

An Empirical Investigation of the Level of Adoption of Mobile Payment in Nigeria

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ABSTRACT

Mobile devices have been one of the most successful consumer products. In fact, Nigeria is the largest and fastest growing market in Africa. The telecommunications sector raked up about \$8.42bn in revenue in 2008 and the number is expected to surge past \$11bn by 2013. The proliferation of these Mobile phones and the need for a Cash-Less or Cash-Lite economy by the Nigerian Economy has therefore resulted in the introduction of Mobile payments in order to bridge the gap between the under banked and banking community. This study proposed a revised model that integrated Compatibility, Relative Advantage, Complexity, Trust and Security and Cost with Technology Acquisition Model (TAM) constructs (Perceived Usefulness, Perceived Ease of Use and Behavioral Intention to use) to investigate what influences Nigerian consumers' adoption of Mobile Payment. In testing the model, a total of 250 survey questionnaires were randomly administered to individuals in Lagos being the economic nerve center of the nation and transiting individuals from neighboring states but who are users of mobile phones. 227 questionnaires were received and used for further analysis. The results show that Nigerians appreciate the benefits of the introduction of the Cashless Economy via Mobile payment and they would also be encouraged to use it because of its benefits such as Convenience, Ease of Use, Ease of Access, Reduced time of transaction. However, the complexity of the interface and procedures, trust in the service provider and agents (vendors), security and privacy of valid information and cost are pertinent factors that affect the adoption and a successful implementation of Mobile Payment.

Keywords: Mobile Payment, Cashless, Economy, Mobile Commerce, TAM Model, IDT Model

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1. INTRODUCTION

Information technology (IT) is fast becoming the most important factor in the future development of banking, influencing banks' marketing and business strategies. In recent years, the adoption of e-banking began to occur quite extensively as a channel of distribution for financial services due to rapid advances in IT and intensive competitive banking markets (Mahdi and Mehrdad, 2010; Dube, et.al., 2009). Electronic Commerce, (e-commerce) and e-banking have since become a way of life in Nigeria such that Nigerians purchase and sell goods and services over the Internet. According to a customer survey report in 2008, many Nigerians have adopted the service and the transactions made accounted to N360 billion but it has not been able to address the on-the-go access due to the barrier of a Personal Computer (PC) and Wireless technologies .

When the Nigerian telecommunications sector was deregulated in 2001, allowing the country to join the rest of the world in acquiring the Global System for Mobile Communications, popularly known as GSM, with about 422,000 subscribers nobody envisaged its far-reaching benefits to the economy and people of Nigeria. Now, Mobile Payment or Mobile money, a new electronic payment scheme, is opening up a new vista of opportunities, extending the multiplier effects of telecommunications in the country. Mobile devices can be used in a variety of payment scenarios, such as payment for digital content (e.g. ring tones, logos, news, music, or games), flight tickets and bus fares and also to pay bills and invoices but the payment of digital content has not been fully tapped into in Nigeria.

Mobile payments are payments for goods, services, and bills with a Mobile device (such as a Mobile phone, smart-phone, or personal digital assistant (PDA)) by taking advantage of wireless and other communication technologies such as Mobile telecommunications networks and proximity technologies. It is a phone-based cash savings and transfer system, which turns a GSM phone into a savings account allowing the owner save money in it and from which he could withdraw or transfer money at a later date.

The Central Bank of Nigeria (CBN) led by Governor Sanusi Lamido Sanusi has recently passed a policy to take effect in 2012 requiring that all cash withdrawals and deposits be set at a daily limit of a maximum of N150, 000 while pegging that of corporate entities at N1, 000,000, with penalty fees of N100 per extra N1,000 and N200 per N1,000 imposed on individual and corporate defaulters respectively. This policy is geared towards achieving a Cashless Economy where all Nigerians (from children to the aged) can elevate from the traditional banking in the cities; taking them to the streets where Mobile money agents are on hand, ready to do the same thing a customer normally does in the banking hall. In order to achieve this policy 16 operators were recently licensed to provide the Mobile payment service: 10 non-bank-led (Pagatech, Paycom, M-Kudi, Chams, Earholeum, E-Tranzact, Parkway; Monitise, FET, and Corporeti) and 6 bank-led (Stanbic IBTC Bank, Ecobank Nigeria, Fortis MFB, UBA/Afriipay, GTBank/MTN, and First Bank of Nigeria).

