# EXTENDING THE UTAUT MODEL IN M-BANKING ADOPTION

**Ching-Mun Cheah, Universiti Tunku Abdul Rahman, Malaysia, Faculty of Business and Finance**
cheahcm@utar.edu.my

**Aik-Chuan Teo, Universiti Tunku Abdul Rahman, Malaysia, Faculty of Business and Finance**
teoac@utar.edu.my

**Keng-Boon Ooi, Linton University College, Malaysia, Chancellery Division**
ooikengboon@gmail.com

**Jessica C.J. Wong, Linton University College, Malaysia, Chancellery Division**
jessicawcj@gmail.com

## ABSTRACT

*The banks are motivated to leverage their m-banking activities with the advancement of mobile technologies and the high mobile penetration rate. Despite the availability of the m-banking services, many consumers still posses the attitude of 'wait-and-see' which resulted to unsatisfactory adoption rate. Hence, this paper aims to extend the Unified Theory of Acceptance and Use of Technology (UTAUT) model to better understand what drives Malaysian consumers to adopt m-banking services. The conceptual model also provide better strategic insights for commercial banks, service developers, mobile manufacturers, and others to yield higher acceptance of m-banking.*

**Keywords:** M-Banking, Adoption, Unified Theory of Acceptance and Use of Technology (UTAUT), Malaysia

## INTRODUCTION

Gone were those days, where banking transactions traditionally only performed via bank branches, Automated-Teller Machine (ATM), telephone and online platforms. With the convergence of internet, wireless technologies, and mobile advancement, the new form of banking has emerged, namely, mobile banking. Mobile banking is defined as a channel whereby the customer interacts with bank using mobile device (i.e., mobile phone and Personal Digital Assistant) (Barnes & Corbitt, 2003). Along with the different sectors, banking sector is the leading sector in utilizing both internet and mobile technology in delivering its services (Laukanen, 2007).

Considering the high mobile penetration rate, Pousttchi & Schurig (2004) foresee that m-banking will appear as the most typical applications in m-commerce. However, the current acceptance of m-banking still remains at infancy stage (Sulaiman et al., 2007, Donner & Tellez, 2008, Cheah et al., 2011). Kleijnen et al. (2007) also stated that the m-banking usage is still far from meeting the industry expectation. To further support this, Bank Negara Malaysia (2012) has reported that only a slight increase of 1.7 penetration rate of m-banking

among the mobile subscribers from year 2011 to 2012. Thus, it is not surprising that examining the acceptance and rejection of innovation has emerged as one of the most emphasized areas in innovation research.

Many studies has been conducted to examine the adoption of m-banking (Cheah et al., 2011; Zhou et al., 2010; Sulaiman et al., 2007) through various models such as Technology Acceptance Model (TAM) (Cheah et al., 2011), integrated model of Task-Technology-Fit and Unified Theory of Acceptance and Use of Technology (UTAUT), and Innovation Diffusion Theory (IDT). Puschel et al. (2010) commented that different IS models used will produce different results which make it difficult for scholars to compare the findings. As UTAUT explains 70% of the variance in explaining users' intention (Venkatesh et al., 2003), thus, the study aims to further extend UTAUT model with the inclusion of two additional, namely, trust and perceived value (PV). The paper begins with the introduction, followed by the proposed conceptual research framework and hypothesis development. Lastly, the paper ends with the conclusion and implications.

