

CUSTOMER TRUST ON INTERNET BANKING ADOPTION

SHIDROKH GOUDARZI

UNIVERSITI TEKNOLOGI MALAYSIA

CUSTOMER TRUST ON INTERNET BANKING ADOPTION

SHIDROKH GOUDARZI

A dissertation submitted in partial fulfilment of the
requirements for the award of the degree of
Master of Science (Information Technology-Management)

Faculty of Computing
Universiti Teknologi Malaysia

JULY 2013

This dissertation is dedicated to my family for their endless support and encouragement.

ACKNOWLEDGEMENT

First and foremost, I would like to express heartfelt gratitude to my supervisor Dr. Nor Hidayati Zakaria and my co-supervisor Dr. Mohammad Nazir Ahmad for their constant support during my study at UTM. They inspired me greatly to work in this project. Their willingness to motivate me contributed tremendously to my project. I have learned a lot from them and I am fortunate to have them as my mentor and supervisor. Besides, I would like to thank the authority of Universiti Teknologi Malaysia (UTM) for providing me with a good environment and facilities which I need during research process.

ABSTRACT

The use of the Internet has increased dramatically over recent years and is now regarded as the best channel for distribution of products and services of various types of businesses, such as internet banking services. As most financial institutions are currently seeking ways to boost Internet banking adoption rates, trust is also being examined as a significant issue in the relationship. This can be attributed to the fact that bank customers are concerned about the security involved in processing such sensitive material as financial information. Moreover, significant factors of trust are involved and these include: accessibility, privacy, security, quality, usability, user's knowledge and disposition to trust. These can all have an impact on customer trust in adopting internet banking. Based on previous models with aforementioned variables that are theoretically justified as having an influence on trust, a relevant research model was developed to test eight (8) hypothesized paths among the study's variables. These include, namely: accessibility, privacy, security, quality, usability, user's knowledge, disposition to trust, trust, as well as the rate of internet banking adoption. Data was collected by survey questionnaires from a sample of 150 internet banking users. The Smart PLS tool was used for data analysis. The results of the data analysis generally support the model, as well as all of the proposed hypotheses. In summary, the results of this research have shown that accessibility, privacy, security, quality, usability, user's knowledge and disposition to trust were found to have significant influence on customer trust. Trust, in turn, was found to be an important factor in fostering a positive attitude toward adopting the services. Several implications for both research and practice have emerged and are discussed later in this study.

ABSTRAK

Penggunaan internet telah meningkat secara mendadak sejak beberapa tahun kebelakangan ini dan kini dianggap sebagai saluran terbaik bagi pengedaran produk dan perkhidmatan pelbagai jenis perniagaan, seperti perkhidmatan perbankan internet. Seperti kebanyakan institusi kewangan yang sentiasa mencari kaedah untuk meningkatkan kadar penggunaan perbankan Internet, faktor kepercayaan juga diambilkira sebagai salah satu faktor yang penting. Ini adalah bersandarkan kepada hakikat bahawa pelanggan bank bimbang tentang keselamatan yang melibatkan maklumat yang sensitive seperti kewangan. Faktor-faktor kepercayaan ini termasuklah: Kemudahan, privasi, keselamatan, kualiti, penggunaan, pengetahuan pengguna dan kecenderungan untuk mempercayai yang memberi kesan kepada kepercayaan pelanggan dalam menerima pakai perbankan internet. Berdasarkan perkara di atas, model penyelidikan yang berkaitan telah dibangunkan untuk menguji lapan (8) hipotesis yang berkaitan dengan factor kepercayaan: kemudahan, privasi, keselamatan, kualiti, pengetahuan penggunaan, pengguna, pelupusan kepada amanah, amanah, serta kadar penggunaan perbankan internet. Data telah dikumpulkan melalui soal selidik kajian daripada sampel sebanyak 150 pengguna perbankan internet. Penganalisaan data adalah menggunakan perisian SmartPLS. Secara umumnya, keputusan analisis data adalah menyokong kesemua hipotesis yang dicadangkan. Secara keseluruhannya, keselamatan, pengetahuan pengguna, privasi, pelupusan kepada kepercayaan, kualiti, kebolegunaan dan kebolehcapaian didapati mempunyai pengaruh yang besar ke atas kepercayaan dan kepercayaan pula didapati menjadi faktor penting dalam memupuk sikap yang positif ke arah penerimaan perkhidmatan ini. Beberapa implikasi untuk kedua-dua bidang penyelidikan dan industri disenaraikan dan dibincangkan.

LIST OF TABLES

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xii
	LIST OF FIGURES	xiv
	LIST OF ABBREVIATIONS	xv
	LIST OF SYMBOLS	xvi
	LIST OF APPENDICES	xvii
1	INTRODUCTION	1
	1.1 Background of the Study	2
	1.2 Problem Statement	3
	1.2.1 Research Questions	5
	1.3 Research Objective	6
	1.4 Scope of Study	6
	1.5 Significance of the Study	7
	1.6 Structure of the Study	8
	1.7 Thesis Outline	10
2	LITERATURE REVIEW	11
	2.1 Introduction	11

