

Public Intention towards Mobile Money Transactions in Sri Lanka

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Abstract: Mobile Money Transaction (MMT) is an innovative technology, which is freshly introduced by several business entities in Sri Lanka. Though this service is useful and relatively easy, an initial study revealed that it is not popular among the community as an e-banking service. With this background, the study was conducted to detect the factors affecting public intention towards MMT in Sri Lanka and to recognise the most influencing factor on public intention towards MMT. With the theoretical support of Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA), five independent variables were developed namely, awareness, perceived usefulness, perceived ease of use, perceived risk and perceived trust, while public intention was identified as the dependent variable. The survey questionnaire was developed after a pilot testing with 18 undergraduates and 170 responses were collected through a web-based questionnaire. The collected data were analysed with the use of SPSS software, and all the data preparation techniques such as normality, linearity, validity, reliability and multi-collinearity were conducted. According to the multiple regression analysis, it was revealed that Perceived Ease of Use and Awareness have no impact on dependent variable, whereas all the other three independent variables showed a significant impact. Also, the perceived risk was identified as the critical factor on consumer intention towards MMT. As implications of the study, mobile service providers need to take measures to

minimise the associated risk of MMT in order to make MMT more popular among people.

Keywords: Mobile Money Transactions, Consumer intention, Consumer awareness, Perceived risk

Introduction

Mobile technology has a major opportunity to become an important service in economic arena of developing countries, because most of the people are using mobiles to accomplish monetary activities in their daily activities, such as money transferring, money receiving and payment activities. Banks and mobile service providers already established mobile money platforms for consumers to do monetary activities, like deposit money and transfer money through digital account. It is a competitive opportunity to millions of unbanked people in all over the world (IOM; UNFPA, 2014). There are now 411 million worldwide mobile money accounts. In addition, mobile money is available in 85% of countries where there is no access to a formal financial institution for the vast majority of the population. This is an exceptional accomplishment, showing the power of digital, underpinned by the important role played by mobile network operators in the development of this market (GSMA, 2016).

The number of mobile money providers in 93 countries grew to 271 in 2015. In addition, according to World Bank data on global financial inclusion, mobile money services are available in 85% of countries where there are less than 20% of citizens

with an account at a financial institution (World Bank, 2015). Mobile money has evolved to offer options to save and borrow money, supporting people in handling financial risks and household surprises, more than a creative and open resource for transactions. Though microfinance has its origins in the late 1970s. (Grameen bank, 1970).

One of mobile money's most pronounced impact has been that millions of individuals and companies who have never had access to credit can now create a transaction history, borrow money, and pay it back via their mobile phone. There were 52 live mobile credit services allowed by money in 2016, up from seven in 2011 (Genga, 2016). Mobile cash has redefined the economics of the poor by exploiting broad-based agent networks, inexpensive feature phones and mobile network access to reach mass audiences in a financially sustainable manner (GSMA, 2016).

Telecommunication industry have an important role in country's economy. In Sri Lanka has a small market in telecommunication industry. There are four service providers are serving mobile services in Sri Lanka. These are Dialog, Mobitel, Airtel and Hutch. These service providers are struggling to keep their market share by increasing new customers. Mobile service providers are introducing new products into the market to attract new customers. E-channeling, e-shopping, e-learning and mobile money transactions are very significant technologies in Sri Lanka (Dissanayake, Hewagamage, Ramberg, & Wickramanayake, 2014). Traditionally people use money notes to financial transactions but later credit cards and automated teller machines replaced to old banking methods. Mobile phone operators put more effort to introduce new services to their customers. Surveys, softwares, Advertising and Marketing activities use to introduce new services. Awareness and interest of the customers are important to success new innovations (Biemans, Griffin, & Moenaert, 2016).

Mobile phones introduce new and rapidly growing methods of facilitating financial transactions and transfers for those included in or removed from structured monetary systems (Porteous, 2006). Mobile money transaction technology creates opportunity to operate a mobile instrument such as a mobile phone to start, control and ratify a monetary arrangement (Kaufmann & R.J., 2007).

