Mobile Wallet service Utilisation in India : emperical analysis of user trust and acceptance factors

Dr. Indrajit Sinha

Abstract: There is sea change in way the payments are made for transaction, from physical cash to payment through plastic cards and internet based payment and now through mobile-wallet .Till recently technology based e-payment were all through credit or debit card or internet based payment. However the era of payment through mobile-wallet with similar characteristics of physical cash has arrived in India.People are making payment for transaction for purchase of goods and service through mobile-wallet. Despite its number of advatages , the acceptance of mobile-wallet by the prospective user will depend on certain variable. Right now mobile wallet the future is promising and seductive, but uncertain. Previous researcher has established varaiables which determines use of e-banking , e-commerce, acceptance of software in workplace environment. This paper aims at studying some of the determinants as established in earlier researcher and makes attempt to find whether these variables also influence the use of mobile-wallet. Researcher after analysing the collected data through survey from sample population has emperically established that variables mainly awareness , relative advantage, trust and ease of use are detrminants that would decide whether one will use mobile-wallet as preferred method payment or not.

Key words : mobile wallet, relative advantage, Awarenss, ease of use, trust , TAM,

---

Introduction

Toady smart phones are not only used as voice communication devices, but also to be used as socialized tool, entertainment tool, internet access tool, and even payment tool (Rajgopal, 2012). Today Smart phones alongwith some application could be used to make money transaction for payment in the similar way as physical cash and with same properties as physical cash , it is then refered as “Digital Wallet” or widely known as “Mobile Wallet”. Mobile wallet is in the process of adaptation many countries. M – Pesa a brand of VODAFONE started as CSR activity in Kenya in 2007 due the problem of physical money theft problem. Today it has good penetration in the keneya and its no more a CSR activity (Business Today Edition:, 2014) . In India where only 5% of total bank branches are located in rural areas therefore money payment for migrant worker or payment given by the government agencies for various social beneficiary scheme are paid through physical cash which often lead to mis appropriation, misuse and or theft. Presently there more one billion mobile subcriber in India and forty percent of this are in the rural sector. Therefore mobile couldbe used as mobile wallet for both receiving and paying money for transaction insteadof physical cash. Even though m-wallet has many advantages still its penetration and use in India is abasamally low

Sanchit Vir Gogia has opined that mobile wallet adoption has been low owing to factors such as awareness and lack of information and communication technology the success and the growth of mobile wallet (M-Pesa) will depend on the merchants who will promote and integrate mobile wallet (M-Pesa) with their business needs.

In US barrier for adoptation mobile wallet is two counts 1. Demand side consumers and merchants are well served by the current card system, and face a low expected benefit-cost ratio. 2. On the supply side, low market concentration and strong competitive forces of banks and mobile carriers make

coordination of standards difficult (Marianne Crowe et al.,2010).Similarly in India barrier for adopdation could be amount relative advatages mobile wallet would provide in comparison other method payment including card system/ internet banking .

Researcher has previously established that there are similarities between e-commerce and mobile wallet, and research has found that factors from Diffusion of Innovation by Rogers ,Technology Acceptance by Fred Davis and trustworthiness models has profound role in user acceptance of e-commerce (Moon & Kim, 2001; Gefen & Straub, 2000; Gefen *et al* ., 2003; Pavlou, 2003) it is therefore likely that these variables may play important role in acceptance of mobile wallet by the cosumer.

Trust

Trust is plays vital role in affecting consumer behavior and it determines the success of technologies adoption such as e-commerce (Chen and Barnes, 2007;Holsapple and Sasidharan, 2005; Goles et al., 2009; Yang *et al*., 2009).Trust can be described as the degree to which one party of transaction will belief that other party will behave in a responsible manner, and, by so doing, will fulfill the trusting party's expectations without getting into vulnerabilities(Gefen, 2000, Mayer, R.C *et al* 1995). Trust worthiness of the internet technology, trustworthiness of internet merchant and other contextual factors influence internet shopping (Mathew K.O Lee & Efraim Turban, 2001). Trust in mobile wallet is defined here as the faith that allows user to willingly become vulnerable to m wallet service provider after having taken the its' characteristics into consideration. "Trust is defined as a willingness to rely on an exchange partner in whom one has confidence." (Moorman. Deshpand,and Zaltman 1993).