2.2	Internet Banking	11
2.2.1	Basics of Electronic Banking	11
2.2.2	Conception of Internet Banking	14
2.2.3	Internet Banking in Malaysia	14
2.2.4	Benefits of Internet Banking	18
2.2.4.1	Benefits for Banks	18
2.2.4.2	Benefits for Customers	19
2.2.5	Studies of factors affecting the adoption of Internet Banking	20
2.2.6	Basic Models	20
2.3	Trust, Important Factor Influencing Consumer Adoption	26
2.3.1	Definition of Trust	26
2.3.2	Trust in Multi Perspectives	27
2.3.3	Importance of Trust	28
2.4	Trust and Internet Banking Adoption	30
2.4.1	Factors of Trust in Internet Banking Adoption	31
2.5	Discussion	37
2.6	Chapter Summary	44
3	RESEARCH METHODOLOGY	46
3.1	Introduction	46
3.2	Types of Research Projects	47
3.3	Types of Methods Research	47
3.3.1	Nature of Quantitative Method and Qualitative Method	47
3.3.2	Inductive Technique	48
3.4	Sampling	49
3.4.1	Selecting the Sampling Technique	49
3.5	Measuring the Concepts	51
3.6	Developing the Questionnaire	51
3.6.1	Pilot study	52
3.7	Research Tools	53
3.8	Chapter Summary	53

4	PRE - DATA ANALYSIS	56
4.1	Introduction	56
4.2	Data Analysis Method	56
4.3	Research Model	57
4.4	Survey Development	59
4.5	The Development of Hypotheses	64
4.5.1	Hypotheses about IBAM and GTPM	64
4.5.1.1	Accessibility and Trust in Internet Banking Adoption	64
4.5.1.2	Privacy and Trust in Internet Banking Adoption	65
4.5.1.3	Security and Trust in Internet Banking Adoption	65
4.5.1.4	Quality and Trust in Internet Banking Adoption	66
4.5.1.5	Usability and Trust in Internet Banking Adoption	66
4.5.1.6	User's Knowledge and Trust in Internet Banking Adoption	67
4.5.1.7	Disposition to Trust and Trust in Internet Banking Adoption	67
4.5.1.8	Trust and Internet Banking Adoption	68
4.5.2	Model Measurement	69
4.5.2.1	Constructs and Measures	70
4.5.2.2	Internal Consistency	71
4.6	Results of Internal Consistency	72
4.6.1	Accessibility	72
4.6.2	Privacy	73
4.6.3	Security	74
4.6.4	Quality	76
4.6.5	Usability	77
4.6.6	User's Knowledge	78
4.6.7	Disposition to Trust	79
4.6.8	Trust	80

4.6.9	Adoption of Internet Banking	81
4.7	Construct Validation	82
4.7.1	Convergent validity	83
4.7.2	Discriminant validity	83
4.8	Chapter Summary	85
5	DISCUSSION	86
5.1	Introduction	86
5.2	Data Description	86
5.2.1	Data Collection	87
5.2.2	Demographic Statistics	87
5.2.2.1	Demographic Statistic by Group of Respondents	87
5.2.2.2	Demographic Statistic by Educational Level	88
5.2.2.3	Demographic Statistic by Age	90
5.2.2.4	Demographic Statistic by Length of Using Experience	91
5.3	Model Measurement	92
5.4	Hypotheses Testing	92
5.4.1	Structural Research Model Test	92
5.4.2	Bootstrapping Procedure	93
5.5	Discussion	98
5.5.1	Hypothesis 1	98
5.5.2	Hypothesis 2	99
5.5.3	Hypothesis 3	99
5.5.4	Hypothesis 4	100
5.5.5	Hypothesis 5	100
5.5.6	Hypothesis 6	101
5.5.7	Hypothesis 7	101
5.5.8	Hypothesis 8	102
5.6	Conclusions	103
5.7	Chapter Summary	104

6	CONCLUSION	105
	6.1 Introduction	105
	6.2 Achievements	105
	6.3 Research Contributions and Implications	107
	6.3.1 First Contribution	107
	6.3.2 Second Contribution	108
	6.3.3 Third Contribution	108
	6.4 Limitation of the Research	109
	6.5 Future Research Areas	109
	6.6 Conclusion	110
	6.7 Chapter Summary	110
	REFERENCES	112
	APPENDIX A	119

LIST OF TABLES

TABLE NO.	TITLE	PAGE
2.1	Summary of e-banking services in Malaysian bank	17
2.2	Summary of international studies about internet banking	21
2.3	Trust Definition	27
2.4	Different factors of Trust according to the past studies	32
2.5	Factors of adoption according the past research	38
2.6	Iteration of Factors	39
2.7	Factors of Trust according the Literature	40
2.8	Percentages of Factors of Trust	41
3.1	Summary	53
4.1	Accessibility Measurement Items	60
4.2	Privacy Measurement Items	60
4.3	Security Measurement Items	61
4.4	Quality Measurement Items	61
4.5	Usability Measurement Items	62
4.6	User's knowledge Measurement Items	62
4.7	Disposition to trust Measurement Items	63
4.8	Trust Measurement Items	63
4.9	Adoption Measurement Items	63
4.10	Item Loading for Accessibility's Measures	73
4.11	Reliability Measurement for Accessibility	73
4.12	Item Loading Privacy's Measures	74

4.13	Reliability Measurement for Privacy	74
4.14	Item Loading For Security's Measures	75
4.15	Reliability Measurement for Security	75
4.16	Item Loading For Quality's Measures	76
4.17	Reliability Measurement for Quality	76
4.18	Item Loading For Usability's Measures	77
4.19	Reliability Measurement for Usability	78
4.20	Item Loading for User's knowledge's Measures	79
4.21	Reliability Measurement for User's knowledge	79
4.22	Item Loading for Disposition to Trust's Measures	80
4.23	Reliability Measurement for Disposition to Trust	80
4.24	Item Loading for Trust's Measures	81
4.25	Reliability Measurement for Trust	81
4.26	Item Loading for Adoption's Measures	82
4.27	Reliability Measurement for Adoption	82
4.28	Validity of the Constructs	84
5.1	Demographics of Respondents	88
5.2	Demographics of Educational Level	89
5.3	Demographics for Age	90
5.4	Demographics of Length of Using Experience	91
5.5	Data of P-value (p)	94
5.6	Summary of the Results	95

