were investigated to see how they affected the relationship between encouragement and impediment factors (the independent variables) and the adoption of Internet banking (the dependent variable). In this study, moderators refer to the respondent's gender, age, educational level, income level, Internet experience and Internet banking experience. Figure 5.3 illustrates the impact of statistically significant moderating factors on each encouragement and impediment factor that influenced Internet banking adoption.

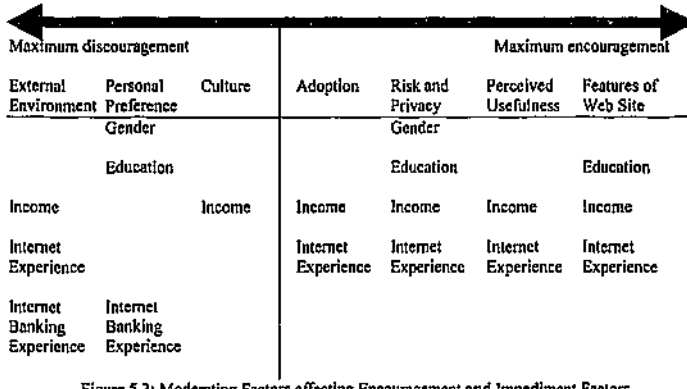


Figure 5.3: Moderating Factors affecting Encouragement and Impediment Factors

With the exception of the respondents' age, all moderators had a statistically significant impact on the factors influencing the adoption of Internet banking in Thailand as shown in Figure 5.3. While income impacted on all encouragement and impediment factors except 'Personal Preference', gender influenced only 'Personal Preference' and 'Risk and Privacy'. Furthermore, while the Internet experience of the respondents related to all encouragement factors, it had an impact on only one impediment, namely 'External Environment'. Internet banking experience had no relation to any encouragement factor, but was linked to two impediments namely 'External Environment' and 'Personal Preference'. Level of education influenced 'Features of the Web Site', 'Risk and Privacy' and 'Personal Preference'. The relationships of these moderating factors to the encouragement and impediment factors are discussed below.

5.5.1 Gender

Genders influenced the adoption of Internet banking services differently. It had an impact on the areas of 'Risk and Privacy' and 'Personal Preference' only. 'Risk and Privacy' refers to reputation and size of the bank, logo of security guaranteeing party, incomplete transaction risk occurrence and personal privacy protection. It seems that males and females have different attitudes towards 'Risk and Privacy'. The scores from males on the 'Risk and Privacy' were higher than those for females (see Table 4.16). That is to say, the importance of 'Risk and Privacy' in the adoption of Internet banking was greater for Thai males than for Thai females. One possible explanation is that males have greater 'in depth' computer knowledge and may be more aware of the problems of computer security.

The study revealed that 'Personal Preference' was also of greater concern to males (Table 4.16). 'Personal Preference' in the study referred to the preference between self-service or being served, satisfaction with current bank services, technophobia and congruence with life style. Since Internet banking is based on the technology adoption, it requires some changes in adopters' current preferences. Thus, it is essential for them to change their attitudes towards this innovation in order to participate. The required changes in 'Personal Preference' were found to be more

significant for Thai males than for Thai females. One possible explanation is that females tend to be influenced easier than males, and thus resulting in being more open to change their preferences.

5.5.2 Age

A respondent's age had no significant effect on any of the encouragement or impediment factors in Internet banking adoption. This may have been due to Internet banking relating to a valuable asset, i.e. cash, which is important to all ages. Previous research (Sathye, 1999; Tan & Teo, 2000; Polatoglu, 2001; Karjaluoto et al., 2002) found that age did have an impact on the adoption of Internet banking and concluded that Internet banking customers were mostly young adults. This study found that there was no significant impact of users' age on the adoption of Internet banking. However, it should be remembered that 92% participants were of a young age, namely 20 – 39 years, which is the age group which is most attracted to Internet banking in other studies.

5.5.3 Education

With regard to respondents' educational levels, this moderator affected three factors: 'Features of the Web Site', 'Risk and Privacy', and 'Personal Preference', which are all attitudinal factors. Since Internet adoption is based on computer and Internet technology, it is necessary for an adopter to possess knowledge of Internet technology and functions of Web-based activities and this knowledge will depend on the educational level of users. The 'Features of the Web Site' included the reliability of Internet access, ease of use, security evidence and quick response. Generally, more highly educated people felt that the features of the services were easier to use than those who had lower education. In this study, the 'Features of the Web Site' and educational level had a consistent positive relationship. That is, the higher the education of the participants, the more important the 'Features of the Web Site'.

'Risk and Privacy' concerns were also affected by the levels of education of participants. Generally, it is likely that the higher the education obtained, the lower the risk perceived and the more confidence and trust held in the services. A reason for this is trust requires learning (Fink, 2000). Trust was defined by Mayer et al. (1995, cited in Fink 2000, p.712) as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control the other party". That is, education creates and establishes adequate levels of trust. However, this study found that the educational level related consistently to the 'Risk and Privacy'. That is, the higher educated the users, the more important the 'Risk and Privacy' factor in Internet banking adoption.

'Personal Preference' was found to be another factor influenced by education. The results showed that the levels of education related negatively to 'Personal Preference'. This means that the higher educational level attained, the less important the concept of 'Personal Preference' when adopting Internet banking. This could be a reflection of the fact that highly educated people tend to have more opportunities to experience new products or services than less educated people. Therefore, it is likely that more highly educated people are more open to changing their preferences.

5.5.4 Income

Income differences were found to be the most significant characteristic to impact on the adoption of Internet banking in Thailand. As shown in Figure 5.3, with the exception of 'Personal Preference', income differences affected all encouragement and impediment factors. This finding is in line with previous research of Karjaluoto (2002) who found that income was an important variable affecting online banking behaviour in Finland. As Internet banking services require access to the Internet and computer hardware, income is a basic requirement to afford such resources. In this study, different income levels impacted differently on customers' perceptions of the service as discussed below.

Higher income earners tend to be more highly educated, therefore they are likely to have more computer knowledge and experience in Web-based activities and would consider the importance of 'Features of the Web Site' when adopting Internet banking services. As a consequence, 'Features on the Web Site' scores varied positively with the increase in income; the higher the income earned, the higher this influence was rated.

The study found similarly that different levels of income significantly impacted on and varied positively with the 'Perceived Usefulness' of adopting Internet banking services. As people who earn high incomes are likely to be busy and time-poor, they are more likely to choose activities based on time-saving. Internet banking provides numerous potential advantages such as convenience in time and place, and information being available at just one click. People who are busy can enjoy these benefits conveniently at a relatively low cost to them.

'Adoption' was found to be influenced by income levels also in a consistent positive manner. As explained earlier, higher income earners tend to also be more highly educated, therefore, they perceive the availability of adoption features, i.e. Internet accessibility, ability to try, acceptable terms and conditions and documentary evidence, important. Lower income earners may be more patient to adoption issues and thus rate it lower.

Another important factor that income has an impact on is 'Risk and Privacy' which refers to the bank's reputation and size, the presence of a logo of security guaranteeing from a third party, minimising incomplete transaction risk and personal privacy. As mentioned previously, higher income earners tend to be higher educated people, and thus, they are likely to be more confident with Internet activities. Again, it was found that the higher the income of participants, the greater the importance placed on 'Risk and Privacy'.

In terms of impediments, income has an effect on 'External Environment' (i.e. government, industrial regulator, collaboration, infrastructure) and 'Culture' (i.e. group-orientation, socialisation, personal relationships and uncertainty avoidance). As the higher income earners are likely to have a higher level of education, one

would assume that they have more knowledge and information on the importance and benefits of the 'External Environment' and understand that Internet banking will not function without a suitable environment. Thus, a lack of 'External Environment' support is an important discouragement. It is apparent that income differences had a consistent positive impact on 'External Environment'. That is to say, the higher the earnings, the higher the concern for 'External Environment' during Internet banking adoption.

However, it was found that income level has a consistent negative impact on 'Culture'. That is, the more the participants earned, the lower they rated this discouragement factor. One possible explanation is that higher earners tend to be busy and time-poor; they are therefore more likely to choose their banking channels based on time-saving, rather than a concern for face-to-face interaction and socialization. Interestingly, income was the only significant moderator impacting on 'Culture'.

5.5.5 Internet experience

Internet experience is generally recognised as another important moderating factor in encouraging the adoption of Internet banking. Previous literature suggests that prior experience of technologies impacts on consumer beliefs and attitudes towards related systems and technology (Arndt et al., 1985; DeLone, 1988; Levin & Gordon, 1989; Igbaria et al., 1995). Similarly, Hirschman (1980) suggests that prior experience with a product class (i.e. the Internet) may lead to greater acceptability of new products (i.e. Internet banking). In other words, the tendency of consumers to accept or reject change depends upon their experience with related technologies.

Experience with the Internet enables the user to identify well-designed 'Features of the Web Site'. The study found that the more Internet experience users had, the more they rated 'Features of the Web Site' highly. Internet experience was also found to influence 'Perceived Usefulness'. This is because a good understanding of technology gained from Internet experience allows users to better appreciate the added value brought about by technological improvement (Karjaluoto et al., 2002).

Therefore, experienced Internet users have a more positive perception of the benefits of the Internet.

Although the Internet has potential 'Risk and Privacy' problems, some degree of risk can be reduced by users' experiences. This is because a relationship, called the 'knowledge-based trust relationship', is established between both parties after they learn more about each other (Lewicki & Bunker, 1996). Experience of the Internet will enable adopters to limit their risk by considering the reputation of the service provider, and the 'security brand' seals which are features that enhance the perception of less risk. However, in this study it is apparent that the more Internet experience users have, the more importance they attribute to 'Risk and Privacy'. One possible explanation is that experience with the Internet in Thailand is not sufficiently high to ameliorate the significance of 'Risk and Privacy' when considering Internet banking.

'Adoption' was another factor affected by participants' Internet experience. Experiences users appear to be able to recognise the importance of issues for service adoption, e.g. accessibility, trialability, acceptable terms and conditions and documentary evidence. Therefore, the high Internet experienced users are more likely to view the adoption issues as an important concern.

The study also revealed that users with different Internet experience viewed 'External Environment' as a factor that impacted on their adoption of Internet banking. That is, the greater the experience with the Internet, the more significant the 'External Environment' when adopting Internet banking. This is because users gain more knowledge and information on the importance and benefits of the 'External Environment' from their prior experiences in Internet which then can apply to Internet banking services.

5.5.6 Internet banking experience

The study revealed that Internet banking experience itself had little impact on its adoption. Only two impediments, i.e. 'External Environment' and 'Personal

Preference' were influenced by Internet banking experience. While Internet experience related positively with 'External Environment', Internet banking experience related negatively with this factor. That is, respondents who had no or little experience in Internet banking did not recognise the lack of support in the 'External Environment' whereas the 'External Environment' was rated low by those with high levels of Internet banking experience. It appears that experienced Internet banking users are currently satisfied with the services and felt that the 'External Environment' has little effect. By contrast, the less experienced Internet banking users potentially require more support from the environment before they decide to use Internet banking.

'Personal Preference' was also negatively affected by Internet banking experience. That is, participants who had no Internet banking experience viewed this factor as greatly impeding the service; on the other hand, those who were experienced with the service viewed this factor as impeding less. One explanation is that once an adopter has experienced the service, he/she will have developed a personal positive attitude towards it.

5.6 Correlations between Factors

Statistical analyses in the form of correlations were conducted (see Chapter 4) to establish the relationships between factors. A diagrammatic view of the correlations between the seven factors is presented in Figure 5.4.

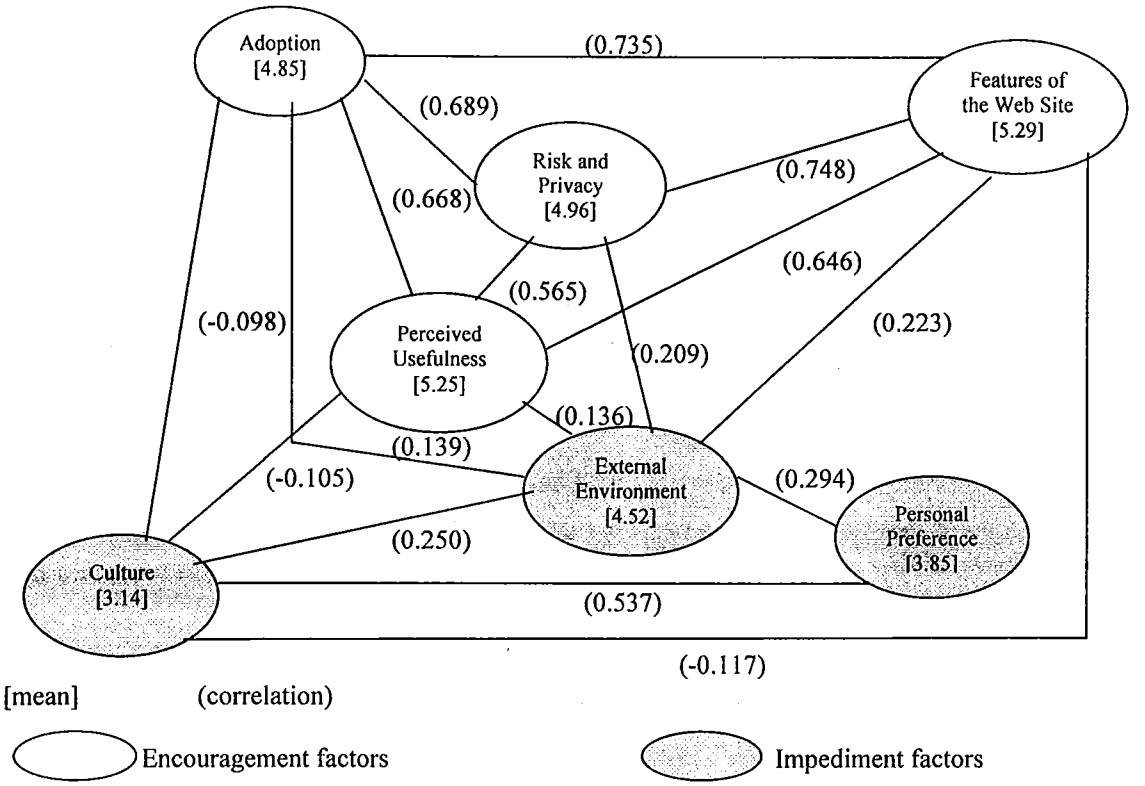


Figure 5.4: Correlations between Factors

As shown in Figure 5.4, correlations can be summarised as follows: no correlations, negative correlations and positive correlations.

5.6.1 No correlations

There were two areas where no correlations between factors were found. First, there was no correlation between the impediment factor 'Personal Preference' and all encouragement factors. Even though 'Personal Preference' and all the encouragement factors were attitudinal factors, they were not related. In other words, a positive rating of an encouragement factor does not necessarily result in a positive or negative rating of 'Personal Preference'. Secondly, there was no correlation between the encouragement factor 'Risk and Privacy' and the impediment factor 'Culture'. Again, movement in one does not correspond with a movement in the others.

5.6.2 Negative correlations

Correlations between encouragement factors and 'Culture' were found to be negative. While 'Culture' was identified as a discouragement, having a negative influence on adopting Internet banking services, encouragement factors have a positive influence on the adoption of Internet banking. The negative correlation between these two is therefore a movement in the same direction. That is, increases in encouragement factors will decrease the discouragement of the 'Culture' factor. As Internet banking is a personal banking activity, an intention to adopt the services is dependent on the individual's abilities and information provided by bank, rather than on peers or family groups. Thus, if encouragement factors are found to be appropriate, consumers would adopt Internet banking by ignoring their current subjective norms, the element that make up Thai 'Culture'. The potential adopters would make a trade-off between their attitudes to encouragement factors and their existing beliefs. For example, they would perform online banking transactions if the provision of encouragement factors were appropriate, despite the reduced face-to-face contact with bank personnel.