Research Issue

Mobile network providing companies have introduced a money transferring method using mobile phones which is similar to a bank account. Since this service is new to the customers, there is a challenge to attract the target population and there will be many reasons for this situation. The researchers conducted an Exploratory Research on usage of mobile money in Sri Lanka. As a result of that, the findings indicated that the MMT is not much established as much as mobile banking. So, this research will be conducting to observe the reasons for the poor expansion of MMT and identify the most influencing factor to adopt mobile money transactions in Sri Lanka.

Previous researchers have provided an in depth understanding of the factors that affect consumer attitude and intention towards mobile money transactions in relationship with mobile banking and internet banking (Colombage & Priyangika, 2011). Sandaruwan, et al., (2018) have provided a conference paper regarding on the "Factors affecting the mobile money transactions in Colombo district Sri Lanka". But the researchers haven't considered about the perceived ease of use and the perceived usefulness variables which can be affected to the behavioral intention of consumers. This research will consider about perceived ease of use and usefulness along with other variables. By observing those researches, we identified that the mobile money transactions happen without banks are not much considered. We are conducting this research to observe

the public intention towards MMT and reasons for their intensity to use it in Sri Lanka. The research questions are as follows;

1. What is the relationship between Perceived Usefulness, Perceived Ease of Use, Perceived Risk and Perceived Trust and Awareness towards Public Intention on MMT in Sri Lanka?
2. What is the most influencing factor to establish mobile money transferring in Sri Lanka?

The research aims at investigating the effectiveness of factors related to consumer intention on mobile money transferring method in Sri Lanka and to recognize the most influencing factor among them.

Literature Review

Generally mobile money can describe as an electronic technology which process monetary transactions through mobile phones. Mobile money services can be categorized in three ways. Those are “mobile banking”, “mobile payments” and “mobile transfer. Every developed state which developed in every area use mobile banking but developing countries do not have much intention on mobile banking. Other monetary activities operating through mobile are mostly used in non-developed countries with people who don’t have banking access. Main services of MMT are mobile payment and mobile transfer. The mobile money account is registered for the mobile number of the particular user. This electronically operable account can be recognized as a “mobile wallet”, and it is secured by a personal identification number (PIN) and the account can credit or debit instantly through this digital service. Mobile phone users should engage with the small merchant outlets to deposit money into their mobile account. Telecommunication Company should provide small mobile recharge outlets in each area to cover all consumers. Local mobile agent centers can convert cash into mobile money as well as mobile money to

cash through transmitting activity with the mobile telecommunication company. The electronic mobile account is controlled by mobile service operator according to standard value. (IOM, UNFPA, 2014).

The rapid development of electronic payment technology requirements, in particular by mentioning internet contribution as a key commercial channel and potentially exciting potential has not yet been fully exploited. Previously, consumers did not know the internet and saw it only as a means of gathering information. But now, consumers are accepting this channel for their purchasing decisions and transactions. The increase mobility needs of customers when the payment of transactions has created the need for a new payment instrument that makes transactions easier and more convenient (Ondrus & Pigneur, 2006).

Consumers must have knowledge to make payments by using mobile. Companies targeting to mobile money transactions but most of the people haven’t trust on the mobile payments because consumers should have learning activities to launch mobile money transactions among the future consumers and merchants (Arviddson, 2014). In Europe electronic payments were more significant because of the advantage of electronic form of mass payments than the cash payments. If cash payments are replaced by the electronic payments may be around or even more than 0.3 percent of annually GDP economic profit can gain for a society (Danmarks national bank, 2011).