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
1.1	Research Strategy Diagram	9
2.1	Internet Banking Adoption	26
2.2	Effective Factors on Internet Banking Adoption	39
2.3	Important Factors of Trust.	42
2.4	Map of Literature review.	45
3.1	Deductive and Inductive Reasoning	49
3.2	Tools of Research	54
3.3	Structure of Research Methodology	55
4.1	Adopt Internet Banking Model	59
5.1	Demographics of Respondents	88
5.2	Demographics of Educational Level	89
5.3	Demographics for Age	90
5.4	Demographics of Length of Using Experience	91
5.5	Smart PLS 2.0 Results for the Tested Relationships	96
5.6	The Results of R^2 for the Tested Relationships	97

LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
PLS	Partial Least Square
SPSS	Statistical Partial for Social Science
SEM	Structural Equation Modeling
GTPM	General Trust Perception Model
IBAM	Internet Banking Adoption Model
UTM	Universiti Teknologi Malaysia

LIST OF SYMBOLS

β	path coefficients
α	Cronbach's alpha

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
A	QUESTIONNAIRE	119

CHAPTER 1

INTRODUCTION

The first chapter represents the background of the study, including: the problem statement, research questions, as well as the objectives of the study that lead us to our purpose. Subsequently, it shows the research strategy of the study.

This research focuses on realizing the attributes of trust which can lead to a successful outcome. The results of this research would be helpful for top managers at the CIMB bank located at Universiti Teknologi Malaysia (UTM). It could be regarded as a specific case study organization which emphasizes on a system having a high level of understanding of their customers' trust and other banks in general. Chellappa and Pavlou (2002) indicate that improving the level of trust can be necessary to retain electronic activities. The result of this study is to recognize the properties of trust that can impact on the level of adoption of internet banking among customers in UTM.

This study is designed upon discovering these areas and being able to determine the impact of trust upon internet banking adoption from a customer's viewpoint, within the e-banking environment. In the e-commerce world, there are several programs in which client trust would constitute an important part. E-banking and in particular online financial services, was selected as the sector for this analysis due to the characteristics of the dealings involved. Suh and Han (2003a), describe the issue for e-commerce protection as being high in programs where incredibly delicate information is engaged. Information interchanged with a digital financial institution is extremely

delicate, hence client concerns associated with security are high (Suh and Han, 2003b). Internet banking sites employ a considerable number of safety measures that clients can experience through their user interface (Jones and Leonard, 2008). Thus, this atmosphere is matched for determining their effect on customer views of security and the connection of understanding with trust.

1.1 Background of the Study

The internet has rapidly become the best channel for transferring data and information. The usage of internet for business activities has witnessed dramatic advances in efficiency. The usage of the internet for conducting all financial transactions can have positive results for the banking system. Unfortunately, the low range of adoption of technology in some developing countries can be the consequences of poor economic circumstances, inadequate education and lack of convenient infrastructure. There are probably also other reasons such as trust that play an important role in this regard. This thesis reports on the finding of research into adoption of internet banking and proposes a variety of factors that are likely to be required in successful adoption by customers.

These days, the internet has well and truly become a complete distribution and delivery route among the applications for consumers; one of the evolution outcomes of this is electronic financial products and services. The Central Bank of Malaysia provided an agreement for banks regarding offering of services by internet banking in June 2000. Following that, all the banks then prepared a website encompassing various types of protocol (Sadiq Sohail and Shanmugham, 2003).

Sanayei and Noroozi (2009) conducted a research study pertaining to the level of reliability of internet banking among customers of banks between September 2007

and January 2008 in Malaysia. The results of the sample showed the minimum level of trust worthiness being at about 0.802. The study further showed that the lack of trust issue has an effect on a vast majority of bank customers in Malaysia.

The main purpose of this research is to recognize the impact of trust on stages within the e-banking atmosphere. Suh and Han (2003b) said that: Trust is the groundwork of commerce. It performs an important role in increasing customers' trust in most sectors (Grabner-Kräuter and Faullant, 2008) such as the financial system (Yousafzai *et al.*, 2009). According to (Grabner-Kräuter and Faullant, 2008), providing and maintaining trust-based connections between banks and customers are being identified as an extremely important issue in the financial industry.

In this study, the effective factors that have an impact on trust are divided into two categories. The first group is related to the characteristics of the web site while the other group is associated with the characteristics of the customer. There is widely-held evidence that trust in the online environment plays a significant role in electronic commerce. Further, valuable studies on the subject of online trust have been conducted by many researchers recently. When a customer performs any transaction in an online environment, he /she is faced with two types of interacting factors. The first type of factor is the entity that the consumer is trading with (i.e. the online marketer); while the second type of factor is the medium through which the transactions happen (i.e. the internet) Grazioli and Jarvenpaa (2000).