5.6.3 Positive correlations

While all encouragement factors were negatively associated with the impediment 'Culture', they were associated positively with 'External Environment'. This means that even though encouragement factors were perceived as appropriate by the consumers, Internet banking would not be adopted if they found that the 'External Environment' was inappropriate. For instance, adopters would not conduct Internet banking transactions if the infrastructure did not support the adoption.

Diagrammatic views of the correlations between encouragement factors and between impediment factors are presented in Figure 5.5 and Figure 5.6 respectively.

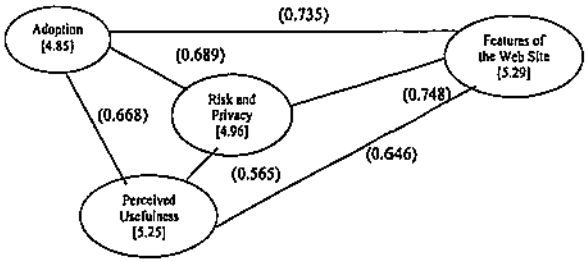


Figure 5.5: Correlations between Encouragement Factors

Figure 5.5 shows the associations between encouragement factors that were positive and statistically significant. As previously established, 'Features of the Web Site' and 'Perceived Usefulness' were regarded as the most important ones among encouragement factors, followed by 'Risk and Privacy' and 'Adoption' respectively. Correlations indicate that as consumers regard a particular factor as an important encouragement factor, they are also likely to regard the other factors shown in Figure 5.5 important as well. Since these are factors that Internet banks are able to control, if Internet banks can improve customers' attitudes towards any of these factors, the significance of the other factors to the potential adopter would therefore also statistically increase.

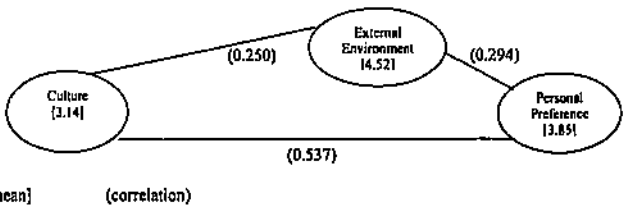


Figure 5.6: Correlations between Impediment Factors

In terms of the associations between impediment factors, these were positive and statistically significant as shown in Figure 5.6. The 'External Environment' was regarded as the most important discouragement in Internet banking adoption followed by 'Personal Preference' and 'Culture'. The associations indicate that as

consumers regard a particular category important as an impediment factor, they are also likely to regard the other categories important. As these impediments were not able to be controlled by the banks, Internet banks would have to develop strategies such as collaborating with other to limit these impediments.

5.7 Summary

In this chapter, data analysed in the previous chapter were discussed and put into context of Thailand. Participants in this study were office workers from large organizations in Bangkok, who were mostly young adults of moderate to strong financial status, well-educated and experienced Internet users. The results of the study showed that they regarded the key encouragement factors for Internet banking adoption to be attitudinal factors under the control of banks, namely 'Features of the Web Site' and 'Perceived Usefulness'. Based on these key factors, 'reliability' as to access to the Web site and 'time saving' were the key items in encouraging the adoption of Internet banking by Thai consumers. The main reason of this is the busy life of Bangkok people, making them seek services that provide these features.

With regard to the impediment factors, the 'External Environment' was found to have the most influence on adoption. Within this impediment factor, 'collaboration' and 'infrastructure' were found the key discouragement items for Thai consumers considering adopting the service. After the financial crisis in 1997, Thai people are more conservative in their banking activities, and therefore, deficiency in infrastructure and lack of collaborators will reduce Thai consumers' confidence in dealing with Internet activities.

In relation to moderators, differences in income levels and Internet experiences significantly impacted on the encouragement and impediment factors. It was apparent that, the higher the income, the more important these factors became with the exception of 'Culture'. Similarly, the greater the Internet experience, the more important the factors (i.e. 'Features of the Web Site', 'Perceived Usefulness', 'Risk and Privacy', 'Adoption' and 'External Environment'). In terms of respondents' education, it was found that educational levels are positively influencing the factors;

the higher education they attained, the greater the importance attached to factors, with the exception of 'Personal Preference'.

The next chapter will present the results of a discussion of these findings with current Internet banks in Thailand. Discussions with those banks will provide insights into the services and enable recommendation to be made to enhance the Internet banking services in Thailand.

CHAPTER SIX

INTERVIEWS WITH THAI BANKS AND RECOMMENDATIONS

6.1 Background

Chapter 5 discussed the findings from the questionnaire survey carried out in Thailand. It was found that two encouragement factors and one impediment factor were of more importance than the others. These key factors together with key moderating factors were presented to three commercial banks who are currently offering Internet banking services in Thailand. Discussions with these banks were aimed at confirming the study's findings with their experiences as well as acquiring their knowledge in respect of these findings.

The format of this chapter is as follows. The first section presents the interview process. The process includes a rationale for the selection of participating banks and the interview procedure. Second, findings on banks' responses are presented. The perceptions of the banks towards the survey findings at a factor level as well as at the item level are discussed. The next section comments on whether the banks' current responses are adequate for improving Internet banking services. Finally, recommendations from the study are established in terms of 'supplier push' and 'market pull' as well as targeting the right customer groups for Internet banking services.

6.2 Interview Process

As mentioned in Chapter 1, one of the main objectives of this study was to determine the significant factors that affect the adoption of Internet banking by Thai consumers,

so that the results of the study can be used by Thai banks to improve their Internet banking services. To achieve this, the survey's findings were interpreted and presented to commercial banks in Thailand. Discussions of the findings were conducted by interviewing key personnel responsible for electronic banking channels in those banks. The structured interviews were conducted in order to confirm the findings established in the survey. According to Drew et al. (1996) "an Interview can be highly structured or completely open-ended, depending on the purpose of the interview, the researcher's familiarity with and knowledge about the setting, and the exploratory or confirmatory nature of the study" (p.173).

From the seven Internet banks in Thailand (see Table 2.5), three banks were selected to participate in this study. In this study, a small number of interviews was conducted because this is not the main research which was the questionnaire survey. According to Remenyi et al. (1998), a small number in case study research of two to three may be sufficient. The selection of these three banks is based on the fact that they are early adopters of Internet banking. While two of them are large-sized banks and the other is a small bank.

For two of the banks, the researcher had a personal contact which helped to facilitate the interview initiation. For the other bank, the researcher had no personal connection and therefore the bank was contacted by formal correspondence. Approval to conduct the interviews was obtained from the university's ethics committee and consent letters were provided by the interviewees. They were informed that they could withdraw from the interview at any time. To maintain confidentiality, the names of these banks are not identified in the study and represented as 'Bank A', 'Bank B' and 'Bank C'. Table 6.1 summarises the characteristics of these three banks.

Table 6.1: Background of Banks Interviewed

Bank	Contact	Size
Bank A	Personal	Large
Bank B	Formal	Large
Bank C	Personal	Small

Due to the limitation of time, geography and funds, telephone interviews were undertaken (Sekaran, 2003). A self-introduction and a request for participation in the interview were conducted ahead of time via electronic mail. The approximate length of the interview was advised to the banks in order to organise a convenient time. This would reduce the nonresponse problem and increase their cooperation (Sekaran, 2003). Once the approval was obtained from the banks, a brief outline of the survey findings and interview questions were sent to the assigned bank personnel a week before the interview was conducted.

Interviews were conducted with a senior person in each bank in May and June 2003. They typically carried titles such as First Vice President of the E-Business Department and Senior Vice President of E-Business Department. The interviews were carried out in the Thai language and the data from the interviews was translated into English by the researcher. The interview started with an overview of the key research findings followed by the question whether or not banks agreed with these findings. Participants were able to elaborate and explain their current situation in response to the study's findings. Experiences of the banks regarding the characteristics of their customers were also discussed. Each interview took approximately one hour.

6.3 Bank Responses to Survey Findings

The interview discussions are summarised in Table 6.2 below. A discussion is provided follow the table below.

Table 6.2: Interview Findings from Interview of three Banks

Study's findings	Bank A	Bank B	Bank C
Most important encouragement factors			
• Features of the Web Site	Agree	Agree	Agree
• Perceived Usefulness	Agree	Agree	Agree
Most important impediment factor			
• External Environment	Agree	Agree	Agree
Influencing moderating factors			
• Gender	Disagree	Disagree	Disagree
• Education	Agree	Agree	Agree
• Income	Agree	Agree	Agree
• Internet experience	Agree	Agree	Agree
• Internet banking experience	Agree	Agree	Agree
Non-influencing moderating factor			
• Age	Disagree	Disagree	Disagree

6.3.1 Encouragement factors

Among the encouragement factors influencing the adoption of Internet banking in Thailand, the study revealed that 'Features of the Web Site' and 'Perceived Usefulness' were regarded as the most important. 'Features of the Web Site' referred to 'reliability' of access, 'ease of use', 'quick response' and 'security evidence'. 'Perceived Usefulness' included 'time saving', 'low cost', 'convenience' and 'information availability'. Discussions with the three Internet banks found that they all agreed with this finding with the following additional comments.

According to Bank A, the other encouragement factors are also important. These are 'Risk and Privacy' and 'Adoption'. An example of this is the provision of documentary evidence in Internet banking services. Several potential adopters had asked the bank for evidence to ensure their transactions were performed. Bank B argued that although security evidence is a part of the 'Features of the Web Site', it is likely that security is of lesser concern to potential adopters since they expect that the Internet banks provides a standard security system for the services. Bank C however emphasized that security for their Internet banking services is an important concern for potential adopters.

It is interesting that Bank B and Bank C have different perceptions of the security issue. The former experienced that customers do not view it as significant and

expected it as a standard that the bank 'must' provide security while the latter felt that their potential adopters were always concerned. One possible explanation is the different size of these two banks. Bank B is one of the largest banks, whereas Bank C is one of the smallest. It may be that a small size is associated with insufficient resource to ensure good security.

6.3.2 Impediment factors

Among the impediment factors, 'External Environment' was found as the most significant impeding factor for Thai consumers. Within 'External Environment', the lack of 'collaboration' and deficiency in 'infrastructure', were statically more significant than the lack of clear support from the Thai 'government' and the lack of support from the industry 'regulator'. All three banks agreed that the 'External Environment' significantly discouraged the adoption of Internet banking in Thailand despite several attempts by the current Thai government to facilitate the electronic environment.

Specifically, from the perspective of Bank A, the deficiency of Internet 'infrastructure' was the greatest impediment. This can be seen from the low penetration rate of Internet adoption in Thailand, compared to that of neighbouring countries such as Malaysia and Singapore, resulting in a low number of Internet banking customers. For Bank B, the 'External Environment' was also the greatest impediment for Internet banking adoption because it impacted on all adopters while the other impediment factors, i.e. 'Personal Preference' and 'Culture', were related to personal characteristics such as age, lifestyle, etc. Bank C commented on the importance of the 'External Environment' in terms of the low quality of the current Internet infrastructure resulting in customers' insecurity in dealing with the Internet, particularly for financial products and services.

Difference among the three banks occurs between their perceptions towards the industry regulator, the Bank of Thailand (BOT). While Bank A and Bank C expressed that the support from the BOT was not evident, Bank B's experience was that the support from BOT was helpful. One possible explanation is that the BOT has

only recently become effective since Bank A and Bank C established this service before Bank B.

Another difference is their perceptions towards 'Culture'. While Bank A and Bank B viewed that it is likely that 'Culture' does not impact on Internet banking adoption, Bank C was of the opinion that it does. Bank C stated that it is not easy to convince existing customers to shift online since they prefer to visit a bank branch and have a face-to-face conversation with bank tellers. Again, one possible explanation is that Bank C is a small bank which tends to have a close relationship with their customers.

6.3.3 Moderating factors

Moderating factors influencing Internet banking adoption in this study referred to age, gender, education, income, Internet experience and Internet banking experience of participants. It was found that, with the exception of age, all moderators significantly impacted on Internet banking adoption in Thailand. By contrast, discussions with the three banks revealed that they were of the opinion that age is a significant moderating factor for Thai consumers and that there is no difference in the adoption from a gender perspective. That is, banks found young adults are more likely to be Internet banking adopters and males and females are likely to be Internet adopters to the same extent.

Bank A and Bank B further commented that income was also an influence on adoption because Internet banking is very suitable for managing funds. People with higher incomes are more likely to use Internet banking than people with less income. On the other hand, Bank C viewed the education level as a significant factor for the reason that Internet banking requires knowledge in computer and Internet software.

From the above, it can be concluded that the three banks have different perceptions on the moderating factors influencing the adoption of Internet banking. One possible reason is that they were established at different times, and their organisational cultures, reputations and sizes had led to different perceptions. As a result, banks use

different strategies to Internet banking adoption items within the factors as discussed in the next section.

6.4 Current Bank Strategies

Strategies adopted by the three banks for the key encouragement and impediment factors are summarised in Table 6.3. They will be discussed after the table.

Table 6.3: Strategies by the Three Internet Banks

Responses to Items of Key Factors	Bank A	Bank B	Bank C
Features of the Web Site			
Reliability	• Obtain feedback from customers through a call center • Monitor regularly	• Obtain feedback from customers through a call center • Monitor regularly • Prioritise usage for external users	• Obtain feedback from customers through a call center
Ease of use	• Survey before service is launched • Provide call center assistance	• Survey before service is launched	• Survey before service is launched
Quick response	• Monitor regularly	• Install usage traffic management to utilize bandwidth effectively • Implement a policy of server redundancy	• Provide call center assistance • Recent upgrade for redundancy
Security evidence	• Present security assurances statement in both technical and non-technical terms • Introduce security instructions	• Provide standard security system	• Present security assurance statement in both technical and non-technical terms
Perceived Usefulness			
Time saving	• Monitor regularly	• Monitor	• Obtain feedback from customers through a call center
Low cost	• Provide significantly cheaper bank charges for Internet transactions • Publicise low cost services	• Provide marginal cheaper bank charges for Internet transactions	• Provide free-of-charge or significantly cheaper bank charges for Internet transactions • Notify customers through distribution channels
Convenience	• Notify customers about convenience through distribution channels	• Emphasise the services as an alternative banking channel	• Notify customers about convenience through distribution channels • No pre-requisite registration required for funds transfer between own bank accounts
Information	• Provide a variety of information	• Provide a variety of information related to bank and financial business	• Provide a variety of information
External Environment			
Collaboration • With suppliers • With banks	• Increase collaborators for bill payment, Internet Service Providers, entertainment providers • Attempt to collaborate with other banks to expand banking services	• Increase collaborators for bill payment Internet Service Providers, entertainment providers • Attempt to collaborate with other banks to expand banking services	• Increase collaborators for bill payment, Internet Service Providers, entertainment providers • Attempt to collaborate with other banks to expand banking services
Infrastructure	• Provide free Internet access for new customers	• No response	• Provide free Internet access for new customers
Government	• Educate customers especially young users about the uses of the Internet to increase Internet population	• Educate Internet users by joining a bank fair at least 2 times a year	• Provide various information to encourage the use of electronic media
Regulator	• Work with the industrial regulator	• No response	• Work closely with the industrial regulator

6.4.1 Features of the Web site

6.4.1.1 Reliability

Regular monitoring of the Web site is the key activity performed by Bank A in order to maintain customers' ability to access the services at any time. Most of the monitoring procedure is performed by bank staff, rather than using end-to-end software due to the high investment cost. In addition, customer feedback obtained from the bank's call center is also used to explore causes of access problems. For Bank B, monitoring of access is conducted by technical means and verified with their call center. Furthermore, greater bandwidth to facilitate accessibility and usage are prioritised for external users in addition to the prohibition of inappropriate access by internal users. Since Bank C is a small bank, no specific monitoring is carried out. The bank does however respond to customers' feedback received by their call center.