With the use of TAM, we can identify age as an important variable to explain the use of new technologies (Sun & Zhang, 2006). Number of researches has an inverse relationship with the importance of age and new methods (Morris, Venkatesh, & Ackerman, 2005). However, the age-appropriate study on technology acceptance has found that age has been negatively associated with the self-efficacy of the Internet, but has not affected the

perceived ease of use, perceived utility, and intent to participate in online community websites. Higher age and lower income people have more interest towards the mobile payment services (Arvidsson, 2014). The value of the product or service has positive relationship with a network externality because the user increases the total number of individual products or services sold and used (Economides, 1996).

Mobile technologies are changing economically life of developing countries. Many people use handsets for a variety of financial transactions, such as receiving and sending money. In fact, mobile money is already having in banks and mobile network operators to provide money transferring services for unbanked consumers as digital money. Mobile financial services are known as, “mobile money”. Mobile money transactions (MMT) make change life of the people who are living in the developing countries because of ability to pay electronically and access easily to financial services. Unbanked people can use mobile phone as a bank account to deposit money, transfer money and withdraw money. People can use mobile systems to make utility bill payments and make payments in merchant shops (IOM, UNFPA, 2014).

The research framework we have considered is based on the Technology Acceptance Model (TAM) and Theory of Reasoned Action (TRA).

A. The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is a theory of information systems that models how users adopt and use technology. The model suggests that a number of factors when presenting a new technology to users will influence their decision as to how and when to use them. Davis et al (1989) introduced TAM and it considers the acceptability of a new creation and looks for the ways that makes the product accepted. TAM identifies

perceived usefulness (PU) and perceived ease of use (PEU) deciding user behavior (Davis, Bagozzi, & Warshaw, 1989). Over the years, TAM has received significant empirical support through validation, applications, and replication to predict the use of information systems. TAM has proven to be a useful theoretical model for understanding and explaining user behavior in the implementation of information systems (Legiris, Imgham, & Colleterete, 2003).

B. Theory of Reasoned Action

In the TRA, the behavioral intention, which largely determines the actual behavior, is an additive function of two variables: attitudes (positive or negative behavioral evaluation) and subjective norms (perceived influences, etc.). In general, an increase in attitudes and subjective norms leads to a stronger intention to achieve behavior (Fishbein & Ajzen, 1975). Fishbein and Ajzen (1995) suggested that a person's actual behavior may be determined by analyzing their prior intention and beliefs that the person would have for the given behavior. By definition, a person's intention before taking on real behavior is considered a behavioral intention. This was used as a measure of his intention to show behavior.

Methodology

The conceptual framework developed for the study is depicted in Figure 1. According to the conceptual framework which was developed in the previous chapter, perceived usefulness, perceived ease of use, perceived trust, perceived risk and awareness will be the independent variables and the intention can be identified as the dependent variable. The research will be discussed under following hypothesizes.

H1: Consumer awareness positively impacts on the consumer intention to use MMT.

H2: Perceived usefulness positively impact on the consumer intention to use MMT.

H3: Perceived Ease of Use positively impact on the consumer intention to use MMT.

H4: Perceived Risk negatively impact on the consumer intention to use MMT.

H5: Perceived Trust positively impact on the consumer intention to use MMT.

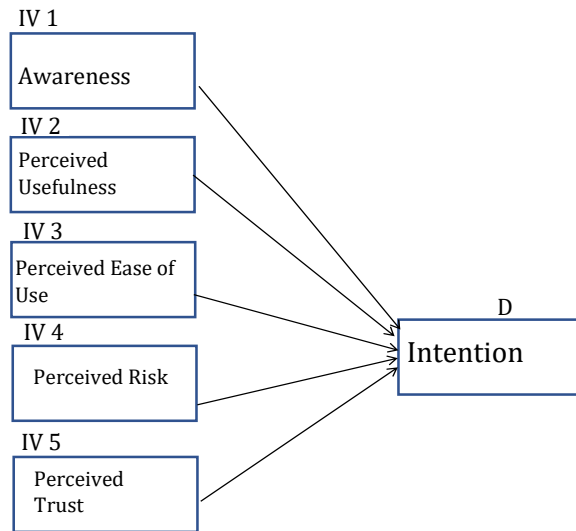


Figure 1: Conceptual Framework
Source : Authors

Results

All the mobile consumers of Sri Lanka are obtained as the population of the research. Brink, (2001) defines a sample as “part or fraction of a whole, or a subset of a larger set, selected by the researcher to participate in a research project. A sample consists of a selected group of the elements or units from a defined population”. Therefore, the population was selected through convenience sampling and 162 respondents were obtained as the sample. The sample of population is consisting of undergraduates, government and private sector employees.