1.2 Problem Statement

It is a tangible fact that the CIMB bank has expended a great amount of money on carrying out internet banking reforms. The main goal of CIMB bank is to increase the range of use of internet banking to the highest level. Hence, the usage of internet

banking has become a significant issue for the banking industry. In other words, lack of adoption in internet banking can result in negative consequences for customers and banks, since customers utilize internet banking at a minimum rate whilst still requiring access to information for their activities. Sadiq Sohail and Shanmugham (2003) have conducted a survey among bank customers in Penang in Malaysia. The results of this research showed that the channels used to carry out banking transactions are, specifically: branches of banks, ATMs, internet banking and phone banking. The results showed that internet banking had only 36.6% of patronage. In this study, one of the main objectives is to identify the relationship between customer trust and internet banking adoption.

Haque *et al.* (2009) investigated the factors determining the Malaysian banking consumers' perception of e-banking transactions. The result demonstrated that trust can be seen as a significant element in increasing the level of attention among customers in selecting the internet banking system. Moreover, obtaining customers' trust is vital for banks and financial institutions. Some researchers have shown that lack of trust can be the most significant long-term barrier to recognizing all of the potential benefits of internet banking. It indicates that one of the problems is the lack of an effective relationship between technology trust and e-banking adoption. In this study, the suggested model is prepared in order to examine the impact of trust on the adoption of internet banking among customers of the CIMB bank at UTM.

Furthermore, data and network security, as well as privacy issues are other problems. Haque *et al.* (2009) stated that customers are wary of using internet banking and purchasing through the internet as they think that any mistake or error could lead to losing money. Banks should make their customers more aware of their service quality attributes, the firm guarantee about e-banking security and the regulations governing e-Banking. In this study, security and the privacy are considered as the main factors having a significant effect on customer trust.

Lack of internet awareness is one of the most important problems associated with customers of CIMB, due to the fact that this service is still not widely accepted. It is clear that customers are still not completely confident with using ATM cards or telephone banking. The high level of awareness, as well as public education and public training could demonstrate the benefits of using new systems and could thereby encourage them to adopt internet banking transactions, since customer knowledge plays an important role in increasing the level of customers' trust. In this research, knowledge of customers concerning the internet banking system is realized as being a main character of customers in conducting financial transactions. This research aims at responding to a question on developing the trust model for using internet banking, namely: How can a trust model for Internet Banking service be developed?

1.2.1 Research Questions

The main question of this study is: "How can a trust model for Internet Banking service be developed?". The following questions will be answered in order to achieve the objectives of this research:

1. What are the efficient factors of customer trust in internet banking?
2. What is the effect of trust on the adoption of internet banking?
3. How can a model of trust towards increasing adoption in internet banking be developed?
4. How can the trust model in internet banking be evaluated and validated?

1.3 Research Objectives

The following items are objectives of this study:

1. To identify and describe the efficient factors relating to customer trust in internet banking.
2. To clarify the effect of trust on the adoption of internet banking.
3. To develop a model of trust towards increasing adoption of internet banking.
4. To evaluate and validate the trust model in internet banking.

1.4 Scope of Study

It is necessary to mention the study area and its boundaries in relation to reaching the objectives of the study. These are demonstrated in the following points:

- Identify and describe the efficient factors relating to customer trust in internet banking at the CIMB bank at UTM. Appropriate study into and analysis of current electronic banking procedures at CIMB bank at the financial office (BENDAHARI) of UTM are vital issues.
- Identify the effect of trust on the adoption of internet banking at CIMB bank at UTM.
- Develop a model of trust towards increasing adoption of internet banking at CIMB bank at UTM.
- Evaluate and validate the proposed model.

This research focuses on students and staffs in the Faculty of Computing who have CIMB accounts. The students of the computing faculty have been chosen as the main population sample of the research primarily because it is they who mostly have enough knowledge of the trust concept in an online environment. Further, the main reason for choosing the staff of the computing faculty is because we had access to them. We used some criteria to choose suitable respondents from among the target population. The first criterion is the fact that postgraduate students generally have sufficient knowledge of the concept of trust in the online environment. The second is the requirement that students and staff should have a CIMB account, as well as having adequate experience and knowledge about the internet banking process for the purposes of this case study (Faculty of Computing). These criteria ensure that the respondents have sufficient knowledge and suitability to be able to answer the questionnaire.

1.5 Significance of the Study

It is indeed a reality that internet banking is valuable and useful for both banks and their customers. The most significant benefit of internet banking is that of cost-saving and hence being able to prevent time-wasting. In addition, banks can acquire new segments of society as customers, thereby improving their status. This can ultimately lead to offering the best services for their customers, as well as having a positive effect on customer satisfaction.

The failure in the adoption of internet banking can be the result of different problems. Moreover, these problems can sometimes lead to rejection of the system. These problems relate to technical, social and organizational factors. Hence, in order to prevent the failure of internet banking adoption, researchers are studying important issues such as trust (Jayawardhena and Foley, 2000). The purpose of this study is,

to observe the important factor of trust in order to boost adoption rates of Internet banking among bank customers.

The findings of this research can be beneficial in assisting bank managers to decrease expenditure. In addition, these results will limit the number of customers in branches of banks through encouraging customers to select internet banking as the best channel. The top bank management wants to identify and eliminate the underlying causes of inefficiencies, thus helping their firms to gain a competitive advantage, or, at least, meet the challenges of others (bin Mohamed *et al.*, 2011). The bank managers can gain advantages from the beneficial suggestions provided by the current study because they can share their advertising strategies so as to encourage their customers for performing their financial activities by using internet banking. Efficient programs can play an important role in presenting the benefits of internet banking; on the other hand, these programs can reduce concerns regarding Internet banking. Electronic media campaigns can increase public awareness of the benefits to be gained from internet banking. This will not only lead customers to adopt Internet banking but it will also help to retain existing customers. Improving trust has an effect on the adoption of internet banking. Addressing this matter can add new worth to customers and that can be considered as a definite advantage of this research.