6.4.1.2 Ease of use

Bank A carried out simple analysis of Web site usage, such as the number of clicks for each step in different transactions, before the service was launched. Moreover, the bank's call center is responsible for responding to basic inquiries and resolving problems of usage. Similarly, Bank B conducted a survey to ensure clear instructions to customers and ease of use for all steps before the services were launched. Bank C ran a prototype test for all steps in each function to ensure ease of use before going life with the final system. They recently conducted a survey to gather comments on their Web before moving to the next stage, which the bank called the 'second phase'. The results of the survey required only changes to the Web page layout.

6.4.1.3 Quick response

Manual monitoring is regularly conducted by Bank A to ensure quick response of the Web site. Examples of such procedure include a checking of disconnection problems during services and measuring the time for each step performed by customers. Bank

B implemented a policy of server redundancy to ensure quick response of their services. Usage traffic management is also installed to provide better response to transactions for external users ahead of internal users. Customers' feedback obtained from the call center is a major source for Bank C to react to problems in response times. The bank also recently upgraded their software and focused on redundancy to improve their servers' responsiveness.

6.4.1.4 Security evidence

Bank A described their security under a "security system" caption on the first page of their Web site. The information is presented both in technical terms (e.g. firewall system, data encryption, Secure Socket Layer, etc.) and non-technical terms which are associated with instructions for using Internet banking services safely. Bank B claimed that they are using standard security system but have not focused on this issue in order not to attract the attention of hackers. The bank claimed that, based on their experience, potential adopters are not too concerned with this matter as they expect the bank's security system to be consistent across the industry. Bank C provides non-technical security terms and statements like "international security standard" for users, in addition to the technical security information on the Web site.

6.4.2 Perceived usefulness

6.4.2.1 Time saving

Monitoring of the time used to carry out online banking is conducted regularly by Bank A. Monitoring includes disconnection times and time needed to perform transactions. This is aimed to ensure customers save time in performing banking transactions and they can do so at a time convenient to them. Similarly, Bank B also ensures the time saving for customers by monitoring the time used for each function. In order to provide greater security for customers, some functions require an e-mail confirmation after execution. However, the bank claimed that this function does not take a long time and is not regarded by customers as an inconvenience. Bank C

monitors time used for online transaction from customers' feedback received by their call center.

6.4.2.2 Low cost

Bank A sets their transaction charges for Internet banking services at a low price. They are able to do this because of the reduction in their operation costs. An example of this is the charge on funds transferred through the bank's clearing house. This transaction costs customers approximately 0.05% of the funds, compared to 0.10% when performed over the counter. Similarly, Bank C also sets free-of-charge or cheaper bank charge for transactions performed via the Internet. For example, overseas funds transfer is charged at Baht 350 per transaction on the Internet, compared to Baht 550 per transaction at the branch. In contrast, Bank B set their transaction fees for Internet banking services only marginally less than for those conducted over the counter and because they aim to provide Internet banking services as merely an alternative banking channel, rather than promoting the service through a low fee structure.

6.4.2.3 Convenience

Convenient banking at any time, anywhere, is generally accepted to be one of the key attractors by Internet banking adopters. Although all transactions performed at the bank branch, except for cash withdrawals, are now able to be conducted online, it was found that not all of them can be performed at all times via Internet. An example of this is the funds transfer function of Bank A which can be conducted between 6.00 a.m. and 11.00 p.m. However, the Bank argued that this does not cause any inconvenience to their customers since, from their experience, customers mostly use the services between 9.00 a.m. and 10.00 a.m. and the usage declines during the day. It was mentioned that an expansion of service time on the Internet is being considered by the bank.

Similarly, Bank B accepted that only some transactions such as online applying for new banking services and viewing of account balances, are able to be conducted at any time; other functions are only able to be performed between 6.00 a.m. and 10.00

p.m. For Bank C, since the bank is a small bank and offers limited services, it can provide about 90 % of Internet banking at 24 hours a day. In addition, funds transfer is limited to the customer's own accounts with no pre-registration required because it is already included in their customer information base. This increases customers' convenience compared to other Internet banks who require a pre-registration for all funds transfer transactions, even between a customer's own accounts. This requirement was claimed by other banks as a greater security provision for customers.

6.4.2.4 Information availability

Bank A and Bank C had a greater variety of information including non-financial information on their Web Sites. For example, Bank A provides information about education and enjoyment, whereas Bank C provides daily news on their Web sites. Moreover, Bank C found that their target customers are people who have a modern life style which requires entertainment information. They therefore cooperate with one of the big entertainment companies in Thailand to provide entertainment information to attract potential Thai adopters. All of the information presented on Bank B's Web site is related to bank and financial business.

6.4.3 External environment

6.4.3.1 Collaboration

Collaboration among banks was based on commercial grounds aimed at competing rather than providing mutual benefits for the industry itself. The reason for this is that, only half of commercial banks in Thailand can offer the Internet banking service at present, causing a problem in sharing the costs incurred. In addition, funds transfers across banks are more complicated than those via ATMs. For instance, it requires the development of related programs in order to share information from different banking systems. Currently, only one bank can offer funds transfer across bank for their customers. Bank B experienced that collaboration among the commercial banks needed a middle party like the Bank of Thailand. Both Bank A

and Bank C agreed that collaboration with other organisations such as merchants for bill paying should be developed continuously.

6.4.3.2 Infrastructure

All three banks agreed that the deficiency in the Thai infrastructure was the most significant barrier to Internet banking adoption. Bank A commented that the deficiency causes the usage of the Internet to be limited and not to be nationwide. Moreover, while the penetration rate of Internet adoption is a fundamental factor for the growth of electronic transactions including Internet banking, the Internet penetration rate of Thailand is still very low compared to countries in the region such as Singapore or Malaysia. This slow penetration rate is a contributing factor to the slow growth of Internet banking in Thailand.

The Thai government, through the Communication Authority of Thailand, is currently attempting to reduce the Internet access service from the existing level of Baht 15 – 20 per hour. However, there has been debate about its success. For instance, the initiative is limited to access to Thai Web sites only. Furthermore, Bank C pointed out that there has been no attention given by the government to the quality of the Internet in this project, especially regarding security. This lack of attention may result in a negative outcome for Internet activities, particularly Internet banking services. At present, Bank A and Bank C are cooperating with some Internet Service Providers in order to provide free Internet access for their new customers.

6.4.3.3 Government

Government support generally relates to all the services that constitute commerce on the Internet, rather than specifically to Internet banking services. The establishment of the Ministry of Information & Communication Technology charged to be responsible for the growth of Internet usage is an example. The Ministry recently launched two special projects: 1 million personal computers at a cheaper price (more than 50% below market price) and a reduced fee for Internet access. Bank A commented that as the main use of the Internet in Thailand is for communication, searching, entertainment and enjoyment, such as games and music downloads, rather

than knowledge and learning or conducting online activities, education in Internet usage is essential. There are several projects that Bank A has carried out to support learning, for example, the promotion of electronic banking for youth. Likewise, Bank B also has a policy to encourage Thai people to use the Internet by highlighting the advantages of electronic commerce, while Bank C provides various information on their Web site to encourage the use of the electronic media.

6.4.3.4 Regulator

All banks agreed that the industry regulator, the Bank of Thailand (BOT), is quite flexible in supporting online banking services, compared to previous banking products and services. The BOT has revised the notification requirements for commercial banks on their use of the Internet for commercial banking business and expanded the areas of permissible usage of the Internet for undertaking banking business. Once the permission is granted, the use of Internet in other permissible activities can be performed without reapplication.

However, the banks interviewed had different attitudes to the BOT. While Bank A and Bank C stated that they have to initiate support from the industrial regulator, Bank B is satisfied with the support it is receiving from the regulator. This maybe because of the different times these three banks began to offer their Internet banking services.

6.4.4 Moderators

In respond to important moderating factors, Bank A is focusing on the right customer target group who they identified as young working people with high incomes. Analysis of customers' needs is also performed to better serve their customers. Bank B aims to persuade their current customers to shift online and promotes Internet banking service as an alternative banking channel. Bank C is attempting to increase customers' awareness of Internet banking services by educating their existing customers when they visit the bank branch. Moreover, the bank monitors existing online customers' usage history records to improve their services. In addition, Bank

A and Bank C agreed that Thai consumers prefer incentives. The two banks therefore offer free Internet access as an inducement for new customers. The strategies are summarised in Table 6.4.

Table 6.4: Current Customer Strategies of the three Banks

Bank A	Bank B	Bank C
• Right target • Know customers' need • Provide incentives	• Persuade current bank customers to shift online • Promote Internet banking as an alternative banking channel	• Increase customers' awareness of Internet banking services • Provide cheap Internet banking services • Monitor customers' usage history to increase customer satisfaction. • Provide incentives

6.5 Discussion

The following discussions are provided to assess whether or not current bank strategies are sufficient to achieve the migration of traditional bank customers to online customers. With regard to 'Features of the Web Site', all banks are aware of the requirements and customers' perceptions towards the features. The major source for this information comes from their call centers. By monitoring customers' feedback via call centers, information is mainly from existing customers who have gained a level of Internet banking experience. Information about potential adopters' attitude however is not being captured extensively. Banks need to understand that existing experienced users and potential adopters have different attitudes towards Internet banking. Therefore, banks should explore potential adopters' perceptions periodically to encourage them to move to Internet banking. Although security concerns are viewed differently by the banks, they currently provide both technical and non-technical information about security to assure customers dealing with Internet banking services.

Internet banking offers many potential advantages to both banks and customers. The important thing is how to educate bank consumers about these advantages and persuade them to adopt Internet banking services. Currently, Thai Internet banks provide information about 'Perceived Usefulness' on the Web sites and in brochures

available at bank branches and sometimes at exhibitions. However, it is unclear whether or not this message has been widely conveyed to Thai banking consumers. Another concern is the continued attachment to over-the-counter bank services by Thai consumers, causing an ignorance of the numerous advantages of Internet banking services. Hence, details of how the services work and their usefulness have to be conveyed clearly, widely and practically to increase Internet banking adoption. For example, information of lower bank charges has not been promoted strongly to consumers, particularly in the comparison to those for counter services.

Responses from Thai Internet banks to the 'External Environment' indicated a lack of proactive strategies. One possible explanation is they feel that the environment is not under their control. However, there are some encouraging developments in Thailand with which banks should be engaging. The government is committed to facilitate a reasonable cost of Internet access to its people because it will be more attractive to them when the technology becomes cheaper. In addition, the attempt to deregulate the telecommunications industry will allow greater diffusion of Internet usage in Thailand because of resulting lower access costs. Therefore, instead of waiting for the results of these attempts to occur in the next few years, Internet banks should already now support the government in order to enhance Internet diffusion for their potential customers. Otherwise, a digital divide will emerge and become an obstacle for the adoption of Internet banking services and cause the traditional bank customers to remain attached to off-line banking channels.

6.6 Recommendations for Banks

As previously discussed, in this study encouragement factors are those that are able to be controlled by banks while impediment factors are those that are not able to be controlled. The study revealed that 'Features of the Web Site' and 'Perceived Usefulness' were the most significant factors in encouraging Internet banking adoption, and 'External Environment' was the most significant factor to impede Internet banking adoption in Thailand. It is essential for banks to facilitate encouragement and restrict impediment factors. Therefore, in addition to the direct 'push' from Internet banks (in respect of the encouragement factors), indirect

persuasion should be carried out as a 'pull' mechanism (in respect of the impediment factors).

6.6.1 "Push" strategies for encouragement factors

Awareness of Internet banking services is essential in the early adoption stages. As Internet banking services are still new in Thailand, effective presentations using all forms of media advertising such as leaflets, brochures, Web pages, etc., will be useful to introduce the services to a wider audience and educate potential customers about the benefits of Internet banking. To access more potential adopters, information about Internet banking should be provided by bank tellers and bank assistants at branches. The information should include references to 'time saving', 'convenience' at anywhere any time, 'low costs', and 'information availability'. In addition, banks should design their Web sites as effective delivery channels and offer information beyond banking services.

It is essential to provide a well-designed and user-friendly Web site to attract potential adopters' attention. The customer should not be required to expend a lot of effort or time, or undergo too great a change in behaviour, to adopt Internet banking services. Information and instructions on the Web should be provided in both Thai and English in order to make the adopter comfortable. Wide publicity underscoring the benefits and ease of use by demonstrating Internet banking services should be provided. This could be implemented by providing personal computers at bank branches accompanied by good documentation and bank assistance. Regular surveying of customers' responses and opinions of the services should be conducted to ensure continuous improvement.

Reliability of access when needed is one of the key encouragement factors. Although this 'reliability' partly depends on customers' networks, which were excluded from the study, Internet banks can enhance accessibility by cooperating with ISPs to provide good quality Internet access. Bank should also separate internal and external uses and give priority to external uses. While reliability is a key element from a customer's perspective, so is the security system. It must be enhanced continuously

to guarantee integrity of online transactions as this will build customer confidence. Security provisions should be posted on banks' Web sites clearly and understandably to create customer confidence and improve the trustworthiness reputation of banks. Security information should be provided in non-technical terms, and be accompanied by standard security statements.

A perception of quality service will increase the bank's image for good services, accuracy and effectiveness. Failure of execution not only causes dissatisfaction and uncertainty to the customer, but also makes the whole Internet banking process more complex and less comprehensible. Offering incentives is another effective strategy to encourage Internet banking adoption by Thai consumers so is the provision of access to Internet banking in public places such as shopping centers and bank branches since most Thai people spend much of their free time in shopping centers on the weekend and bank branches can now be found on almost every single street.

In summary, recommendations for "supplier push" strategies are as follows:

1. Build customers' recognition of Internet banking
   - Emphasise the advantages of Internet banking services, i.e. time saving, low cost services, convenience and information availability
   - Provide various types of information both financial and non-financial

2. Attract customers to the Web site
   - Provide a well-designed and user-friendly Web site
   - Provide information in both Thai and English languages
   - Provide demonstrations in public places, e.g. bank branches, department stores, etc.
   - Provide both electronic and documentary demonstrations of online services
   - Regularly survey customers' responses to Internet banking procedures and further develop the Web site

3. Attract customers by ease of access

- Regularly monitor customers' access
- Implement traffic management systems for internal and external users
- Coordinate services with Internet Service Providers

4. Build customers' confidence
   - Present the security used in both technical and non-technical terms
   - Outline the procedure and information on how to cope with problems if they occur
   - Provide instructions on how to use Internet banking services safely

5. Other strategies
   - Offer incentives such as free Internet access dial-up, frequent user benefits, member rewards, etc.
   - Provide free access to banks' networks in bank branches or public places, e.g. shopping centers, etc.

6.6.2 "Pull" strategies for impediment factor

Bank should develop Internet diffusion strategies by adopting "pull" strategies. Increased diffusion will increase the number of Internet banking adopters since they are likely to come from the Internet population. Furthermore, support from the government and the industry regulator will positively affect Internet banking services by increasing the confidence of the adopters.