The primary objective of this research is to investigate the level of adoption of Mobile Payment in Nigeria; analyzing Nigeria's complex environment and examine consumer's willingness to use a Mobile phone as an instrument for initiating and conducting secure financial transactions. The rest of this paper is arranged as follows: Section two is the literature review, section three describes the research model and hypothesis, section four presents the analysis and results and section five the Conclusion and recommendation of the study.

2. LITERATURE REVIEW

Due to the high rise in demand for conducting payment and other financial transactions everywhere and at anytime in Nigeria, Mobile payment has been suggested by the Central Bank of Nigeria as the solution to facilitate such micropayments in the country. Mobile Payments are defined as the use of a Mobile device to conduct a payment transaction in which money or funds are transferred from a payer to a receiver via an intermediary, or directly without an intermediary (Mallat, 2007). While this definition includes Mobile payment transactions conducted via Mobile banking systems, a distinction between Mobile payment and Mobile banking services should be noted. Mobile banking services are based on banks' own legacy systems and offered for the banks' own customers.

Mobile Banking (M-banking) is used to denote banking services and facilities offered by financial institutions such as account-based savings, payment transactions and other products by use of an electronic Mobile device. Mobile Payment refers to the various components required to deliver Mobile payment to the banking and non-banking community (CBN, 2011). In Nigeria, Mobile Payment will help to curb the problem of long queues in banks; it is also very convenient as the users can have access to financial services at anytime. Economically, Mobile payment tends to increase the number of jobs in the country hence reducing the rate of unemployment.

2.1 Selected Global Payment Systems

In the **Philippines**, Globe Telecom introduced "G-cash" in October 2004, an electronic money transfer facility that turns a Mobile phone into an electronic wallet. It provides services where G-Cash subscribers purchase goods and services over the counter or remotely, receive domestic and international remittances. It is a very convenient way of carrying out transactions which also allows for payment of utility bills and Mobile phone airtime credits.

POCIt is a Mobile payment solution designed by **South Africans**; it has the widest reach of the other 12 Mobile payment solutions available in South Africa. It allows customers send and receive money from any bank faster, all the payer needs is the cell phone number of the payee. It is very unique because it does not require special SIM cards.

In **Kenya**, M-PESA (M for Mobile and PESA for Money in Swahili) is widely recognized as one of the most successfully implemented Mobile payment service. It is a SMS-based money transfer system that allows individuals to deposit, send, and withdraw funds using their cell phone. M-PESA has grown rapidly, reaching approximately 65 percent of Kenyan households by the end of 2009, and is widely viewed as a success story to be emulated across the developing world. Registration is simple; it requires an official form of identification (typically the national ID card held by all Kenyans, or a passport) but no other validation documents that are typically necessary when a bank account is opened.

In **Nigeria**, there are three ways in which Mobile payment is carried out:

- Card Account Based
- Bank Account Based
- Stored Value (e-money) Account Based

In the Card Based scenario, a payment card (Credit, Debit and Pre-paid) is linked to the Mobile phone for initiating and concluding the Mobile payment financial transactions. The Bank Account Based is where the financial transactions are initiated through the bank accounts of the consumers which could be their existing bank accounts (current account, savings account, domiciliary account etc) in the various banks or newly generated ones. The Stored Value Account Based is a scenario where financial transactions are driven through a system-based account. Examples of the stored value are Re-loadable stored value accounts, prepaid accounts etc.

There are also three Mobile payment models for the implementation of Mobile payment services namely:

- Bank-Focused Model
- Bank-Led Model
- Non-Bank Led Model

Bank-Focused Model is a model which has a Financial Institution as the Lead Initiator (an entity or representative of other partners), who is responsible for ensuring that the various solutions and services within a Mobile payment system meet the regulatory requirement of the Central Bank of Nigeria. The Bank-Led Model is a model where a bank or other consortium of banks partner with other organizations to deliver banking services by leveraging on the Mobile banking system. It involves where there is collaboration between a licensed deposit-taking financial-institution (deposit-money banks, microfinance banks and discount houses) and an organization verified by the partner banks.

2.2 Mobile Payment Services in Nigeria

UBA's (United Bank of Africa), Nigeria's foremost financial institution is one of the recently licensed operators to provide the Mobile Payment service in Nigeria. It kicked off the first Nigeria's Mobile Money service (U-MO) in collaboration with its associate company Afripay Limited on November 24, 2011. It enables phone users buy airtime for self and send to others, pay utility bills, pay for goods and services in shops and on the Internet as well. It is available to existing UBA (United Bank for Africa) customers and non-UBA customers, existing customers will find the service of great use as they will be able to easily load money from their bank accounts into U-MO and move money received on U-MO account into their bank accounts. Customers register online, at a U-MO agent location or at a UBA branch. After registration, they receive a confirmation SMS. Then U-MO Java application will have to be downloaded and installed on their mobile phones.

