Structured Equation Model for Determinants of Adoption and Use of Mobile Money Transfer Services in Uganda

Lukwago Ismail (1st Author)
Musa B. Moya (2nd Author)
Kato Ismael (3rd Author)
Makerere University Business School

Abstract

In recent years, mobile phones have created a platform to expand commercial transactions in a very easy manner and have created a wide array of business opportunities through the expansion of wireless communication in developing countries. The mobile money transfer (MMT) service is an extensive form of mobile banking. This study investigates the key factors that influence the Uganda consumers’ adoption and use of mobile money transfer services using key constructs from the Unified Theory of Acceptance and Use of Technology Model (UTAUT). The research design was cross sectional, descriptive and correlational. The study was quantitative. In this study Structural Equation Modeling was used to create a model of factors that influence the adoption and usage of Mobile Money Transfer services in Uganda. The findings in this study provide useful information to Mobile Network Operators that they can use in implementation of their Mobile Money Transfer service. The study was conducted in Kampala District. The study established that the independent variable namely, Customer Expectancy, Social Factors and Transaction costs had significant influence on Behavioral Intention towards the use of a given Mobile Money Transfer service. Also Behavioral intention was a significant determinant of Use Behavior of Mobile Money Transfer services. In conclusion the research model was found to be important in determining factors that influence the adoption and use of a given Mobile Money Transfer service.

Key words: Mobile Money Transfer Services (MMT), Structured Equation Model, Mobile Network Operators (MNO), Uganda.

INTRODUCTION

In recent years, mobile phones have created a platform to expand commercial transactions in a very easy manner and have created a wide array of business opportunities through the expansion of wireless communication in developing countries. One of such uses is the use of mobile phones in financial services industry (Mahfuz, Prosad & Fahim, 2015). The mobile money transfer (MMT) service is an extensive form of mobile banking. A wide range of branchless banking business models has evolved or is still in the process of evolution. Electronic money will displace paper money and face-to-face transaction. However, this has not been materialized yet. In order for these services to sustain, success is a must (Mahfuz et al 2015).

The services allow customers to credit their accounts at local authorized agents then they can transfers the money to a different person’s phone or redeem it as cash or use the money in paying bills or loan repayment amongst other services. Mobile money systems have created both non-professional and professional jobs, such as people working as agents and telecommunication experts employed by mobile network operators (Waitara, Waititu & Wanjoya, 2015).

In March 2009, Mobile Telephone Network (MTN) -Uganda established MTN Mobile Money, the first mobile money platform in the country, following the massive success of Safaricom’s M-PESA in Kenya. Airtel Uganda, formerly known as Zain, joined the service with its Airtel Money followed by Uganda Telecom’s M-Sente in March 2010 then Orange Money now referred to as Africel, M-cash and Eeezy with over 18.5 million registered mobile money account holders, who actively use MMT Services (BOU, 2014).

Mobile money transfer service therefore has a high potential to foster financial inclusion in Uganda, just as much as it has been in neighboring Kenya (Ssonko, 2011). This massive adoption and use of this innovative financial service in Uganda is attributed to a number of factors including, but not limited to, a combination of a literate and relatively young population, strong demand for sending money to friends and family quickly and securely, a rapidly growing market penetration for mobile phones, an enabling regulatory environment; and a competitive market place, where supply is racing to meet demand (USAID, 2012).

Penetration and use of MMT services in Uganda is increasing gradually (BOU, 2014). Scholarly research about mobile money transfer is generally said to be scarce (Waitara, Waititu & Wanjoya, 2015). Therefore there is a need, to understand users’ acceptance of mobile Money and to identify the factors affecting their intentions to use Mobile Money Transfer service.

This information can assist telecommunication companies and their partners offer support and advice on the product and also plan for new improvements and developments in the mobile money sector and help them create services that consumers want to use.
Before the emergence of MMT’s, people could send their money through buses or friends in Uganda. Therefore there need to establish the factors that influence consumer behavior towards the adoption and usage of Mobile Money transfer services in Uganda. Mobile-money can be said to include all the various initiatives covering long-distance remittance, micro-payments, and informal air-time bartering schemes aimed at bringing financial services to the unbanked using mobile technology and it is also more efficient, effective and safe than traditional methods (Senso, Nicholas, Venkatakrishnan, 2013). MTN Uganda introduced the first Mobile Money transfer platform in Uganda MTN-Mobile Money. Later the other mobile network operators introduced their own platforms like Airtel (Airtel money), Uganda Telecom (Msente), Africel, and Eeezy with over 18.5 million registered mobile money account holders, who actively use MMT Services (BOU, 2014). However the penetration of the Mobile Money System amongst urban household is much higher at 51% than amongst rural households 35% indicating that there is disparity in adoption of different mobile money transfer platforms in Uganda (mckay &kaffenberger, 2013). Despite the disparity since the inception of Mobile Money Transfer Services, the factors which cause the disparity have not been modeled. Therefore this study would model factors influencing adoption and usage of the MMT’s in Uganda.