Effective cooperation among banks has to be developed. The value of Internet banking is increased by linking one activity with another both within banks and with outside suppliers, channels and customers (Porter, 2001). Furthermore, Internet banks should collaborate with Internet Service Providers because it will enable banks to better control quality of services as well as enhance adopters' accessibility. In addition, a high quality Internet infrastructure should be provided since it is one of the primary requirements for Internet usage.

Support from the government and industry regulator should be effective to increase the growth of Internet banking services. The Thai government should be encouraged to initiate suitable steps to remove legal and regulatory barriers to e-commerce in general and Internet banking in particular. In addition to lobbying the Thai government and the Bank of Thailand, banks should also proactively participate in improving Internet services in order to increase online banking. For example, electronic laws should be promoted by the banks in order to reduce customers' perceptions of risks. Current cooperation has been for commercial purposes, rather than for mutual benefit of the industry. This may need the industry regulator, i.e. the Bank of Thailand, to act as the central authority to improve the external environment.

In summary, recommendations for 'market pull' strategies are as follows:

1. Increase service value by collaboration
   - Collaborate with Internet Service Providers
   - Offer free Internet access
   - Expand banking service across banks
   - Increase linkages to suppliers and merchants

2. Be proactive
   - Support the government to enact electronic commerce laws
   - Work with the industrial regulator
   - Provide education on the uses of the Internet and Internet banking

6.6.3 Moderating factors

All banks agreed that employed people with high purchasing power are their main target. Internet banks should focus on this group as the first priority in their attempt to shift them online. This requires extensive analyses of customers' needs and the provision of customised services that are of value to them.

In summary, recommendations for moderating factors are as follows:

1. Target right customers
    - Persuade people in good positions and appropriate income to adopt the services

2. Provide value to customers
    - Monitor the historical bank usage of customers to know their needs
    - Provide customised services to customers

6.7 Integration with Study Findings

Table 6.5 shows the recommendations made in previous discussion and compares these with the current strategies employed by the three Internet banks as established earlier.

Table 6.5: Comparison of Recommendations and Banks' Current Strategies

Recommendations	Bank A	Bank B	Bank C
Build customers' recognition			
• Emphasise advantages of Internet banking services	√	√	√
• Provide various types of information	√	X	√
Attract customers to the Web site			
• Provide a well-designed and user-friendly Web site	√	√	√
• Provide information in both Thai and English languages	√	√	√
• Provide demonstrations in public places	X	X	X
• Provide both electronic and documentary demonstrations of online services	X	X	√
Attract customers by ease of access			
• Regularly monitor customers' access	√	√	√
• Implement traffic management systems for internal and external users	X	√	X
Build customers' confidence			
• Present the security used in both technical and non-technical terms	√	X	√
• Outline the procedure and information on how to cope with problems if they occur	X	X	X
• Provide instructions on how to use the services safely	√	X	X
Other strategies			
• Offer incentives	√	X	√
• Provide free access to banks' networks in bank branches or public places	X	X	X
Increase service value by collaboration			
• Collaborate with Internet Service Providers	√	X	√
• Expand banking services across banks	X	√	X
• Increase linkages to suppliers	√	√	√
Proactive participate			
• Support the government to enact electronic commerce laws	X	X	X
• Work with the industry regulator	√	√	√
• Provide education on the use of Internet and Internet banking	√	√	√
Target customers			
• Persuade the right people to adopt the services	√	√	√
Customised service			
• Monitor historical bank services uses	√	X	√
• Provide customised services	√	X	X

As seen from the above table, the three banks are in agreement with the study's recommendations to varying degrees as summarised below.

1. Recommendations that all banks have implemented.
    - Emphasise advantages of Internet banking service

- Provide a well-designed and user-friendly Web site
- Provide information in both Thai and English languages
- Regularly monitor customers' access
- Increase linkage to suppliers
- Work with the industrial regulator
- Provide education on the use of Internet and Internet banking
- Persuade right people to adopt the services

2. Recommendations that two out of the three banks implemented.
   - Provide various types of information
   - Present the security used in both technical and non-technical terms
   - Offer incentives
   - Collaborate with Internet Service Providers
   - Monitor the historical bank usage

3. Recommendations that one out of the three banks implemented.
   - Provide both electronic and documentary demonstrations of online services
   - Implement traffic management systems for internal and external users
   - Provide instructions on how to use the services safely
   - Expand banking services across banks
   - Provide customised services

4. Recommendations that none of the three banks implemented.
   - Provide demonstrations in public places
   - Outline the procedure and information on how to cope with problems if they occur
   - Provide free access to banks' networks in bank branches or public places
   - Support the government to enact electronic commerce law

It is necessary for Internet banks to consider the above findings in their quest to enhance their Internet banking services in Thailand. By adopting the full set of

recommended strategies they would be able to encourage potential adopters to adopt Internet banking services as well as reduce the potential impediments of the service.

6.8 Summary

This chapter presented the discussion of the survey findings with three Internet banks in Thailand. Selection of the participating banks was based on the researcher's relationships with the banks as well as convenience access to the banks. Discussions were conducted by telephone interviews each lasting approximately one hour. Appointments were made with assigned bank personnel and a brief summary of the questionnaire survey findings was sent to the banks before the interviews were conducted.

The results of the discussions found that the banks largely agreed with the study's findings. That is, 'Features of the Web Site' and 'Perceived Usefulness' are the most significant encouragement factors, whereas, 'External Environment' is the most impediment factor for adopting the Internet banking in Thailand. However, because of different resource and management's perspective, they responded to these factors differently. For example, while monitoring is the main tc ' that the banks used, the frequency of monitoring is different. In addition, while some banks concentrate to attract potential customers by low cost services, other may "push" Internet banking as an alternative channel for customers. Security is another issue that the banks respond to differently.

Comments on the adequacy of banks' strategies to improve Internet banking services in Thailand were made. As a result, a summary of recommendations focusing on both "supplier push" and "market pull" are presented. In addition, recommendations were made in respect of moderating factors which concerned the types of consumers that may adopt Internet banking services.

In the following chapter, the conclusions of this study will be discussed. They relate to providing the answers to the research questions shown in Chapter 1 and enable the

revision of the theoretical framework outlined in Chapter 2. Limitations and recommendations for future research will also be offered.

CHAPTER SEVEN

CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH

7.1 Background

The previous chapter provided the discussion of the survey findings with key Internet banks in Thailand. The study is now able to develop conclusions regarding the study's findings on the encouragement and impediment factors regarded as important for the adoption of Internet banking in Thailand. A revised theoretical model of Internet banking adoption by Thai consumers will be presented. The usefulness of this model will be discussed in the context of the research and Thai banks. This chapter will also identify and evaluate the limitations of the study. Finally, directions for further research arising from the work completed will be provided.

7.2 Conclusions

In this section, conclusions in relation to the research questions presented in Chapter 1 are provided after a brief overview of the study.

7.2.1 Overview of the study

An initial theoretical model was developed from a literature survey of innovation adoption. This model was based on the Decomposed Theory of Planned Behaviour by Taylor & Todd (1995) and the Innovation Diffusion Theory by Rogers (1983) as explained in Chapter 2. Potential factors influencing the adoption of Internet banking in Thailand were identified and hypotheses were developed which led to the research methodology of the study, discussed in Chapter 3.

The study was based on the premise that consumers' perspectives have a greater impact on Internet banking services than those of banks who are the service providers. Data was therefore collected from potential Thai consumers of Internet banking services by using a questionnaire survey. As shown in Chapter 4, data was analysed using quantitative analysis techniques to examine statistically significant differences between factors that encourage and impede the adoption. Correlations between encouragement and impediment factors and between the factors within encouragement and impediments were also produced. Moderating factors were investigated in relation to their effect on the encouragement and impediment factors. Results from this analysis were discussed in the context of Thai consumers in Chapter 5.

The study's key findings were presented to a group of Internet banks in Thailand to establish their concurrence as presented. The banks' responses to the key findings were discussed in Chapter 6. This final step in the research provides answers to the research questions presented in Chapter 1. That is, conclusions can be drawn on the significant factors that encourage, impede and moderate the adoption of Internet banking by Thai consumers and the strategies that can be recommended to banks to improve this service in Thailand.

The research itself was completed satisfactorily. First, the response rate was high (84%) which resulted in 506 valid questionnaires being collected for data analysis. Second, validity and reliability tests indicated that confidence can be placed in the data collected. Third, the application of statistical measures resulted in the identification of important facilitators, impediments and moderators. Furthermore, good co-operation was received from Thai banks in the quest to discuss the findings with them.

7.2.2 Most significant influencing factors

As indicated earlier, the study is based on the Decomposed Planned Behaviour (Taylor & Todd, 1995) and the Innovation Diffusion Theory (Rogers, 1983). Based on the former, the intention and thereby the adoption of Internet banking by Thai

consumers is encouraged by attitudinal factors and impeded by a perceived behavioural control factor, but not by subjective norms (i.e. the 'Culture' factor). The attitudinal factors that appear to encourage the adoption of Internet banking in Thailand most are 'Features of the Web Site' and 'Perceived Usefulness', while the most significant impediment to adoption is a perceived behavioural control, namely 'External Environment'. The application of Taylor & Todd's (1983) theory for the potential adoption of Internet banking in Thailand is provided in Figure 7.1.

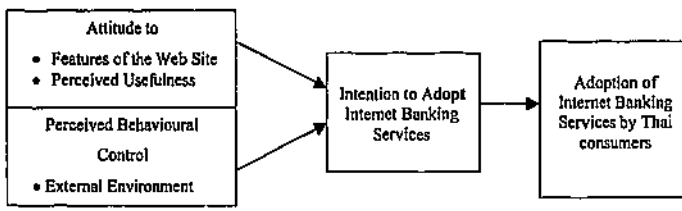


Figure 7.1: Application of Decomposed Planned Behaviour Theory to Internet Banking Adoption in Thailand

Within the 'Features of the Web Site', 'reliability' in terms of the accessibility to the bank's Web site when needed is regarded as the key item in encouraging Internet banking adoption. 'Time saving' is found to be the greatest encouragement item in 'Perceived Usefulness', whereas, lack of 'collaboration' and deficiency in 'infrastructure' are the most significant impediment items in 'External Environment'.

In relation to the Innovation Diffusion Theory, Rogers (1983) identified the relative advantages, compatibility, complexity, trialability and observability as influencing innovation adoption. In this study, only relative advantages (identified as 'Perceived Usefulness') and complexity ('ease of use', an item of 'Features of the Web Site') were found to be significant in adopting Internet banking as shown in Figure 7.2.

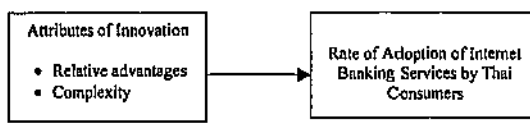


Figure 7.2: Application of the Innovation Diffusion Theory to Internet Banking Adoption in Thailand

The significant moderating factors influencing the adoption of Internet banking by Thai consumers are gender, educational level, income, Internet experience and Internet banking experience, but not age. However, it was found that the stand out moderators are income and Internet experience as they each affect the most significant encouragement and impediment factors. They affect both 'Features of the Web Site' and 'Perceived Usefulness', while education only impacts on 'Features of the Web Site'. With regard to the key impediment factor, 'External Environment', it was found that there are three significant moderators: income, Internet experience and Internet banking experience. Overall, therefore, income and Internet experience are the most significant moderating factors for the adoption of Internet banking in Thailand.

The revised theoretical model for the adoption of Internet banking by Thai consumers showing the significant research variables is shown in Figure 7.3.

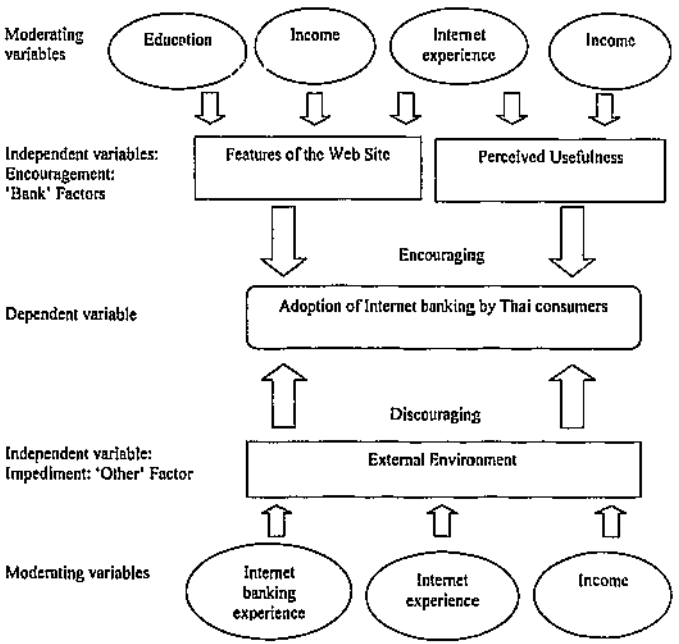


Figure 7.3: Revised Theoretical Model for the Adoption of Internet Banking in Thailand

In conclusion, in response to the first three research questions raised in Chapter 1, this study found that

1. 'Features of the Web Site' and 'Perceived Usefulness' are factors encouraging the adoption of Internet banking in Thailand.

2. 'External Environment' is the factor impeding the adoption of Internet banking in Thailand.

3. 'Income' and 'Internet experience' are the factors moderating the adoption of Internet banking in Thailand.

7.2.3 Banking strategies

In response to the fourth research question shown in Chapter 1, "What strategies should Thai banks adopt to facilitate Internet banking?", both supplier "push" and market "pull' strategies need to be implemented. As identified in Chapter 2 of the study, because encouragement factors are factors that banks can control, Internet banks should focus on increasing consumers' positive perceptions of Internet banking, thereby increasing the rate of service adoption. The supplier "push" strategies recommended to Thai banks are as follows:

- Build customers' recognition of Internet banking. For example, the advantages of Internet banking and other types of useful information on Internet banking services should be published and widely disseminated in Thailand.

- Attract customers by 'ease of use' Web features. A well-designed and user-friendly Web site should be provided to attract potential customers. Text should be provided in multiple languages for users' convenience.

- Demonstration of the services should be provided, both in public places and online. In addition, customer feedback surveys should be performed regularly to further develop the user friendliness of the Web site.

- Attract customers by 'ease of access' Web features. The ability of customers to access the Web site should be regularly monitored. This can be done through internal and external Internet traffic management. Cooperation with Internet service providers is another way to facilitate customers' access.

- Build customers' confidence by Web site validity. Guarantees of security should be presented in both technical and non-technical terms. Basic instruction to use the Internet safely should be provided to potential adopters to ensure that they can deal with the services safely.

- Others suggestions. For example, incentives should be offered to attract customers such as offering an initial trial period at no charge. Provision of banks' networks could also be provided in public places or at high traffic bank branches and preferably at no cost.

Potential impediments to Internet banking adoption should be reduced although they cannot be directly controlled by banks. Banks should attempt to influence the Internet banking market in order to enhance this service in Thailand. Market "pull" strategies are therefore required to increase the rate of adoption.

- Increase service values by collaboration. Collaboration with other banks and service providers should be increased. The success in getting cooperation from these participants will increase the value of the services and thereby the adoption of Internet banking services.

- Improve Internet banking technology. Without a suitable technological infrastructure and adequate Internet bandwidth, Internet banking will not function. In addition to lobbying the Thai government, Internet banks

should proactively participate with others in improving the Internet infrastructure. They should also encourage Thai consumers to extend their use of the Internet to Internet banking.