"PocketMoni" is a Mobile money service designed by Etranzact International Plc; one of the licensed Mobile money service providers to allow users conduct financial transactions anytime, anywhere from a Mobile phone. It enables users pay DSTV, HiTV, MyTV and PHCN bills, buy airline tickets and book hotels. This service is flexible as users can send money to PocketMoni subscribers, an Etranzact card, a bank account and any Mobile phone user.

This service is available to users in two ways; a menu driven software that is downloaded and installed on a Java-enabled phone and using the SMS/IVR channel. The SMS/IVR channel enables customers using a non Java-enabled phone access the service. A service fee of N100 is charged at agent locations and partner banks. Its service is secure, cost effective, convenient and available for everyone.

3. RESEARCH MODEL AND HYPOTHESIS

3.1 Technology Acceptance Model

The Technology Acceptance Model is one of the models that have been developed to provide a better understanding of the usage and adoption of Information technology. It is presently a prominent theory used in modeling technology acceptance and adoption in Information systems research. Fred Davis in 1985 proposed the Technology Acceptance Model (TAM) in his doctoral thesis at the MIT Sloan School of Management (Davis, 1985).

Two cognitive beliefs are posited by TAM: Perceived usefulness and Perceived ease of use. According to TAM, one's actual use of a technology system is influenced directly or indirectly by the user's Behavioral Intentions, Attitude, Perceived usefulness of the system, and Perceived ease of the system. Perceived usefulness (PU) is defined as the degree to which a person believes that using a particular system would enhance his or her job performance and Perceived ease of use (PEOU) is defined as the degree to which a person believes that using a particular system would be free of effort.

In a recent empirical study conducted on Factors Affecting Malaysian Mobile Banking Adoption, Cheahet. al., (2011) identified that Perceived Usefulness has a positive relationship in examining the Intention to adopt Mobile banking; which implies that if Mobile banking is useful and beneficial, users are more likely to adopt Mobile banking services. Similarly, Perceived Ease of Use was found to have a positive relationship with adoption of Mobile banking. In order to understand the Factors affecting the Intention to use, an Online Learning community argued that Perceived Ease of Use has a significant positive effect on Perceived Usefulness, and it is also the determinant with the strongest direct impact on Intention to Use.

The impact of Perceived Ease of Use has on Intention to Use is not as strong as that of Perceived usefulness and Previous Online Learning Experience (Liu et. al., 2009). It implies that when the system is easy to use, users feel it is more useful; therefore, they will have stronger intentions to use the Online learning community. In Healthcare related research, Wu et. al., (2007) showed that Mobile Healthcare System (MHS) self-efficacy and Perceived Ease of Use have very strong total effects on the behavioral intention in contrast, Perceived Usefulness moderately affect the behavioral intention. From above, the Technology Acceptance Model has been tested and proven to enhance the behavioral intention to use Mobile payments. Hence, the following hypotheses have been proposed:

- H₁:** *Perceived Usefulness has a direct positive influence on the Behavioral Intention to use Mobile payment.*
- H_{2a}:** *Perceived Ease of Use has a direct positive influence on Perceived Usefulness of Mobile payment.*
- H_{2b}:** *Perceived Ease of Use has a direct positive influence on the Behavioral Intention to use Mobile payment.*

3.2 Diffusion of Innovation Theory

This theory was developed by Rogers (1983). He explained the process of Innovation diffusion as one which is dictated by uncertainty reduction behavior amongst potential adopters during the introduction of technological innovations. Innovation Diffusion Theory (IDT) consists of six major components: innovation characteristics, individual user characteristics, adopter distribution over time, diffusion networks, innovativeness and adopter categories, and the individual adoption process. Arguably the most popular of the six components of IDT centers on the characteristics of the innovation itself. After analyzing a variety of previous innovation diffusion studies, Rogers (1983) singled out the following five characteristics of innovations that consistently influence the adoption of new technologies (Green, 2005):

Relative Advantage: This is the degree to which an innovation is perceived as better than the idea it supersedes by a particular group of users, measured in terms that matter to those users, like economic advantage, social prestige, convenience, or satisfaction (Robinson, 2009).

Compatibility: This is the degree to which an innovation is perceived as being consistent with the values, past experiences, and needs of potential adopters. An idea that is incompatible with their values, norms or practices will not be adopted as rapidly as an innovation that is compatible (Robinson, 2009).

Complexity: It refers to the degree to which an innovation is perceived as being complicated or easy to use.