## LITERATURE REVIEW

### Unified theory of Acceptance and Use of Technology (UTAUT)

Drawing from TAM, UTAUT was proposed by Venkatesh et al. (2003). Based on the model, both user adoption and usage of IT are affected by four constructs, namely, performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC). UTAUT was built after the reviewing the eight renowned IS theories consisting the Technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), the Innovation Diffusion Theory (IDT), the Motivational Model, the PC Utilization Model, the Social Cognitive Theory (SCT), and the integrated model of technology acceptance and planned behavior. Even though the UTAUT model has not been widely adopted in comparison with the other IS models such as TAM (Zhou et al., 2010), but it has gradually drawn several researchers' attention such as Chong (2012) and Gruzd et al., (2012) to adopt the model to investigate adoption of mobile innovations.
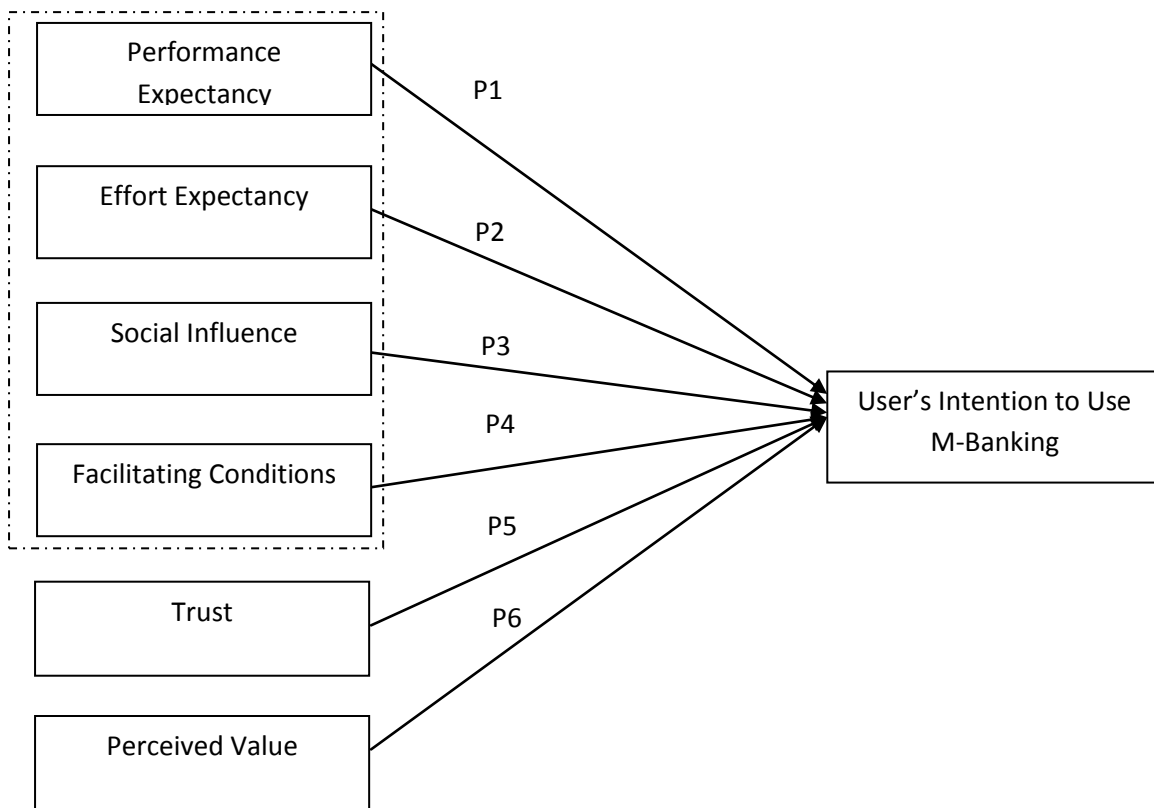
## UTAUT



Figure 1: Conceptual Research Framework extent

## Hypothesis Development

Performance expectancy (PE) refers to the degree of utilizing an information system (IS) which will provide benefits to the users. PE is conceptually similar to the construct of perceived usefulness and relative advantage from TAM and Innovation Diffusion Technology (IDT) respectively (Venkatesh et al., 2003). Acknowledging the similarity, Brown et al. (2003) denoted that the higher the perceived relative advantages, the greater behavioral intention to adopt m-banking. Effort expectancy (EE) refers to the extent of ease associated with the use of IS. The construct is parallel to perceived ease of use of TAM and complexity of IDT (Venkatesh et al., 2003). In the case of m-banking, users will more likely to use m-banking service if using the service is free from effort and easy to use. Recognizing the important of social influence (SI), Pederson & Ling (2002) indicated that the construct cannot be simply ignored in any innovation adoption studies. Similar to the construct of subjective norm of TRA, SI refers to the extent to which users perceived the importance of others like family & friends' believe that they should utilize the IS (Venkatesh et al., 2003). This simply implies that the social pressures would drive the individual to adopt m-banking services. Facilitating condition (FC) refers to the consumers' perceptions to the resources and support which individuals received when using IS. Zhou et al. (2010) indicated that the users will only adopt m-banking services if they have both financial resources and operational skills. Drawing from the review of literatures, we formulated the following propositions:

P1: PE has positive significant relationship towards Malaysian's m-banking adoption.
P2: EE has positive significant relationship towards Malaysian's m-banking adoption.
P3: SI has positive significant relationship towards Malaysian's m-banking adoption.
P4: FC has positive significant relationship towards Malaysian's m-banking adoption.

In the mobile environment, trust plays a critical role as it involves high degree of uncertainties and risks (Lin et al., 2012). Furthermore, personal information such as contacts is usually stored in users' mobile devices which may lead to relatively high security and privacy risks. Kim & Prabhakar (2004) further supported that the trust has significant influence towards new technologies adoption. Perceived value (PV) is defined as the user's overall perception of m-commerce according to the considerations of the benefits and scarifies needed to acquire and/or use it (Kim, 2007). Chong (2013) through the survey conducted from 140 respondents in China as found that the PV is the critical factor of m-commerce adoption. Hence, the following propositions are postulated:

P5: SI has positive significant relationship towards Malaysian's m-banking adoption.
P6: FC has positive significant relationship towards Malaysian's m-banking adoption.

