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Technology Trust and Mobile Banking Satisfaction: A Case of Malaysian Consumers

Mohamad Noorman Masrek,[a1] Intan Salwani Mohamed,[b] Norzaidi Mohd Daud[c] Normah Omar[d]

[a]Faculty of Information Management, UiTM, Puncak Perdana, Shah Alam 40150 Selangor Malaysia

[a,b,c,d]Accounting Research Institute, Universiti Teknologi MARA, 40450 Shah Alam Selangor Malaysia

Abstract

The purpose of this study is to investigate the relationship between technology trust and mobile banking satisfaction. Three groups of technology trust namely, the mobile network, the mobile banking website and the mobile phone (i.e. smart-phone) are examined against mobile banking satisfaction. Using a survey research methodology involving 312 of mobile banking consumers in Malaysia, the findings indicate that all of the three technology trusts have positive relationship with mobile banking satisfaction. The finding further indicates the importance and significance of technology trust in predicting mobile banking satisfaction. The value of this study could be viewed from both theoretical and practical perspectives.

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1. INTRODUCTION

Various studies have shown that there is a growing interest among consumers to adopt mobile banking (e.g. Zhou, Lu, and Wang, 2010; Zhou, 2011). Besides studying the levels of adoption, researchers have also investigates the antecedents of adoption among mobile consumers. Models such as Theory of Reasoned Actions or TRA, Theory of Planned Behaviour or TPB, Technology Acceptance Model or TAM, Diffusion of Innovations or DOI, Unified Theory of Acceptance and Use of Technology or UTAUT and Information Systems Success Model have been repetitively employed by researcher to study

[1] Norman Masrek.
E-mail address: mnoormanm@gmail.com

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the topic. In the same light, researchers have also applied the aforesaid models to investigate user trust in mobile banking. The lack of trust is one of the most frequently cited reasons for consumers not using mobile banking (Lin, 2011). Trust is a person's (the trustor) willingness to be vulnerable to another person (the trustee) on the basis that the trustee will act according to the trustor's confident expectations (Mayer, Davis, and Schoorman, 1995). On the other hand, trust can also be defined as willingness of customers to perform on-line banking transactions, expecting that the bank will fulfil its obligations, irrespective of their ability to monitor or control banks' actions (Yousafzai, Foxall, and Pallister, 2010). McKnight et al. argued that, in order to gain a more nuanced view of trust's implications for IT use, MIS research needs to explore how users' trust in the technology itself relates to value-added post-adoption use of IT (McKnight et al., 2011). By focusing on the technology itself, trust researchers can examine how trusting beliefs regarding specific attributes of the technology relate to individual IT acceptance and post-adoption behaviour (McKnight et al., 2011). Following the argument of McKnight et al. (McKnight et al, 2011), this study attempts to explore the influence of technology trust on satisfaction among mobile banking consumers.

2. Literature Review

2.1. Overview of Mobile Banking

Mobile banking, which is also referred to as cell phone banking is "the use of mobile terminals such as cell phones and personal digital assistants (PDAs) to access banking networks via the wireless application protocol (WAP)" (Zhou, Lu, and Wang, 2010). The mobile banking is similar to Internet banking in that it provides a fast and convenient way of performing common banking transactions (Bank Negara Malaysia, 2012). In order to enjoy the benefits of mobile banking, a user needs a mobile phone that is equipped with the features required by the bank that provides this service (Bank Negara Malaysia, 2012). Once a user obtained a registered account for mobile banking from the banking institution, the user would be able to do banking transactions from anywhere. The mobile banking can be done either by accessing the bank's web page through the web browser on the mobile phone, via text messaging, or by using an application downloaded to the mobile phone (Board of Governors of Federal Reserve Systems, 2012). Mobile banking allows customers to perform three fundamental transactions: (i) storing money in an account that is accessible by the mobile device (ii) completing cash-in and cash-out transactions with the stored account, and (iii) transferring money among different accounts.