Observability: It is watching an innovation and how it works to know if it is safe and beneficial for use. It is the degree to which the results of an innovation are observable to others.

Trialability: It refers to the degree to which an innovation may be sufficiently tested prior to adoption. This is the degree to which an innovation can be experimented with on a limited basis.

Although much research supports the TAM as an excellent model to explain the acceptance of IS/IT, it is questionable whether the model can be applied to analyze every instance of IS/IT adoption and implementation. Many empirical studies recommend integrating TAM with other theories (e.g. IDT, or DeLone & McLean's IS success model) to cope with rapid changes in IS/IT, and improve specificity and explanatory power (Carter & Belanger, 2005; Legris et. al., 2003). Technology Acceptance Model and Innovation Diffusion Theory are extremely similar in some constructs and also supplement each other. While Relative advantage is similar to Perceived Usefulness, Complexity is similar to Perceived Ease of Use; an integration of the two would provide a stronger model (Wu et. al., 2007).

The work of Lee et. al., 2011, that combined IDT with TAM in Employees' Intentions to use E-Learning Systems, showed that Compatibility and Relative advantages has significant positive effects on Perceived Usefulness; this implies that before the employees in an organization can adopt the e-learning systems, they need to be convinced that it meets their job needs or is relevant to their job and be assured that it would be useful to them. Rokhman, (2011) used Innovation Diffusion Theory to study E-government adoption in developing countries. The findings revealed that the degree of Relative advantage can be used to predict Internet users' probability to adopt E-government; Intention to use E-government services increases as Relative advantage increases, the users' would find it useful as it would enhance their efficiency and make it easier in interacting with government agencies, Intention to use E-government also increases as a Compatibility increases. It was also found that image and Ease of use are not good predictors of intention to use E-government.

From the literature review above showing that Innovation diffusion theory can be used to carry out a valid research, the following hypotheses can be proposed:

- H_{3a}:** *Compatibility has a direct positive influence on Perceived Usefulness of Mobile payment.*
- H_{3b}:** *Compatibility has a direct positive influence on Perceived Ease of Use Mobile payment.*

H4: Relative Advantage has a direct positive influence on Behavioral intention to Use Mobile payment.

H5: Complexity has a direct positive influence on Behavioral intention to Use Mobile payment.

3.3 Trust and Security

Trust and security is undoubtedly one of the most significant factors that influence consumer adoption of a new innovation that involves electronic transactions. Being able to convince Nigerian Consumers that Mobile payment will be free from fraud and would protect their privacy would be a critical success factor. Perceived security and trust in vendors and payment systems is a significant determinant of Mobile commerce success (Mallat, 2007). Shneiderman (2000) argues that improving positive security and privacy perceptions are most important for sustained activity in electronic commerce and more importantly Mobile payments.

Dahlberg et. al., (2008) proposed the Trust enhanced Technology Acceptance Model. The theoretical basis of their study premise on the TAM model to measure whether it provides comprehensive explanation for consumer decisions related to adoption of Mobile payments. The need for trustworthiness is not limited to Mobile payment service provider but includes merchants as well. Consumers would only want to conduct business with merchants who are established and are trustworthy. The construct Trust and security has been tested and proven to enhance the prediction of behavioral intention to use Mobile payments. Hence, it has been incorporated to enhance this study and the following hypotheses have been proposed:

H_{6a}: Trust and security has a direct positive influence on Perceived Usefulness of Mobile payments.

H_{6b}: Perceived Ease of Use has a direct positive influence on Trust and security of Mobile payments.

H_{6c}: Trust and security has a direct positive influence on Behavioral intention to Use Mobile payments.

3.4 Cost of Service

In the review of previous researches on Mobile payment adoption and acceptance, the cost of the service is an essential factor to its adoption. Dahlberg et. al., 2008, identified important adoption factors for Mobile payment services to be Ease of use, Trust and security, Usefulness, Cost, and Compatibility. Mallat, (2007) also identified it as an important factor that should be examined separately. Setting up a Mobile payment service that is transparent in the pricing and does not cost so much would improve the level of adoption. The costs may include direct transaction costs, fixed costs of usage and the cost of the technical infrastructure for the customer (Khodawandi et al. 2003). Nigerians will only want to use a service from a trusted Mobile operator or bank who will maintain a stable price over a period of time.

In order to test for validity, the following hypotheses have been proposed:

H_{7a}: Cost has a direct positive influence on Perceived Usefulness of Mobile payments.

H_{7b}: Cost has a direct positive influence on Perceived Ease of Use of Mobile payments.