It is important for banks to target the potential Internet banking customers in particular. The study's findings of the impact of moderating factors should enable banks to focus on particular types of consumers who are most likely to adopt Internet banking services. For example,

- Consumers who rated 'Features of the Web Site' highly were well-educated and had high incomes and high Internet experience. Therefore, by improving 'Features of the Web Site' in the area of access reliability of access, ease of use, quick responses and security evidence presence, banks are more likely to encourage these valuable consumers to take up Internet banking services.

- Consumers who rated 'Perceived Usefulness' highly were those with high incomes and high Internet experience. Hence, by increasing consumers' awareness of Internet banking usefulness, i.e. time saving, low cost, convenience and information availability, these valuable consumers are most likely the consumers who would adopt Internet banking services.

- Consumers who rated 'External Environment' highly were those with high incomes, high Internet experience and high Internet banking experience. As a result, by overcoming the deficiencies of 'External Environment' in terms of infrastructure and collaboration, these consumers are most likely to adopt Internet banking services.

By accepting and implementing the above suggestions, banks are more likely to succeed in stimulating the growth of Internet banking, resulting in shifting the traditional bank customer base to one that uses banking services online.

7.3 Usefulness of Study

In addition to providing answers to four research questions outlined in the previous section, the study offers some broad uses as follows.

Previous research has mainly focused on innovation adoption in the context of North America and Europe and to some extent other developed countries such as Singapore. This study extends the research on IT adoption to a developing country. It does this by applying two well-known theories (IDT and DPBT) in an environment that differs from those of developed nations. Thailand is different from North America, Europe and other developed countries in areas such as computer literacy, the maturity of technology use and infrastructure, culture, etc. The study's findings on potential factors influencing Internet banking adoption in Thailand may provide useful insights for other developing countries in this geographic region.

The study is one of few that have applied adoption theories in an Internet environment. Since e-commerce creates new opportunities and contributes to economic development, the emergence of Internet technology has a potential to significantly impact on industry including the banking sector. For example, Internet banking offers a new banking channel to bank consumers to perform their banking transactions from outside bank branches. The study provides a better understanding of how consumers may adopt this new technology through the use of IDT and DPBT. By doing so, it is able to provide explanations of the key variables that affect the adoption of Internet banking by Thai consumers.

In addition to the above, the study is useful in the specific research domain. It was successful in establishing key factors in the adoption of Internet banking in Thailand. Internet banks can use this knowledge in their quest to increase their online customers. Non-Internet banks can consider their abilities and readiness based on these findings before moving into the Internet banking arena.

7.4 Limitations

While the research was meticulously designed and the data collected indicated a high degree of reliability, potential criticisms can be identified in the following manner.

In terms of the methodology, there are a number of limitations. First, there is a concern regarding the sampling of both participating organisations and individuals. Although the selection of participating organisations were based on stratified sampling from established businesses in Bangkok at a certain time, a sample based on convenience access to those specific businesses and individuals was used. The sample chosen in the study was therefore not purely random. Furthermore, the survey focused on office workers in large organisations and may not be representative of all bank consumers in Thailand. Caution should therefore be taken when generalising the findings of this study.

Second, the study concentrated on Thai consumers who currently have Internet access. However, it is believed that Internet banking adopters are likely to be Internet users. The results may not be generalisable to all potential adopters including non-Internet users. Hence, there is a need to replicate this study with such users as outlined in the next section.

Previous research and literature in the same topic have concentrated on North America, Europe and to some extent other developed countries and have used the English language. There is an initial obscurity when applying such studies to developing countries which have unique cultural values and their own languages. To recognize this, the study translated the questionnaire from English to Thai. However, because of the newness of the research topic to Thailand, the terminology used in the questionnaire is not as well accepted or developed as could be expected in English-speaking countries. It is expected that over time relevant terms and phrases will become more standardised.

There is the possibility that independent variables do not cover all the factors that could influence the adoption of Internet banking. Other possible variables that could be identified are self-efficacy and inaccessibility to the Internet. As a result, the measures of the independent variables may not be sufficient to capture all the effects on the dependent variables. Measurement of the dependent variables themselves also

may fail to capture all the variance caused by the independent variables of the study. However, this is the nature of this type of research.

7.5 Directions for Future Research

The study captured data from potential Internet banking adopters and confirmed the findings with Internet banks which are the service providers. The combination of this data collected can be justified. However, there are some issues that should be dealt with to fill the aforementioned gaps of this study.

This research has shown the key factors influencing the adoption of Internet banking in Thailand by gathering data from Thai consumers who were office workers in Bangkok and had Internet accessibility. The reasons for this restriction to Thai consumers in Bangkok were explained in Chapter 3. Future research should be therefore directed towards improving this deficiency. An extension of the survey to Thai consumers in other provinces should be conducted to better represent Thai consumers' perceptions towards Internet banking adoption. This will account for differences in culture, infrastructure, etc.

In addition to the examination of office workers' perceptions in large organisations, future research should be extended to consumers in other types of organisation and other careers. For example, workers in small and medium organisations or the public sector, unemployed or self-employed workers as well as consumers who are students should be surveyed. The results of such a study may establish different encouragement and impediment factors as well as different moderators from those found in this study.

Although Internet users are more likely to be Internet banking customers, future research should consider taking account of non-Internet users or non-Internet access bank consumers. The difference between Internet users and non-Internet users can explain the potential Internet banking adopters' self-efficacy which was excluded from this study. Investigation in the future should again address the notion of the Internet experience and its role in promoting and enhancing Internet banking

services. The comparison of Internet and non-Internet users' perceptions or Internet access and non-Internet access bank consumers' perceptions towards the adoption of Internet banking services will enable banks to consider the widest possible range of potential online customers.

Another factor in this research was the extent of experience possessed by potential Internet banking adopters. As Internet banking customers experience the services, their knowledge of the service grows. Different levels of Internet banking experiences would lead to different attitudes toward the services. Future research should investigate the relationships between users' attitudes towards adoption and the level of their service experiences. These relationships would provide an understanding of Internet banking affluent users' and early adopters' and late adopters' perceptions towards the services. Banks would be able to improve their services to attract greater variety customers than they are now able to do.

Since Internet banking services are relatively new in Thailand, this study has not measured behaviour and attitudes of current Internet banking customers. A longitudinal study should therefore be conducted once the number of Internet banking users has reached a critical mass. As the Internet banking environment changes over time, results of such research would provide different perceptions across the development of Internet banking services in Thailand and provide more insights into this new way of doing banking.

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APPENDIX 1

THE QUESTIONNAIRE

DETERMINANTS OF INTERNET BANKING ADOPTION IN THAILAND

Aim of this study

The purpose of the study is to determine the significant factors that affect the adoption of Internet banking by Thai consumers. The value of the data collected is to provide insight and guidance for banks on how to improve Internet banking services relevant to the Thai environment.

Nature of this research

This is an anonymous questionnaire. Please ensure that you do not write your name, or any other comments that will make you identifiable. You are assured that the information obtained will be kept **CONFIDENTIAL**. The data collected will be analyzed so that only aggregates will be taken into account to establish findings and conclusions arising from the study. Only aggregates will be shown in publications that may arise from this study. By completing the questionnaire, you are consenting to take part in this research. As such you should first read this Disclosure Statement carefully as it explains fully the intention of this project. However, you may withdraw from this study at any time, without penalty.

To complete this questionnaire

The questionnaire is relatively short and should take about 15-20 minutes to complete. It is important that each question is read carefully and that all questions are answered.

To return this questionnaire

Please return the completed questionnaire to the person who distributes this questionnaire in the attached envelope in the next two weeks.

Offer from this study

Upon request, those who participate in the study will receive a free copy of the result. The name and address which you optionally supply will be immediately separated from the questionnaire.

Thank you for your co-operation and assistance.

This research is a part of Doctorate Business Administration (Information Systems) course at Edith Cowan University, Churchlands, Perth, Western Australia 6018. If you have any question, please contact the candidate, Bussakorn Jaruwachirathanakul on 66-9-691-5854 or by e-mail at bussakoj@hotmail.com. Any questions concerning the project entitled Determinants of Internet adoption for Banking inn Thailand can be directed to Dr. Dieter Fink of School of MIS on 61-8-9273-8726 or by e-mail. If you have any concerns about the project or would like to talk to an independent person, you may contact Professor Janice Burn on 61-8-9273-8718.

Instructions to complete the questionnaire

To complete the questions, please:

1. Answer **all questions**. Our tests depend on the relationships between different answers.
2. For each item, please **tick (√) only one box** that best describes the information.
3. **Work rapidly**. Rely on first impressions.

Section 1 - Personal information

1.1 What is your gender?

- ☐ Male
- ☐ Female

1.2 What age group are you in?

- ☐ Less than 20 years
- ☐ 20 - 29 years
- ☐ 30 - 39 years
- ☐ 40 - 49 years
- ☐ More than 49 years

1.3 What is your educational level?

- ☐ Vocation or lower
- ☐ Bachelor degree
- ☐ Master degree
- ☐ Doctoral degree

1.4 Which of the following categories describes best the activities of your organization?

- ☐ Agriculture, forestry, hunting and fishing
- ☐ Mining and quarrying
- ☐ Manufacturing
- ☐ Electric, Gas & Water
- ☐ Construction
- ☐ Retailing, Wholesale, Restaurant, Hotel
- ☐ Transportation, Storage, Communications
- ☐ Finance, Insurance, Real Estate
- ☐ Services
- ☐ Others

1.5 What is your range of monthly income (Baht)?

- ☐ Less than 15,000
- ☐ 15,001 – 30,000
- ☐ 30,001 – 50,000
- ☐ 50,001 – 70,000
- ☐ 70,001 – 90,000
- ☐ More than 90,000

1.6 How long have you used the Internet?

- ☐ Less than 1 year
- ☐ 1 – 2 years
- ☐ 2 – 3 years
- ☐ More than 3 years

1.7 How long have you used Internet banking?

- ☐ Not used
- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ More than 2 years

1.8 What types of Internet banking services have you used (can be more than one choice)?

- ☐ Not used any service
- ☐ View-only
- ☐ Action/account control
- ☐ Applying for new banking service

Section 2 – Attitude towards Internet banking

The adoption internet banking in this study refers to your intention to perform an action or exercise account control, rather than only viewing the balance of accounts. Examples of the action or account control include fund transferring, bill payment, cheque stopping, and online purchase of cheque books.

This section requires you to express your attitude towards Internet banking. Please indicate each encouragement or discouragement by making a tick (√) on one box for each of the questions, see example below.

Example

Encouragement

	No Encouragement						Maximum Encouragement
1) Availability of a wide range of information is only "one click" away.	1	2	√6	4	5	6	7

The 1 on the first scale of encouragement means the factor does not encourage you to be an Internet banking customer; whether this factor exists, it does not affect you to be an Internet banking customer.

The 7 on the last scale of encouragement means the factor highly encourage you to be an Internet banking customer.

Discouragement

	No Discouragement						Maximum Discouragement
2) Being required to perform self-service Internet banking independent from a bank teller.	1	2	3	4	5	6	√7

The 1 on the first scale of discouragement means the factor does not discourage you to be an Internet banking customer; whether this factor exists, you may or may not be an Internet banking customer.

The 7 on the last scale of discouragement means the factor highly discourage you to be an Internet banking customer.

A. To what extent of encouragement that each of the following factors would make to you becoming an Internet banking customer.

	No Encouragement						Maximum Encouragement
2.1 How would the following **usefulness** encourage you to be an Internet banking customer:							
a) Availability of a wide range of information is only "one click" away.	1	2	3	4	5	6	7
b) Convenient access to banking services through the computer at any time.	1	2	3	4	5	6	7
c) Increasing the effective use of time, for example, by not having to wait in line.	1	2	3	4	5	6	7
d) Reducing banking costs, such as reduced bank charges and transportation cost.	1	2	3	4	5	6	7
2.2 How would the following factors encourage you to **adopt** Internet banking:							
a) Your ability to access the Internet at any time at work and at home.	1	2	3	4	5	6	7
b) Being able to trial doing banking transaction online before registering for the service.	1	2	3	4	5	6	7
c) The banks providing conditions and terms of service acceptable to you.	1	2	3	4	5	6	7
d) Documentary evidence is provided for all transactions performed online.	1	2	3	4	5	6	7

	No Encouragement						Maximum Encouragement
2.3 How would the following **features of the bank's Web site** encourage you become an Internet banking customer:							
a) The bank's Web site can be accessed when needed - 24hours/day, 7 days/week.	1	2	3	4	5	6	7
b) The bank's Web design and navigation makes it comfortable to conduct a transaction.	1	2	3	4	5	6	7
c) There is evidence that current security provided by bank Web site is sufficient.	1	2	3	4	5	6	7
d) The bank's Web site executes transactions quickly and efficiently.	1	2	3	4	5	6	7
2.4 How would the following **risk and privacy** factors of the bank's Web site encourage you become an Internet banking customer:							
a) The reputation and size of bank provides assurance of Internet banking integrity.	1	2	3	4	5	6	7
b) The bank's Web site displays the logo of an independent security guaranteeing party.	1	2	3	4	5	6	7
c) There is an absence of problems during performing an online banking transaction.	1	2	3	4	5	6	7
d) A privacy statement on bank's Web page guarantees privacy of personal data.	1	2	3	4	5	6	7

B. To what extent of **discouragement** of each of the following factors would make to you becoming an Internet banking customer.

	No Discouragement						Maximum Discouragement

2.5 How would the following **personal preferences** discourage you become an Internet banking customer:

a) Being required to perform self-service Internet banking independent from a bank teller.	1	2	3	4	5	6	7
b) Being able to be satisfied by the quality of my current bank branch service.	1	2	3	4	5	6	7
c) Being required to try out and use a new technology-based product.	1	2	3	4	5	6	7
d) Being required to integrate Internet banking with my lifestyle and working environment.	1	2	3	4	5	6	7

2.6 How would the following **external environment** factors discourage you become an Internet banking customer:

a) Absence of clear government support for conducting online business transactions.	1	2	3	4	5	6	7
b) Absence of an industry regulator such as the Bank of Thailand for Internet banking.	1	2	3	4	5	6	7
c) Lack of collaborators or alliances in Internet banking to cooperate and expand services.	1	2	3	4	5	6	7
d) Deficiency in Internet infrastructure and facilities such as bandwidth.	1	2	3	4	5	6	7

	No Discouragement						Maximum Discouragement
2.7 How would the following **culture** factors discourage you become an Internet banking customer:							
a) Having few friends or colleagues that conduct Internet banking.	1	2	3	4	5	6	7
b) Lessening of face-to-face contact with banks.	1	2	3	4	5	6	7
c) Giving up personal relationships when dealing with banks.	1	2	3	4	5	6	7
d) Changing the way to establish contact with banks.	1	2	3	4	5	6	7

Section 3 – Contact detail

Optional information

If you wish to receive a free copy of the report detailing the survey results, please write your name and address in the space provided below (or attach your business card).

Name _____

Address _____

_____

Fax No. _____

E-mail address _____

Would you be prepared to be interviewed as part of this research:

☐ Yes Phone No _____

Convenient day and time _____

☐ No

Thank you very much for your participation.