2.2. Research Framework

McKnight et al. explained that trust in technology relates to individuals depending on, or being willing to depend on the technology to accomplish a specific task because the technology has positive characteristics (McKnight et al., 2011). Muir & Moray (1996) described that trust in technology is based primarily on user perceptions of capabilities of the technology. Therefore, in the context of mobile banking, if customers believe that the technologies that are being used are reliable and trustworthy, and then they will be more likely to evaluate overall services favourably, which in turn lead toward better user satisfaction. Koo & Wati (2010) defined trust in mobile banking as the belief that allows individual to willingly become vulnerable either to the bank or e-banking technology after having taken the bank's characteristic embedded in its technology artifact. They argued that this definition covered both traditional view of trust in "a specific party" and trust in "the integrity of technology artifact" where its process is built the same way as trust in people (Koo and Wati, 2010). In a mobile banking settings, three groups of technologies are coherently involved which are the network technology, the websites and the mobile phone. In order for the mobile banking to be optimumly utilized, users must have strong level of

trust on these technologies. Empirical studies have shown the influence of these technology trusts on utilization behaviour (Meng, Min and Li, 2008; McKnight et al., 2011; Min, Meng, and Zhong, 2008). Figure 1 showcases the theoretical framework used in the study. The framework contains three categories of trustee namely the mobile phone technology (i.e. the phone such as smart phones used by the trustee to engage in mobile banking transactions), the mobile telecommunication provider and the mobile banking provider (i.e. the retail bank that provides the mobile banking services i.e. the websites). Each of these categories of trustee is posited to have positive relationship with satisfaction. To this effect, the following hypotheses are derived:

H1: Network trust is positively related to mobile banking satisfaction
H2: Website trust satisfaction is positively related to mobile banking satisfaction
H3: Phone trust is positively related to mobile banking satisfaction

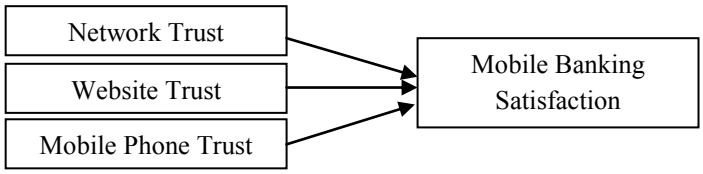

Figure 1: Research Framework

3. Research Methodology

The study used the survey research methodology. The population of the study was the mobile banking consumers living in the Klang Valley located within the state of Selangor and Federal Territory Kuala Lumpur Malaysia. Simple random sampling was used for selecting the sample of the study. A personally administered questionnaire was employed to collect the data. Several items were used to measure all variables and for each item, a corresponding Likert Scale with anchors ranging from 1 as "Strongly Disagree" and 5 as "Strongly Agree" was used. For each item listed, the respondents were requested to mark any of the five options given. The collected data were analyzed using statistical computer programs known as IBM SPSS Version 20 and Analysis of Moment Structures (AMOS) version 20. The study first examined the measurement model to test reliability and validity, and followed by the structural model to test research hypotheses. Altogether a total of 450 questionnaires were distributed and 356 were returned. However, only 312 were found usable for data analysis.

4. Findings

This study employed factor loadings, composite reliability (CR) and average variance extracted (AVE) to measure the convergent validity (Gerbing and Anderson, 1992). The recommended level of factor loadings should be above the value of 0.6 (Suh and Han, 2002) and as illustrated in Table 1, all the factor loadings met this requirement. In terms of composite reliability, all the scores are well above the cut off value of 0.7 (Hair et al., 2010). The acceptable level of AVE should be more than 0.5 which is also met in this study. AVE can also be used to determine discriminant validity. Accordingly, the discriminant validity of the construct is assessed by comparing the square root of AVE of the construct with the correlation between the constructs and all other constructs. As displayed in Table 2, the AVE values are well above the correlation values, hence suggesting good discriminant validity.