Justification of the Study

It is important to develop a model that explains factors that influence adoption and usage of MMT’s in Uganda. Findings from this study would benefit the MNO’s in Uganda by providing useful information that they require in implementation of MMT’s. The study adds new practical insights regarding telecommunication innovations adoption especially concerning the mobile money services in the Uganda’s rural community aspect. A better understanding of these factors would enable them to develop suitable business models, awareness programs and marketing strategies in order to ensure adoption and continued usage of their services. The research sought to add to the existing body of Knowledge which would be useful for decision making purposes.

This study sought to identify the key determinants of MMTS usage among the Ugandans to facilitate business processes and transactions. This was achieved by developing a theoretical model after the modification of the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al., (2003) through a pilot study and using the extended model to investigate factors influencing adoption and use of MMTS in Uganda rural and urban Areas. The proposed model was empirically tested using data collected from a survey of Mobile subscribers in Uganda using proportionate random simple sampling method within well-defined geographic clusters.

Objectives of the study

This study seeks to investigate important factors that influence successive adoption and use of MMTS and MIS as preferred infrastructure to facilitate e-commerce in Kenyan MSEs. The study will also seek to investigate the status of e-commerce applications among MSEs in Kenya.

Research questions

The following research questions guided the study:

1. Does Customer expectancy influence behavioral intention the adoption and use of MMTS in Uganda?
2. Is there a relationship between Social Factors and Behavioral intention to adoption and Use of MMTs in Uganda?
3. What is the relationship between Transaction cost and Behavioral intention to adoption and Use of MMTs in Uganda?
4. Does Behavioral intention lead to adoption and Use of Mobile money transfer service in Uganda?

The inspiration for this research was drawn from an expression of the significant remunerations mobile telephones have brought to disparate and geographically remote population in Uganda and wanted to discover how this growing mobile telephone based infrastructure can be put to good use to facilitate financial transactions in Uganda.

Mobile Money in Uganda

Mobile money is a term used to refer the money stored using the Subscriber Identity Module (SIM) card as an identifier as opposed to an account number in the conventional banking sense (Senso & Venkatakrishnan, 2013).

Mobile Money Transfer services have eased the means of transferring money from one mobile phone user to another. The service has enabled the non-banked and banked population to be able to store, send and receive money. MMT’s has broken the social and cultural boundaries in money transfer. The Mobile Money Transfer Services were invented in Uganda in March 2009 by the Mobile Telephone Network (MTN) Uganda, being the first mobile money platform in the country, following the massive success of Safaricom’s M-PESA in Kenya (Kasim & Munyegera, 2015). Airtel Uganda, formerly known as Zain, joined the service when it rolled out its Airtel Money in June the same year. This new financial innovation proved to be an efficient way for telecom companies to increase their market shares by widening the range of services available to their clients. This attracted Uganda Telecom’s M-Sente in March 2010, followed by WaridPesa from Warid Telecom in December 2011 and Orange Money from Orange Telecom in the first half of 2012 (Uganda Communications Commission-UGC 2014).
Mobile Money Transfer Services

To a Consumer Behaviour Analysis, view mobile money transfer as the process of transmitting money from one person to another through phone activation that can be ultimately honored with cash transactions by a financial or business institution. He suggested that studies on MMT falls between two main mobile technologies related research areas namely mobile payment and mobile banking. He added that whereas literature on the adoption of mobile banking and mobile payment and the more broader scope of mobile commerce although not quite exhaustive have enjoyed significant attention of many scholars. In recent times, research on mobile money is at its formative stages with a few DFID reports dominating recent research (Mutsikiwa, Marumbwa, Munyaradzi, 2013).