1.6 Structure of the Study

This dissertation is formed into 6 chapters as shown in Figure 1.1.

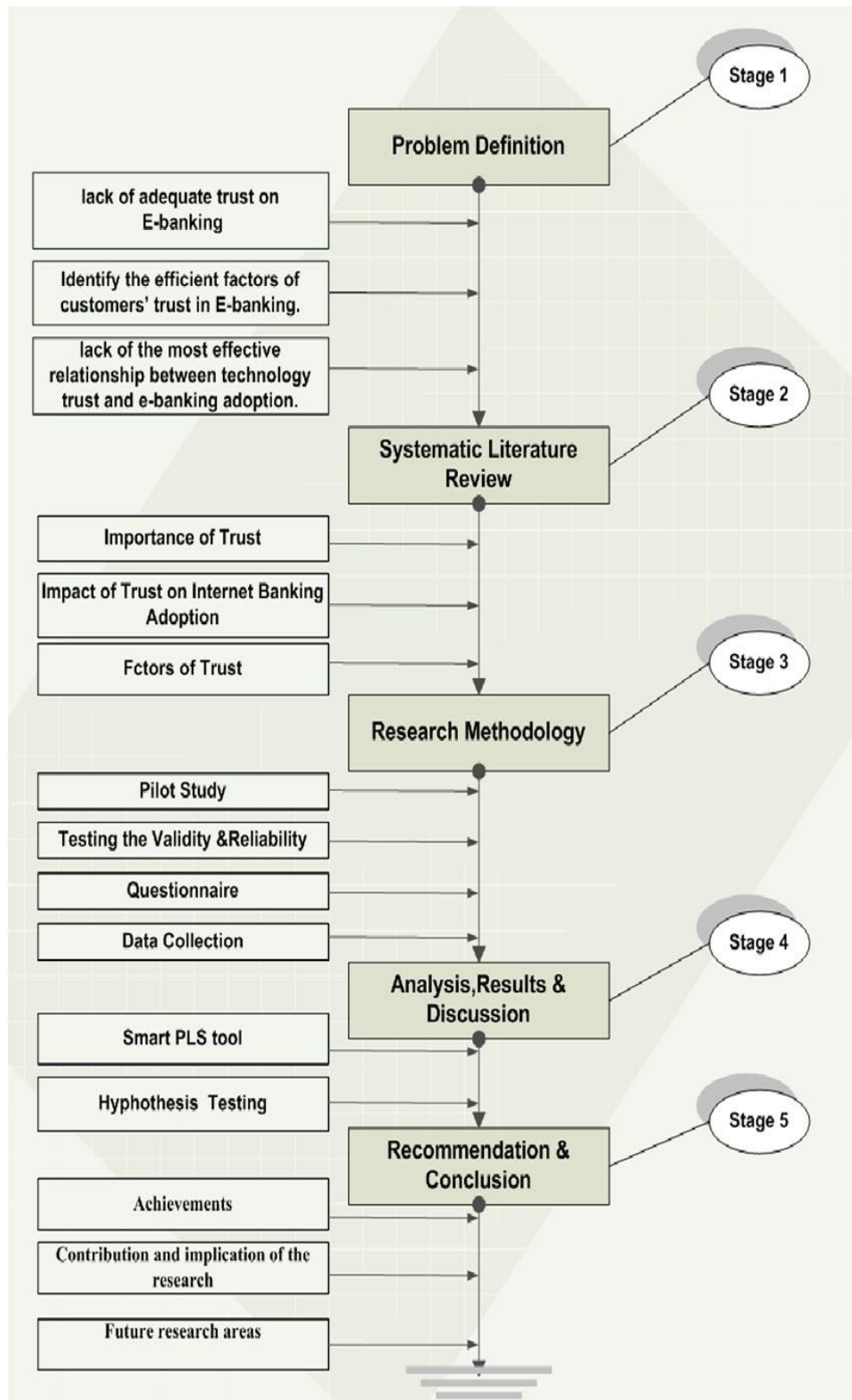


Figure 1.1: Research Strategy Diagram

1.7 Thesis Outline

As an overview, this chapter provides a brief outline regarding internet banking and its trust issues.

Chapter 2 presents the literature review that was associated with related works and research in the past. In this chapter, we can see the variables existing between trust and internet banking adoption. We focus on the basic terminology of electronic banking and trust. In addition, we show the comparison between different trust models.

Chapter 3 shows the research methodology starting with the research purpose and research approach respectively. It also outlines research strategies and methods. Finally, it presents validity and reliability of measurements, as used in this research.

Chapter 4 describes the new model demonstrating the impact of trust on internet banking adoption. The proposed model is expected to be able to provide a solution to the problem statement and to fulfil the research goals. In this phase, a pilot study is conducted for evaluating the questionnaire. Also, the PLS software supported the assessment of the measurement model. In this chapter, we show the results of internal consistency and both the convergent and discriminant validity of all constructs.

Chapter 5 is based on a structural model test, whereby we will show the results of hypothesis testing. This chapter will discuss the findings of the project in order to assess the proposed research model and fulfil the research objectives.

In Chapter 6, the conclusion of the overall study will be discussed. This chapter comprises sections including: achievements, contributions to and implication of the research, limitation of the research, future research areas and conclusions reached.