Table 1: Convergent Validity

Construct	Items	Standardized Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)
Mobile Banking Satisfaction	MBS1	0.828	0.882	0.714
	MBS2	0.867		
	MBS3	0.839		
Network Trust	MNT1	0.841	0.912	0.736
	MNT2	0.869		
	MNT3	0.863		
	MNT4	0.823		
Website Trust	MWT1	0.718	0.807	0.583
	MWT2	0.821		
	MWT3	0.748		
Phone Trust	MPT1	0.715	0.829	0.618
	MPT2	0.803		
	MPT3	0.836		

Table 2: Discriminant Validity

	Mean	Standard Dev.	MNT	MWT	MPT	MBS
Network Trust (MNT)	3.372	0.709	**0.736**			
Website Trust (MWT)	3.096	0.710	0.235**	**0.583**		
Phone Trust (MPT)	3.538	0.577	0.343**	0.277**	**0.618**	
Banking Satisfaction (MBS)	3.548	0.657	0.368**	0.392**	0.399**	**0.714**

** *Correlation is significant at 0.01 level*

The goodness-of-fit of the SEM is indicated by how well it reproduces the observed covariance matrix among the indicator items. As shown in Table 4, the χ^2 statistic suggests that the data do not fit the model well ($\chi^2 = 123.344$, df = 59, p-value < 0.05). However, because χ^2 is easily affected by sample size (Gerbing & Anderson 1985). the χ^2 statistic is not always an appropriate measure of a model's goodness-of-fit. Therefore other fit indices as shown in Table 3 are used to examine the model's goodness-of-fit. Apparently, all of the recorded indices surpassed the fit criteria suggesting that the SEM model fits the data very well.

Table 3: Fit Indices of Structural Model

Fit Index	Benchmark	SEM Value
Chi Square ($\chi^{2)}$		123.344
Degrees of freedom		59
P-value (probability)	≥ 0.5	0.001
Absolute fit measures		
CMIN (χ^2)/DF	3	2.091
GFI (Goodness of Fit Index)	≥ 0.9	0.940
RMSEA (Root Mean Square Error of Approximation)	≤ 0.05	0.059
RMR (Root Mean Square Residual)	≤ 0.05	0.018
Incremental fit measures		
NFI (Normed Fit Index)	≥ 0.9	0.948
CFI (Comparative Fit Index)	≥ 0.9	0.972
Parsimony Fit Measures		
AGFI (Adjusted Goodness of Fit Index)	≥ 0.8	0.908
PNFI (Parsimonious Normed Fit Index)	≥ 0.5	0.717

As all the fit indices of the structural model meet the recommended criteria, the study proceeds by examining the path coefficients of the structural model which is shown in Table 4. As for H1, the hypothesis is supported, justified by the p-value which is less than 0.05. The R^2 value is 0.336 which suggest that 33% variance in satisfaction is explained by satisfaction. With regard to H2, the hypothesis is also supported as the recorded p value is also less than 0.05. The recorded squared multiple correlation is 0.192 implying that 19.2% variance in loyalty is explained by satisfaction. The p-value for the path between trust in website and satisfaction is less than 0.05 suggesting that the relationship between both of these variables is also significant. Hence, this study also supports H3.

Table 4: Results of Path Analysis

	Path	Estimate	S.E.	C.R.	P value	Hypothesis Testing
H1	Satisfaction ⇠ Network	0.436	0.114	3.813	$p < 0.05$	Supported
H2	Satisfaction ⇠ Website	0.173	0.057	3.061	$p < 0.05$	Supported
H3	Satisfaction ⇠ Phone	0.186	0.086	2.154	$P > 0.05$	Supported

5. Discussion and Conclusion

The conduct of this study has been to investigate the relationship of technology trust and mobile banking satisfaction. The findings have showed that all of the three technology trusts have positive relationship with mobile banking satisfaction. The finding further indicates the importance and significance of technology trust in predicting mobile banking satisfaction. The usefulness of this study could be viewed from both theoretical and practical standpoints. From the theoretical perspective, the study has developed an empirical based framework which should be of the interest to researchers focusing on mobile banking. Coupled with the framework is the developed questionnaire which has undergone rigorous development processes including the pre-test and pilot test. This framework together with the questionnaire can be re-used to study similar topic but in a different mobile banking environment. The findings obtained from such study can be compared against the findings of this study. Viewed from the practical perspective, the findings of the study can guide mobile banking practitioner to re-evaluate their mobile banking technologies so as to increase the level of satisfaction among users. Based on the developed framework and the corresponding questionnaire, mobile banking providers can evaluate the level of user trust on their mobile banking technologies. The results of the assessment can be used to improve the quality of mobile banking services.

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