Mobile money transfer basically involves electronic transactions conducted using a mobile terminal and a wireless network. Mobile terminals include all portable devices such as mobile telephones, as well as devices “mounted in the vehicles that are capable of accessing wireless networks” and perform mobile commerce transactions. In addition, mobile money transfers are viewed as “any transaction with a monetary value that is conducted via a mobile telecommunications network”.

Mobile Money transfers uses a wireless network infrastructure to facilitate the exchange of money value between the various actors. Mobile devices are continuously becoming very popular in the world today. Mobile money transfers and electronic Person-to-Person payment systems as an alternative to the paper based mechanism like cash are innovations which have been perpetuated by this rapid development in mobile phone technology. Common mobile financial services offered via the mobile phone include bill payment, account transfers, domestic and international person to person transfers, proximity payments at the point of sale, and remote payments to purchase goods and services (Eljoy - Micheni, Lule & Muketha, 2013).

Researchers have observed that the adoption of mobile money transfer services is not the same for all countries across the entire world. In most cases, the different economic environments entail that the adoption of mobile money transfers systems in developed countries is not the same for the developing countries. It has been discovered that in developed nations like Europe, there has been limited use of mobile money transfer to date, despite earlier expectations to the contrary (Mutsikiwa et al, 2013). This has been entirely attributed to lack of trust as they have continued to trust traditional banking as well as electronic channels such as internet or use of card at point than unstable new mobile money approach. However for the case of less developed countries like Uganda it cannot be the same case where most financial institutions like banks are largely found in urban areas with few or non in rural areas where the majority of the citizens reside. One common phenomenon in these developed nations is that MMTs are not a blue-ocean product; rather they are simply an extension of current product lines. Consequently the adoption of product extensions rides on the success of their predecessors. Needless to say that, the reputation of the parent product allows rapid market acceptance of any such extensions. The same might not be true for the developing world like Uganda where MMTs are viewed largely as new to the world products whose adoption require methodical analysis, benchmarking against the adoption of such technology related.

Mobile money products and services

As mobile money has developed in several countries, In Uganda there has also been another set of businesses developing that provide an alternative to dealing directly with the MNO providing the mobile money service. Some examples are mCash and EzeeMoney who offer a variety of value-added services, including but not limited to bulk payments services (USAD, 2012). This provide bulk payments services with user-friendly interfaces that the standard MNO product, more security measures, and the ability to send money to multiple users on different networks at the same time. This is a critical development in MNO-led mobile money markets where mobile wallets are not interoperable, because it allows a company to use these services for payroll or per diems without forcing all of the recipients to use the same cell phone company. It can also help to avoid complaints of missed payments from recipients who have to switch SIM cards in order to receive a payment.

P2P or person-to-person transfers

P2P is the most common use of mobile money globally, in Uganda and other areas of the developing world. Of approximately 87.5 million mobile money transactions conducted by Ugandans in 2011, valued at UGX 3.7 trillion, the vast majority were P2P (Bank of Uganda, 2011). P2P allows clients to transfer value from a prepaid mobile wallet to another user’s mobile wallet. P2P services are commonly used to send money to friends and family elsewhere within the same country (i.e., domestic remittances). Similar to other countries, mobile money users in Uganda can transfer money to an un-registered user, or a user of another service.

International Money Transfer

Through the partnerships that exist between Mobile Money service providers like MTN with Western Union has allowed mobile money subscribers in Uganda to send and receive money to and from countries where Western union operates. Senders transact with Western Union as usual, by visiting a Western Union agent location in their own country or visiting the Western Union website to send money online. When the intended recipient in Uganda receives the transfer, he can either withdraw as usual at a Western Union location, or he has the option to pull the value of the transfer into his MTN Mobile Money account (Bank of Uganda, 2011). Once the value of the transfer has been transferred to the mobile money account, the customer can store the money for future use or withdraw it from any MTN Mobile Money agent.
How mobile money works

Mobile money provides a convenient way to send money to anyone anywhere no matter the network or mobile money service provider. Mobile money service providers work in partnership with one or more banks, making it possible for clients to make banking transactions on their mobile phones without visiting the bank. Mobile money users have two options of conducting mobile money transfers: a) through transfers on their own or on mobile phones of their relatives or friends provided they have activated the mobile money account, and b) visiting a registered MMA, who conducts the transfers on behalf of the client. The mobile money account is an electronic money account which receives electronic value either after the account holder deposits cash through an agent or receives a payment from elsewhere (Murenda, Wollnia, Brauwé&Mugabíc,2015).