REFERENCES

- Alsajjan, B. and Dennis, C. (2010). Internet banking acceptance model: cross-market examination. *Journal of Business Research*. 63(9), 957–963.
- Arsham, H. (2011). *Questionnaire Design and Surveys Sampling*. Retrieved February 24, 2011.
- Austin, P. C. and Tu, J. V. (2004). Bootstrap methods for developing predictive models. *The American Statistician*. 58(2), 131–137.
- Bagozzi, R. P. and Phillips, L. W. (1982). Representing and testing organizational theories: A holistic construal. *Administrative Science Quarterly*, 459–489.
- Bhattacharjee, A. (2002). Individual trust in online firms: Scale development and initial test. *Journal of management information systems*. 19(1), 211–242.
- bin Mohamed, M., Badaruddin, M. and Choong, C.-K. (2011). Trust formation process in Islamic banking in Malaysia. *African Journal of Business Management*. 5(30), 11779–11785.
- Bollen, K. and Lennox, R. (1991). Conventional wisdom on measurement: A structural equation perspective. *Psychological bulletin*. 110(2), 305–314.
- Chellappa, R. K. and Pavlou, P. A. (2002). Perceived information security, financial liability and consumer trust in electronic commerce transactions. *Logistics Information Management*. 15(5/6), 358–368.
- Chen, Y.-H. and Barnes, S. (2007). Initial trust and online buyer behaviour. *Industrial Management & Data Systems*. 107(1), 21–36.
- Chen, Y.-H. H. and Corkindale, D. (2008). Towards an understanding of the behavioral intention to use online news services: an exploratory study. *Internet Research*. 18(3), 286–312.
- Cheung, C. M., Chan, G. W. and Limayem, M. (2005). A critical review of online consumer behavior: Empirical research. *Journal of Electronic Commerce in Organizations (JECO)*. 3(4), 1–19.
- Chung, W. and Paynter, J. (2002). An evaluation of Internet banking in New

- Zealand. In *System Sciences, 2002. HICSS. Proceedings of the 35th Annual Hawaii International Conference on*. IEEE, 2410–2419.
- Corritore, C. L., Kracher, B. and Wiedenbeck, S. (2003). On-line trust: concepts, evolving themes, a model. *International Journal of Human-Computer Studies*. 58(6), 737–758.
- Costante, E., den Hartog, J. and Petkovic, M. (2011). On-line trust perception: What really matters. In *Socio-Technical Aspects in Security and Trust (STAST), 2011 1st Workshop on*. IEEE, 52–59.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*. 16(3), 297–334.
- Deng, Z., Lu, Y., Wei, K. K. and Zhang, J. (2010). Understanding customer satisfaction and loyalty: An empirical study of mobile instant messages in China. *International Journal of Information Management*. 30(4), 289–300.
- Diniz, E., Porto, R. M. and Adachi, T. (2005). Internet banking in Brazil: evaluation of functionality, reliability and usability. *The Electronic Journal of Information Systems Evaluation*. 8(1), 41–50.
- Eckblad, J. W. (1991). How many samples should be taken? *BioScience*. 41(5), 346–348.
- Edwards, J. R. and Bagozzi, R. P. (2000). On the nature and direction of relationships between constructs and measures. *Psychological methods*. 5(2), 155–174.
- Eriksson, K., Kerem, K. and Nilsson, D. (2005). Customer acceptance of internet banking in Estonia. *International Journal of Bank Marketing*. 23(2), 200–216.
- Flavián, C., Guinalú, M. and Gurrea, R. (2006). The role played by perceived usability, satisfaction and consumer trust on website loyalty. *Information & Management*. 43(1), 1–14.
- Fornell, C. and Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of marketing research*, 382–388.
- Gartner, L. M., Greer, F. R. *et al.* (2003). Prevention of rickets and vitamin D deficiency: new guidelines for vitamin D intake. *Pediatrics*. 111(4), 908–910.
- Gefen, D. (2000). E-commerce: the role of familiarity and trust. *Omega*. 28(6), 725–737.
- Gefen, D., Karahanna, E. and Straub, D. W. (2003a). Trust and TAM in online shopping: an integrated model. *MIS quarterly*, 51–90.

- Gefen, D., Srinivasan Rao, V. and Tractinsky, N. (2003b). The conceptualization of trust, risk and their electronic commerce: the need for clarifications. In *System Sciences, 2003. Proceedings of the 36th Annual Hawaii International Conference on*. IEEE, 10–pp.
- Gefen, D. and Straub, D. W. (2003). Managing user trust in B2C e-services. *E-service Journal*. 2(2), 7–24.
- Gerrard, P. and Cunningham, J. B. (2003). The diffusion of internet banking among Singapore consumers. *International Journal of Bank Marketing*. 21(1), 16–28.
- Gonzalez, M. A., Pinder, S. E., Callagy, G., Vowler, S. L., Morris, L. S., Bird, K., Bell, J. A., Laskey, R. A. and Coleman, N. (2003). Minichromosome maintenance protein 2 is a strong independent prognostic marker in breast cancer. *Journal of clinical oncology*. 21(23), 4306–4313.
- Grabner-Kräuter, S. and Faullant, R. (2008). Consumer acceptance of internet banking: the influence of internet trust. *International Journal of Bank Marketing*. 26(7), 483–504.
- Grazioli, S. and Jarvenpaa, S. L. (2000). Perils of Internet fraud: An empirical investigation of deception and trust with experienced Internet consumers. *Systems, Man and Cybernetics, Part A: Systems and Humans, IEEE Transactions on*. 30(4), 395–410.
- Haenlein, M. and Kaplan, A. M. (2004). A beginner's guide to partial least squares analysis. *Understanding statistics*. 3(4), 283–297.
- Haque, A., Khatibi, A. and Mahmud, S. (2009). Factors Determinate Customer Shopping Behaviour Through Internet: the Malaysian Case. *Australian Journal of Basic and Applied Sciences*. 3(4), 3452–3463.
- Hong, I. B. and Cho, H. (2011). The impact of consumer trust on attitudinal loyalty and purchase intentions in B2C e-marketplaces: Intermediary trust vs. seller trust. *International Journal of Information Management*. 31(5), 469–479.
- Hong, K.-W., Jin, H.-S., Cho, Y. S., Lee, J.-Y., Lee, J.-E., Cho, N. H., Shin, C., Lee, S.-H., Park, H. K. and Oh, B. (2009). Replication of the Wellcome Trust genome-wide association study on essential hypertension in a Korean population. *Hypertension research*. 32(7), 570–574.
- Ifinedo, P. (2011). Examining the influences of external expertise and in-house computer/IT knowledge on ERP system success. *Journal of Systems and Software*. 84(12), 2065–2078.