## CONCLUSION AND IMPLICATIONS

The conceptual paper of extended UTAUT examined the determinants of m-banking adoption by adding constructs such as trust and PV. There are several impacts identified from this study which are derived from the original UTAUT model, but this study has also further extended into the perspective of consumers' information system adoption. As such, it provides better understanding on what drives the user's m-banking adoption. Secondly, this study has investigated the adoption of m-banking in developing country, particularly, Malaysia. As mobile devices is relatively important in Malaysian's routines in comparison to North America and Europe as mobile devices play a significant role in Malaysian's routines as compare to North America and Europe (Boer and Boer, 2009), hence, the paper will be beneficial to banks, system engineers, and other service providers in formulating and implementing strategic move to boost the use of m-banking in Malaysia.

## REFERENCES

1. Bank Negara Malaysia (2013), "Internet banking and mobile banking subscribers", available at:
   http://www.bnm.gov.my/statistics/payment/pdf/04_internet_banking_20120604.pdf [accessed 12 February 2013].
2. Barnes, S. J. (2003), "Mobile banking: concept and potential", *International Journal of Mobile Communications*, Vol. 1 No. 3, pp. 273-288.
3. Boer, R., and Boer, T. (November, 2009), "Mobile payments: market analysis and overview", *Innopay,* available at:
4. https://www.nacha.org/userfiles/File/The_Internet_Council/Resources/Mobile%20payments%202010%20-%20Innopay.pdf [accessed 15 April 2012].

5. Brown, I, Cajee, Z., Davies, D. and Stroebel, S. (October, 2003), "Cell phone banking: predictors of adoption in South Africa – an exploratory study", *International Journal of Information Management*, Vol. 23 No. 5, pp. 381-394.

6. Cheah, C. M., Teo, A. C., Sim, J. J., Oon, K. H., and Tan, B. I. (September, 2011), "Factors affecting Malaysian mobile banking adoption: an empirical analysis", *International Journal of Network and Mobile Technologies*, Vol. 2 No. 3.

7. Chong, A. Y. L. (1 February, 2013), "Predicting m-commerce adoption determinants: a neural network approach", *Expert systems with Applications*, Vol. 40 No. 2, pp. 523-530.

8. Chung, N., and Kwon, S. J. (2009), "The effects of customers' mobile experience and technical support on the intention to use mobile banking", *Cyber Psychology and Behavior*, Vol. 12 No. 5, pp. 539-543.

9. Donner, J., and Tellez, C. A. (2008), "Mobile banking and economic development: linking adoption impact and use", *Asian Journal of Communication*, Vol. 18 No. 4, pp. 318-332.

10. Gruzd, A., Staves, K., and Wilk, A. (November, 2012), "Connected scholars: examining the role of social media in research practices of faculty using the UTAUT model", *Computers in Human Behavior*, Vol. 28 No. 6, pp. 2340-2350.

11. Kim, K. K., and Prabhakar, B. (2004), "Initial trust and the adoption of B2C e-commerce: the case of internet banking", *Database for Advances in Information Systems*, vol. 35 No. 2, pp. 50-64.

12. Kim, H.W., Chan, H.C., and Gupta, S. (2007), "Value-based adoption of mobile internet: an empirical investigation", *Decision Support Systems*, Vol. 43 No. 1, pp. 111-126.

13. Kleijnen, M., De Ruyter, K. and Wetzels, M. (2007), " An assessment of value creation in mobile service delivery and the moderating role of time consciousness", *Journal of Retailing*, Vol. 83 No. 1, pp. 33-46.

14. Laukkanen, T. (2007), "Internet vs. mobile banking comparing customer value perceptions", *Business Process Management Journal*, Vol. 13 No. 6, pp. 788-797.

15. Lin, J., Lu, Y., Wang, B., and Wei, K. K. (2011), "The role of inter-channel trust transfer in establishing mobile commerce trust", *Electronic Commerce Research and Applications*, Vol. 10 No. 6, pp. 615-625.

16. Pederson, P, and Ling, R. (2002), "Modifying adoption research for mobile internet service adoption: cross-disciplinary interactions", in *Proceedings of the 36th Hawaii International Conference on System Sciences*, Big Island, HI.

17. Pousttchi, K., and Schurig, M. (2004), "Assessment of today's mobile banking applications from the view of customer requirements", *in Proceedings of the 37th Hawaii International Conference on System Sciences, IEEE*.

18. Sulaiman, A., Jaafar, N. I., and Mohezar, S. (2007), "An overview of mobile banking adoption among the urban community", *International Journal of Mobile Communications*, Vol. 5 No. 2, pp. 157-168.

19. Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). "User acceptance of information technology: toward a unified view", *Expert Systems with Applications*, Vol. 32 No. 2, pp. 336-348.

20. Zhou, T, Lu, Y, and Wang, B. (July, 2010), "Integrating TTF and UTAUT to explain mobile banking user adoption", *Computers in Human Behavior*, Vol. 26 No. 4, pp. 760-767.