ECU
EDITH COWAN UNIVERSITY

ปัจจัยที่มีผลต่อการใช้บริการอินเตอร์เน็ตแบงกิ้งในประเทศไทย

วัตถุประสงค์ในการศึกษา

งานวิจัยนี้มีวัตถุประสงค์เพื่อตรวจสอบระดับความสำคัญของปัจจัยต่าง ๆ ที่มีผลต่อการใช้บริการอินเตอร์เน็ตแบงกิ้งของลูกค้าในประเทศไทย อันจะนำไปสู่ความเข้าใจในการให้บริการอินเตอร์เน็ตแบงกิ้ง และใช้เป็นแนวทางในการพัฒนาบริการของธนาคารให้เหมาะสมกับสภาพการณ์ในประเทศไทยต่อไป

ลักษณะของแบบสอบถาม

แบบสอบถามนี้เป็นแบบสอบถามที่ไม่ระบุชื่อผู้ตอบ โปรดแน่ใจว่า ท่านมิได้ระบุชื่อหรือข้อความที่จะเปิดเผยรายละเอียดเกี่ยวกับตัวท่าน ทั้งนี้ข้อมูลที่ได้รับจากแบบสอบถามจะถือเป็นความลับ ข้อมูลที่นำไปเผยแพร่จะเป็นเพียงข้อมูลที่ได้ทำการวิเคราะห์และสรุปผลของการวิจัยเท่านั้น ในการตอบแบบสอบถามของท่านจะถือว่าท่านได้ให้ความยินยอมที่จะมีส่วนร่วมในงานวิจัยนี้ อย่างไรก็ตาม ท่านอาจถอนตัวจากงานวิจัยนี้ เมื่อใดก็ได้ ดังนั้น จึงใคร่ขอให้ท่านกรุณาอ่านข้อความแสดงวัตถุประสงค์และลักษณะของแบบสอบถามนี้โดยละเอียด

การตอบแบบสอบถามและเวลาที่ใช้

แบบสอบถามนี้ค่อนข้างสั้นโดยจะใช้เวลาในการตอบคำถามทั้งหมดประมาณ 15 - 20 นาที โปรดอ่าน คำถามอย่างละเอียดและโปรดตอบคำถามทุกข้อ

การส่งคืนแบบสอบถาม

กรุณานำแบบสอบถามที่ตอบครบถ้วนสมบูรณ์แล้วใส่ซองที่แนบให้และส่งคืนแก่ผู้ประสานงานการวิจัย **ภายใน 1 สัปดาห์**

หากท่านสนใจผลของการวิจัยนี้ ทางผู้วิจัยยินดีจัดส่งสำเนาผลการวิจัยให้ฟรี ตามที่อยู่ที่ท่านให้ไว้ ทั้งนี้ชื่อและที่อยู่ที่ท่าน อาจให้ไว้ จะถูกแยกออกจากแบบสอบถามทันทีที่ท่านส่งคืน

ขอขอบคุณอย่างยิ่งในความร่วมมือ

งานวิจัยนี้เป็นส่วนหนึ่งของการศึกษาหลักสูตรปริญญาเอกสาขาการบริหารธุรกิจ (ระบบสารสนเทศ) (Doctor of Business Administration (Information Systems)) ของ
มหาวิทยาลัยอีดิธ โคแวน, วิทยาเขตเซิร์ฟซิสแลนด์, เมืองเพิร์ธ, ประเทศออสเตรเลีย รหัสไปรษณีย์ 6018 ทั้งนี้ หากท่านมีข้อสงสัยประการใดเกี่ยวกับแบบสอบถามนี้ ท่านสามารถติดต่อผู้วิจัยได้ที่ นางสาวบุษกร จารุวิราธนากุล หมายเลขโทรศัพท์ 66-9-691-5854 หรือทาง อีเมล์ได้ที่ bussakoj@hotmail.com หรือหากท่านมีคำถามใด ๆ เกี่ยวกับงานวิจัยนี้ ท่านสามารถติดต่อโดยตรงกับอาจารย์ที่ปรึกษาโครงการวิจัย คือ ดร. ดีทเทอร์ ฟิงค์ ภาควิชาการจัดการระบบสารสนเทศ (Management Information Systems), คณะบริหารธุรกิจและการจัดการ (Business and Public Management) ที่หมายเลขโทรศัพท์ 61-8-9273-8726 หรือในกรณีที่ท่านประสงค์จะสอบถามจากบุคคลอื่น ท่านสามารถติดต่อ ศ. เจนิซ เบิร์น ที่หมายเลขโทรศัพท์ 61-8-9273-8718

คำชี้แจงในการตอบแบบสอบถาม
1. กรุณาตอบคำถามทุกข้อ เนื่องจากความ สัมพันธ์ ระหว่าง คำตอบทุกข้อ มีผลต่อการสรุปผลงานวิจัย
2. สำหรับคำถามแต่ละข้อกรุณาเลือกคำตอบ**เพียงคำตอบเดียว**ที่ตรงกับข้อมูล หรือ ความเห็นของท่านที่สุด โดยใส่เครื่องหมาย √ ใน □ หน้าข้อความที่ท่านเลือก
3. กรุณาเลือกคำตอบจากความรู้สึกแรกที่ปรากฏขึ้นในใจของท่าน

ส่วนที่ 1 – ข้อมูลส่วนตัว

1.1 เพศ

□ ชาย □ หญิง

1.2 อายุ

□ น้อยกว่า 20 ปี □ 20 – 29 ปี
□ 30 – 39 ปี □ 40 – 49 ปี
□ มากกว่า 49 ปี

1.3 ระดับการศึกษาสูงสุด

□ ปวช. หรือ ปวส. หรือต่ำกว่า □ ปริญญาตรี
□ ปริญญาโท □ ปริญญาเอก

1.4 ประเภทของธุรกิจที่ท่านทำงานอยู่

□ การเกษตร การเลี้ยงสัตว์ การป่าไม้ การประมง □ การเหมืองแร่
□ การผลิต □ การไฟฟ้า ก๊าซ ประปา
□ การก่อสร้าง □ การขายส่ง ขายปลีก ภัตตาคาร และโรงแรม
□ การขนส่ง สถานที่เก็บสินค้า และการคมนาคม □ บริหารการเงิน การประกันภัย และธุรกิจอสังหาริมทรัพย์
□ บริการชุมชน บริการสังคม และบริการส่วนบุคคล □ กิจการซึ่งมิอาจระบุประเภทได้

1.5 ระดับรายได้ต่อเดือน

□ น้อยกว่า 15,000 บาท □ 15,001 – 30,000 บาท
□ 30,001 – 50,000 บาท □ 50,001 – 70,000 บาท
□ 70,001 – 90,000 บาท □ มากกว่า 90,000 บาท

1.6 ประสบการณ์ในการใช้อินเตอร์เน็ต

□ น้อยกว่า 1 ปี □ 1 – 2 ปี
□ 2 – 3 ปี □ มากกว่า 3 ปี

1.7 ประสบการณ์ในการใช้อินเตอร์เน็ตแบงกิ้ง

□ ไม่เคยใช้ □ น้อยกว่า 1 ปี
□ 1-2 ปี □ มากกว่า 2 ปี

1.8 ประเภทของบริการอินเตอร์เน็ตแบงกิ้งที่เคยใช้ (สามารถเลือกได้มากกว่า 1 ข้อ)

□ ไม่เคยใช้บริการ □ ตรวจสอบยอดคงเหลือ
□ ทำรายการบัญชีธนาคาร □ สมัครบริการใหม่ของธนาคาร

ส่วนที่ 2 – ทัศนคติต่อบริการอินเตอร์เน็ตแบงกิ้ง

ในงานวิจัยนี้มุ่งศึกษาทัศนคติที่มีต่อการใช้บริการอินเตอร์เน็ตแบงกิ้งในระดับของการทำรายการบัญชีธนาคาร เช่น การโอนเงินระหว่างบัญชี การชำระค่า สินค้า หรือบริการ การสั่งซื้อสมุดเช็ค และการสั่งระงับเช็คทางอิเล็กทรอนิกส์ เป็นต้น

คำถามส่วนนี้ประกอบด้วยคำถามเกี่ยวกับความเห็นของท่านที่มีต่อบริการอินเตอร์เน็ตแบงกิ้ง 2 ประเด็น คือ ส่วนที่เป็นปัจจัยสนับสนุนและอุปสรรค โปรดตอบโดยใส่เครื่องหมาย √ ใน □ ที่ท่านเห็นว่า ปัจจัยที่กำหนดมีผลต่อการใช้บริการอินเตอร์เน็ตแบงกิ้งของท่านเพียงใด โดยหมายเลข 1 ถึง 7 แสดงระดับระดับของการมีผลจากน้อยที่สุดไปมากที่สุดตามลำดับ ดังตัวอย่างต่อไปนี้

ตัวอย่าง

ปัจจัยสนับสนุน

	น้อยที่สุด			มีส่วนสนับสนุน			มากที่สุด
1) ท่านสามารถรับรู้ข้อมูลต่าง ๆ ได้โดย "คลิก" เดียว	1	2	3√	4	5	6	7

หากท่านเลือก 1 แสดงว่าปัจจัยเรื่องการให้บริการข้อมูลต่าง ๆ เพียงคลิกเดียว **ไม่มีส่วนสนับสนุน** ในการใช้บริการอินเตอร์เน็ตแบงกิ้งของท่านแต่อย่างใด กล่าวคือ ไม่ว่าประโยชน์นี้จะมีอยู่หรือไม่ ไม่มีผลต่อการเข้าเป็นลูกค้าบริการอินเตอร์เน็ตแบงกิ้ง

หากท่านเลือก 7 แสดงว่าปัจจัยเรื่องการให้บริการข้อมูลต่าง ๆ เพียงคลิกเดียว **มีส่วนสนับสนุนมากที่สุด** ในการใช้บริการอินเตอร์เน็ตแบงกิ้งของท่าน

ปัจจัยที่เป็นอุปสรรค

	น้อยที่สุด			เป็นอุปสรรค			มากที่สุด
2) การทำรายการด้วยตนเองในบริการอินเตอร์เน็ตแบงกิ้ง โดยไม่พึ่งพาบริการของเจ้าหน้าที่ธนาคาร	1	2	3	4	5	6	7√

หากท่านเลือก 1 แสดงว่าปัจจัยเรื่อง การทำรายการด้วยตนเอง โดยไม่พึ่งพาบริการของเจ้าหน้าที่ธนาคาร **ไม่เป็นอุปสรรค**ในการใช้บริการอินเตอร์เน็ตแบงค์กิ้งของท่านแต่อย่างใด

หากท่านเลือก 7 แสดงว่าปัจจัยเรื่อง การทำรายการด้วยตนเอง โดยไม่พึ่งพาบริการของเจ้าหน้าที่ธนาคาร **เป็นอุปสรรคมากที่สุด** ต่อท่านในการใช้บริการอินเตอร์เน็ตแบงกิ้ง

ก. ปัจจัยดังต่อไปนี้มีส่วนสนับสนุน เพียงใดในการใช้ บริการอินเตอร์เน็ตแบงกิ้ง

	มีส่วนสนับสนุน น้อยที่สุด----------มากที่สุด						
2.1 ประโยชน์ของบริการอินเตอร์เน็ตแบงกิ้ง :							
ก) ให้บริการข้อมูลต่าง ๆ เพียง คลิก เดียว	1	2	3	4	5	6	7
ข) ความสะดวกในการใช้บริการจากคอมพิวเตอร์ทุกเครื่องทุกเวลา	1	2	3	4	5	6	7
ค) สามารถบริหารเวลาได้ โดยไม่ต้องเสียเวลากับการรอคอยในแถวบริการ	1	2	3	4	5	6	7
ง) ประหยัดค่าใช้จ่าย เช่น ค่าธรรมเนียมธนาคาร ค่าใช้จ่ายในการเดินทางไปธนาคาร เป็นต้น	1	2	3	4	5	6	7
2.2 การใช้บริการอินเตอร์เน็ตแบงกิ้ง:							
ก) ความสามารถในการใช้บริการอินเตอร์เน็ตได้ทุกเวลาจากที่บ้านหรือที่ทำงาน	1	2	3	4	5	6	7
ข) ความสามารถในการทดลองทำรายการก่อนใช้บริการจริง	1	2	3	4	5	6	7
ค) ธนาคารกำหนดเงื่อนไขการใช้บริการที่ยอมรับได้	1	2	3	4	5	6	7
ง) การจัดให้มีเอกสารเพื่อเป็นหลักฐานการทำรายการทุกครั้ง	1	2	3	4	5	6	7

มีส่วนสนับสนุน
น้อยที่สุด----------มากที่สุด

2.3 เว็บไซต์ของธนาคาร:

๔๑

ก) เว็บไซต์ของธนาคารสามารถเข้าใช้ได้ทุกครั้งที่ต้องการ - ทุกวัน ตลอด 24 ชั่วโมง	1	2	3	4	5	6	7
ข) เว็บไซต์ของธนาคารออกแบบขั้นตอนต่าง ๆ ไว้ให้สะดวกต่อการทำรายการ	1	2	3	4	5	6	7
ค) ระบบความปลอดภัยที่จัดไว้บนเว็บไซต์ของธนาคารแสดงให้เกิด ความมั่นใจในความปลอดภัยในการทำรายการ	1	2	3	4	5	6	7
ง) การปฏิบัติงานบนเว็บไซต์ของธนาคารเป็นไปด้วยความถูกต้องและรวดเร็ว	1	2	3	4	5	6	7

2.4 ความปลอดภัยและความเป็นส่วนตัว:

ก) ชื่อเสียงและขนาดของธนาคารที่ประกันความน่าเชื่อถือของบริการอินเตอร์เน็ตแบงกิ้ง	1	2	3	4	5	6	7
ข) เครื่องหมายประกันความปลอดภัยของบริษัทตรวจสอบระบบความปลอดภัยที่ปรากฏบนเว็บไซต์	1	2	3	4	5	6	7
ค) การไม่มีปัญหาปรากฏระหว่างการทำรายการบนอินเตอร์เน็ต	1	2	3	4	5	6	7
ง) ข้อความรับรองความเป็นส่วนตัวที่ปรากฏบนเว็บไซต์ของธนาคาร	1	2	3	4	5	6	7

ข. ปัจจัยดังต่อไปนี้เป็น อุปสรรค ต่อท่านอย่างไรในการใช้ บริการ อินเตอร์เน็ต แบงกิ้ง

	เป็นอุปสรรค น้อยที่สุด----------มากที่สุด						
2.5 ความพึงพอใจ:							
ก) การ"บริการตนเอง" ในบริการอินเตอร์เน็ตแบงกิ้ง โดยไม่พึ่งพาเจ้าหน้าที่ธนาคาร	1	2	3	4	5	6	7
ข) คุณภาพบริการที่ไม่น่าพอใจของสาขาธนาคารที่ใช้บริการในปัจจุบัน	1	2	3	4	5	6	7
ค) การทดลองและใช้เทคโนโลยีใหม่ ๆ	1	2	3	4	5	6	7
ง) การดอบรับบริการอินเตอร์เน็ตแบงกิ้งเข้าเป็นส่วนหนึ่งของวิถีการดำเนินชีวิต (life style) และการสภาพการทำงาน	1	2	3	4	5	6	7
2.6 ปัจจัยภายนอก:							
ก) ความไม่ชัดเจนในการให้การสนับสนุนจากภาครัฐบาลต่อธุรกิจอิคอมเมิร์ซ	1	2	3	4	5	6	7
ข) ความไม่ชัดเจนในการให้การสนับสนุนของธนาคารแห่งประเทศไทย	1	2	3	4	5	6	7
ค) การขาดการร่วมมือกันระหว่างธนาคารและหน่วยงานธุรกิจอื่นเพื่อ ขยายการบริการให้หลากหลายยิ่งขึ้น	1	2	3	4	5	6	7
ง) อุปสรรคในส่วนที่เกี่ยวข้องกับปัจจัยพื้นฐานและระบบบริการ อินเตอร์เน็ต	1	2	3	4	5	6	7

เป็นอุปสรรค
น้อยที่สุด----------มากที่สุด

2.7 วัฒนธรรม:

ก) จำนวนเพื่อนหรือเพื่อนร่วมงานที่ใช้บริการในปัจจุบัน	1	2	3	4	5	6	7
ข) การติดต่อโดยการพบปะกับเจ้าหน้าที่ธนาคารที่เกิดขึ้นน้อยลง	1	2	3	4	5	6	7
ค) การใช้ความรู้จักกันเป็นการส่วนตัวในการติดต่อกับธนาคารที่เกิดขึ้นน้อยลง	1	2	3	4	5	6	7
ง) วิธีการติดต่อกับธนาคารที่เปลี่ยนแปลงไป	1	2	3	4	5	6	7

ส่วนที่ 3 – ข้อมูลเพื่อการติดต่อ

***ส่วนนี้เป็นทางเลือก**

หากท่านต้องการได้รับรายงานสรุปผลการวิจัยนี้ฟรี โปรดกรอกข้อมูลข้างล่างหรือแทบนามบัตรของท่านเพื่อผู้วิจัยจะได้จัดส่งสำเนารายงานให้ท่านได้ถูกต้อง

ชื่อ-สกุล _____

ที่อยู่ _____

_____

หมายเลขแฟกซ์ _____

อีเมล์ _____

ท่านยินดีจะให้ความเห็นเพิ่มเติมโดยการสัมภาษณ์ในหัวข้อการวิจัยนี้หรือไม่

☐ ยินดี หมายเลขโทรศัพท์ _____

วันและเวลาที่สะดวกในการติดต่อ _____

☐ ไม่

ขอขอบคุณอีกครั้งสำหรับความร่วมมือของท่าน

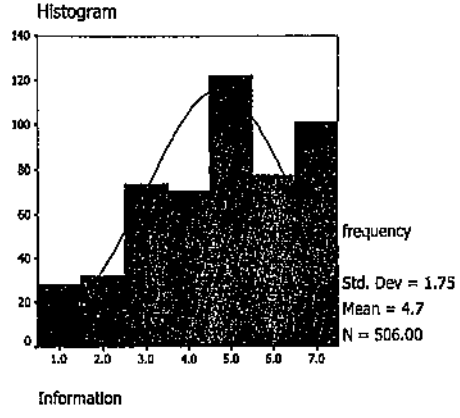
APPENDIX 2

DISTRIBUTION OF DATA

Perceived Usefulness

Information

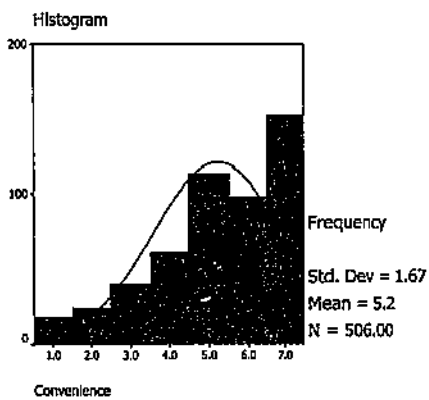
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	28	5.5	5.5	5.5
	2	32	6.3	6.3	11.9
	3	74	14.6	14.6	26.5
	4	71	14.0	14.0	40.5
	5	122	24.1	24.1	64.6
	6	78	15.4	15.4	80.0
	7	101	20.0	20.0	100.0
	Total	506	100.0	100.0	



Perceived Usefulness

Convenience

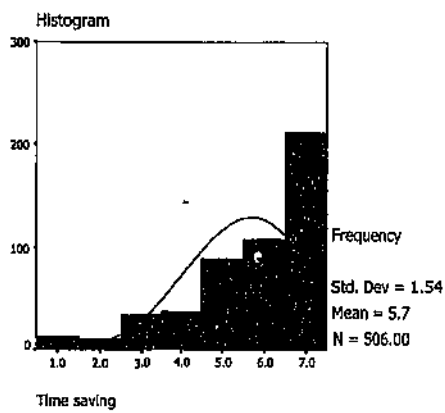
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	18	3.6	3.6	3.6
	2	24	4.7	4.7	8.3
	3	40	7.9	7.9	16.2
	4	61	12.1	12.1	28.3
	5	113	22.3	22.3	50.6
	6	98	19.4	19.4	70.0
	7	152	30.0	30.0	100.0
	Total	506	100.0	100.0	



Perceived Usefulness

Time saving

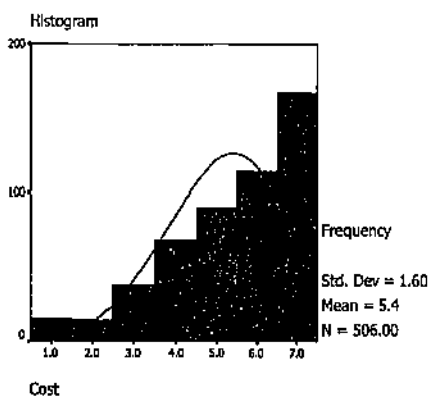
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	2.6	2.6	2.6
	2	11	2.2	2.2	4.7
	3	34	6.7	6.7	11.5
	4	37	7.3	7.3	18.8
	5	90	17.8	17.8	36.6
	6	109	21.5	21.5	58.1
	7	212	41.9	41.9	100.0
	Total	506	100.0	100.0	



Perceived Usefulness

Cost

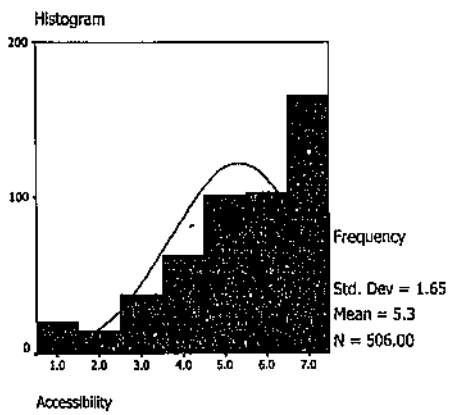
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	15	3.0	3.0	3.0
	2	14	2.8	2.8	5.7
	3	38	7.5	7.5	13.2
	4	68	13.4	13.4	26.7
	5	90	17.8	17.8	44.5
	6	114	22.5	22.5	67.0
	7	167	33.0	33.0	100.0
	Total	506	100.0	100.0	



Adoption

Accessibility

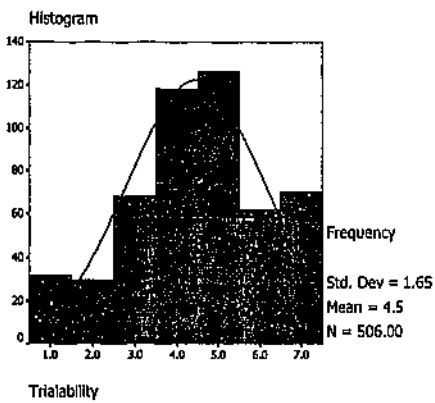
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	4.0	4.0	4.0
	2	15	3.0	3.0	6.9
	3	38	7.5	7.5	14.4
	4	63	12.5	12.5	26.9
	5	101	20.0	20.0	46.8
	6	103	20.4	20.4	67.2
	7	166	32.8	32.8	100.0
	Total	506	100.0	100.0	



Adoption

Trialability

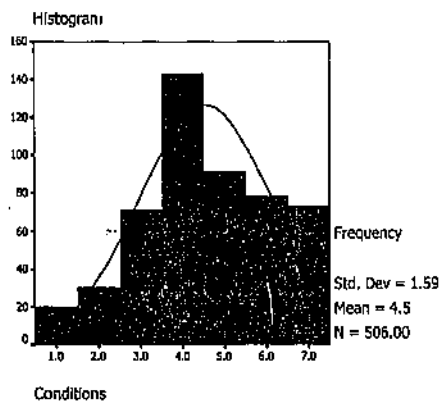
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	32	6.3	6.3	6.3
	2	30	5.9	5.9	12.3
	3	68	13.4	13.4	25.7
	4	118	23.3	23.3	49.0
	5	126	24.9	24.9	73.9
	6	62	12.3	12.3	86.2
	7	70	13.8	13.8	100.0
	Total	506	100.0	100.0	



Adoption

Conditions

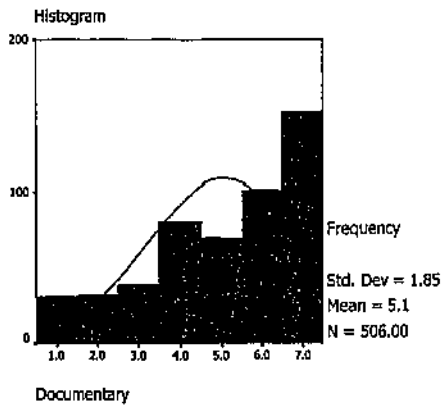
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	4.0	4.0	4.0
	2	30	5.9	5.9	9.9
	3	71	14.0	14.0	23.9
	4	143	28.3	28.3	52.2
	5	91	18.0	18.0	70.2
	6	78	15.4	15.4	85.6
	7	73	14.4	14.4	100.0
	Total	506	100.0	100.0	



Adoption

Documentary

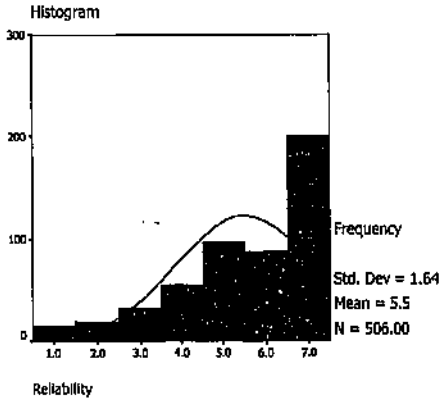
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	31	6.1	6.1	6.1
	2	32	6.3	6.3	12.5
	3	39	7.7	7.7	20.2
	4	81	16.0	16.0	36.2
	5	70	13.8	13.8	50.0
	6	101	20.0	20.0	70.0
	7	152	30.0	30.0	100.0
	Total	506	100.0	100.0	



Features of the Web Site

Reliability

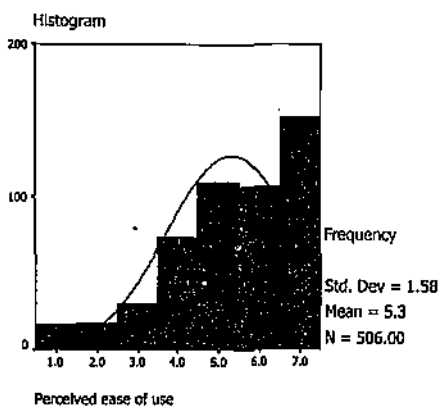
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	15	3.0	3.0	3.0
	2	19	3.8	3.8	6.7
	3	32	6.3	6.3	13.0
	4	55	10.9	10.9	23.9
	5	97	19.2	19.2	43.1
	6	88	17.4	17.4	60.5
	7	200	39.5	39.5	100.0
	Total	506	100.0	100.0	



Features of the Web Site

Perceived ease of use

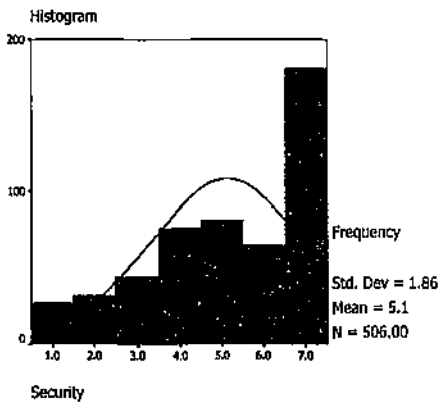
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	3.2	3.2	3.2
	2	17	3.4	3.4	6.5
	3	30	5.9	5.9	12.5
	4	74	14.6	14.6	27.1
	5	110	21.7	21.7	48.8
	6	107	21.1	21.1	70.0
	7	152	30.0	30.0	100.0
	Total	506	100.0	100.0	



Features of the Web Site

Security

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	27	5.3	5.3	5.3
	2	32	6.3	6.3	11.7
	3	44	8.7	8.7	20.4
	4	76	15.0	15.0	35.4
	5	81	16.0	16.0	51.4
	6	65	12.8	12.8	64.2
	7	181	35.8	35.8	100.0
	Total	506	100.0	100.0	

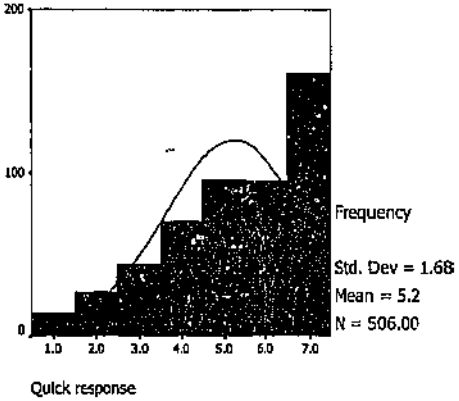


Features of the Web Site

Quick response

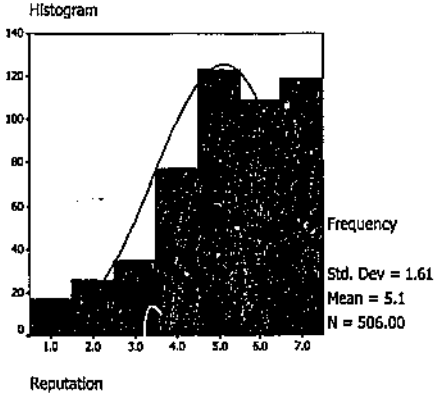
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	2.8	2.8	2.8
	2	27	5.3	5.3	8.1
	3	44	8.7	8.7	16.8
	4	70	13.8	13.8	30.6
	5	96	19.0	19.0	49.6
	6	95	18.8	18.8	68.4
	7	160	31.6	31.6	100.0
	Total	506	100.0	100.0	

Histogram:



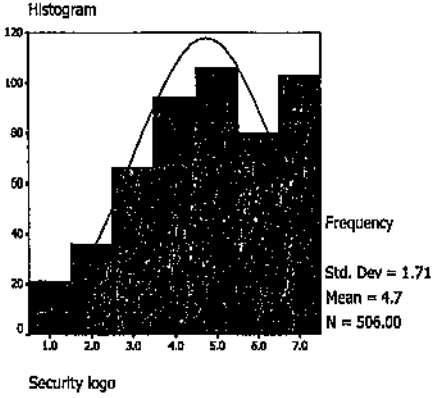
Reputation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	17	3.4	3.4	3.4
	2	26	5.1	5.1	8.5
	3	35	6.9	6.9	15.4
	4	77	15.2	15.2	30.6
	5	123	24.3	24.3	54.9
	6	109	21.5	21.5	76.5
	7	119	23.5	23.5	100.0
	Total	506	100.0	100.0	



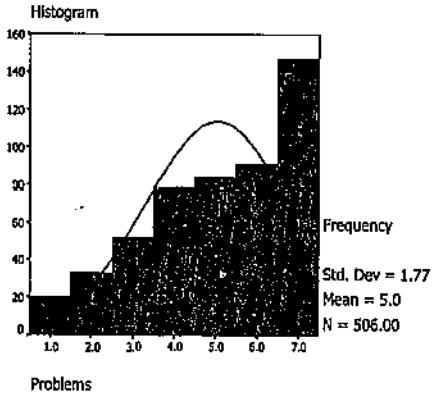
Security logo

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	4.2	4.2	4.2
	2	36	7.1	7.1	11.3
	3	66	13.0	13.0	24.3
	4	94	18.6	18.6	42.9
	5	106	20.9	20.9	63.8
	6	80	15.8	15.8	79.6
	7	103	20.4	20.4	100.0
	Total	506	100.0	100.0	