Table 1: Reliability Test
Cronbach’s N of items

	Alpha	
Perceived usefulness	0.605	03
Perceived ease of use	0.784	05
Perceived risk	0.744	04
Perceived trust	0.728	04
Awareness	0.706	04

Source: Authors

A correlation coefficient is the value or unique number who builds a relationship between the two variables examined. The correlation coefficient value can be varied among positive and negative which shows the direction of relationships (Bryman & Bell, 2007). Usually “r” is used to represent the Correlation coefficient and the value should lie between -1 and +1.

Table 2: Correlation Coefficient
Hypothesis Pearson’s Correlation Coefficient Significance decision

Hypothesis	Pearson’s Correlation Coefficient	Significance	decision
H1	0.271	0.000	Do not rejected
H2	0.450	0.000	Do not rejected
H3	0.479	0.000	Do not rejected
H4	0.527	0.000	Do not rejected
H5	0.489	0.000	Do not rejected

Source: Authors

According to the Table 2, Pearson correlation coefficient is greater than 0.4 in

most of the hypotheses above. So that it can be concluded that H1, H2, H3, and H5 have weak positive relationships while H4 is having a moderate positive relationship. Significance value is also can be used as a measure to take a decision regarding the hypotheses when the significance is less than 0.05 can be highly accepted. Therefore all the H1, H2, H3, H4 and H5 hypothesis can be considered as reliable significance. So that as it mentioned in the above table H1, H2, H3, H4 and H5 will be identified properly correlated.

Multicollinearity is discussed when there's an exact or nearly exact relationship between two or more input variables (Hawking & Pendleton, 1983). The Variation Inflation Factor (VIF) can be used to identify whether there is any multicollinearity effect for the explanatory variables of the research.

Table 3: Multicollinearity Test

	Tolerance	VIF
Perceived Usefulness	0.617	1.621
Perceived Risk	0.486	2.056
Perceived Trust	0.555	1.803
Perceived Ease of Use	0.439	2.276
Awareness	0.802	1.247

Source: Authors

Usually a value greater than 0.1 is suitable for the tolerance of variables and "0" level of tolerance is a special occasion where it is defined as Perfect multicollinearity. Also the tolerance level of "1" indicates zero multicollinearity. VIF should have a value less than 10 (Field, 2005). According to the Table 3, all the tolerance values for the variables are greater than 0.1 and VIF

values are less than 10. So there is no multicollinearity among the variables.

Regression is the method that can interpret the relationship between given variables. Multiple regression method can be used to find the relationship between independent variables.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.603	.363	.343	.568

- a. Predictors: (Constant), Awareness, Perceived Risk, Perceived Usefulness, Perceived Trust, Perceived Ease of U

According to the Table 4, Awareness, Perceived risk, Perceived usefulness, Perceived Ease of Use, Perceived Trust can be identified as the independent variables and Intention as the dependent variable.

In the Model Summary table, R value is 0.603 and it indicates a positive linear relationship with dependent variables. R square (R^2) value should between 0 and 1, it interprets the proportion of explained variance. When the R square value is higher, the relationship is strongly proved. Adjusted R square is considered as the modified version of R square. Adjusted R square value also can interpret several predictors in the model. The value of Adjusted R square is 0.343 and it also can indicate as a percentage. It show that 34.3% total variance of user intention can be explained by the independent variables. When the standard error of the estimate value is small, it indicates that the sample represent the significant quantity of the population. The standard error of the estimate value of the model summary table is 0.568 and it shows that the sample (170) can represent the population which we considered in the research.