Research question 1: Does Trust have positive effect on user adoptation of mobile wallet?

Hypothesis 1: Trust have positive effect on user adoptation of mobile wallet.

Relative advantages(RELADV)

The consumers at initial stage adoptation or rejection tend to ask questions : “What are the innovation’s consequences?”, “What will its advantages and disadvantages be in my situation?” (Rogers, 1983, p. 170). Similarly Rogers’ (1995) Diffusion of Innovation (DOI) explains that the rate of diffusion is affected by an innovation’s relative advantage,complexity, compatibility, trialability and observability. Rogers (1995) defines relative advantage as ‘the degree to which an innovation is seen as being superior to its predecessor’. Consumer looks for convenience, usefuleness,benefits over the exiting leather wallet inoder they would adopt or reject the mobile wallet. Thus for users of online banking, they will adopt the system if they believe the system will bring benefits such as reducing time spent on going to bank and improving efficiency (Rao et al., 2003).

Research question 2: Does Relative Advantage have positive effect on user adoptation of mobile wallet?

Hypothesis 2: Relative Advantage have positive effect on user adoptation of mobile wallet.

Ease of Use(EOU)

One of the most pioneer research work used by researchers in the study of individual's adoption of technology is Technology Acceptance Model (TAM) (F.Davis, 1989). TAM proposed that both the perceived usefulness and perceived ease of use can be used to predict the attitude towards using new technology, which in turn affects the behavioral intention to use the actual system directly (Davis, 1989; Venkatesh et al., 2003). The definition of "ease": "freedom from complexity or great endeavor." Effort is a finite resource that a person may allocate to the various activities for which he or she is responsible (Radner and othschild, 1975) All else being equal, we claim, an application perceived to be easier to use than another is more likely to be accepted by users

Research question 3: Does Ease Of Use have positive effect on user adoptation of mobile wallet?

Hypothesis 3: Ease Of Use have positive effect on user adoptation of mobile wallet.

Awareness

For consumer of technology based service it is very important they must be aware of such service is available and its equally important to know various benefits it provides. Awareness and knowledge of a technology is a prerequisite for its use. There are also several consumer behavorial theories that are published which explain the rate of adoption and degree of acceptance of the use of the likes of mobile wallet. Rogers and Shoemaker (1971) established that consumer go through several stages in knowledge conviction and decision confirmation before they finally adopt a product of service. Guiltinand and Donnelly (1983) emphasized on the importance of awareness before adoption of any innovative products. Awareness of the innovation may communicated through various channel including social media, word of mouth, conevntional media.However first and impotant step of adoptation is both, awareness of innovation and also awareness of its benefits and utility.

Research question 4: Does Awareness have positive effect on user adoptation of mobile wallet?

Hypothesis 4: Awareness positive effect on user adoptation of mobile wallet.