H_{7c}: Cost has a direct positive influence on Behavioral intention to Use Mobile payments.

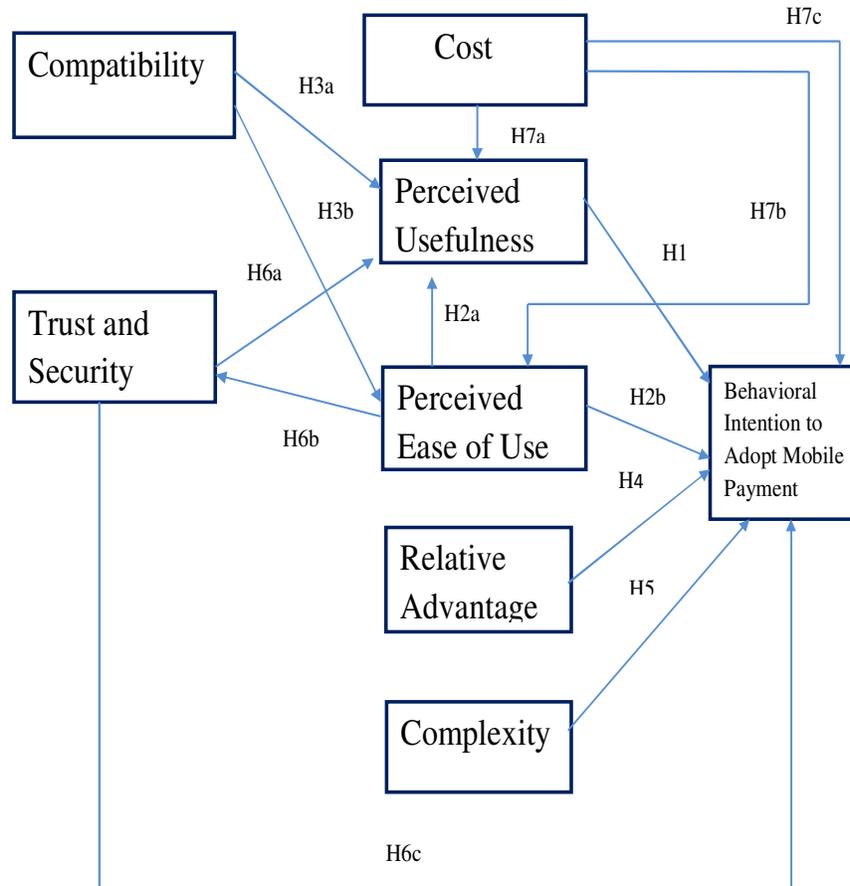


Figure 1: The Research Model

4. DATA COLLECTION INSTRUMENT

The Data collection Instrument used in this study is a survey questionnaire with 38 questions. In order to ensure content validity the questions were formulated from other research studies (Rogers, 1983; Chau & Hu, 2001; Davis et. al., 1989, Taylor & Todd, 1995). The items in the survey instrument were developed by adapting existing measures validated by other researchers in Mobile banking and Mobile payment environment, or by converting the definitions of the construct into a questionnaire format. Each participant was asked to indicate his or her degree of agreement using the 5 point likert scales: Strongly Agree, Agree, Disagree, Strongly Disagree and Neither Agree nor Disagree. The obtained data were analyzed based on the correlation and regression analyses using SPSS (Statistical package for social sciences) version 19.

4.1 Study Population

Since Mobile Payment/ Mobile Money is being tested in Lagos, Nigeria and the research study is geographically limited to Lagos, data was collected in few commercial centers such as Yaba, Victoria Island, Lekki, Ejibgo, Ikeja, and Lagos Island etc. The questionnaires were administered by personally approaching businessmen and women, students, at markets, malls, on the streets banks, at offices to participate in the research. The questionnaires were also translated to Yoruba and Nigerian Pidgin English for the unlearned. Transiting business men and women who are also non-residents of Lagos from areas such as Abuja, Epe and Ota, Ogun State were participants in this research.

4.3 Analysis of Data and Presentation of Results

The participants in this study were consumers' involving young and old adults, business men and women, bankers, casual workers, academics, traders, students who were

randomly selected. A total of 250 (Two hundred and fifty) questionnaires were distributed, 227 (Two hundred and twenty seven) were received giving a response rate of 90.8%, 14 (fourteen) were dropped due to missing data or invalid responses resulting in 5.6%, 9 (nine) were not returned which is 3.6% of the research population.