Table 5: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1. Regression	28.692	5	5.738	17.814	0.000b
Residual	50.253	156	.322		
Total	78.944	161			

- a. Dependent variable : Intention
- b. Predictors : (Constant), Awareness, Perceived Risk, Perceived Usefulness, Perceived Trust, Perceived Ease of Use

ANOVA table represent the F value is equal to 17.814 and P value or the significant value is less than 0.05 in the 95% of confidence level. It shows that overall regression model is significant.

Table 6: Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
(Constant)	.964	.271		3.552	.001
Perceived Usefulness	.204	.084	.199	2.418	.017
Perceived Ease of Use	.065	.087	.072	.747	.456
Perceived Risk	.231	.077	.275	3.004	.003
Perceived Trust	.188	.093	.179	2.028	.044
Awareness	.023	.065	.025	.347	.729

Source: Authors

- a. Dependent variable

According to the Table 6, the independent variables of Perceived Ease of Use and

Awareness are having significant values of 0.456 and 0.729 respectively which are greater than 0.05. Therefore, the variables of Perceived Ease of Use and Awareness are considered as independent variables with no impact to the dependent variable of intention. Therefore, the remaining independent variables of Perceived Usefulness, Perceived Risk and Perceived Trust have an impact to the independent variable of Intention. It can be expressed as follows in an equation.

$$\text{Public Intention towards MMT} = 0.199(\text{perceived usefulness}) + 0.275(\text{perceived risk}) + 0.179(\text{perceived trust})$$

Though the variable of perceived risk was assumed as a negatively affecting factor on consumer intention towards MMT, it resulted a positive effect on public intention towards MMT. (as the questions are developed to get the idea of consumers when the risk towards MMT is mitigated). So, when the perceived risk is mitigated, consumer intention towards MMT is increasing. Therefore, the variables of perceived risk, perceived trust and perceived usefulness are affecting positively on consumer intention towards MMT while perceived ease of use and awareness does not affect.

Discussion

Five hypothesis which were proposed based on the conceptual framework are discussed with the help of data analyzing methods and their results. The research model was found significant in the data analyzing chapter as it scored 0.000 in the

test. Also, the most affected independent variable will be indicated in this chapter according their R^2 values. So in this chapter researchers have discussed that the extent to which the independent variables of perceived usefulness, perceived ease of use, perceived trust, perceived risk and awareness have impacted on the independent variable of intention based on research data.

H1: Consumer Awareness positively impact on the consumer Intention to use MMT.

The significance value should take a value lesser than 0.05 ($p < 0.05$) with the confidence level of 95% to have a linear relationship among dependent and independent variables. Though the confidence level of the Awareness is 95%, its significance value is 0.729 which is greater than 0.05. Therefore, it can be stated that the consumer Awareness does not have a positive impact on consumer Intention towards MMT which is opposite to what we assumed initially. So according to the research data, study implies that the Awareness about the MMT among mobile service consumers in Sri Lanka is not an impact to their Intention to use MMT.

H2: Perceived Usefulness positively impact on the consumer Intention to use MMT.

The significance value should be less than 0.05 ($p < 0.05$) with the confidence level of 95% to have the linear relationship among variables. So, it can be interpreted that the perceived usefulness has a positive impact on the intention. Further discussing the results, it shows that the "R square" value which is 0.203 has 20.3% for the intention to use MMT. So, this is the 3rd most affected independent variable to dependent variable of Intention which depicts that the Perceived Usefulness on MMT can create a positive impact on mobile service consumers to motivate them to use MMT.

H3: Perceived Ease of Use positively impact on consumer Intention to use MMT.

Considering the significance value and confidence level of PEOU, it has a 95% confidence level while having 0.456 significance level which is greater than the required significance margin of 0.05. Therefore, the variable PEOU does not have an impact on the consumer Intention. So, the initial hypothesis made about PEOU is not correct. Therefore, the research study reveals that the easiness of MMT does not affect the mobile service consumers to adapt MMT.