- Jayawardhena, C. and Foley, P. (2000). Changes in the banking sector—the case of Internet banking in the UK. *Internet Research*. 10(1), 19–31.
- Jones, K. and Leonard, L. N. (2008). Trust in consumer-to-consumer electronic commerce. *Information & Management*. 45(2), 88–95.
- Kassim, N. M. and Abdulla, A. K. M. A. (2006). The influence of attraction on internet banking: an extension to the trust-relationship commitment model. *International Journal of Bank Marketing*. 24(6), 424–442.
- Kennedy III, W. C., Beasley, D. E., Parker, T. S., Russell, T. D. and Saunders, W. C. (2000). *System and method for providing menu data using a communication network*. US Patent 6,167,255.
- Kim, K. and Prabhakar, B. (2000). Initial trust, perceived risk, and the adoption of internet banking. In *Proceedings of the twenty first international conference on Information systems*. Association for Information Systems, 537–543.
- Kim, T. T., Kim, W. G. and Kim, H.-B. (2009). The effects of perceived justice on recovery satisfaction, trust, word-of-mouth, and revisit intention in upscale hotels. *Tourism Management*. 30(1), 51–62.
- Ko, D.-G., Kirsch, L. J. and King, W. R. (2005). Antecedents of knowledge transfer from consultants to clients in enterprise system implementations. *MIS quarterly*, 59–85.
- Lichtenstein, S. and Williamson, K. (2006). Understanding consumer adoption of internet banking: an interpretive study in the Australian banking context. *Journal of Electronic Commerce Research*. 7(2), 50–66.
- Liu, C.-T., Guo, Y. M. and Lee, C.-H. (2011). The effects of relationship quality and switching barriers on customer loyalty. *International Journal of Information Management*. 31(1), 71–79.
- Manoach, D. S., Halpern, E. F., Kramer, T. S., Chang, Y., Goff, D. C., Rauch, S. L., Kennedy, D. N. and Gollub, R. L. (2001). Test-retest reliability of a functional MRI working memory paradigm in normal and schizophrenic subjects. *American Journal of Psychiatry*. 158(6), 955–958.
- McKnight, D. H., Choudhury, V. and Kacmar, C. (2000). Trust in e-commerce vendors: a two-stage model. In *Proceedings of the twenty first international conference on Information systems*. Association for Information Systems, 532–536.
- McKnight, D. H., Choudhury, V. and Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information systems research*. 13(3), 334–359.

- Michael, H. and Christian, R. (2010). Local strategic networks in the software industry: An empirical analysis of the value continuum.
- Moga, L. M., Nor, K. M., Neculita, M. and Khani, N. (2012). Trust and Security in E-banking Adoption in Romania. *Communications*. 2012.
- Mukherjee, A. and Nath, P. (2003). A model of trust in online relationship banking. *International Journal of Bank Marketing*. 21(1), 5–15.
- Mwesigwa, R. and Nkundabanyanga, S. K. (2011). Consumer Attitude, Trust, Perceived Risk and Internet Banking Adoption in Uganda. *Journal of Business and Economics*, 405.
- Neuman, S. P. and Di Federico, V. (2003). Multifaceted nature of hydrogeologic scaling and its interpretation. *Reviews of Geophysics*. 41(3).
- Nissenbaum, H. (2004). Privacy as contextual integrity. *Washington Law Review*. 79(1).
- Nor, K. M., Shanab, E. A. A. and Pearson, J. M. (2008). Internet banking acceptance in Malaysia based on the theory of reasoned action. *Journal of Information Systems and Technology Management*. 5(1), 03.
- Petter, S., Straub, D. and Rai, A. (2007). Specifying formative constructs in information systems research. *Mis Quarterly*. 31(4), 623–656.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H. and Pahnla, S. (2004). Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet research*. 14(3), 224–235.
- Poon, W.-C. (2007). Users' adoption of e-banking services: the Malaysian perspective. *Journal of Business & Industrial Marketing*. 23(1), 59–69.
- Rainie, L. (2010). Internet, broadband, and cell phone statistics. *Pew Internet & American Life Project*. 5.
- Ramayah, T., Jantan, M., Mohd Noor, M., Razak, R. and Koay, P. (2003). Receptiveness of internet banking by Malaysian consumers: The case of Penang. *Asian Academy of Management Journal*. 8(2), 1–29.
- Reddy, J. and Chin, C. (1998). Thermomechanical analysis of functionally graded cylinders and plates. *Journal of Thermal Stresses*. 21(6), 593–626.
- Rexha, N., Kingshott, R. P. J. and Aw, A. S. S. (2003). The impact of the relational plan on adoption of electronic banking. *Journal of Services Marketing*. 17(1), 53–67.
- Rotchanakitumnuai, S. and Speece, M. (2003). Barriers to internet banking adoption: a qualitative study among corporate customers in Thailand. *International Journal of*