STRUCTURAL EQUATION MODELING (SEM)

Structural equation modeling is a term used to describe a large number of statistical models which are used to evaluate validity of substantive theories empirically. Structural equation modeling is an extension of general linear models, path analysis and confirmatory factor analysis (Waitara et al, 2015).

CONCEPTUAL MODEL

The research model was made up of five constructs and each construct was measured using multiple measurement items adapted from existing literature but modified to reflect the research context of using mobile technologies for Mobile money transfer services. The initial model was developed by modifying the Unified Theory of Acceptance and Use of Technology M (UTAUT) model of Venkatesh et al., (2003). The (UTAUT) model was modified because after a thorough review of literature, it was found that the existing the UTAUT Model is inflexible, in that the cultural context in western countries where the model was first applied differ greatly from those of in developing and less developed countries like Uganda. Therefore the model cannot be applied in the African context without modification. Liu (2013) indicates that the three mediating factors in Venkatesh's original UTAUT model, that is experience, Voluntariness and age cannot be applied as they are in different cultural contexts. This is because, as Trichenor (1970), indicates the higher the social-economic status of user the faster the adoption of a technology. In Africa however most users have a low economic status and such factors may not be relevant to analysing their uptake of a technology. Facilitating conditions have been removed in this study because according to Venkatesh et al., (2013) these facilitating conditions do not predict behavioural intention to adopt and use a technology (Thomas et al.,2013).

Figure 1: A Conceptual Model for Customer expectancy, Social factors, Transaction cost and Behavioral Intention to Adoption and Use Mobile money Transfer Service (MMT) in Uganda

In the conceptual framework above, a strong predictive potential is presupposed between Customer Expectancy and Behavioral Intention to Use Mobile Money (Vroom, 1964; Porter and Lawley, 1968); Social Factors and Transaction costs are also conceptualized to have strong linkages with Behavioral Intention to Use Mobile Money (Aminu, 2014). The Behavioral Intention to use Mobile Money will thereafter lead to actual Customer adoption of the service (Venkatesh, 2013).

Porter and Lawley (1968) adapt and apply the traditional Expectancy theory (Vroom, 1964) to customer behavior in the market place, and the two authors then came up with a Customer Expectancy Model. According to Porter and Lawley (1968), the Customer Expectancy theory proposes that consumer behavioral intention to use a technological innovation, for example mobile money services are strongly determined by people’s expectations after adoption. This intention to use will be motivated by their conscious expectations of what will happen if they do, and are more productive when they believe their expectations will be realized. Social factors according to Aminu (2014), are presupposed to have strong connection to behavioral intention to use a service, as this is believed to influence people to choose to carry out a behavior even if they do not feel comfortable about it. This is especially true if there are some important referent individuals that perform the behavior, and in essence, act as opinion leaders (Rogers, 1983), who encourage others to adopt the technology. Siddik, Sun,Yanjuan& Kabiraj, (2014) asserts that transaction costs such as procedural, withdrawal and deposit costs have an influence on consumer Behavioral intention to adopt and use mobile money service. They influence the decision whether an individual will use Mobile Money or not.
METHODOLOGY

The study took a cross-sectional survey design involving the descriptive and correlational designs. The study focused on testing models of technology adoption and acceptance, rather than generating theory. It adopted a quantitative approach which focuses on describing and drawing inferences from the findings on relationships between customer expectancy and Behavioral Intention to use and adopt MMT services, Relationship between Social Factors and Behavioral Intention to adoption and use of MMT services, Transaction costs and Behavioral Intention to adoption and use of MMT services, Relationship between Behavioral Intention and adoption and use of MMT services in Kampala district (Baguma, 2013). Simple random sampling method was used to obtain data from 384 mobile phone subscribers accessible to the researcher determined according to Krejcie and Morgan (1970).