H4: Perceived Risk negatively impact on consumer Intention to use MMT.

Though the variable of perceived risk was assumed as a negatively affecting factor on consumer intention towards MMT, it resulted a positive effect on public intention towards MMT. (as the questions are developed to get the idea of consumers when the risk towards MMT is mitigated). So, when the perceived risk is mitigated, consumer intention towards MMT is increasing. Also according to the correlation coefficient table (table 2), H4 is having a moderate positive relationship while other hypotheses are having weak positive relationships. In the coefficient table (table 6), there are positive values for the perceived risk variable. So, it can be identified that the perceived risk is having an positive impact to the independent variable of Intention.

The significance value for the variable of perceived risk is 0.003 and the confidence level is 95% which create a linear relationship with the independent variable of consumer Intention. According to the "R square" values, perceived risk is having the highest value of 0.278 which effects consumer Intention by 27.8%. So, this is the highest affected variable to the consumer Intention towards using MMT. Therefore, the research study implies that perceived risk is a highly considerable factor concerned by mobile service users in adapting MMT.

H5: Perceived Trust positively impact on consumer Intention to use MMT.

As mentioned previously, a variable should have satisfied a 95% confidence level and a significance level lesser than 0.05 to have a linear relationship with the independent variable. Perceived Trust is having a confidence level of 95% and a significance level of 0.044, therefore Perceived Trust also having a multiple relationship on consumer Intention. As the R² value of the perceived Trust is 0.239, it affects the dependent variable in 23.9% amount and it is the second most affected variable on MMT according to the research study.

Conclusion

I. What is the relationship between Perceived Usefulness, Perceived Ease of Use, Perceived Risk and Perceived Trust and Awareness towards Public Intention on MMT in Sri Lanka?

When considering the factors affecting public intention on MMT in Sri Lanka, there were various factors including perceived usefulness, perceived ease of use, perceived risk, perceived trust, awareness and etc. Research analysis expressed that there is no relationship between awareness and perceived ease of use to the consumer intention on MMT. It emphasizes that, a considerable amount Sri Lankan mobile consumers are aware of their MMT service provided by their mobile service providers and it does not affect their intention to start consuming MMT. Simply that, though the consumers are aware about MMT, they don't tend to use that service. Likewise, the same situation with the variable of PEOU where there is no relationship with consumer Intention. It means that, though the mobile service users are able to ease their transactions in means of MMT, they are not interested in adapting the service. So, the study reveals that there is no use of advertising about the MMT services to the mobile service consumers in aim of increasing the awareness.

Considering on the analyzed results of remaining variables, Perceived Risk is the most affecting variable on Perceived Intention. It means that, the most of the mobile service consumers are having Risk issues about the MMT services. Therefore, the mobile service providers should take measures to minimize these risk issues on their MMT services or assure their subscribers that there are no risks in dealing with MMT.

Perceived Trust is the second most affected factor on consumer Intention. It conveys that the mobile service consumers have considerable Trust issues about this service even they consumed their mobile packages. Though there is a relationship between perceived usefulness and intention, the mobile service providers should take more actions to make the consumers aware about the usefulness of this service.

So according to the finalized data research study has concluded that from the considered variables, Perceived Risk, Perceived Trust and Perceived Usefulness are the only factors affected on consumer Intention towards MMT.

II. What is the most influencing factor to adapt mobile money transferring in Sri Lanka?

According to the finalized research data and conclusions, it is very clear to understand that the variable of Perceived Risk has the largest impact on the consumer Intention towards MMT. It means that the most of the mobile service users are afraid of registering on this service as they believe that there's a risk, they possess in means of privacy and security.

Therefore, the mobile service providing companies should take measures to minimize these Risk issues their customers feel about MMT as no one would like to risk their private information and money. Mobile service consumers will choose MMT

if they feel much confident about their privacy and security.

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