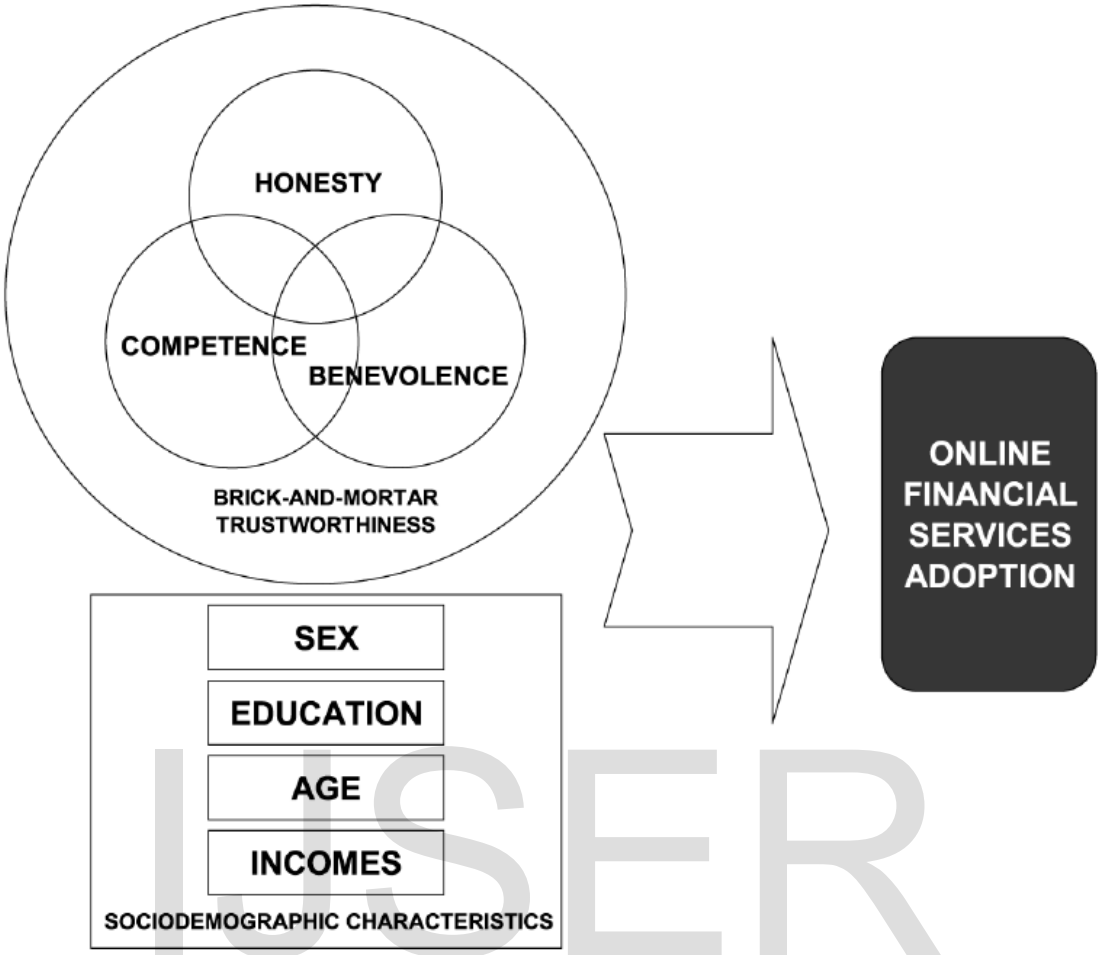


FIGURE 1 Flavia´n et al., (2006)Research Model

Methodology

This research has design for causal study between independent variables namely trust , convenience, awareness and benefits and easeof use and dependent variables use of mobile wallet. In order to attain the objectives of this causal study, and for testing the hypotheses we have followed methods:

1. Questionnaire is designed.
2. Pilot study of the questionnaire is conducted and reliability is established.
3. Final Data collect data from respondents.
4. Multiple regression technique is used to analyse the data.
5. Result analysis has validated most of the hypothesis and proposed research model with modification.
6. Based on results authors have suggested contribution made by this research and further pointed out some of the limitation of the study.

Sample

Data have been collected from 284 form students, general public through questionnaire on which pilot test has already been conducted. Data is collected personally by visiting, through e-mails and also through surveyors explaining the respondent about objective of the study. Demographic description of the respondent is as given below.

Data analysis

Table 1 : Demographics

Demographics	Minimum	Maximum	Mean
Age	18	41	26
Years of computer use	0	20	8
Annual Income(in Rupees)	5000	1000000	224000
No. of times online service used per month	0	15	2.3

Sex
Male : 68% Female: 32%

Table 2: Factors affecting adoption of Mobile Wallet

Factors	Rotated factor loading	% of variance explained
Trust		
Ethical and professional conduct	0.766	41.36
consider m-wallet transaction unsafe	0.689	
transaction through m-wallet highlypositive situation	0.541	
Relative advatage		18.6
Convenient way of doing monetary transactions	0.801	
No hassle of carrying physical cash	0.785	
Provides valuable service	0.774	
Time Saving	0.673	
Awareness and benefits		
Level of awareness of the	0.913	11.6

service		
Willingness to adopt technology	0.832	
Ease of use		8.5
find the e-banking to be flexible	0.694	
User friendly web site	0.636	
Ease of performing E-Transaction	0.587	

Model testing

Stepwise Multiple regression analysis (with criterion: Probability of F to enter <=0.05)was conducted for hypothesis testing. First, a regression analysis was performed to assess the significance of demographics on use intentions mobile wallet. None of the demographics were significant, and were therefore not included as covariates in the final analyses. Multicollinearity was not a concern with (VIF) as given in the table below ranging from 1.406 to 1.20 for the main effect regression model. Outlier influential observations were identified with leverage, studentized residuals and Cook's *D*-statistic. This analysis indicated that there were no problems with respect to influential outliers.