The primary data collection tool was a questionnaire. To ensure the questionnaires usefulness, it was pre-tested and refined to capture data from a large number of participants in a less supervised setting. These primary respondents included respondents who operate an account and use mobile payment system such as MMT Users. The questionnaires enabled the respondents to read and understand the questions before responding that were also used to investigate feelings using a 5 point Linkert scale. The questions related to Social factors and Behavioral Intention to adoption and use of MMT Services. The respondents’ answers were based on the extent to which they agreed or disagreed with the statements in the questionnaire. Secondary data were also obtained through literature review of previous research findings and existing literature on each study variable. The researcher also employed the services of a research assistant whom he closely monitored during data collection concerning the original reality and view of Mobile money transfer systems as pertains to the relationship between Customer Expectancy and behavioral Intention and Adoption and use of MMT Services, Relationship between Social Factors and Behavioral Intention to Adopt and use of MMT services, Transaction costs and Behavioral Intention to Adopt and use of MMT services, Relationship between Behavioral Intention to Adopt and use of MMT services in Kampala district. Respondents were guided through questionnaires to ensure high level of accuracy in the data collection process.

In processing, analysis and presentation of data, the collected data were coded, edited for incompleteness and inconsistency to ensure correctness of the information given by the respondents. Data were tabulated and input in the statistical package for social scientists (SPSS). The Pearson’s correlation coefficient was used to establish the relationship between dependent variables and MMT adoption and use. Multiple regression analysis was conducted to determine variance in the dependent variables (Customer expectancy, Social factors and Transaction cost) which is explained by the independent variables (Behavioral Intention to use and Adoption of MMT Services), because there is more than one variable determining the dependent variables. The data from the survey was tested using Structured Equation Model with the aim of uncovering the latent variables in the data and to test the reliability of the emerging scale items. Reliability and confirmatory factor analysis was used to test the research data.

Reliability

Reliability is an assessment of the internal consistency of the measurement instrument and a measure of the degree of homogeneity among the measurement items in a given construct. It is the assessment of whether the study instrument would give similar results in different situations or under similar circumstances but at a different time such that the results remain consistent over repeated testing. Cronbach’s alpha is widely accepted as a measure of internal reliability and consistency. The reliability analysis aims at identifying those items in the questionnaire that have low correlations in order to exclude them from further analysis. Cronbach (1951) proposed that reliability should be greater than 0.6. Sekaran, (2000) suggested that an alpha value of 0.60 (tending toward 1) should be considered “acceptable” while a value equal to or greater than 0.70 is considered satisfactory (Nunnally and Bernstein, 1994). The alpha coefficients for the individual constructs are given on table 1. All the constructs have Cronbach’s alpha of 0.749, Social factors 0.687 Transaction cost 0.687, Behavioral Intention 0.749 and Adoption and use of MMT Services was 0.791. Hence the internal consistency of the study instrument is good, acceptable and satisfactory.

Validity

Validity of a study instrument is the measure of whether the study instrument would give the same results under similar conditions, implying that the instrument is actually measuring the concept it purports to measure. The content validity Indices of 0.875, 0.625, 0.875, 0.875 and 0.75 were obtained for Customer Expectancy, Social Factors, Transaction cost, Behavior Intention and Adoption and use of MMT Services respectively. All constructs showed adequate convergent validity. All the above showed that the data instrument was accurate.

Table 1: Validity and Reliability of the data Collection Instrument

<table>
<thead>
<tr>
<th>Variable</th>
<th>Scale</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
<th>Content Index</th>
<th>Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Expectancy</td>
<td>1-5</td>
<td>4</td>
<td>0.749</td>
<td>0.875</td>
<td></td>
</tr>
<tr>
<td>Social Factors</td>
<td>1-5</td>
<td>4</td>
<td>0.687</td>
<td>0.625</td>
<td></td>
</tr>
<tr>
<td>Transaction cost</td>
<td>1-5</td>
<td>4</td>
<td>0.687</td>
<td>0.875</td>
<td></td>
</tr>
<tr>
<td>Behavior Intention</td>
<td>1-5</td>
<td>4</td>
<td>0.749</td>
<td>0.875</td>
<td></td>
</tr>
<tr>
<td>Adoption and use of MMT</td>
<td>1-5</td>
<td>4</td>
<td>0.791</td>
<td>0.75</td>
<td></td>
</tr>
</tbody>
</table>
STUDY FINDINGS

Descriptive Statistics

A total number of 380 respondents were used in the analysis. The demographic profiles of the respondents are shown in table 1 below. The sample was made up of 50% male and 50% female with 53% between 18-25 years of age. With regard to education, the majority were at least university graduates with a Bachelor's degree (about 48%). With regard to Marital status, most of the respondents were single (Never been in any relationship) and comprise of 66%. The respondents also often use Mobile Money transfer services with 49% and have used the service for a period more than 1 year.