4.4 Demographic Variables and Mobile Phone and Banking Usage

197 respondents from Lagos; making 86.8% of the total data, 13 were from Ota, Ogun State which makes 5.7%, 6 from Epe; 2.6%, 1 from Abuja; .4% and 10 from other neighboring states in Nigeria making the remaining 4.4%, there were slightly more male respondents than females. 117 (51.5%) were males and 110 (48.5%) were females, 34.4% were between 20 and 29 years of age (young adults) which had the highest response rate. 28.2% of the

respondents have a minimum of high school certificate, 47.6% were either undergraduates or have a minimum of a BSc. Degree, 22.0% were masters' degree holders and 2.2% have a PhD. The results also showed that a fair 38.3% of the respondents were employed.

On the Mobile phone ownership, the results show that a large number of the respondents have and use a Mobile phone. 223 out of 227 respondents (98.2%) have a Mobile phone while the remaining 4 people (1.8%) do not possess a Mobile phone. 2.2% claimed to have been using the Mobile phones for less than a year, 37.0% between 1-5 years, 44.9% between 6-10 years, 10.1% have been using the Mobile phone for more than 10 years, 4.0% were not aware of how long they have had the Mobile phone. The missing system indicates that there was no entry for 4 respondents in this question. The Table below provides a detailed demographic profile.

Table 1: Demographic of the Respondents

	Frequency	Valid Percent
Location		
Lagos	197	86.8
Ota, Ogun State	13	5.7
Epe	6	2.6
Abuja	1	.4
Others	10	4.4
Gender		
Male	117	51.5
Female	110	48.5
Age group		
Less than 20	64	28.2
20-29	78	34.4
30-39	60	26.4
40-49	20	8.8
More than 49	5	2.2
Education		
High School Certificate	64	28.2
Undergraduate	108	47.6
Masters Degree	50	22.0
PhD	5	2.2
Employment		
Employed	87	38.3
Self Employed	32	14.1
Not-Employed	5	2.2
Student	98	43.2
Employed and student	5	2.2
Mobile Phone Ownership		
Yes	223	98.2
No	4	1.8
Duration		
Less than a year	5	2.2
1-5 years	84	37.0
6-10 years	102	44.9
More than 10 years	23	10.1
Unknown	9	4.0

Respondents were asked to indicate the rate at which they use any of the various form of Internet Banking and Mobile Banking system. Table 2 below provides a detailed frequency distribution of the respondents' e-banking and m-banking usage. 81.9% of the respondents were reported to belong to the banked populace (have bank accounts) while the 18.1% are the unbanked populace (have no bank accounts).

66.5% of the participants have never made use of the Internet banking services, 2.6% use the service weekly, 22.0% use it less than monthly and 8.8% make use of the service at least once in a month.

Table 2: Respondents' usage e-banking and m-banking services

	Frequency	Valid Percent
Bank Account Ownership		
Yes	186	81.9
No	41	18.1
Internet Banking Use		
Never	151	66.5
Less than Monthly	50	22.0
At least once in a Month	20	8.8
Weekly	6	2.6
Mobile Banking Use		
Never	185	81.5
less than Monthly	22	9.7
At least once a Month	15	6.6
Weekly	5	2.2
Mobile Payment Awareness		
Yes	179	78.9
No	48	21.1
Activity Performed		
Mobile Money transfer	11	4.8
Airtime transfer	11	4.8
Payment of bills and other services	1	.4
Mobile banking	11	4.8
Mobile Money and Mobile banking	4	1.8

4.5 Reliability Analysis

Reliability of the constructs was estimated using the Cronbach's alpha (α) to determine the internal consistency of the measurement items in the construct; it is the extent to which all of the items measure the same variable. As shown in the table 3 below, the Cronbach's alpha (α) values range between 0.584 and 0.902. For each of the constructs, they were above the 0.70 benchmark recommended by Bagozzi & Yi (1988) except Complexity with a value of 0.584.

Table 3: Reliability analysis of the constructs

Determinants	Number of Items	Cronbach's alpha
PU	3	0.713
PEOU	4	0.839
BI	3	0.731
RELATIVE ADVANTAGE	4	0.833
COMPATIBILITY	3	0.902
COMPLEXITY	2	0.584
TRUST AND SECURITY	3	0.683
COST	3	0.686

4.6 Correlation Analysis

Pearson's correlation analysis was carried out to explore the strength and direction of the relationship between the variables (dependent and independent) for each hypothesis. The results show all positive values. The Table 4 below shows that there is a positive relationship between Behavioral Intention to Use Mobile payment and its variables; Relative Advantage, Compatibility, Complexity, Trust and Cost.