Table 3 . Correlation matrix for Trust, perceived ease of use,Trust, and customer adaptation

Variables	Trust	RelAdv	Aware	Peou	Intent to use
Trust	1	0.36	0.41	0.26	0.36
RelAdv		1	0.24	0.24	0.27
Aware			1	0.3	0.24
Peou				1	0.41
Intent to use					1

Table 4: Model Summary

	B	β	t	p	TOLERANCE	VIF
CONSTANT	1.685		-2.228	.012		
AWARE	0.654	.566	2.228	.001	.711	1.406
RELADV	0.311	.223	5.204	.000	.723	1.38
TRUST	0.183	.186	4.370	.002	.736	1.35

EOU	0.110	.122	2.566	.001	.831	1.20
R	.758					
Adj. R^2	.698					
Sig.	0.001					

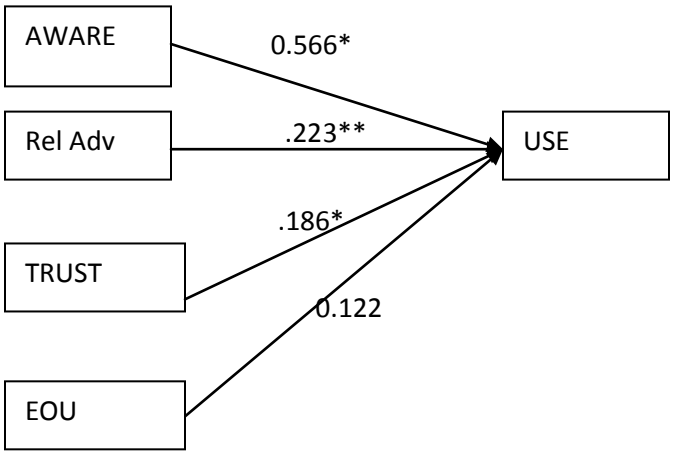
RESULTS

The model explains 69.8% of the variance in adapting online service. Because the overall model is significant (F = 123.452, P = 0.001), we tested the significance of each variable. Trust , Ease of use, Awareness, Relative Advantage, are significant. Table 5 illustrates which hypotheses are supported

Table5 :

	VARIABLE	Coefficient	t-Value	Significance	Support
H1	Trust	0.186	4.370	.000	YES
H2	Rel Adv	0.223	5.204	.001	YES
H3	Eou	0.122	2.566	.005	YES
H4	Aware	0.566	2.228	.001	YES

Figure 2 : Results of research model



Trust

Hypothesis 1 is supported. This fact or is positively related to intent to use. . Indian cosumer will use mobile when they are convince that there will be no loss or security concern for using mobile wallet. Intent to use the mobile wallet would increase if the customer trust their service provider and the techonolgy and there by develop confidence on to the system .

Relative Advantage

Hypothesis 2 is supported. Indian cosumer will use mobile wallet when they are convince by the fact that many relative advatages compare conventional leather wallet .Intent to use mobile wallet shall increase if they find they find it useful to use. Consumer will use mobile wallet if

they believes in the existence of a positive use-performance and has relative advantage in using the same.

Perceived Ease Of Use

Hypothesis 3 is supported. Customer' intentions to use mobile wallet service will increase if customer perceive the service to be easy to use. In general, this indicates that it is imperative for online banking services to be intuitive.

Awareness

Hypothesis 4 is supported. However there is poitive relation between this factor and to use mobile wallet .as a first step prospective consumer should be of technology and system in order they start using the mobile wallet.

Discussion

This study investigated the factors that influence the adoption of mobile wallet by user in for the case of
the emerging economy of India. India which currently having highier GDP than other emerging country provides a good case study as the country is actually one of the best performers of the continent and moreover has a relatively welldeveloped financial system and more than one billion samrt phone user in the country. Therfore both institution Govement , banks and mobile service provider should ensure to make propective user aware of the service through various communication channel and promotions. Service provider including bank , samrt phone companies should put inplace secured, risk free and trustble techology and as well as govt. law should in place inorder the user feel safe to transact using mobile wallte insead physical leather. Similarly user also must realise that there lot of utility,advantage and benefit using this new technology. And lastly system designer must ensure that technoly and system to use mobile wallet service should be quite easy to operate and to adopt.