STRUCTURAL EQUATION MODELLING

SPSS Amos 18 was used to generate the common model-fit indices. Structural modeling evaluates whether the data fit a theoretical model. The following common model-fit measures were used to estimate the measurement model fit; the comparative fit index (CFI), root mean square error of approximation (RMSEA), root mean square residual (RMR), the normed fit index (NFI), Relative Fit Index (RFI) and the Tucker Lewis coefficient (TLI). Figure 3 shows the AMOS structural modeling estimates. According to Gerbing and Anderson (1992), the criteria for an acceptable model are as follows: RMSEA of 0.08 or lower; CFI of 0.90 or higher; NNFI of 0.90 or higher. The fit between the data and the proposed measurement model can be tested with a chi-square goodness-to-fit (GFI) test where the probability is greater than or equal to 0.9 indicates a good fit (Hu & Bentler, 1999). The GFI of this study was 0.96 exactly the perfect fit in the goodness-to-fit index of the recommended 0.90 or greater also the other measures fitted satisfactorily; CFI=0.92, TLI=0.914, IFI=0.974 and NFI=0.940 and the RMSEA=0.62 (Bagozzi & Yi, 1988).

![Structural equation model with Standardized Coefficients](image)

This structural equation model for Mobile money adoption indicates positive and significant relationship between the study variables as follows:

- There is a confirmatory significant positive relationship between customer expectancy and behavioral intention (Path coefficient = 0.67, p<0.001).
- There is a confirmatory significant positive relationship between Social factor and behavioral intention (Path coefficient=0 .27, p<0.01).
- There is a confirmatory significant positive relationship between Transaction cost and Behavioral intention (Path coefficient = 0.31, p<0.05).

There is a confirmatory significant positive relationship between Behavioral intention and Mobile money adoption (path coefficient= 0.84, p<0.001).
Table 4: Goodness of fit index

<table>
<thead>
<tr>
<th>Model</th>
<th>RMR</th>
<th>GFI</th>
<th>AGFI</th>
<th>PGFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default model</td>
<td>.116</td>
<td>.962</td>
<td>.931</td>
<td>.520</td>
</tr>
<tr>
<td>Saturated model</td>
<td>.000</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independence model</td>
<td>.292</td>
<td>.558</td>
<td>.460</td>
<td>.457</td>
</tr>
</tbody>
</table>

Goodness of fit index \( (GFI = .962) \) indicates that the data fits well the model at 96.2%.

Table 5: baseline indices

<table>
<thead>
<tr>
<th>Model</th>
<th>NFI</th>
<th>RFI</th>
<th>IFI</th>
<th>TLI</th>
<th>CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Delta1</td>
<td>rh01</td>
<td>Delta2</td>
<td>rh02</td>
<td></td>
</tr>
<tr>
<td>Default model</td>
<td>.940</td>
<td>.988</td>
<td>.974</td>
<td>.914</td>
<td>.972</td>
</tr>
<tr>
<td>Saturated model</td>
<td>1.000</td>
<td></td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Independence model</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
<td>.000</td>
</tr>
</tbody>
</table>

The baseline indices are all above 0.9 an indication that the model is fit and provides good fit for the data.

Table 6: RMSEA

<table>
<thead>
<tr>
<th>Model</th>
<th>RMSEA</th>
<th>LO90</th>
<th>HI90</th>
<th>PCLOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default model</td>
<td>.1062</td>
<td>.084</td>
<td>.121</td>
<td>.000</td>
</tr>
<tr>
<td>Independence model</td>
<td>.237</td>
<td>.223</td>
<td>.252</td>
<td>.000</td>
</tr>
</tbody>
</table>

RMSEA of 0.062 which is less than 0.08 indicates that the model is significant and good.

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

Discussion of Findings

The study proposed the modified UTAUT Model of vankatesh et al (2003) model that integrated Customer Expectance, Social Factors, Transaction cost and Behavioral intention to adoption and Use of MMT services in Uganda.

The study found confirmatory positive relationships between customer expectancy and behavioral intention, Social factor and behavioral intention, Transaction cost and Behavioral intention, Behavioral intention and Mobile money adoption which are consistent with previous research results (Goodhue and Thompson, 1995; Venkatesh et al., 2003; Goodhue, 1995; and Davis, 1989).