Table 4: Correlations Analysis of the constructs

		PEOU	PU	BI	RA	Compatibility	Complexity	Trust	Cost
PEOU	Pearson Correlation Sig. (2-tailed) N	1 227							
PU	Pearson Correlation Sig. (2-tailed) N	.433** .000 227	1 227						
BI	Pearson Correlation Sig. (2-tailed) N	.456** .000 227	.364** .000 227	1 227					
RA	Pearson Correlation Sig. (2-tailed) N	.540** .000 227	.402** .000 227	.475** .000 227	1 227				
COMPATIBILTY	Pearson Correlation Sig. (2-tailed) N	.384** .000 227	.349** .000 227	.347** .000 227	.335** .000 227	1 227			
COMPLEXITY	Pearson Correlation Sig. (2-tailed) N	.278** .000 227	.269** .000 227	.245** .000 227	.375** .000 227	.316** .000 227	1 227		
TRUST	Pearson Correlation Sig. (2-tailed) N	.306** .000 227	.317** .000 227	.305** .000 227	.300** .000 227	.174** .009 227	.447** .000 227	1 227	
COST	Pearson Correlation Sig. (2-tailed) N	.443** .000 227	.351** .000 227	.418** .000 227	.493** .000 227	.395** .000 227	.353** .000 227	.477** .000 227	1 227

** . Correlation is significant at the 0.01 level (2-tailed).

4.7 Hypothesis Testing

Multiple Regression analysis is the technique employed to address how well a set of variables is able to predict an outcome and which variable in the set of variables gives the best outcome in this study. It is the technique that was employed to test the hypothesis. In the first Multiple Regression test, the Beta (β) value with the largest coefficient is .234 (Relative Advantage); it is the variable that makes the strongest unique contribution in explaining the Behavioral Intention to Use. Perceived Usefulness ($\beta = .113$, $P < 0.01$), Perceived Ease of Use ($\beta = .197$, $P < 0.01$), Relative Advantage ($\beta = .234$, $P < 0.0005$) and Cost ($\beta = .144$, $P < 0.05$) made a unique and statistically significant contribution to the prediction of the Behavioral Intention to Use Mobile payment.

With Sig = .267 ($P > 0.1$) and Sig = .845 ($P > 0.1$) Trust and Security and Complexity respectively do not make a significant unique contribution to the prediction of Behavioral Intention to use Mobile payment. Hence, H1, H2b, H4 and H7c are supported while H5 and H6c were not supported. In order to determine the impact of the following variables such as Trust, Compatibility, Perceived Ease of Use, Cost on Perceived Usefulness, another test was conducted. Perceived Ease of Use ($\beta = .278$, $P < 0.0005$) Trust ($\beta = .163$, $P < 0.05$) and Compatibility ($\beta = .183$, $P < 0.0001$) made a unique and statistically significant contribution to the prediction of the Behavioral Intention to Use Mobile payment. With Sig = .287 ($P > 0.1$), Cost does not make a significant unique contribution to the prediction of Perceived Usefulness. Hence, H2a, H3a and H6a are supported while H7a was not supported.

To further determine the factors that affect Perceived Ease of Use of Mobile payment, the impact of Compatibility and Cost were determined. H7b and H3b confirmed that Compatibility ($\beta = .247$, $P < 0.0005$) and Cost ($\beta = .346$, $P < 0.0005$) positively affect Perceived Ease of Use of Mobile payment. Finally, the result of the single linear regression between Perceived Ease of Use and Trust shows that Trust ($\beta = .306$, $P < 0.0005$) made a unique and statistically significant contribution to the prediction of the Perceived Ease of Use of Mobile payment. Hence, H6b is supported.

5. CONCLUSION

From the research conducted, it was noted that the level of adoption of consumers in Nigeria is promising and this can be linked to the several advantages that is associated with the use of Mobile payment such as ease of use, ease of access, reduced time of transaction etc. Nigerians also appreciate the benefits of the introduction of the Cashless Economy via Mobile payment but there are still some factors that can hinder its adoption by the Nigerian populace. The Mobile operators need to be aware that although there is inadequate infrastructure to cover the entire country at kick-off, there is also the need to establish relationships with their prospective users at the pilot phase; they need to enroll trustworthy agents that are handling the money.

Relative Advantage was found to be the strongest significant determinant of Intention to Use ($\beta = .234$) and this supported the studies of Pikkarainen et al., (2004) Venkatesh & Davis (2000) and Cheah et al., (2011). Due to the ease of mobility of a Mobile phone and the need for a convenient way to perform financial activities, the relative advantage was considered the most significant factor. For example in the areas where people have to travel some distance to have access to an ATM machine or a bank branch and also stand in long queues in order to make payment or a withdrawal, Mobile payment would help to save time and cost.