- Bank Marketing*. 21(6/7), 312–323.
- Rupp, W. T. and Smith, A. D. (2005). Strategic e-commerce aspects of the e-banking/e-lending industry. *Strategies for Generating E-Business Returns on Investment*, 254.
- Sadiq Sohail, M. and Shanmugham, B. (2003). E-banking and customer preferences in Malaysia: an empirical investigation. *Information Sciences*. 150(3), 207–217.
- Sanayei, A. and Noroozi, A. (2009). Security of Internet Banking Services and its Linkage with Users' Trust: A Case Study of Parsian Bank of Iran and CIMB Bank of Malaysia. In *Information Management and Engineering, 2009. ICIME'09. International Conference on*. IEEE, 3–7.
- Sansone, R. A., Wiederman, M. W., Schumacher, D. and Routsong-Weichers, L. (2011). The relationship between suicide attempts and borderline personality in gastric surgery candidates. *The primary care companion to CNS disorders*. 13(1).
- Saunders, M. N. and Thornhill, A. (2003). Organisational justice, trust and the management of change: an exploration. *Personnel Review*. 32(3), 360–375.
- Schiller, J. S., Lucas, J. W., Ward, B. W. and Peregoy, J. A. (2012). Summary health statistics for US adults: National Health Interview Survey, 2010. *Vital and Health Statistics. Series 10, Data from The National Health Survey*. (252), 1.
- Shim, S., Eastlick, M. A., Lotz, S. L. and Warrington, P. (2001). An online prepurchase intentions model: The role of intention to search: Best Overall Paper Award The Sixth Triennial AMS/ACRA Retailing Conference, 2000 11 Decision made by a panel of Journal of Retailing editorial board members. *Journal of retailing*. 77(3), 397–416.
- Siu, N. Y.-M. and Mou, J. C.-W. (2005). Measuring service quality in internet banking: the case of Hong Kong. *Journal of International Consumer Marketing*. 17(4), 99–116.
- Snyder, R. D., Ord, J. K. and Beaumont, A. (2012). Forecasting the intermittent demand for slow-moving inventories: A modelling approach. *International Journal of Forecasting*. 28(2), 485–496.
- Spence, L. J., Coles, A.-M. and Harris, L. (2001). The forgotten stakeholder? Ethics and social responsibility in relation to competitors. *Business and Society Review*. 106(4), 331–352.
- Suh, B. and Han, I. (2003a). Effect of trust on customer acceptance of Internet banking. *Electronic Commerce research and applications*. 1(3), 247–263.
- Suh, B. and Han, I. (2003b). The impact of customer trust and perception of security control on the acceptance of electronic commerce. *International Journal*

- of electronic commerce*. 7, 135–161.
- Sundaram, S., Schwarz, A., Jones, E. and Chin, W. W. (2007). Technology use on the front line: how information technology enhances individual performance. *Journal of the Academy of Marketing Science*. 35(1), 101–112.
- Tan, F. B. and Sutherland, P. (2004). Online consumer trust: a multi-dimensional model. *Journal of Electronic Commerce in Organizations (JEKO)*. 2(3), 40–58.
- Tenenhaus, M., Vinzi, V. E., Chatelin, Y.-M. and Lauro, C. (2005). PLS path modeling. *Computational statistics & data analysis*. 48(1), 159–205.
- Teo, T. S. and Liu, J. (2007). Consumer trust in e-commerce in the United States, Singapore and China. *Omega*. 35(1), 22–38.
- Tinetti, M. E., De Leon, C. F. M., Doucette, J. T. and Baker, D. I. (1994). Fear of falling and fall-related efficacy in relationship to functioning among community-living elders. *Journal of gerontology*. 49(3), M140–M147.
- Urban, G. L., Sultan, F. and Qualls, W. J. (2000). Placing trust at the center of your internet strategy. *Sloan Management Review*. 42(1), 39–48.
- Wang, M., Liao, H., Zhan, Y. and Shi, J. (2011). Daily customer mistreatment and employee sabotage against customers: Examining emotion and resource perspectives. *Academy of Management Journal*. 54(2), 312–334.
- Wang, Y.-S., Lin, H.-H. and Luarn, P. (2006). Predicting consumer intention to use mobile service. *Information Systems Journal*. 16(2), 157–179.
- Wang, Y.-S., Wang, Y.-M., Lin, H.-H. and Tang, T.-I. (2003). Determinants of user acceptance of internet banking: an empirical study. *International Journal of Service Industry Management*. 14(5), 501–519.
- Yousafzai, S., Pallister, J. and Foxall, G. (2009). Multi-dimensional role of trust in Internet banking adoption. *The Service Industries Journal*. 29(5), 591–605.
- Yousafzai, S. Y., Pallister, J. G. and Foxall, G. R. (2003). A proposed model of e-trust for electronic banking. *Technovation*. 23(11), 847–860.
- Zhu, F. and Zhang, X. (2010). Impact of online consumer reviews on sales: The moderating role of product and consumer characteristics. *Journal of Marketing*. 74(2), 133–148.
- Zikmund, W. G., Carr, J. C., Griffin, M. *et al.* (2012). *Business Research Methods (with Qualtrics Printed Access Card)*. South-Western Pub.