The positive correlation between the variables is an indication that customer expectancy, Social factor and Transaction cost does influence Behavioral intention to adoption and Use of MMTs and that people who value these variables find it easy to adopt and Use the technology if it meets their task requirements and also the individuals adoption and usage of mobile money transfer services in their transactions largely depend on the functionalities of mobile technologies.

The results of the study answered research questions as discussed in the following section.

**Question One:** Does Customer expectancy influence behavioral intention to the adoption and use of MMTS in Uganda?

The results of the study show that Customer expectancy and Behavioral intention very strongly influence adoption and use of MMT services when considering the predictive power and the path coefficient score of the structural model. Customer expectancy and Behavioral intention have significant direct influence on adoption and use of MMT services which implies that higher Customer expectancy and a positive change in Behavioral intention results in higher adoption and use of MMT Services as they both positively affect Adoption.

**Question two:** Is there a relationship between Social Factors and Behavioral intention to adoption and use of MMTs in Uganda?

In this study there is a confirmatory significant positive relationship between Social factor and behavioral intention, this means the Social factor element influences a change in an individual's attitude towards the adoption and use of Mobile money Transfer services in Uganda. For example if it involves the use of some referent individuals like prominent musicians to market such technologies as people shall be influenced to adopt and use it because they want to be like them.
This is in agreement with the study findings of Nasution, (2007) who asserts that the use of MMT Services is determined by the customer' experience (habits); work group influence (social factor); user satisfaction with the system, system access and assistance, consequences (of MMT Service use).

**Question Three:** What is the relationship between Transaction cost and Behavioral intention to adoption and Use of MMTs in Uganda?

There is a confirmatory significant positive relationship between Transaction cost and Behavioral intention. This implies that if transaction costs like withdraw and Deposit cost are favorable the consumer's intentions to adoption and use of a given mobile Technology will be high; this means that the cost of paying a transaction has a direct effect on customer behavior to adoption and use of mobile money services. These findings concur with the statements of Elyjoy et al., (2013) who put it that the cost-benefit pattern is significant to both perceived usefulness and ease of use in that if consumers perceive that the cost of mobile money service is acceptable, they will adopt it easier, and then use it thus transaction cost is likely to directly influence the user's behavioral intention to adopt and use mobile money transfer services.

**Question Four:** Does Behavioral intention lead to adoption and Use of Mobile money transfer service in Uganda?

The results in figure 3 show that the high level of Mobile Money adoption and usage is highly dependent on the intentions that individuals attach on adoption of such Technology. This implies that if consumers have positive intentions towards a given Technology, their adoption and use behavior will therefore be high. Therefore a confirmatory significant positive relationship between Behavioral intention and Mobile money adoption was noticed in the study. The study is in agreement with the findings of Netemeyer et al., (1993) who states that Behavioral intention (BI) is the direct antecedent of behavior and therefore Behavioral intention, in turn, is determined by an individual's attitude toward performing the behavior and the individual's perception of what relevant others think of the behavior.

**Conclusions**

The study further found a confirmatory significant positive relationship between customer expectancy and behavioral intention as well as Social factor and behavioral intention, Transaction cost and Behavioral intention then Behavioral intention and Mobile money adoption. However, although a positive relationship between the four independent variables was established, Behavioral intention exhibited a more significant positive relationship than other independent variables except Transaction cost which does not predict Adoption.

**Recommendations**

Behavioral Intention was found to be the strongest predictor of Adoption of MMT Services. Therefore, for MMT service providers to encourage faster rates of adoption on their services among users, Reliable technology, adequate agent network coverage, and reliable technology are some of the issues mobile money services providers need to invest in to enhance adoption of the mobile money services. Market structures that support delivery of mobile money services, dependencies between market systems and where the constraints can be unlocked in supporting mobile money market services are key factors mobile money service providers need to invest in when deploying new products.

**References**


(3) BOU (2014). The development in mobile banking in Uganda Kampala BIS central bankers’ speeches.


(8) The Fin Scope 2013 survey on formal financial services of commercial banks, microfinance-deposit taking institutions (MDIs and credit institutions), organizations (SACCOs), insurance companies, cell phone mobile money, non-banking financial institutions.


(18) GSMA (2014). The Mobile Economy: Sub-Saharan Africa. GSMA Intelligence