References

Bélanger, F. & Hiller, J. (2005) A framework for e-government: Privacy implications. *Business Process ManagementJournal*, **11**,

Chen, Y.H. and Barnes, S. (2007), "Initial trust and online buyer behaviour", Industrial Management & Data Systems, Vol. 107 No. 1, pp. 21-36.

Cronbach, L. (1970) *Essentials of Psychology Testing*.Harper & Row, New York, USA.

Davis, F. (1989) Perceived usefulness, perceived ease of use and user acceptance of information technology. *MISQuarterly*, **13**, 319–340.

Gefen, D. E-commerce; The role of familiarity and trust. *Omega: The hiteriiational Journal of Management Science, 28, 6* (2000), *725*

Gefen, D., Karahanna, E. & Straub, D. (2003) Trust and TAM in online shopping: an integrated model. *MIS Quarterly*, **27**, 51–90.

Gefen, D. & Straub, D. (2000) The relative importance of perceived ease of use in IS adoption: a study of e-commerce adoption. *Journal of the Association for Information Systems*, **1**, 1–28.

Goles, T., Lee, S.J., Rao, S.V. and Warren, J. (2009), "Trust violations in electronic commerce: customer concerns and reactions", Journal of Computer Information Systems, Vol. 49 No. 1, pp. 1-9.

Grabner-Krauter, S. and Faullant, R. (2008), "Consumer acceptance of internet banking: the influence of internet trust", International Journal of Bank Marketing, Vol. 26 No. 7, pp. 483-504.

Guiltinand, J., & Donnelly, J. (1983). The use of product portfolio analysis in bank marketing planning in Shanmugam & Burke (Eds.), *Management issues for financial institutions* (p. 50).

Flavian, C., Torres, E., & Guinalíu, M. (2004). Corporate image measurement A further problem for the tangibilization of Internet banking services, *International Journal of Bank Marketing, 22*(5), 366-384.

Hair, J., Black, W., Babin, B., Anderson, R. and Tatham, R. (2005), Multivariate Data Analysis,
6th ed., Prentice-Hall, Englewood Cliffs, NJ.

Holsapple, C.W. and Sasidharan, S. (2005), "The dynamics of trust in B2C e-commerce: a research model and agenda", Information System E-business Management, Vol. 3 No. 4, pp. 377-403.

Marianne Crowe, Marc Rysman, and Joanna Stavins(2010), Mobile Payments in the United States at Retail Point of Sale: Current Market and Future Prospects, public policy,Federal reserve Bank of Boston

Mathew K.O Lee & Efraim Turban, "A Trust Model for consumer Internet Shopping. International" Journal of Electronic Commerce, Vol. 6, No. 1, pp 75-91, 2001.

Mayer, R.C; Davis, J.H.; and Schoorman, F.D. An integrative model of organizational trust. *Academy of Management Reviezo, 20,* 3 (1995), 709-734

Moon, J. & Kim, Y. (2001) Extending the TAM for a worldwide-web context. *Information and Management*, **28**,217–230

Pavlou, P. (2003) Consumer acceptance of electronic commerce: integrating trust and risk with the technology acceptance model. *International Journal of ElectronicCommerce*, **7**, 69–103.

Pitroda S., Desai M. (2010). The March of Mobile Money - The Future of Lifestyle Management. The Mobile Wallet, 127-155.

Rajgopal, K. (2012). McKinsey on Payments. Payments wave, commerce ocean: The arrival of the mobile wallet, 38-46.

Rogers, E. M., & Shoemaker, F. (1971). *Communications in innovation*. New York, NY: Free Press.

Rogers EM (1962) Diffusion of Innovations (1st ed.): Free Press, New York, NY.

Rogers EM. (1983) Diffusion of Innovations (4th ed.): The Free Press,New York, NY.

Rotchanakitumnuai S, Speece M (2003) Barriers to internet banking adoption: a qualitative study among corporate customers in Thailand.Int. J. Bank Mark. *21*(6): 312-323.

Sanchit Vir Gogia Business Today nov 2013 edition

Soma Sundaram , Business Today april 2015 edition

Yang, M.H., Chandlrees, N., Lin, B. and Chao, H.Y. (2009), "The effect of perceived ethical
performance of shopping web sites on consumer trust", Journal of Computer Information
Systems, Vol. 50 No. 1, pp. 15-24.