Perceived Ease of Use was also found to be the most significant construct affecting Perceived Usefulness ($\beta = .278$). Compatibility emerged as the second predictor of Perceived Usefulness and Perceived Ease of Use. From the study, it can be concluded that those who have used and are comfortable with Internet banking and Mobile banking and other similar technologies (the technology savvy individuals), will likely be the first to try the service and encourage their friends, family friends. Trust and Security had a significant effect on Perceived Usefulness ($\beta = .163$), issues such as Confidentiality, Integrity, Authentication,

Authorization and Non repudiation affects how the consumers perceive the usefulness of the solution. If the service providers can provide a service that would not lead to an invasion of privacy, with reduced financial transaction error rates etc. the journey into the cashless Nigeria would be successful.

REFERENCES

- Bagozzi, R.P. & Yi, T. (1988), on the evaluation of structural equation models, *Journal of the Academy of Marketing Science*, 16(1): 74-94.
- Carter, L., & Belanger, F. (2005). The Utilization of e-government services: Citizen trust, innovation and acceptance factors. *Information Systems Journal*, 15(1): 5-25.
- CBN (2011), Regulatory Framework for Mobile Payment Services in Nigeria.
- Chau, P.Y.K., Hu, P.J.H. (2001). Information technology acceptance by individual professionals: a model comparison approach, *Decision. Science*. 32 (4): 699–719.
- Cheah, C.C., Chuan, A., Sim, J.J. Oon, K.H. & Tan, B.I. (2011), Factors Affecting Malaysian Mobile Banking Adoption: An Empirical Analysis, *International Journal of Network and Mobile Technologies*. ISSN 2229-9114 2(3).
- Dahlberg, T. (2008). Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications*. 7(2): 165-181.
- Davis (1985). A Technology Acceptance Model for empirically testing new end-user Information Systems: theory and results unpublished dissertations.
- Davis, F.D., Bagozzi, R.P., Warshaw, P.R. (1989). User acceptance of computer technology: a comparison of two theoretical models, *Management Science*. 35 (8): 982–1003.
- Dube, T., Chitura, T., Chitura, T. and Langton, R. (2009), Adoption and Use of Internet Banking in Zimbabwe: An Exploratory Study, *Journal of Internet Banking and Commerce*, 14(1).
- Green I.F.R. (2005), The Emancipatory potential of a new Information System and its effect on Technology Acceptance, Unpublished Ph.D thesis, Pretoria: University of Pretoria..
- Lee, Y.-H., Hsieh, Y.-C., & Hsu, C.-N. (2011). Adding Innovation Diffusion Theory to the Technology Acceptance Model: Supporting Employees' Intentions to use E-Learning Systems. *Educational Technology & Society*, 14 (4): 124–137.
- Legris, P., Ingham, J. & Colerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information and Management*, 40, 191-204.
- Liu, I., Chen, M.L., Sun, Y.S., Wilbe, D., & Kuo C. (2010), Extending the TAM model to explore the factors that affect Intention to Use an Online Learning Community, *Journal of Computer and Education*, 54: 600-610.
- Mahdi, S. and Mehrdad, A. (2010), E-Banking in Emerging Economy: Empirical Evidence of Iran, *International Journal of Economics and Finance*, 2(1): 201-209
- Mallat, N. (2007). Exploring Consumer Adoption of Mobile Payment: A qualitative study, *Journal of strategic Information Systems*.
- Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., Pahlila, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model, *Internet Research*, 14(3): 224-235.
- Robinson L. (2009), A Summary of Diffusion of Innovations. http://www.enablingchange.com.au/Summary_Diffusion_Theory.pdf (Access online, May 2012)
- Rogers E.M, (1983). Diffusion of innovations. Free Press: New York.
- Rokhman Ali. (2011). E-Government Adoption in Developing Countries; the Case of Indonesia. *Journal of Emerging Trends in Computing and Information Sciences*, 2(5), 228-233.
- Shneiderman, B. (2000), Designing trust into online experiences, *Communications of ACM*, 43: 34-40.
- Taylor, S & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2): 144–176.
- Venkatesh, V., Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies, *Management Science*, 46(2): 186-204.
- Wu Jen-Her, Wang Shu-Ching, Lin Li-Min. (2007). Mobile computing acceptance factors in the healthcare industry: A structural equation model. *International journal of medical informatics* 76,66–77.