Problems

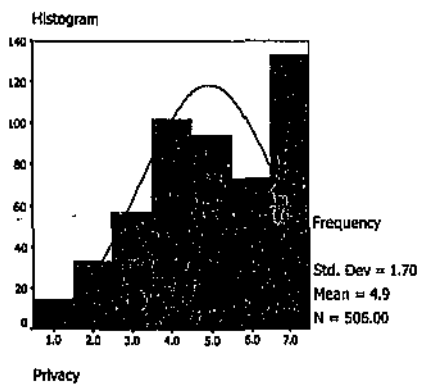
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	20	4.0	4.0	4.0
	2	33	6.5	6.5	10.5
	3	52	10.3	10.3	20.8
	4	79	15.6	15.6	36.4
	5	84	16.6	16.6	53.0
	6	91	18.0	18.0	70.9
	7	147	29.1	29.1	100.0
	Total	506	100.0	100.0	



Risk and Privacy

Privacy

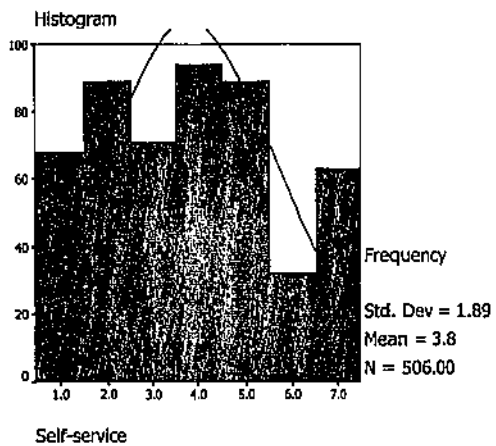
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	2.8	2.8	2.8
	2	33	6.5	6.5	9.3
	3	57	11.3	11.3	20.6
	4	102	20.2	20.2	40.7
	5	94	18.6	18.6	59.3
	6	73	14.4	14.4	73.7
	7	133	26.3	26.3	100.0
	Total	506	100.0	100.0	



Personal Preference

Self-service

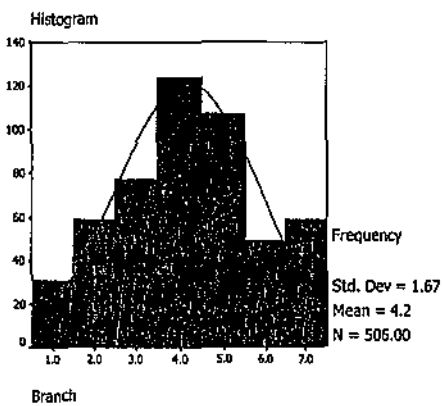
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	68	13.4	13.4	13.4
	2	89	17.6	17.6	31.0
	3	71	14.0	14.0	45.1
	4	94	18.6	18.6	63.6
	5	89	17.6	17.6	81.2
	6	32	6.3	6.3	87.5
	7	63	12.5	12.5	100.0
	Total	506	100.0	100.0	



Personal Preference

Branch

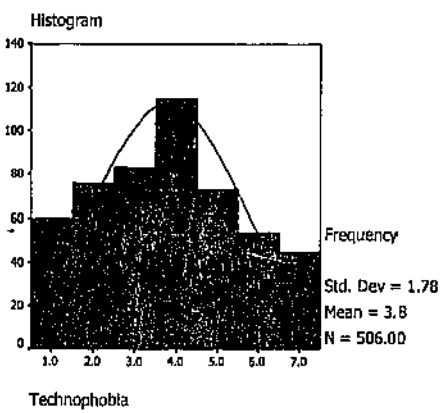
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	31	6.1	6.1	6.1
	2	59	11.7	11.7	17.8
	3	77	15.2	15.2	33.0
	4	124	24.5	24.5	57.5
	5	107	21.1	21.1	78.7
	6	49	9.7	9.7	88.3
	7	59	11.7	11.7	100.0
	Total	506	100.0	100.0	



Personal Preference

Technophobia

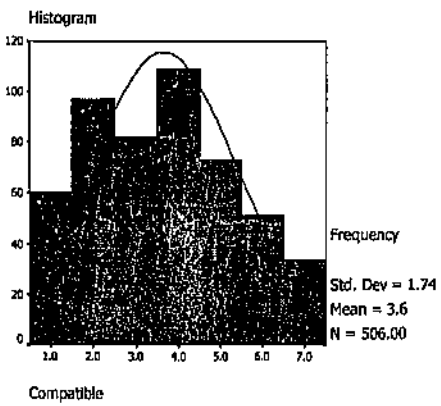
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	60	11.9	11.9	11.9
	2	76	15.0	15.0	26.9
	3	83	16.4	16.4	43.3
	4	115	22.7	22.7	66.0
	5	73	14.4	14.4	80.4
	6	54	10.7	10.7	91.1
	7	45	8.9	8.9	100.0
	Total	506	100.0	100.0	



Personal Preference

Compatible

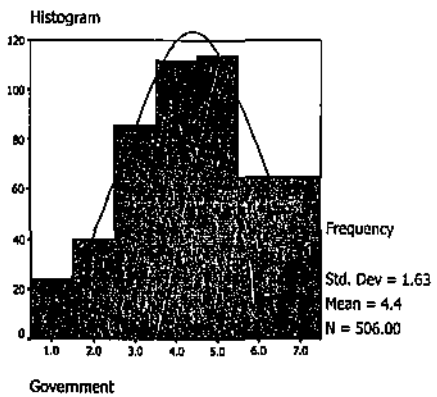
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	60	11.9	11.9	11.9
	2	97	19.2	19.2	31.0
	3	82	16.2	16.2	47.2
	4	109	21.5	21.5	68.8
	5	73	14.4	14.4	83.2
	6	51	10.1	10.1	93.3
	7	34	6.7	6.7	100.0
	Total	506	100.0	100.0	



External Environment

Government

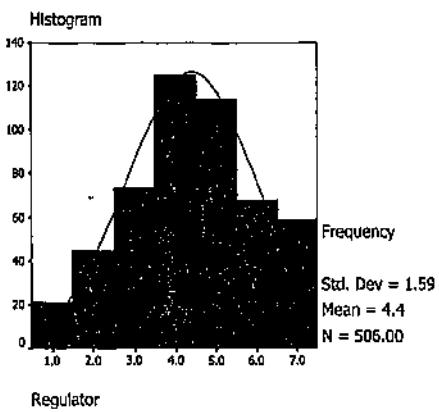
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	24	4.7	4.7	4.7
	2	40	7.9	7.9	12.6
	3	86	17.0	17.0	29.6
	4	112	22.1	22.1	51.8
	5	114	22.5	22.5	74.3
	6	65	12.8	12.8	87.2
	7	65	12.8	12.8	100.0
	Total	506	100.0	100.0	



External Environment

Regulator

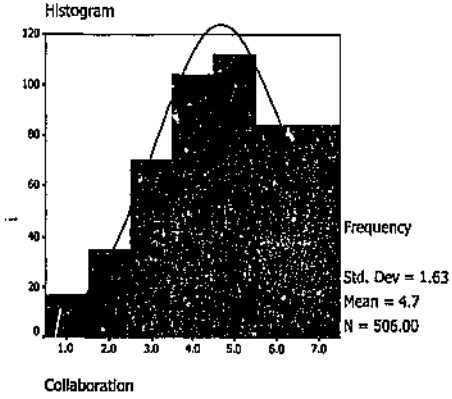
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	4.2	4.2	4.2
	2	45	8.9	8.9	13.0
	3	74	14.6	14.6	27.7
	4	125	24.7	24.7	52.4
	5	114	22.5	22.5	74.9
	6	68	13.4	13.4	88.3
	7	59	11.7	11.7	100.0
	Total	506	100.0	100.0	



External Environment

Collaboration

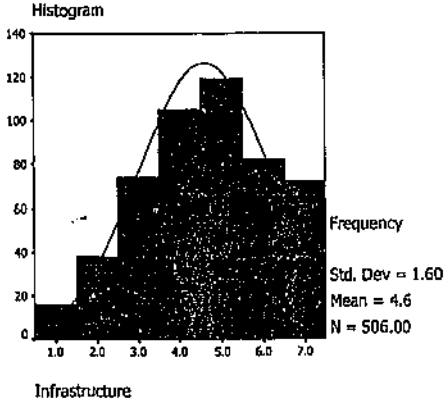
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	17	3.4	3.4	3.4
	2	35	6.9	6.9	10.3
	3	70	13.8	13.8	24.1
	4	104	20.6	20.6	44.7
	5	112	22.1	22.1	66.8
	6	84	16.6	16.6	83.4
	7	84	16.6	16.6	100.0
	Total	506	100.0	100.0	



External Environment

Infrastructure

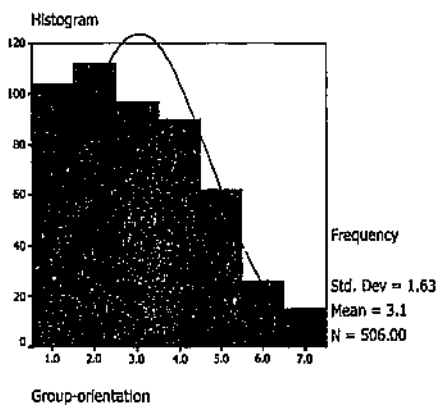
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	3.2	3.2	3.2
	2	38	7.5	7.5	10.7
	3	74	14.6	14.6	25.3
	4	105	20.8	20.8	46.0
	5	119	23.5	23.5	69.6
	6	82	16.2	16.2	85.8
	7	72	14.2	14.2	100.0
	Total	506	100.0	100.0	



Culture

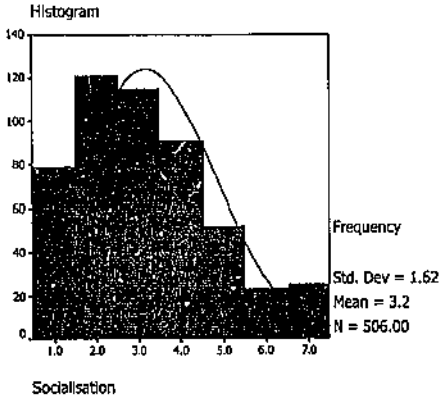
Group-orientation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	104	20.6	20.6	20.6
	2	112	22.1	22.1	42.7
	3	97	19.2	19.2	61.9
	4	90	17.8	17.8	79.6
	5	62	12.3	12.3	91.9
	6	26	5.1	5.1	97.0
	7	15	3.0	3.0	100.0
	Total	506	100.0	100.0	



Socialisation

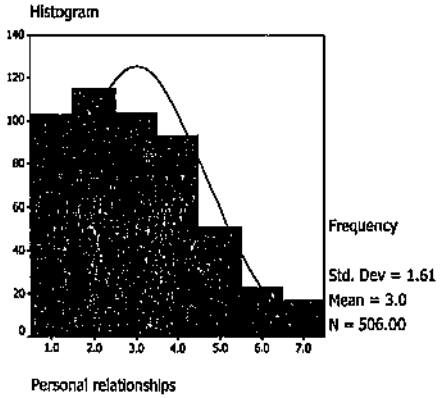
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	79	15.6	15.6	15.6
	2	121	23.9	23.9	39.5
	3	115	22.7	22.7	62.3
	4	91	18.0	18.0	80.2
	5	52	10.3	10.3	90.5
	6	23	4.5	4.5	95.1
	7	25	4.9	4.9	100.0
	Total	506	100.0	100.0	



Culture

Personal Relationships

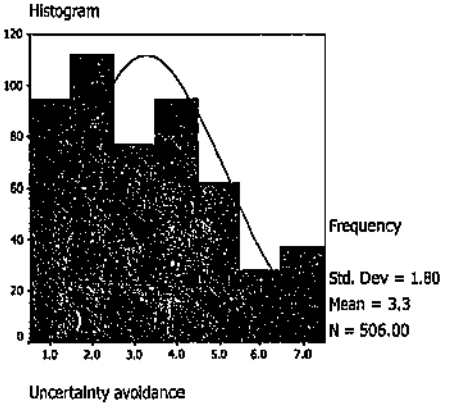
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	103	20.4	20.4	20.4
	2	115	22.7	22.7	43.1
	3	104	20.6	20.6	63.6
	4	93	18.4	18.4	82.0
	5	51	10.1	10.1	92.1
	6	23	4.5	4.5	96.6
	7	17	3.4	3.4	100.0
	Total	506	100.0	100.0	



Culture

Uncertainty Avoidance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	95	18.8	18.8	18.8
	2	112	22.1	22.1	40.9
	3	77	15.2	15.2	56.1
	4	95	18.8	18.8	74.9
	5	62	12.3	12.3	87.2
	6	28	5.5	5.5	92.7
	7	37	7.3	7.3	100.0
	Total	506	100.0	100.0	



APPENDIX 3

MEAN SCORES

Mean Score by Gender

Factors	Male	Female
Encouragement		
Perceived Usefulness	5.30	5.23
Adoption	4.95	4.80
Features of the Web Site	5.43	5.22
Risk & Privacy	5.13	4.86
Impediment		
Personal Preference	4.06	3.74
External Environment	4.66	4.43
Culture	3.21	3.10

Mean Score by Education

Factors	Levels of Education		
	Vocation/ Lower (N=43)	Bachelor (N=340)	Master & Doctoral (N=123)
Encouragement			
Perceived Usefulness	4.80	5.27	5.31
Adoption	4.72	4.81	5.00
Features of the Web Site	4.89	5.26	5.51
Risk & Privacy	4.53	4.91	5.23
Impediment			
Personal Preference	4.40	3.88	3.60
External Environment	4.51	4.47	4.65
Culture	3.40	3.17	2.96

Mean Score by Income

Factors	Levels of Income (Baht)			
	<15,000	15,000 – 30,000	30,001 – 50,000	> 50,001
	(N=125)	(N=190)	(N=112)	(N=79)
Encouragement				
Perceived Usefulness	5.00	5.18	5.39	5.63
Adoption	4.57	4.74	5.11	5.16
Features of the Web Site	4.92	5.24	5.54	5.64
Risk & Privacy	4.74	4.83	5.23	5.22
Impediment				
Personal Preference	3.91	3.72	3.91	4.02
External Environment	4.23	4.49	4.67	4.81
Culture	3.45	2.98	3.11	3.06

Mean Score by Internet Experience

Factors	Internet Experience			
	< 1 year	1 – 2 years	2 – 3 years	> 3 years
	(N=59)	(N=106)	(N=92)	(N=249)
Encouragement				
Perceived Usefulness	4.58	5.36	5.28	5.36
Adoption	4.26	4.97	4.75	4.97
Features of the Web Site	4.71	5.19	5.39	5.44
Risk & Privacy	4.32	4.88	4.91	5.16
Impediment				
Personal Preference	4.09	3.89	3.91	3.76
External Environment	4.39	4.28	4.36	4.70
Culture	3.43	3.25	3.05	3.05

Mean Score by Internet Banking Experience

Factors	Internet Banking Experience			
	Not used	< 1 year	1 – 2 years	> 2 years
	(N=336)	(N=89)	(N=57)	(N=24)
Encouragement				
Perceived Usefulness	5.27	5.10	5.19	5.77
Adoption	4.83	4.87	4.82	5.15
Features of the Web Site	5.30	5.22	5.35	5.38
Risk & Privacy	4.95	5.00	4.75	5.44
Impediment				
Personal Preference	3.98	3.68	3.70	3.05
External Environment	4.66	4.50	3.99	3.77
Culture	3.21	3.15	3.00	2.45